

karmantha

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In Our Next Issue

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- * Substitute for maldivian fish
- * Good management
- * Chutneys

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Colombo district : potential for industrial development

By Philip L. Ramenaden

Since Colombo is the capital of Sri Lanka, it has always been the hub of commercial activity in the island. Therefore it is not surprising that there are numerous public as well as private sector industrial and business enterprises concentrated in the region. However despite this concentration, there is still much scope for further industries to be set up in this area. Our studies have revealed that both demand-based and raw material-based small scale units could be set up on a profitable basis. However, in the case of raw-material based units, it should be remembered that only those that have a steady demand would prove viable.

Apart from the Colombo district being densely populated, it is also not endowed with a variety of natural resources that could be commercially exploited. However this does not mean that it is devoid of natural resources, nor that in spite of the preponderance of industries already functioning in the region, that other profitable ventures cannot be set up. But, if one is contemplating on setting up a raw-material based industry, it would be best to consider not only the availability of the required raw matter, but also whether there is a demand for the product to be manufactured.

This article giving in very broad outline the scope for industrial development in specific regions is the first of a series that would be published in the Karmantha. In this series we hope to give the industrial potential in various districts so that it would enable investors to identify the areas and fields in which viable ventures could be set up. This article is based on a report compiled by the IDB's Colombo Regional Office. We wish to thank the various Government officials, Corporation staff and all others who furnished data.

Minerals

Admittedly there aren't many mineral resources available in the region, but of those that are available, there is no scarcity of clay, sand and granite and these are obtainable in commercially exploitable quantities.

Clay

The clay found in the region is of two varieties—the ordinary or pottery variety and the ceramic clay. The 'ordinary' clay is found in profusion in the Bomiriya, Ranala, and Kaduwela areas while the ceramic variety is found predominantly in the Boralesgammuwa and Wewala areas.

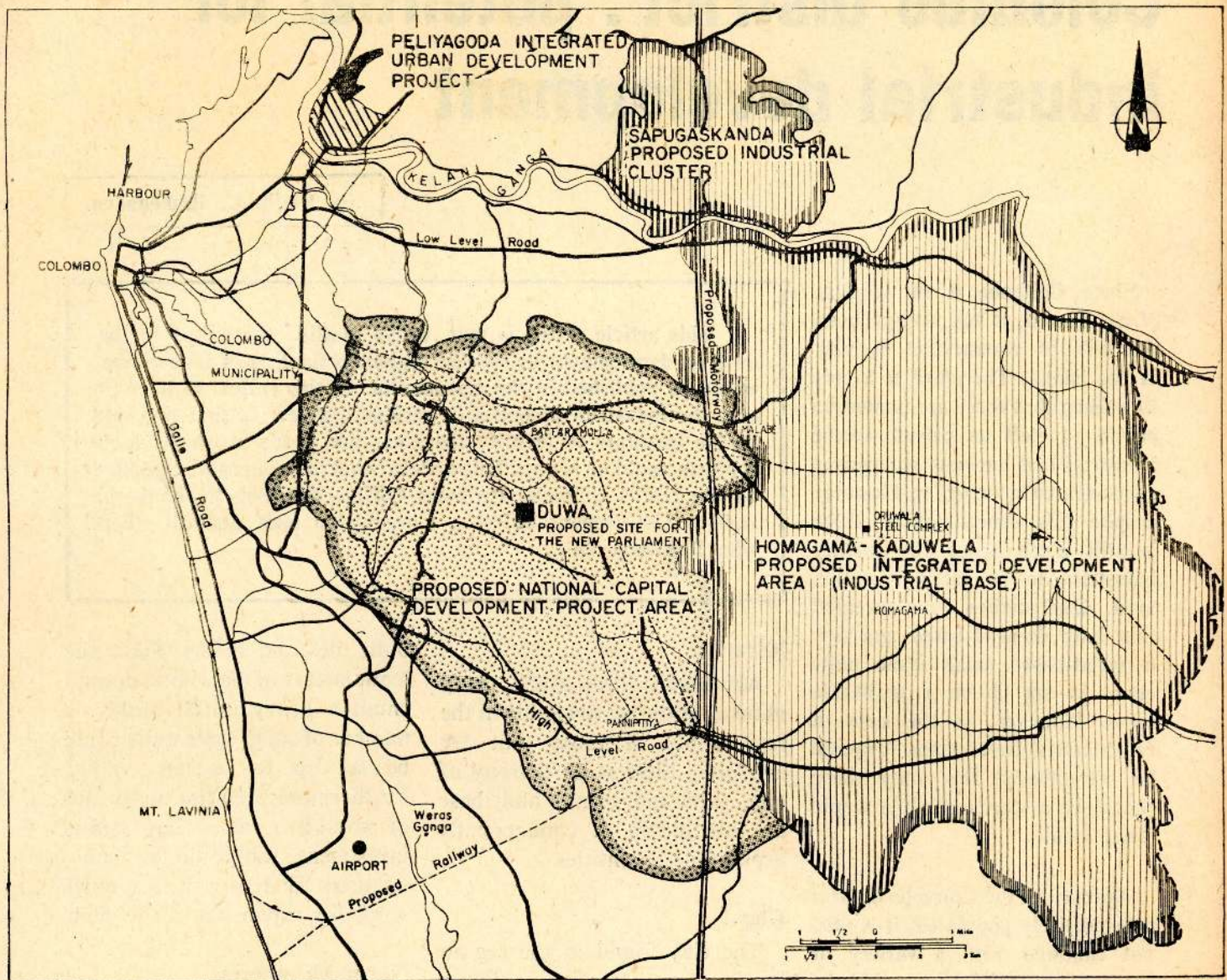
At present ordinary clay is being utilized fairly widely for the manufacture of tiles, bricks and pottery. With today's flurry of building activity there is an unprecedented heavy demand for

both tiles and bricks. Since the manufacture of these items doesn't entail a heavy initial outlay, a number of small scale units could be set up to operate viably. Furthermore, even flat tiles which of course, need a big capital investment, too could be manufactured. Therefore there is much scope for expansion in this field.

Not much progress

As far as the pottery industry, which manufactures kitchen-utensils, ornaments and other utility ware, is concerned, much progress has not been made in the methods of production. Therefore, even today, the age old manufacturing processes of our forefathers are being used with little or no change. Therefore, even in this field, if modern technology and mechanisation are introduced, it would not be difficult to set up a number of viable small scale units.

SRI JAYAWARDHANA PURA PROJECT AREA AND PROPOSED INDUSTRIAL AREAS

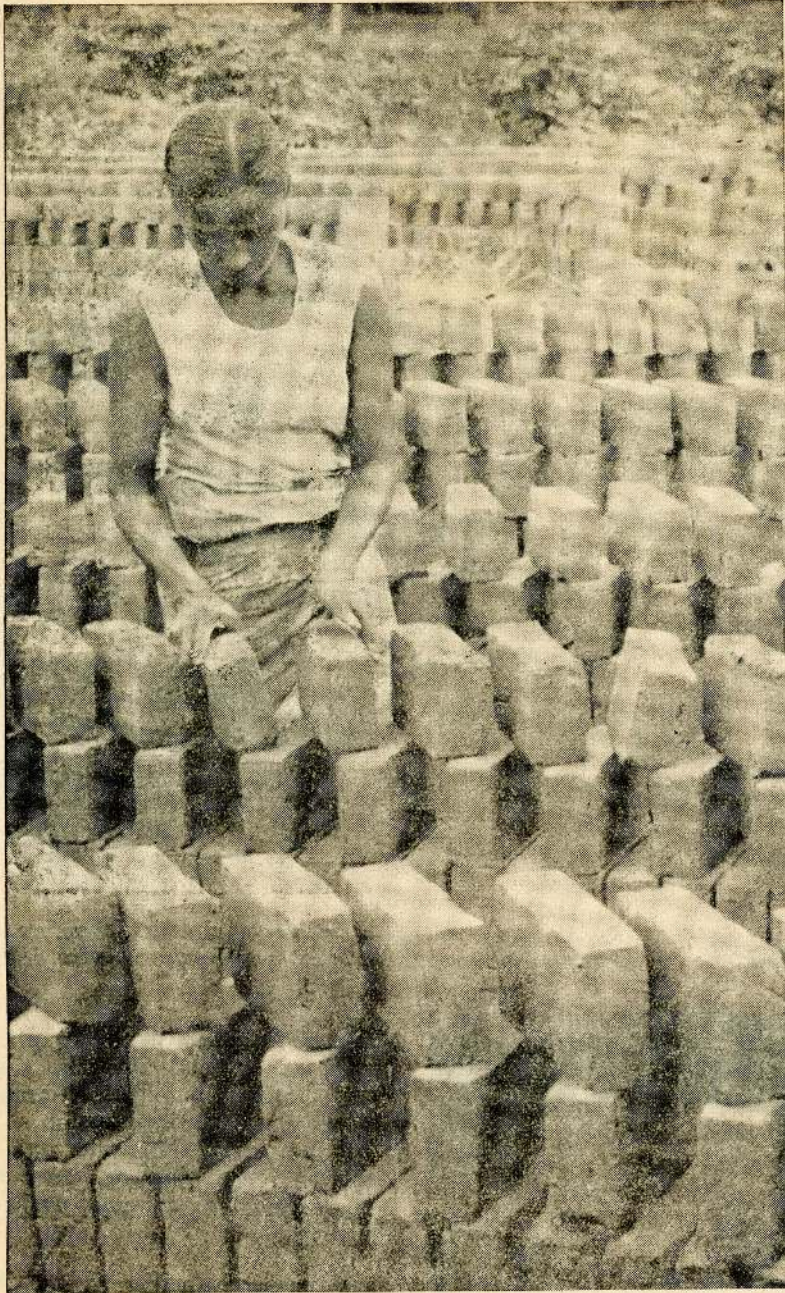


As far as the ceramic clay is concerned, almost the entirety of it is at present being used by the Ceramics Corporation. Since this variety of clay is abundantly available and the Corporation does not have a monopoly in its use, the tiny sector too could utilize it profitably.

