CONTENTS

SMALL SCALE INDUSTRIES IN DEVELOPMENT:  Page
Acknowledgements  (1)
Abstract  (ii)
Introduction  (iii)

CHAPTER
I  - The Sugar Industry in Kenya  1

II  - The Ulumbi White Sugar Factory  14

SAMUEL SUDENO

III  - The Economic & Social Impact of
Ulumbi White Sugar Factory.....  30

IV  - Discussion and Survey of
Literature  .....................  34

V  - Conclusion & Recommendations.....  46

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Approved by

(ADMINISTRATOR).

(SUPERVISOR).
Contents

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Abstract

Introduction

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CHAPTER

the interest he had in the Project and constant

I  - The Sugar Industry in Kenya 1
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II  - The Ulumbi White Sugar Factory 14

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III  - The Economic & Social Impact of
comments.

Ulumbi White Sugar Factory..... 30

IV  - The Discussion and Survey of the Sugar Factory
for literature ......................... 36

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V  - Conclusion & Recommendations...... 46

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References and Bibliography 47.
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INTRODUCTION

ABSTRACT:

The Sugar Industry is a key industry within Kenya's economy. There is a tendency to think that economic development and growth consistently and inexorably demand large scale sophisticated industry since these tend to dominate the industrially developed countries.

The case of Ulumbi White Sugar Factory located in West Kenya near Kisumu town, will serve to illustrate the problems faced by small scale industries and their potential positive role in the economies of developing countries.

The government's interest in these activities has increased gradually over the years.

The Kenya government's development plan suggests that economic development and growth should result in decentralization to achieve a balanced growth and redistribution of income.

Considering that 80% of Kenya's population lives in the rural areas, the current development plan lays emphasis on rural development both industrial and agricultural.

A number of authors have suggested that under such circumstances, like those of Kenya, decentralization and balance growth and development can best be achieved by small scale trades and industries promotion.


Reference (2) = Bhanley and Horns : Modern Small Industry for Developing Countries : Methuen & Co Ltd (1965)
INTRODUCTION

The Sugar Industry is a key industry within Kenya's economy. It has expanded rapidly over the last few years and it is set for further expansion.

In terms of developmental pattern, for large scale and small scale sugar industries, the sugar industry served to illustrate the conflict that exists both theoretically and practically between large scale and small scale industries.

For many years in Kenya, small scale traders and industries have played a significant role in fostering national development both in rural and urban areas of the republic. In recognition of this role, the government's interest in these activities has increased gradually over the years.

The Kenya government's development plan suggests that economic development and growth should result in decentralization to achieve a balanced growth and redistribution of income.

Considering that 80% of Kenya's population lives in the rural areas, the current development plan lays emphasis on rural development both industrial and agricultural.

A number of authors have suggested that under such circumstances, like those of Kenya, decentralization, balanced growth and development can best be achieved by small scale trades and industries promotion.


This view of development however, has been challenged by authors who feel that according to W.W. Rostow (3) in his economic model, on stages of economic growth in the context of leading economic sectors, they suggest large investments in some key industry or industries to trigger a "take-off" into sustained economic growth. This model, according to these authors, suggests large scale industries.

The case of Ulumbi White Sugar Factory, a small scale sugar factory in Western Kenya Nyanza Province, served to illustrate the impact of sugar industry, in particular small scale on rural development and problems faced by African entrepreneur/s participating in national industrial activity.


Production and Consumption

Almost all the sugar produced in Kenya has not been refined but has been a raw white sugar of varying quality.

Hence even if Kenya is considered self sufficient in sugar, certain qualities of refined sugar and other specialty sugars must be imported.

While during the 70's had the most dramatic expansion of the sugar industry with the total sugar produced more than doubled.

It took up to early 80's for Kenya to be self sufficient because for most part, consumption grew faster than production.

Geographic Distribution of Consumption

Consumption of sugar per capita varies considerably from one area of Kenya to another. It is interesting to note that there is no correlation between geographic distribution of sugar production and geographic distribution of sugar consumption.
CHAPTER I

The Sugar Industry in Kenya

While areas in Northern Province have the lowest. This corresponds with the Kenya government has accorded high priority to the development of the sugar industry. It is now one of the most successful large scale, and small scale plantation crops in Kenya.

crass of demand.

Considering that with projected doubling of the sugar production, and hence rapid expansion of the industry, as a back- ground to the later analysis of the problems that might arise.

Major industrial consumers are the beer and soft drink industry, resulting from large scale expansion, we shall outline some of the characteristics of the sugar industry in the past including.

Total industrial consumption may represent only 5% of the total discussion of the present trends in production (large scale and small scale), consumption and trade, prices and the location of production.

A peculiar pattern in consumption of sugar appears at a certain time. Kenya, border towns. Using figures of wholesale trade, Great Britain.

Almost all the sugar produced in Kenya has not been refined but has been a mill white sugar of varying quality.

I refer to this situation as being due to an indirect export of.

Hence even if Kenya is considered self-sufficient in sugar, sugar through exporting sugar produced in Kenya is extensively state of indirect export to satisfy the demand for these products.

While during the 50's there was no major expansion of sugar, the 70's had the most dramatic expansion of the sugar industry with the price produced on average

The price to the producer in Kenya is based on relationship with the price of sugar cane. Whereby it:

It took up to early 80's for Kenya to be self-sufficient because of sugar produced is obtained by multiplying by factor of 20. Hence;

GEONOMIC DISTRIBUTION OF CONSUMPTION will be 125/= x 20 = 2500/= per ton of sugar at ex-factory price.

Consumption of sugar per capita varies considerably from one area of Kenya to another. It is interesting to note that there is no correlation between geographic distribution of sugar production.