If small scale units are set up to manufacture kitchen ware, utility utensils, ornaments and

toys using this clay, a very lucrative business could be carried on because this clay would enable the quality of the products to be improved. The ceramic clay has an attractive quality when compared to the ordinary variety, therefore it would naturally attract the consumer thus giving rise to a better market demand. Products made from this clay would also have a demand abroad. At

present several small scale units are engaged in manufacturing ornaments and knick knacks using this clay but largely, these items are crudely made and have no finish. Therefore if some enterprising entrepreneurs are willing to produce quality goods like the imported lavender ladies, miniature models of dogs, horses etc., there is no doubt that this venture would be a lucrative one.



At present due to the building boom, there is a big demand for bricks and tiles.

However apart from manufacturing ceramic ware and kitchen utensils, this clay could also be utilized to manufacture distemper. Since at present there is a big demand for paints and distemper, very small units needing very little financial outlay could be set up in this field.

The IDB has information regarding the technical processes involved in the manufacture of paints and distemper and it would assist the tiny sector to adapt the technology to suit needs.

Thus for small scale entrepreneurs looking for viable ventures

that do not need a heavy capital outlay, these are very good areas of investment.

Sand

Sand dredging has been carried on fairly extensively at several points along the banks of the Kelani and the sand has been used mainly for construction purposes.

Here again due to the present demand for construction material, very viable, labour intensive small scale projects could be set up in this field.

However before venturing out, it would be best to investigate the possibilities.

Granite

Granite in commercially exploitable quantities are available in the Arangala, Piliyandala and Padukka areas and has been quarried fairly systematically. But due to the present heavy demand for crushed metal, it would be possible to set up small scale crushing units in the region.

At present there are about 18 mechanised granite crushing units already in operation in the district, but these units have not been able to satisfy the demand. The IDB has, therefore provided assistance to a number of entrepreneurs to set up crushing units. Therefore those interested in setting up industries in this field could always appeal to the IDB for assistance.

Peat

With the present fuel crisis facing us, there is also a possibility of setting up units, to utilize the peat that is available in the Muthurajawela and other areas.

Experiments have shown that numerous chemicals may be obtained from peat using solvent extraction and these could well be used as inputs for other industries. For further details on Peat see Karmantha October 1977.

Silica

Silica is also available in certain areas of the district. However, it would be best to investigate the possibilities before venturing out into this field.

Therefore it is evident from the foregoing that even though the Colombo District is not richly endowed with mineral wealth, it has potential and it is possible for viable projects to be set up using the resources available. There is sufficient potential for tile and brick manufacturing projects, crushed metal units and ceramic ware units to be profitably set up among other industrial ventures. The tile and brick manufacture is a very good area for entrepreneurs looking for medium-scale ventures.

Sea

However, even though there is a paucity of mineral resources in the district, there is yet another field that could be exploited very profitably—and that is the sea. This region is fortunate to have a coastal belt extending to about 18 miles from the Kelani delta to the Moratu river delta.

Though there are no other marine resources other than fish, very lucrative businesses could be carried on in this field. At present, a fairly well established fishing industry is being carried on, in the Dehiwela and Moratuwa areas. But the demand for fish is so steep that production cannot cope with it.



There is a heavy demand for batiks and handloom products, therefore it would not be difficult to set up low capital investment ventures in this field.



Pottery and clay utensils are still being made in the age old manner but if modern techniques are used, a lucrative industry in this field could be set up.

Judging from present day fish prices it is obvious that viable units could be operated in this field. At present there is no excess production at all for commercial utilisation such as canning, processing etc. once the requirements for domestic use have been met.

Therefore, whether it be for domestic consumption or for export, there is very great potential in this field.

However, apart from the fishing industry itself, there is potential for ancillary products to be manufactured. Thus very lucrative industries for the manufacture of fishing gear rods, nets and hooks etc., fishing boats and various other requirements of the industry could be set up. Up to now, this field has not been sufficiently exploited, therefore a resourceful entrepreneur could explore the possibilities of setting up a venture in this area.

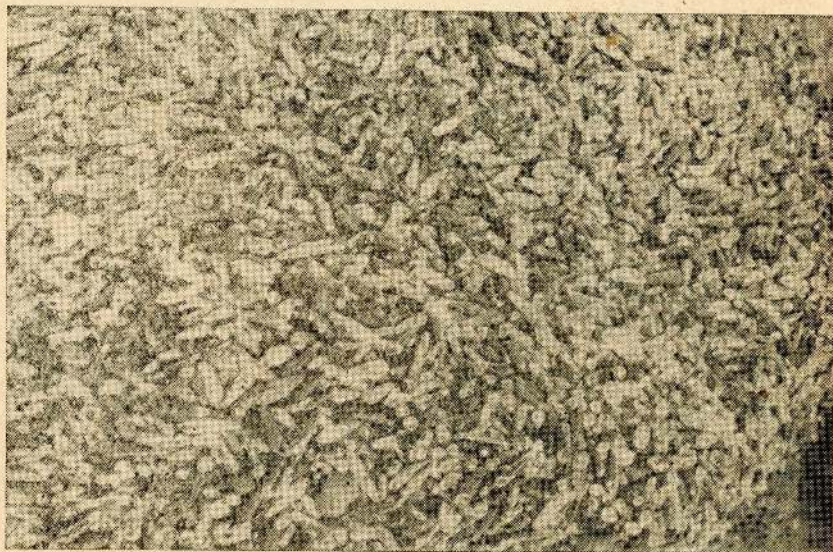


PRAWNS and FISH

Even though the seas around us can be exploited very lucratively, there is also very great potential in inland pond fishery and inland pond prawn culture. Today there is a big demand for prawns both at home and abroad and if prawns are cultured in the large extents of waterlogged land in Mutwal and Muthurajawela, a very profitable export trade could be carried on in this product.

Furthermore, pond fishery could be carried on at a cottage, small or medium scale depending on the availability of capital and land. However, whether it be for the domestic market or for export, or whether it is being carried on at a cottage, small or medium level, this is one project that is bound to be a success. Some of the prawn exporters get as much as \$5 per pound today, thus if prawn is cultured in ponds or inland waterways, this could be very lucrative while at the same time it would call for a very small capital outlay. Details of this could be obtained from the Department of Fisheries at Galle Face Court. An article on pond fishery was carried in the September issue of the Karmantha.

With the FTZ getting into stride, there is a demand for articles to be manufactured under sub-contracts.



The flurry of building activity has created a need for lime. This industry is being carried on in the western region, however there is still scope for expansion in this field. But before venturing out, it would be best to investigate possibilities especially because of the concern over sea erosion.

BLOCK ICE

Going hand in hand with the fishing industry is the need for ice in order to preserve the catch. Therefore it would be possible to set up block ice manufacturing units. Details for setting up this industry could be obtained from the IDB. An article on block ice manufacture was carried in the March issue of the Karmantha.

ANIMAL RESOURCES

At present, animal husbandry is not being carried out in an organised manner in this region though there are several dairies and poultry farms. If the animal resources are properly organised or if projects are set up in this field, it would be possible to turn them into lucrative ventures. In the region encompassing Hanwella, Homagama, Kesbewa and Kaduwela, there is no organised animal husbandry being carried on, therefore it would be possible to utilise the large extents of land available to set up poultry farms or dairies.

However though there is potential in this field, it would be best if investigations are made before venturing out. Details regarding animal husbandry could be obtained from the Livestock Development Board.

COCONUT

In the Hanwella, Homagama, Kesbewa and Kaduwela areas, there is a considerable amount of coconut, though the crop as such, is scattered. Therefore, coconut based industries as such, are not being carried on. Thus it is possible for small scale units based on coconut products such as coir, dessicated nuts, oil extraction etc. to be set up. For entrepreneurs looking for profitable low investment ventures, this is an area which should be investigated. In the Siyane Korale especially, there are extensive coconut plantations. Therefore it would be possible to set up low investment ventures in the following fields:

Coconut Cherry Cubes

The IDB has already drawn up plans to give assistance to those who are interested in setting up ventures in this field.



"There is potential for demand based items especially electric goods, motor vehicle and machinery spare parts."



There is a good export market for frozen marine products such as prawns, eels and lobsters. This is a field that could be exploited further.

Coconut Shell Charcoal

With the present fuel crisis there is a big demand for this product

Details regarding manufacture could be obtained from the IDB or from the July issue of the Karmantha.

Coir based industries such as brooms, brushes, mattresses carpets and rugs etc. are low investment ventures. Coir Mills and 'Ekel brooms' and handicrafts etc. too could be set up in this area.

Details regarding these industries including the capital required could be obtained from the Ministry of Small Industries.

RUBBER

In the areas mentioned above, i.e. Hanwella, Homagama, Kesbawa and Kaduwela, another resource that is significant, is rubber. This is an industry that is being carried on fairly extensively but there is still more scope for industries to be set up. Even though there are a large number of units based on the utilisation of rubber itself, still not much development has taken place in this field. According to a recent statement of the Minister of Industries and Scientific Affairs, Mr. Cyril Mathew, of the 150,000 tonnes of rubber produced in the entire island, not more than 2% is consumed locally.

Therefore with advanced technology and modern methods of production, viable small scale units could be set up to manufacture sophisticated, good quality rubber products. In fact, the IDB hopes to set up common service centres to give assistance to those interested in embarking on this field. The IDB also hopes to expand its Rubber unit to enable it to provide advanced technology and information to those interested.

At present the IDB's rubber unit provides rubber compound and training to personnel engaged in the manufacture of rubber products.

Thus it could be seen that there is much potential in this field. Though there are about 225 small scale units engaged in manufacturing rubber based goods, not much progress has been made in utilising the raw material. Not many of these units in operation at present, have made any attempts to utilise modern technology to improve the quality of their products or to manufacture sophisticated articles.

However apart from the utilisation of the raw material, there is also scope for low investment small scale units to be set up to manufacture accessories and implements required by the rubber estates themselves. These products such as trays, gutters, scoops, buckets etc. that are regularly needed by rubber estates could be produced either by small units or on a cottage basis.

PADDY

In the region under purview there is also a considerable amount of land under paddy cultivation. Therefore there is potential for paddy based industries to be set up. For example, paddy milling units could be set up in this region. Details regarding potential could be obtained from the Paddy Marketing Board and also from the Karmantha of April 1979.

Furthermore, other industries that are paddy-based too could be set up. However before venturing out on these, a market survey in this field should be undertaken, for though there is potential, still, no market evaluation in this field has been made.

VEGETABLES


Apart from paddy, there are also various other crops and vegetables that are already being grown in this densely populated region. The vegetables that are grown, are concentrated at present in the low lying areas in and around Grandpass. However, if one is enterprising enough, more of this type of agriculture could be conducted in other marshy areas of the region.

Jak and Breadfruit

Furthermore jak and breadfruit are freely available in the area, however, no organised effort has been made so far to market them on a profitable basis. Since these are largely seasonal, during glut, they are not properly utilized. If, for example, an entrepreneur could set up a canning unit, to utilize the large quantities of ripe jak available during the season, there would be a lucrative export market especially in the Middle East. Apart from the canned jak—Waraka and Vella—even the fresh fruit could be marketed on an organised scale both locally and abroad.

Even the breadfruit would make an ideal 'chip'—it could be baked or fried in the manner of potato chips and marketed. If attempts are made to sun-dry the mature jak and make "Chips" it would become very popular. These could be mixed with potato, bread fruit, and manioc. Since there is no shortage of jak or breadfruit, a variety of uses could be made from these products.

At present with a large number of Sri Lankans employed in the Middle East there 'wouldn't be any difficulty in finding a market for these products either in their



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natural form or processed. Furthermore since the ban on the export of vegetables has been lifted, many of our vegetables especially spinnach, melons, jak and breadfruit could be airlifted at a comparatively low cost to these Middle East kingdoms.

FRUITS

Even though this region is very densely populated and there is no possibility of having large orchards, still there is no dearth of delicious fruits in the area. Most of this fruit is grown on a home garden basis for domestic use. But again, during season, if an organised effort is made, not only could they be pickled, canned, bottled and made into jam, but they also could be exported fresh.

The various scattered banana groves, the plentiful papaws that are now not even harvested, the mangoes, etc. that are freely available could be collected and exported. After all, one must remember how the banana republics have been exporting their produce to England and the Continent long before the advent of the airplane. Therefore it would not be difficult for an enterprising entrepreneur to set up a viable trade in this field.

Apart from the export market with the present emphasis on tourism if attempts are made to systematically "service" this trade alone, without much capital investment, a steady income could be ensured.

FLOWERS

Another avenue for setting up a lucrative business would be the florist or flower industry. Here too, this industry could be conducted on a home garden basis. Roses and orchids, apart from the other blooms, have a ready market both locally as well as abroad. Thus, those with green fingers could venture out into this field.

WASTE MATERIAL

Furthermore the rubber compound and steel wire used for reinforcing tyres at the Tyre Corporation too are available as waste material.

These waste products especially the steel wire, could easily be used by small scale industrialists to manufacture padlocks and keys, steel springs, nails and various other utility goods.

Today with the Free Trade Zone getting into stride, there are other vistas open to those who are enterprising enough. There are various opportunities available for sub-contracting. Most of the larger joint ventures in the FTZ need a variety of goods, furniture, and other requirements.

These could be supplied by small scale manufacturing units. Spare parts, electroplating, electrical accessories and fittings, lathe work, components etc. could be turned out by the tiny sector. Furthermore, water taps, pipes, etc. too could be manufactured by these units.

Another commodity that is freely available in a densely populated area, is man-power. In the FTZ alone, today with the various units, working at capacity, there is a heavy demand for skilled labour. Carpenters, masons, and electricians are snapped up in numbers. If sub-contracting agencies are set-up or an agency bureau capable of organising the available skilled technicians could be formed, it would become a viable project. Furthermore typists and stenographers too are in great demand at these organisations, some of these firms are willing to pay between Rs. 1,000/- to Rs. 1,600/- per month to a good steno-typist; while the garment industries are prepared to pay as much as Rs. 900/- to Rs. 1,600/- for qualified seamstresses.

APART FROM THIS, THERE IS ALSO SCOPE FOR HAND-LOOM BASED GARMENT and finished product units in this region. However, if one hopes to venture into this field, one has to ensure that the products are of good quality and not the slip-shod affairs that were on offer up to recently.

Salu Sala and Lak Sala have received several trade inquiries for good quality hand-loom garments as well as for batiks from Norway, Sweden and Italy. However, only those willing to use good quality dyes and cloth should venture into this field because it is very competitive. Apart from this, there is an untold potential in the field and if one is artistic, and painstaking enough, the sky is the limit.

OTHER RESOURCES

Apart from the fields mentioned, there are other areas too that could be ventured out on, for example, the ample bamboo groves that line the Kelani river banks could also be utilised to set up viable small scale units. At present this bamboo is used only as scaffolding but as shown in the Karmantha (June edition) exquisite furniture and handicrafts could be turned out from them.

Even the 'pann' or reeds and other grasses growing wild in the region could be utilised to turn out baskets, bags and various other utility items that are much sought after by tourists here and abroad.

CONCLUSION

Therefore when the overall industrial position in the district is considered, it is evident that though there is a preponderance of commercial and public sector factories and industries in the area, there is much scope for small scale units to be set up.

Conditions are most favourable for raw material-based industries having a steady market such as bricks, tiles, crushed metal, good quality household utensils, paints etc. to be set up on a small scale. Furthermore there is also potential for certain types of demand-based items such as those required for rubber estates, fishing gear, agricultural implements, school equipment, chalk and slates etc. to be manufactured.

Apart from these, a number of labour intensive industries requiring a very low investment, could also be set up to use raw material that is freely available in the area and manufacture good quality pottery and ceramic ware, coconut based products like mattresses, carpets, rugs, coir ropes etc.

Clove oil: a lucrative field for exploitation

By Mrs. G. Abeydeera

In the recent past, due to proliferation of synthetic chemicals the relative share of natural essential oils in the steadily growing consumption of fragrances and flavourings the world over has declined.

There are many reasons that have been adduced for this decline but among these, irregularity of supplies, and inadequacy of quality have been cited as the main causes for the fragrance and flavouring houses in the consuming countries to either use their own facilities to produce certain quantities and varieties of essential oils from imported aromatic raw material or to synthesize them.

Increasing costs

However, today, owing to steadily increasing costs of labour, raw materials, power and waste disposal, these organisations appear to be increasingly interested in obtaining their necessities from countries of natural essential oil origin.

Widely used

In spite of the steady inroads that have been made by synthetics, clove bud oil is still widely used in the manufacture of perfumes, soaps, bath salts, etc. It is also used as flavouring agent and preservative for food products, oral preparations such as dentrifices, gargles and chewing gums. Medically, clove oil is used as an expectorant, internal anti-spasmodic antiseptic anti-neuralgic, counter irritant and as an antiseptic mild anaesthetic in dentistry.

Furthermore, the lower priced stem and leaves oil offers an excellent starting material for the isolation of eugenol which could be converted into isoeugenol and a very high grade of vanillin. However the clove leaf oil is favoured for the isolation of eugenol as it is cheaper.

Exports

The chief exporters of clove oil are Malagasy Republic, Zanzibar and Indonesia, while the chief importers are USA, UK, France and Japan.

However, although the developing countries which are the principal suppliers of a great number of natural essential oils, are unlikely to regain very much of the ground lost by individual essential oils to synthetic material, still, as a result of the present development vis-a-vis spiralling costs, labour problems etc, an enterprising outfit might find the opportunity of setting up a viable project in this field especially in clove oils.

The clove tree was introduced to Sri Lanka over a hundred years ago and it is found indiscriminately scattered except for a few small holdings of 100 to 200 trees grown from seedlings which are planted among other trees. Thus today there aren't any clove plantations as such though, it could be grown in a variety of regions. Clove trees thrive even upto altitudes of 1,600 feet and in areas that are about 50 miles from the sea.

Not Produced

Though cloves are available in Sri Lanka, these oils are not produced in commercial quantities at present. If quality and regularity of supplies could be ensured, we too could get a foothold on this very lucrative trade. Furthermore due to irregular quality, most consuming countries fight shy of obtaining oil distilled in the producing countries, therefore it is essential that a very high quality is maintained.

Although it is not possible to quantify demand, there is market interest in the product processed to certain specifications in the producing country. Thus Sri Lanka could build up a market if both marketing and technical preparations of the oil could be handled through cooperation and collaboration with the interested firms in the consuming countries.

From the bud

Clove oil is obtained from the bud, the stem and even the leaves and the main constituent of the oil is eugenol.

The oil yield as well as its physico-chemical properties depend very largely on the origin, quality and the condition of the cloves prior to distillation. The oil is distilled in a number of ways depending on the purpose for which it is required, ie, whether whole or crushed cloves, are used, and the type of distillation—water, water and steam or direct steam distillation is utilized. If whole cloves are distilled, the forces of hydro-diffusion play a

considerable role and the oil distilled would consist chiefly of eugenol.

Water distillation which is still carried on today on a small scale, yields the finest oils for perfumery and flavour purposes. By using this method of distillation oil containing 85 to 89 percent eugenol by volume could be obtained.

By using the dry steam distillation method, on the other hand, the so-called 'strong oils' containing 91 to 95% volume, could be obtained. In the United States, practically all the clove bud oil is obtained by direct steam distillation of imported cloves. Today, the USA prepares eugenol, isoeugenol and vanillin from the lower priced clove stem oil or from leaf oil.

Depending on the size and insulation of the still, it requires about 8 to 24 hours to distil oil from one batch of cloves. Since the clove oil tends to run off the condenser during distillation, it is collected in two fractions, one lighter than water, the other heavier. In order to obtain the best oil, both these fractions must be mixed. If the distillation waters are re-distilled (cohobated) all the remaining oil from the spice could be obtained.

However Sri Lanka should also investigate the possibilities of distilling clove leaf oil on a commercial basis because there is a scarcity of clove oil in the market and under the circumstances, there would be scope for exporting this product. If we are to make any headway in this field however, we must ensure that the quality of our product is comparable to the Malagassy oil and that it is supplied without any adulteration whatsoever.

Marketing and details of export opportunities could be had from the Export Promotion unit at Galle Face Court, Colombo 2.

Constituents of Clove Bud Oil	Constituents of Clove Stem Oil
Eugenol 78-98 %	Same as of Clove Bud Oil
Acetyl Eugenol up to 7%	„
Caryophellene	„
Traces of Vanillin	„
Benzyl Alcohol	„
Methyl Amyl Carbinol	„
Valeraldehyde	„
Salicylic Acid	„
Methyl Benzoate	„
Methyl Amyl Ketone	„
Methyl Heptyl Ketone	„
Dimethyl Furfural	„
Properties of Clove Bud Oil	Properties of Clove Stem Oil
Specific Gravity 1.044-1.069	Specific Gravity 1.04-1.07
Optical rotation upto -2.5°	Optical Rotation upto -1.5°
Refractive Index 1.528-1.540	Refractive Index 1.53-1.54
Eugenol 80-95%	Eugenol 82-95%
	The odour of this oil is inferior to that of Clove Bud Oil

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Bounce to Rubber Industry

By W. C. R. de Soysa

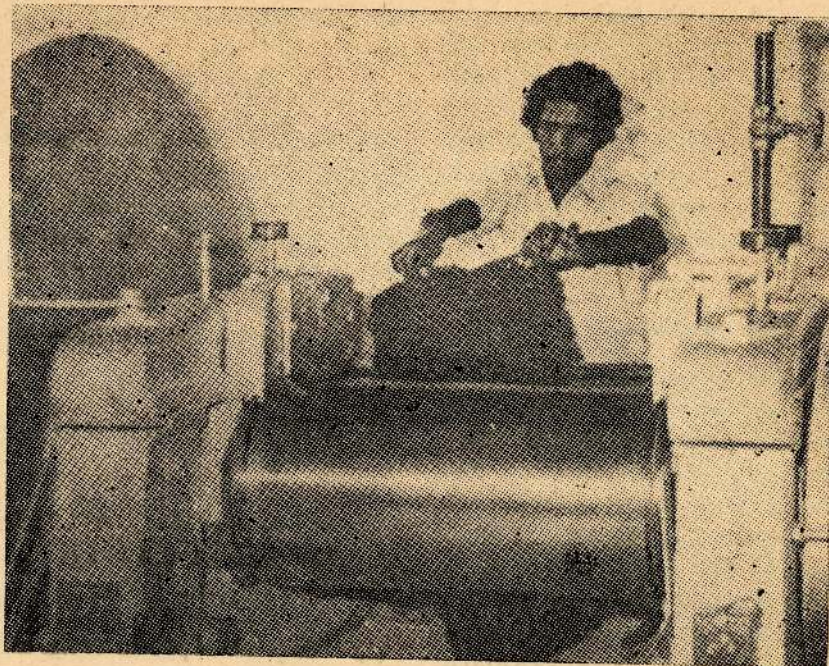
Rubber has been one of our cash crops for many years and today, next to tea, it is our largest traditional foreign exchange earner. Apart from Sri Lanka, the other main natural rubber producing countries in the world are Malaysia Indonesia and Thailand.

Though tremendous progress in the field of rubber began ever since the vulcanisation process was discovered in 1839, the local industry had its beginning only in the years preceding the Second World War. During the war, when there was a scarcity of tyres, the armed forces stationed in Sri Lanka, needed their tyres reconditioned, and this gave an impetus to the tyre retreading industry.

Main line

Thus although the main line of activity was motor tyre retreading, the local fledgling industry began to diversify in the years following the hostilities, resulting in the making of a variety of moulded rubber goods such as shoe soles, heels etc.

By 1950's, a few rubber based footwear factories came into operation. The next stage in the development of the industry was around the 60s with the manufacture of latex based rubber goods such as latex foam articles and latex dipped and cast goods which gradually gave way to the manufacture of bicycle tyres and tubes and hard rubber cases for motor car starter batteries.



The Rubber Unit of the IDB provides not only information on latest know-how but also rubber compound.

At the same time around this period the Sri Lanka government too stepped in by setting up a factory to produce motor car tyres and tubes.

Therefore today, there is a sizeable local rubber goods producing industry which uses a major portion of the locally consumed rubber, (which is about 64.0 percent of the total), to manufacture cycle tyres and tubes, foam rubber goods, rubber mats, surgical gloves, rubber slippers and rubber-soled shoes, toys including balloons etc.

However, except for a miniscule number of large scale industrialists who are using fairly advanced technology, the majority of the manufacturers may be said to be still in the primitive stage as far as this

industry is concerned. Except for purely basic, improvements that had to be effected, most manufacturers seem to be satisfied with low quality products.

Thus the local rubber goods manufacturing industry in Sri Lanka has not made any notable progress even though the industry has been carried on for a number of years.

The industry has been in the doldrums due to a variety of reasons. Primarily, the rubber goods manufacturing units are characterised by the predominance of small scale workshops employing less than ten persons who more often than not, were without any technical qualifications or competence.

Apart from this, in some of the units investigated, there were some workers who were employed on a casual or contractual basis on very low payment rates, and as such these workers did not have any incentive to improve the quality of their work. Furthermore since most of them had learnt the technology through experience, they were unaware of the modern techniques.

Financial problems

Furthermore since most of the units are small, they are facing financial problems in that they have only limited resources and as such they are not in a position to expand or to improve technologically. The majority of the units manufacturing rubber goods are equipped only with blow lamps, hand operated screw presses and a few moulds. Certain other units do not possess even these basic equipment such as presses, and blow lamps. In fact an unit visited, was improvising by using saw dust burners. Only a few units functioning today are equipped with lathes to turn out the moulds they need.

Raw Materials

The main raw materials that are used in the rubber goods industry are natural sheet rubber, scrap rubber, latex and synthetic rubber. Among the other ingredients are the resins, plasticisers, accelerators, antioxidants pigments etc.

The small units obtained their rubber compounds from units which had facilities for compounding while some units purchased their requirements of rubber compound from the IDB.

However the main complaint was that imported chemicals were either not available or were far too expensive.

Most of the manufacturers were of the opinion that raw materials should either be made available through the IDB or some other institution and that these manufactured items be brought under price control.

Marketing

The bulk of the establishments engaged in this industry have complained that there was no marketing information available and some of these institutions have come up with suggestions for a better marketing set up. Among the suggestions were:

- (1) IDB should undertake distribution,
- (2) Govt. or some other organisation should undertake distribution,
- (3) The price of products should be fixed,
- (4) One manufacturer should specialize in one product and produce only that article,
- (5) Market intelligence should be provided by either IDB or some other body,
- (6) Products should be exhibited at some organisation,
- (7) Imports should be restricted or banned,
- (8) Manufacturers of quality goods should be introduced to Govt. Departments and Corporations,
- (9) Raw materials recommended by RRI or CISIR should be made freely available at reasonable prices,
- (10) Steps should be taken to improve quality and to find export markets.

Summary

It is clear from the survey carried out that the level of technology in a majority of the units is very low. It was pointed out earlier that in certain units even saw dust burners are being used for heating the rubber compound in the mould. Attention is not paid to uniform heating and only a few establishments are equipped with steam boilers. Nonavailability of proper equipment could be stated as the most common problem. Sophisticated machinery and equipment are not required for the manufacture of certain items. The simple but essential equipment required could be easily fabricated locally. However there are other rubber goods the manufacture of which needs certain machinery and equipment which are not available locally. Due to restrictions on foreign exchange allocations during the period under review the manufacturers of rubber goods were faced with the problem of obtaining this machinery. But the situation has now changed completely after the liberalization of imports. The problem of scarcity of imported chemicals too has eased off as a result.

It has been pointed out that only a few large scale manufacturers are equipped to produce rubber compound and that the small scale manufacturers have to purchase them from these units at whatever prices they quote. Very often they purchase whatever rubber compound that is available unaware of the suitability of the variety for the end use. On the other hand the capital cost that will have to be incurred for installation of machinery and equipment for production of rubber compound is high and the small scale manufacturers are unable to afford these.

Several manufacturers have pointed out that recognised rubber goods manufacturers in Sri Lanka have to face unfair competition from quite a large number of small scale manufacturers who carry on business regardless of quality and without proper facilities and sometimes even without proper technical know-how.

These products are sold at low prices. Due to unsatisfactory performance of such products they report that it would tend to build consumer resistance to local products in general, which would be detrimental to the business interests of the recognised manufacturers of quality rubber goods.

Due to the rise in prices of machinery and equipment and raw materials many rubber goods manufacturers are faced with the problem of finance as they are unable to block large sums of money to obtain their requirements.

Recommendations

- (a) Technical know-how could be considered as the most vital factor in the rubber goods industry today. It is suggested that short term training programmes and seminars be held regularly to educate the industrialists engaged in this field.
- (b) The Bureau of Ceylon Standard should be requested to introduce a certification marks scheme to cover rubber goods so that substandard articles could be prevented from going to the consumer without his knowledge.
- (c) Introduction of quality control techniques by provision of facilities to obtain testing equipment would improve the quality of products tremendously. Industrialists may be encouraged to follow the training programmes conducted by the Bureau of Ceylon Standards on quality control at different levels.
- (d) More units for the production and distribution of rubber compound and latex should be established for the

benefit of small scale manufacturers of rubber goods.

- (e) Laboratory testing facilities are essential to the manufacturers if the quality of the products is to be maintained at a satisfactory level. Since it is not possible to set up a Testing Laboratory in every production unit, because of the high costs of equipment and services of technicians, it is suggested that this facility be made available by service organisations at a location which is accessible

to the majority of these industrialists.

- (f) The Industrial Development Board has already proposed to set up a Rubber Product Services Centre in order to make these facilities available to the industrialists. This is a step in the right direction in promoting this industry.
- (g) Literature on rubber technology should be made available freely in a simple form.

EXPORT OPPORTUNITIES

<i>Products</i>	<i>Country</i>
1. Betel Nuts	Pakistan
2. Batik	Australia, Fiji & France
3. Bamboo (Veneer)	Sweden
4. Cardamom	U.S.A., Pakistan
5. Coffee	U.S.A.
6. Cashew Nuts	Sweden
7. Fresh cut flowers & Plants	France
8. Furniture (knock-down)	Australia, Federal Republic of Germany
9. Gift articles	Kuwait, Fiji
10. Ginger	Pakistan
11. Herbs	U.S.A.
12. Horticultural products	Holland
13. Handicrafts	Australia, Fiji, France
14. Jewellery (Imitation)	Kuwait
15. Kapok	Fiji
16. Novelties	Kuwait, Fiji
17. Office equipment	F.R. Germany, Kuwait
18. Pepper	Egypt
19. Papain	U.S.A.
20. Passion fruit juice	Australia
21. Readymade garments	Fiji, Sweden
22. Tropical fresh fruits	France
23. Tea	U.S.A.
24. Toys	Kuwait

PIONEER PRODUCER PAINT

By C. S. Ra

The late 1930s when we were still under the yoke of the British Raj when everything on sale was imported and more often than not, carried the 'Made in England' tag, only a handful, if any would have even thought of setting up an industry of their own. It was an era when any thing "local" was scorned as being inferior. This was a period in which as a result of being conditioned by the prevailing standards, most people considered everything imported to be superior.

Lone voice

But there was a lone voice in the wilderness so to speak, hailing from the southern-most extremity of Sri Lanka Dickwella to be more precise which sounded a different note. A. R. M. Yasin, a businessman owning a hardware and paint shop being a farseeing man, interpreted the message of the distant drums of freedom correctly. He envisaged an era when foreign goods would no longer burden our shop shelves. He realised that the ominous signs of armed conflict that were rocking Europe which were ever drawing nearer home were harbingers of change. He knew that the time was ripe to venture out on his own. Realising that the winds of change were gathering momentum he was certain that with war torn

England girding her loins in a grim struggle to mobilize all resources to ward off the Nazi, varnish, paint and polish for Sri Lanka would not be on any priority list. Therefore, Yasin being certain that he was on to a good thing, set about planning to manufacture paints.

Easier said

However this was easier said than done. Yasin had studied Chemistry in school and had only a nodding acquaintance with pharmacology but that was quite insufficient for what he planned to do. It was then that he realized that attempting to produce varnish at that time, especially for a "coloured", was a near impossibility. Literature on the subject was naturally limited and those that were available were out of his reach.

Determined

"But I was determined to produce a varnish that was up to the mark. I wanted to produce a varnish that was as good as the imported "Red Wing". The problems I faced merely strengthened my desire to produce a good quality paint. So, as far back as 1939, I began experimenting. At first my book knowledge led me further into the mire but after labourious trial and error, I managed to

produce a varnish of a sort. But I wasn't satisfied. I wanted to perfect it", he said.

Frustration

Yasin related at length his frustration at being unable to get raw materials and information. "But somehow or other, after much trial and error, I managed to produce a good varnish which I marketed under the 'Eye' trade mark", he said.

"At first of course nobody even cared to cast a second glance at my product but times were difficult at that time. Varnish had vanished from the market, and since no other was freely available, people began very cautiously to purchase a few bottles until they realised how good my product was. Thus around 1942, the National Industrial Works came into existence".

"Once my product became accepted, there was no dearth of sales. But now I had other problems. I couldn't get any raw material—petrol and kerosene oil were only doled out on ration. I wrote to the Commissioner of Defence then, Mr. Oliver Goonetilleke, appealing for help. Sir Oliver Goonetilleke visited me, inspected my factory which was housed in a portion of my house, inspected and had my product quality tested. It was only when he was completely satisfied that

PAINTS PATHETIC PICTURE

Ranasinghe

the Commissioner sanctioned that I be given 90 gallons of petrol and 100 gallons of kerosene oil per month.

Head start

Thus, this industry which was a pioneer in the field managed to get a head start. At first he had invested Rs. 1,000/- on the industry, but "Sir you know how much Rs. 1,000/- was worth those days", but now that he was assured of raw materials and a ready market for his product, he needed more capital. Therefore he financed the project by selling his property.

Smooth sailing

"Once my product caught the market, every thing was smooth sailing. My industry which I began with only Rs. 1,000/- and three workmen went from strength to strength. I am proud to state that I was the first to add colour to the local industry. You see Sir, in 1955, when the Directory of Small Industries was published by the Department of Small Industries I was the only registered manufacturer of paint and varnishes. Isn't that something to be proud of?"

"I began to expand gradually, I began manufacturing enamel paints only about 1960. By 1967 I was unable to cope with the demand for my products and therefore I

had to set up a separate factory to manufacture paints", he said.

Annual output

"Around this time my annual output of paint averaged about six thousand gallons amounting to about Rs. 10,000/- worth of goods. I was supplying paints, varnish etc. to a number of Government Departments, to the Department of Railways, Civil Aviation, Government Stores and even to the Army", he boasted.

"Orders were continuing to flow in like a torrent. I could not cope with them. Whatever money made had to be ploughed back to buy raw materials, I just couldn't make ends meet. I needed capital, and the more money I got the more I needed. It was at this point around 1970, that I was forced to turn to the IDB for help. I had heard of the IDB from a friend but I was rather reluctant to approach the IDB because you know how it is with Government institutions. However one day I happened to meet the IDB's Matara Regional Manager casually, and fell into conversation with him. He asked me to call on him at his office. Even then I was rather reluctant to do so. But my problems were mounting and I was getting to the end of my tether. Thus it was that I happened to seek IDB assistance".

"The IDB was very helpful, it helped me in diverse ways to get loans, streamline production and improve quality. I needn't go into details of how I was helped, suffice that if only I had known earlier I would have been spared a few more headaches".

IDB help

"Thanks to the IDB, I was able to diversify, now I make a variety of distempers, polishes varnishes and other allied products such as wood preservatives and floor polishing as many locally available raw materials as possible. I have also been able to fill in the gaps as far as technical processes are concerned. I am proud to say that I can compete with any foreign product successfully because my product is better than any of them".

Problems

"However of late things have changed. I, a pioneer in the field, have problems now. You see today the clock seems to have turned a full circle and once again foreign goods are burdening our shop shelves and the people, fools that they are, are prepared to pay through their noses for inferior imported goods. They like to boast that they are using, imported goods. Once again they are looking down on local goods. You don't have to take my word for it. You just test for yourself. If my products are not cheaper better than some of the products that have been imported or if my product is inferior to the imported ones, you can publicly denounce them. I challenge any one to prove that my paint is

inferior to the imported product. I am prepared to swear by my product. But you wait Sir and see if I am wrong, before long people will realise their folly" he told me.

Mania

"After all, one expects value for money, therefore once the people realise that a beautifully

marketed product has to be judged by the contents rather than the "window dressing" and that the price difference could mean a lot especially where paints are concerned, then they will once again turn to local products. Mark my words sir, this mania for imported products will die soon".

Eucalyptus Oil to run Farm Machines

Oil distilled from eucalyptus trees has been used instead of petrol to operate a small farm machine, a Japanese Scientist is reported to have said according to Reuters.

A member of the Agricultural Department of Mie University in Central Japan has told that eucalyptus oil generate the same amount of power as petrol on a weight for weight basis, according to the same source.

Eucalyptus oil is also said to produce less noxious carbon monoxide exhaust than petrol.

This experiment is only one of several that are being carried on by Japanese Scientists who are trying to develop alternative energy sources.

According to Professor Takeda, who is conducting these tests, he had used three combinations—100 per cent eucalyptus oil, 70 per cent

eucalyptus oil blended with 30% petrol and 100 per cent petrol.

In each case, the power generated and the fuel consumed by a one horse power engine were almost identical. But the carbon monoxide in the exhaust was halved when 100% eucalyptus oil was used instead of petrol.

If the experiment proves to be commercially viable, it would give a new dimension to Australia's native eucalyptus tree which is used as the main ingredient of cough medicine and peppermint-flavoured chewing gum. [PR]

CALL TO TRY ALCOHOL AS FUEL

Seven transport Corporations in Tamil Nadu have been asked to experiment with industrial alcohol as a substitute for diesel because the State is said to have a surplus of industrial alcohol. [PR]

KARMANTHA

Editorial Note

The journal is a means whereby information on innovations, inventions etc. are communicated to the industrial sector. Besides highlighting the latest technological developments through articles, the journal carries information on processes, utilisation of raw materials etc.

Contributions are invited on industrial development and related aspects. Articles based on factual data, research work and surveys are welcome.

Contributions could be from research workers, entrepreneurs, educationists or any others interested in the industrial field.

Published contributions would be paid for. The amount payable would be decided by the Editorial Board.

Communicating for effective Industrial marketing

If communication is not a critical element in industrial marketing, it is nearly so, for everything an industrial marketer does or says communicates something to the buyer about the product and the company behind it.

Before elaborating on the meaning and usage of the term "marketing communication", however, it is thought useful to distinguish it from the word 'communication' that finds its way into oft-repeated phrases like "communicating for results", "inter-personal communication", and so on. Whereas the former is a dialogue between the buyer and seller or a product, the latter covers communication between employees at the same or different levels in an organisation.

What is marketing communication? How, if at all, does it help an organisation that uses it? What are the elements of an effective marketing communication system? What should an organisation do to put one to use? These are but a few questions, answers to which are provided in the present article which also tends to unfold the relevance as well as importance of marketing communication in an industrial selling organisation.

Two Way

Marketing communication may be defined as a continuing dialogue between the buyer and seller in a

marketplace. It is a two-way flow of information regarding the product as well as its price, specifications, distribution, delivery guarantee, service, and factors that shape a buyer's awareness and buying behaviour towards the product.

Another definition

Another definition of marketing communication, of particular relevance to the management of an industrial selling organisation, is the following: according to it, marketing communication is the process of presenting an integrated set of "stimulii" (information pertaining to the product) to a target market with an intent of evoking a desired set of responses and setting up of channels to receive, interpret and act upon messages from the market for purposes of modifying company messages and identifying new communication opportunities. An organisation, here is conceived as both a sender and a receiver of messages. Through the wide-ranging media available to it, like advertising, personal selling, sales promotion, etc. it unleashes stimulii that provide prospective buyers with information on its products in an attempt to inform or, at times, modify their behaviour towards the products. Conversely, feedback from the target market provides the selling organisation with information for both directing and controlling mess-

ages, and brings to surface changes that need to be made in the media, message and content of communication.

Little purpose will be served in devising a communication mix and spend huge amounts of money on advertising, sales promotion, etc., if the organisation does not stand to gain from it. The end objective of marketing communication, therefore is to send the message across to as many prospective customers as possible, at least cost in an attempt to increase its sales, profits as well as satisfaction among customers to desirable limits.

How does marketing communication work? To start with, it transforms buyers from a state of unawareness or even negative reaction to one of positive action. For example, there may be buyers who are not aware of the company's products, or who, for some unknown reason, are deliberately ignoring them. In cases such as these a selling organisation has little choice but to approach the buyer and inform, persuade, or convince him if need be, of the suitability of its products. Benefits that a marketing communication programme brings to the management of a selling organisation are:

- (i) *it bridges information gaps existing among manufacturers, middlemen, and customers*

- (ii) *it coordinates promotional activities of the total marketing system to achieve a coordinated thrust;*
- (iii) *it adjusts the system to meet customer requirements; and*
- (iv) *it adjusts the product to meet customer needs.*

Media for Communication

Once the purpose of communicating with the target market has been understood, the question that needs to be answered is how best a company can communicate with prospective customers within resources available to it? The four media of communication, also referred to as components of the communication mix, are:

- (i) *the product and its package;*
- (ii) *the salesman;*
- (iii) *advertising and public relations; and*
- (iv) *conversation among customers about the product and the advertising.*

The Product and its Package

The product is by far the most important medium for communication and this fact is being increasingly realised and acted upon by industrial selling organisations. Without the right product for a market an organisation can seldom succeed. For example, when delivery is taken of a new car, or when a new machine is received in the tool room, everyone gathers around to see its finish, texture, design and colour. Just by sitting there, the product speaks for itself and acts as a medium of communication in its own right. Although packaging for an industrial product does not have as much bearing on sales as packaging for a consumer product, its place in the total communication mix cannot be ignored, for damaged goods from an insecure, slip-shod package can mar the image of an otherwise reputable product and the organisation that supplied it.

The realisation of the importance of product as a medium for communication explains why some companies are successful in selling products without spending substantial amounts on advertising. For them the product and its design, package, and price-tag are probably the most important methods of communication. Because of the importance attached to the product in market communication, product design and styling is becoming increasingly important in marketing. Due to rapid technological advances, life-cycles of most industrial products are becoming shorter, so much so that in certain cases a product only two years old can be reckoned to be out-of-date. It is important, therefore, for industrial organisations to keep abreast with technological advances and provide their customers with the most up-to-date product.

Not difficult

The second most important media of communication available to an industrial selling organisation are its salesmen. A buyer's requirements are not difficult to understand. To start with, he needs the latest information on the goods he is likely to use together with their prices. Next he needs a salesman who can make himself available at short notices to provide technical assistance when required. Steps that could be effectively used by salesmen to communicate with prospective customers are:

- (i) to identify the potential customer;
- (ii) to qualify customer potential;
- (iii) to identify the influential; and
- (iv) to gain access;

In practice, however, industrial selling is more cumbersome, for apart from selling his company's products, an industrial salesman, or sales engineer as one may prefer to call him, must play the role of a market investigator, a public relations officer, and an industrial consultant, all rolled into one. In the present competitive environment a salesman must also ascertain the number of

potential customers in his area together with the type and degree of competition prevalent in it, and keep management informed about it. A salesman must also have a sound knowledge of his product. He should know how his product works and how it is likely to fit in with the customer's production programme. He should not just 'sell' his product but should assist the customer in making best use of his resources and increase efficiency by using the product.

Listen also

As communication is a two-way process, a salesman must not only talk, but listen too. He should avoid using technical jargon in an attempt to baffle or impress the customer, for, if the customer does not understand, the sale is lost even before it is started. A salesman should not think of what he sells to the customer. He should think of how he can help him make a 'better' buying decision. A really successful salesman is one who helps his customer to come to a better buying decision. The task of selling a company's products cannot, however, be left to the salesman alone. If the increasing competition among industrial organisations is an indication, managers too should involve themselves in this job of persuasion and communication.

Advertising and Sales Promotion

Although not as widely used for industrial products as it is for consumer products, the role of advertising and sales promotion in the communication process cannot be ignored. In recent years, industrial advertising has picked up and more advertisements are finding their way into the national press. In addition to advertisements in the press, industrial organisations today spend considerable sums of money on catalogues, brochures, leaflets, exhibitions, conferences and seminars, industrial films and press and public relations.

A Link

Advertising is a link between the customer and his environment, the

environment in this case being the scores of industrial selling organisations that constantly bombard the customer with high-powered advertising. But like other marketing strategy, advertising too is blessed with strengths and weaknesses and it is wise for a company to know these before embarking on a high-power advertising campaign. For example, whereas advertising helps a company in increasing its sales and profits by developing a direct bond with the customer, it cannot get repeat business for a product or service that does not represent value for money to the customer. Nor can it help sell a product or service overnight. The essence of advertising therefore, lies in its continuity. But advertising costs can be heavy and it is here that an organisation must bring all its decision-making into play. Therefore, before devising an advertising or sales promotion strategy, it is essential for an organisation to earmark its target audiences. Questions that an organisation needs to ask itself at this stage are: What industries or professions form the potential market? Which particular section of the industry is desired to be reached? What level and job function must advertising be aimed at? What will be the cost of reaching the targeted audience? Can we afford it? What benefits will accrue to us from advertising?

Conversation among Customers

Customers talking amongst themselves are very often the best salesmen for the product. An understanding of the ways by which word-of-mouth advertising works can make this a valuable communication tool. Why do customers talk between themselves? The possible reasons could be to:

- (i) gain attention;
- (ii) show connoisseurship;
- (iii) feel like a pioneer;
- (iv) have inside information from competitors;
- (v) suggest stature;
- (vi) Spread the gospel;
- (vii) seek confirmation of own judgment/decision; and.
- (viii) assert superiority.

Word-of-mouth advertising is different from other commonly used methods of advertising in the sense that it is inexpensive and relates to the experience of those who have used the product in the past. It is hoped that in times to come, more and more industrial organisations shall become aware of word-of-mouth advertising and use it as an effective tool for communication.

Knowing that the choice of the communication mix lies between the above media, an organisation often finds itself in a fix to decide the extent to which the media are to be used. The ultimate combination or 'mix' used, however, will depend on the type of product, novelty of

product, size of market, size of sales force and distribution channels. A new product may require an equal usage of both advertising and personal selling, with on-the-spot demonstration if possible. A product that has been in the market over a period of time will sell by itself if its performance has been satisfactory, although some amount of advertising may be necessary to keep the customers informed of changes, if any, in the product. In cases where the market is large and widespread, advertising shall hold fort. Whatever be the situation an organisation finds itself in, the role of communication in the success of industrial marketing cannot be undermined.

(Courtesy Productivity April-June '79)

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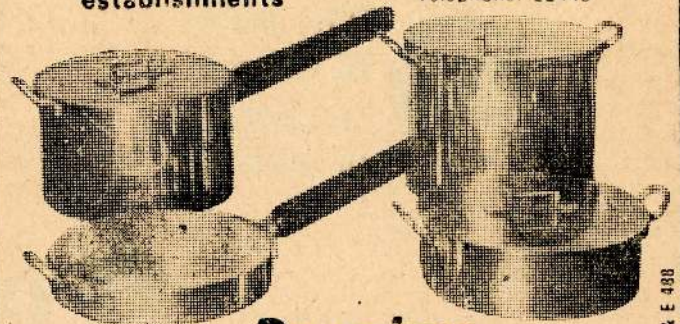


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Substitute material for biogas holder

G. L. Patankar

Mild steel, a versatile material as far as tensile strength, impact strength and its capacity to withstand rough handling are concerned, is used at present in the manufacture of gas holder for bio-gas plants. It is a material of great economic importance especially for bio-gas plants due to the problems of corrosion and adjustment of the weight of gas holder to deliver a pressure of 3" water column.

A gas holder of 5" diameter (for family gas plant) requires a minimum of 160 kilos of steel. In practice however the quantum of steel used and the pressure obtained is much higher than the specified 3" water column. Table 1 shows the quantum of steel used for such purpose.

In view of increasing prices of steel day by day, the corrosion problem which necessitates its replacement, and the weight of the gas holder which causes problems in handling and transportation, it has become necessary either to reduce the quantity of steel in the manufacture of gas holder or to replace it by any other suitable material.

The Search

A number of substitute materials for gas holder have been tried.

There is a constant need for research in the processing and manufacturing of any article. The gobar gas holder is not an exception. Hence, any substitute in its manufacture that brings down the cost considerably and enhances the durability, needs minimum maintenance and care is welcome.

Prominent amongst them are rigid PVC sheet, ferro cement and fibre glass reinforced plastic. The use of plastics for gas holder has to be considered from the point of its cost, durability and transfer of technology of such plastic items in villages.

High density polythelene, PVC and fibre glass reinforced polyester sheets are the potential materials in this direction. Use of ferro cement for gas holders has been reported at many places.

Risky

However, this type of gas holders are heavy and loss of gas due to seepage is one of the greatest hurdles which makes them risky for use. And fabrication of such gas holder requires proper supervision so as to cure them properly.

Any mistakes in this regard may lead to difficulties in their removal from the digester for repairs and chain pulley block would be necessary in such case. The cost of such gas holder is also as much as that of mild steel gas holder and it does not eliminate the use of steel and cement which are the items always in short supply.

Efforts were made during the past to have a suitable design for usage of light weight materials. The design in such case resembled a parachute i.e. a concrete weight was attached at the bottom of the gas holder in order to get a pressure of 3" water column.

The main difficulties faced in this design were regarding placing the gas holder into the digester as well as removing it. Sometimes the body of such gas holder gets deformed and the connections for R.C.C. weight in the form of mild steel rods get rusted very soon. A few gas holders of this design developed by Shri J. J. Patel, former Director, Gobar Gas Scheme met with this problem.

Looking into all these aspects, it seemed that mild steel alone would be the suitable material for gas holders for years to come. Our efforts therefore, should be directed towards minimising the quantity of mild steel in manufacture as well as prevention of its loss by corrosion. When we think of reduction in quantity of steel, a question arises regarding its weight for getting a pressure of the water column. These two problems can be solved by using galvanized iron (G.I.) sheets

TABLE 1

REQUIREMENT OF STEEL SHEETS FOR GAS HOLDER OF 3M³ GAS PLANT

Sr. No.	Capacity of gas plant	Mild steel gas holder		Galvanized iron gas holder	
		No. sheets & gauge	Weight of m.s. sheet kg.	Weight of 20 gauge kg.	G. I. Sheets 22 gauge kg.
1.	3M ³ (106 of t/day)	3 (12)	128.00	40.05	36.97
2.	6M ³ (212 of t/day)	4.25 (12)	181.32	56.73	52.38
3.	8M ³ (283 of t/day)	4.5 (12)	239.99	60.075	55.46
4.	15.M ³ (525 of t/day)	6.5 (10)	470.00	108.46	100.14
5.	20M ³ (700 of t/day)	8 (19)	560.00	133.5	123.25
6.	35M ³ (1,237 of t/day)	11.5 (10)	810.00	183.56	169.46
7.	45M ³ (1,590 of t/day)	13.25 (10)	930.00	221.10	204.13

with a suitable design, in place of mild steel.

G. I. Sheets

It has been found that galvanized iron sheets do not corrode appreciably in contact with cattle-dung slurry. Such sheets are easily available in a thickness of 20 to 22 gauge. A gas holder made out of such sheets does not require annual painting which is very essential with mild steel gas holder. The problem regarding the pressure can be solved by adopting a suitable design.

One such gas holder was made without using mild steel frame. The minimum structure required inside was made of galvanized iron strips only. The reduction in use of mild steel for making frame can be evident from table 2. The problem of adjustment of weight of gas holder to give 3" water column pressure was overcome by making arrange-

TABLE 2
REQUIREMENT OF STEEL FOR GAS HOLDER FRAME OF 3M³ GAS PLANT

Sr. No.	Material used	Mild steel gas holder		Galvanized iron gas holder	
		Quantity (kg.)	Weight (kg.)	Quantity (kg.)	Weight (kg.)
1.	Mild steel angle 35X35X5 m.m.	19.40	50.44	Nil	Nil
2.	Mild steel flat 40 X 6 m.m.	4.15	7.89	Nil	Nil
3.	Mild steel plated quantity—2 250X250X6m.m.	0.125sq.m.	4.71	.045sq.m.	1.500
4.	Galvanized iron pipe 65 m.m. dia.	1.15	7.00	.50	3.00
5.	Mild steel bars 12 m.m. dia.	1.00	0.890	9.71	8.640
6.	Galvanized iron wire 4 m.m. dia.	Nil	Nil	4.71	0.263
		—	70.890	—	13.403

Saving in steel for frame due to galvanized iron gas holder is about 80 per cent).

ments for storing sand or similar materials.

This arrangement reduces the manpower required to lift or to put the gas holder into the digester, as the sand can be removed easily when such type of handling is to be done. Three persons can lift such gas holder whereas 6-7 persons are required for mild steel gas holder of the same size. Moreover this eliminates the problem of casting R.C.C. weight and its proper curing. Fabrication of this galvanized iron gas holder has been possible almost without using electric or gas welding. Ordinary tinsmith if trained in such jobs, will be able to fabricate such gas holder and therefore this new concept can create employment opportunities in villages. The adjustment of weight by means of sand at the top also balances the deformation and possible leakages thereby from the seams of the gas holder.

Another new achievement in such type of gas holder is the central guide galvanized iron or mild steel pipe has been totally replaced by three or four mild steel rods welded to small pieces of 2" diameter pipe. With this arrangement there is reduction in the consumption of steel, no blockage of gas due to the scum and thirdly the gas is taken out from the centre of the gas holder which minimises any possible chance of leakage from the top of the gas holder. There will be very few difficulties regarding connection of flexible rubber hose to such gas holder and the length of flexible rubber hose can also be minimised.

Fermentation

Apart from the benefits mentioned above, in this design water can be heated on the top of gas holder using extra sheets to make a jacket which can really help to enhance the rate of gas production, especially during winter in cold regions.

The above design can be adopted even for mild steel sheets, having a thickness of 20 to 24 gauge. Such thin sheets should be carefully painted with a primer and coal tar epoxy paint, which has been found extremely good for bio-gas plant.

Gas holder from PVC, High Density Polythelene and polyester laminates can also be fabricated using the above design which will reduce the consumption of steel totally or in the case of galvanized iron gas holder by 60 per cent.

A case study of galvanized iron gas holder for 3 M₃ gas plant is given below:—

(1) Cost of galvanized iron sheets 3 Nos. (22 gauge)	Rs. 600
(2) Cost of central guide frame solder and mild steel rings	100
(3) Labour cost	200
(4) Depreciation and other overheads	100
(5) Profit	200
*Total	1200

[All amounts in Indian currency]

The advantages of a galvanized iron gas holder can be summed up as: (1) such gas holder will be easier to handle and transport because of its light weight (2) there will be reduction in the consumption of steel by 60 per cent; (3) problems of rusting are minimised and there will be no recurring annual expenditure on painting; (4) galvanized iron gas holders will be cheaper by 30 per cent than the existing mild steel gas holder and (5) water can be heated easily and cheaply using solar energy for hastening the process of fermentation. These factors make it highly recommendable for its use in gas holders.

(Courtesy Khadi Gramodyog July, 79)

Biogas as alternative energy source

Fifty specialists from 20 countries discussed an inexpensive and almost universally available energy source at the Biogas Workshop held in Bremen, Federal Republic of Germany, recently.

The Bremen Overseas R / D Association has practical experience with several biogas plants in India which it has helped to build on behalf of the Bonn Economic Collaboration Ministry.

Biogas would seem an ideal means of bridging the energy gap in rural areas of Africa, Asia and Latin America, and one of the foremost tasks the Bremen biogas workshop set itself was to draft a manual to enable politicians and potential biogas consumers to decide for themselves whether this is the technique for them.

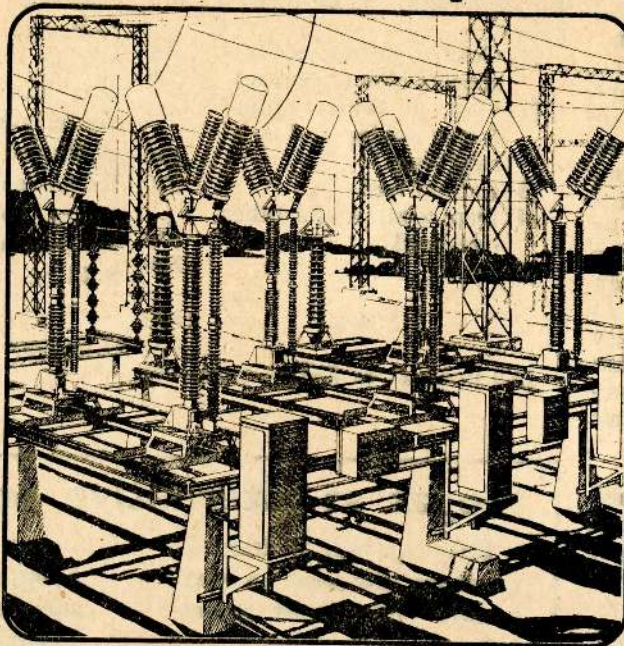
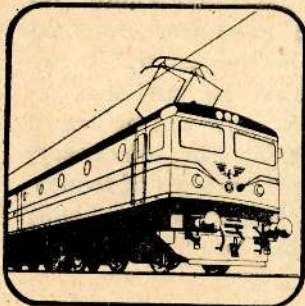
The workshop also passed a resolution calling on governments of western industrialised countries to lend every encouragement to the spread of biogas technology as an alternative energy source in the Third World.

Biogas converters are not just the poor man's power stations. Hans Koschnik, Bremen's burgomaster, recalled that several biogas installations were in operation in the city during the fifties but subsequently closed down because oil was cheaper.

Now that oil is dearer and scarcer, biogas looks an increasingly attractive proposition. Methane is already generated at one Bremen sewage plant, saving the taxpayers more than Rs. 40 lakhs a year.

The Hindu

ASEA in power in industry in transportation

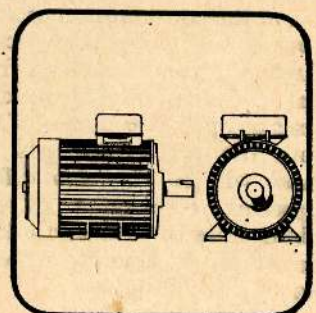
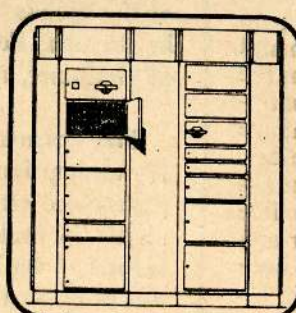
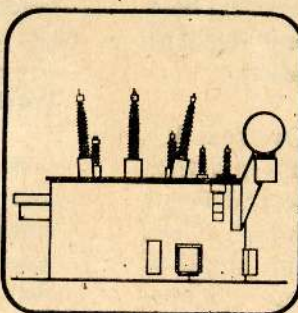
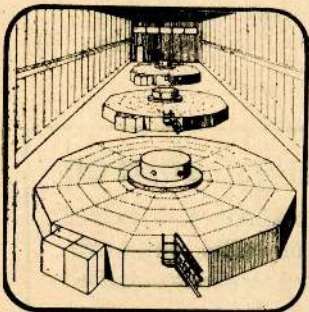


ASEA has a world-wide reputation as an international company with an extensive product range and considerable technical resources.

They have factories in ten countries and are represented in more than 80. In 1977 sales outside Sweden amounted to 52% of the total sales of US \$2.085 million.

ASEA employs over 43,000 persons in its organisation.

Their programme covers the entire field of electrical engineering - from standard products to complete plants and systems for power stations, industries and transport undertakings.



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From you to us...

Misplaced Sympathy ?

Even though I am not an industrialist I have been a regular reader of your journal and I have noticed that in the recent past you have been carrying several articles highlighting the plight of small scale industrialists in the present context.

That's all very good, but let me tell you that you seem to be having a very short memory. Can't you just spare a thought to us—the poor consumers?

I wonder whether you ever had to go from pillar to post looking for edibles? Can't you remember the time we had to queue up to buy inferior goods at fancy prices? Remember those match sticks? I remember a time when I had to stand in a queue to buy a box of matches for 40 cents when the controlled price was 10 cents and to get this box I had to buy some thing else that I really didn't want. Apart from this, half the sticks in that box were useless!

I can name any number of things we had to do without because they were not available or when available, were either on ration or priced too high. Surely Sir, you can't be so absent minded?

You seem to be quite sympathetic towards the butcher, the baker and the candle stick maker. You seem to have forgotten how these very so-called 'poor industrialists' of yours were making hay all these years. What about the profit they made all these years? Just imagine the profits

they may have made when articles like pastel colours, fountain pens and glass tumblers that are brought all the way from Japan and Hong Kong are today being sold at a much cheaper price than any of our local products? Can you deny that their quality is much better than the local stuff we had to pay such high prices for?

You are lamenting about the plight of your pastel colour maker, and toy maker. Have you ever thought of walking down any pavement in Colombo or ever peep into any wayside shop?—then you will know what I mean.

Well now the boot is on the other leg, so let us enjoy while we can.

**Long Suffering Housewife,
Ratmalana.**

DUTY FREE CYCLES

It was with delight that I read the news item that all duty on push cycles and motor bikes had been removed. I had visions of owning my own mode of transport.

Daily I scanned the newspapers to see the prices of motor cycles tumbling down. But so far nothing has happened. Still the prices are way up above my reach.

Surely with duty removed, the prices should have been halved?

Why is it that nothing has been done about these unscrupulous businessmen? Surely action could be taken under the Consumer Protection Laws?

Dehiowita

Disappointed

TO OUR READERS

In order to enable us to carry as many letters as possible we would appreciate it very much if our readers could keep their letters short and to the point.

We regret to inform that we entertain *only* letters relating to some aspect of industry and therefore we will NOT publish any letter that we feel is not relevant to KARMANTHA.

In the meantime however, keep those letters rolling in.

—Editor

II

The Karmantha has carried several articles on energy conservation and fuel consumption and the "benign government"—Your words not mine, vide Solar energy: hope and challenge—has taken measures to conserve energy especially by removing the duty on cycles.

But I am sad to say that this benefit has not reached the consumers. The businessmen are still reaping big profits. Cannot this "Benign government" of yours do something about it?

Kelaniya

Speedster.

III

According to news reports a certain government institution is to get down a popular brand of motor cycles. I understand that they are to be in the 185 CC range and are to be priced at Rs. 16,000.

Can't this institution get down cycles of a smaller capacity and sell them at a cheaper price? Then more of us could afford to buy cycles.

Amparai.

M. A. Silva

(Continued on page 26)

Do You want to produce Nata de Coco ?

Nata de Coco or Coconut Cherry Cubes which the IDB was responsible in popularising has been proved to be technically and commercially feasible. The IDB has successfully test-marketed the product and has been able to secure a large order from a leading local firm.

In order to meet this demand, we hope to assist prospective entrepreneurs to establish manufacturing units on cottage, small scale and medium industry levels.

A cottage level unit is one that would have a capacity of 5 pounds of coconut cherry cubes per day utilising one gallon of coconut water.

Total investment would be around Rs. 2,000/- and could be undertaken on a self-employment basis earning between Rs. 15 to 18 per day.

A Small scale unit would have a capacity of 25 lbs. per day using six gallons of coconut water.

The total investment is around Rs. 25,000/- to Rs. 30,000/- and an unit of this size would give employment to a minimum of three persons.

A medium Scale Unit would have a production capacity of about 75 lbs. to 100 lbs. per day using 20 gallons of coconut water.

The total investment on such a venture would be about Rs. 50,000 and a minimum of 6 persons would have to be employed.

Location

While it would be best if the manufacturing units are located in and around desiccated coconut and copra mills, there is also potential for these units to be set up in close proximity to large hotels, boarding houses and canteens etc. where sufficient quantities of coconut water could be collected.

The assistance the IDB hopes to give prospective entrepreneurs in this field would be in the form of:



- * Provision of know-how on process technology,
- * Training in the provision of the culture,
- * Training of personnel in production techniques at the IDB,
- * Arrangement of credit facilities through commercial banks.

For further details, contact:
Deputy Director,
Food Group, IDB.

FROM YOU TO US...

(Continued from Page 25)

RAW MATERIAL

I am a small scale manufacturer of aluminium kitchen ware. I get my raw material from a certain government-run Board. But of late I have been having difficulties in getting my needs of aluminium. This institution prefers to deal with big businessmen who can afford to buy in bulk. However if only bona fide manufacturers are given these scraps and pieces, I would not mind it so much. But what happens today is that several traders are buying up all available stocks of aluminium etc. and we, the genuine manufacturers, have to buy from these third parties and middlemen who of course, charge us double the price.

Can nothing be done to prevent this and to ensure that only genuine users are given scraps and aluminium?

Kurunegala

Disgruntled

Welding

I read with interest the article on welding in your journal but I find that it is not detailed enough and it uses technical terms that are not commonly used. If you could carry a series of articles giving all details and if the terms you use are the one's that the 'baases' use, then it would be very useful to us.

Wattala

A Student

News Round-up

Palmyrah on display

By P. L. Ramenaden

The Palmyrah Development Board organised an exhibition and sale of palmyrah products during the Nallur temple festival.

The display consisted of a variety of household items, ornamental items such as baskets, shopping bags, flower vases, artificial flowers, wall tats, table mats, hats, boxes in assorted sizes walking sticks and lovely handicrafts turned out of palmyrah seeds, leaf, stalk and leaf-stalk.

THREE-SHIFTS

With the industrial output increasing heavily in the FTZ, the GCEC has been approached by a number of industrialists seeking permission to put female workers on a third shift.

This has been refused in keeping with ILO regulations. Since Sri Lanka is a signatory to the ILO convention, it will need special ILO sanctions to permit females working more than two shifts.

However since the work has increased, it has become necessary for a third shift to be worked. Therefore the Government is likely to negotiate with the ILO to get its approval for females to work a third shift.

'NOT FOR VEHICLES'

Liquid petroleum gas will not be issued for use on vehicles.

The Ministry of Industries and Scientific Affairs made this categorical statement in the face of speculation that the Government was considering the feasibility of permitting the use of LPG as an alternative energy for vehicles and industrial engines.

The Ministry also said that industrial use of LP gas also would be limited to those already registered with the Colombo Gas and Water Company Limited.

TO LURE S'PORE MARKET

The GCEC which administers the FTZ will shortly launch a further bid to attract the Singaporean investment market which has been left open due to that country's government deciding to reduce labour intensive industries drastically.

As a result of this decision, a large number of high labour industries in Singapore will either have to put up shutters or shift elsewhere.

Pathola, Vatakolu for the ME

The glut of vegetables—pathola and vatakolu, are to be exported.

According to Trade Ministry sources these vegetables are to be exported to the Middle East.

This first consignment—about 500 kilos—will be to the Gulf States.

Vegetables will be exported only when there were flush markets and then too when the local consumer is not affected.

Super Petrol from Coal

Super-petrol without any lead content, refined from coal and marketable at a reasonable price is no longer a theoretical dream for the Saar Coalmines in Saarbruecken (West Germany).

This widespread energy under taking will start producing hydrogen from coke-gas which is an essential prerequisite for the hydrofaction of coal. By 1980 a prototype plant will be in operation in the Saarland. Using a highly developed special process devised in the Saar Coalmines it will extract very pure coal gas suitable among other things for manufacturing hydrogen needed in the liquefaction of coal but also for the production of methanol, ammonia and fuels for combustion motors.

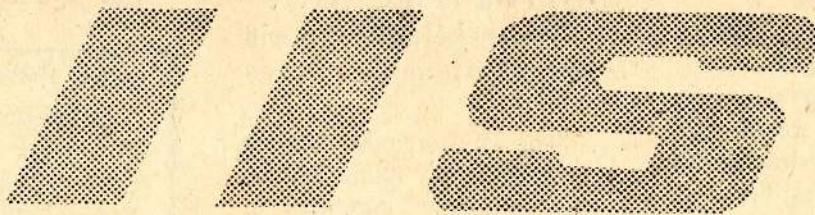
Numerous projects which the Saar Coalmines want to carry out in connection with this project, are being supported by the Federal Ministry for Research and Technology of the Federal Republic of Germany.

The Ministry is especially interested in the fields of coal-refinement (coal-liquefaction) environmental technology and mining technology.

The Hindu



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