Prices according to recent data will recover 7 ton of sugar from and geographic distribution of sugar consumption.
Nairobi and Mombasa have the highest per capita consumption, while areas in Northern Province have the lowest. This corresponds directly to the per capita incomes of the people in the areas. Scale means that sugar has a very high income elasticity of demand. Sugar is handled by the Ministry of Commerce through consumption of household consumption in Kenya. Industrial consumption is at present a small proportion of the total. Major industrial consumers are the beer and soft drink industry, bakery products industry, chocolate and sugar confectionary industry. Entire industrial consumption may represent only 5% of the total. INDIRECT EXPORTS

A peculiar pattern in consumption of sugar appears at certain Kenya border towns. Using figures of wholesale trade, Busia consumption is extremely high. I refer to this situation as being due to indirect export of sugar. Through smuggling, sugar produced in Kenya is extensively consumed in neighbouring countries through this type of indirect export.

PRICING AND DISTRIBUTION

The price to the producer in Kenya is based on relationship with the price of sugar cane. Whereby the price of sugar cane is say 125/= per tonne. The price the government gives the producer per tonne of sugar produced is obtained by multiplying by factor of 20. Hence, will be 125/= x 20 = 2500/= per ton of sugar as Ex-factory price. This is supposed to be - fair price. This price does not take into account efficiency of producer.

Munias according to recent data will recover 1 ton of sugar from
8.5 tons of cane while a small scale factory like Ulumbi will need 20 tons of cane to get 1 ton of sugar, at south of Mombasa. Three of these factories favour efficient producers and not the small scale producers.

Distribution of sugar is handled by the Ministry of Commerce, through the National Trading Corporation. Every month, the Ministry sends out directives to the factories on how much to ship to their go-downs, in South Nyanza called Sunny sugar company opened in 1979.

The government then pays the producer price less excise, plus estimated of the average transport costs. The factories will keep track of the actual transport costs involved and either receive an extra allowance if transport costs exceed the estimated. Parent climatic conditions. The government then sells the sugar to the government-appointed subagent. The subagents sell to wholesalers who in turn sell to retailers. An area of about 15 tons per acre. Considering of yield per acre. The difference between subagent and wholesale price and retail is fixed by law.

Retail price, and yet it takes 24 months to mature. The government does have an elaborate inspection system to enforce the legal prices.

Transport costs are suggested by the government and factories. Hence, sugar which is purchased at the gate of the factory will cost the same as that purchased 300 miles away. With the peaks occurring in April. The average consumer price is about 50% higher than the factory price. The difference is attributable to transportation, handling, excise taxes, production losses and prices.

The sugar industry in Kenya has been established. The present production of sugar by large mills comprises of...
seven zones, each centred on a factory.

The oldest is at Ramisi on the coast south of Mombasa. Three of the factories in Nyanza sugar belt, at Miwani, Chemilil and Muhoroni.

The fifth, which is the largest (produced 162,000 tons in 1980), is at Mumias, near Kakamaga in Western province (opened in 1973).

The sixth is at Nzio near Bungoma and was opened in 1977. The newest is in south Nyanza called Sony sugar company opened in 1979.

There are two other small scale sugar factories; Ulumbi White sugar factory on Busia Road from Kisumu and Kabras Investments near Kakamaga, each producing an average of 10 bags per day.

Among these factories, only Ramisi area shows different climatic conditions. Because of the abundant sunshine and high temperatures, the cane at Ramisi takes 12 months to ripen. But the yields are very low, in the area of about 15 tons per acre. Considering of yield per acre per annum, this can give better figures than an area where yield may be 30 tons per acre and yet it takes 24 months to mature. The rainfall is poorly distributed in this area falling mainly in April, May, and June.

The rest of the sugar areas however have somewhat similar climatic conditions. The rainfall in these areas, including the area of Ulumbi sugar factory is bi-modal with the peaks occurring in April and October. It is fairly well distributed throughout the year. Hence there has been no real need to irrigate these areas.

The altitude of these areas is low enough to an average of 4000 ft. The temperatures are well above 70°F the temperature above which abundant cane growth occurs.
The average yields for cane grown in these areas is 30-35 tons per acre.

The coastal factory at Ramin is conveniently situated to serve the good market of Mombasa up to Voi.

The factories in western Kenya do serve the markets of the rest of the country. Indeed the highest of the consumption is in central province including Nairobi. Hence transport cost to these areas is much higher than in the western zone. This should make the sugar in western province to be a little cheaper than the rest of the country.

FUTURE EXPANSION OF THE INDUSTRY

If the factors affecting the demand for sugar are considered as:

(1) disposable incomes
(2) retail price of sugar
(3) miscellaneous factors which result in rising time trend of sugar consumption;

Then one can predict how the demand for sugar is bound to increase.

The relevant question in considering future expansion of the sugar industry are thus (1) should the industry expand? (2) will it expand?

The answer to the first question will depend on the relationship between social costs and social benefits. Social benefits may be considered as the total addition to the national product including product of complementary projects. Social costs are opportunity costs in terms of foregone increases in social benefits resulting from employment benefits.

The second question is whether the industry will expand. This relies on relationship between private cost and private benefits.
Private costs are actual financial costs to the producer while benefits are actual financial benefits which may result from monopoly prices.

While it is easy to conclude that relationship between social costs and social benefits favour immediate growth of the sugar industry in Kenya, the relationship between private costs and private benefits takes more factors into account and sometimes may warrant active governmental involvement.

SOCIAL COSTS AND BENEFITS: PRIVATE COSTS AND BENEFITS

1. The Unit of Production.

The production of sugar cane and manufacture of sugar are highly integrated operations. The sugar factory is shown located in the middle of sugarcane growing area. This proximity is necessary since sugarcane is highly perishable and must be processed within 24 hours of harvesting. Hence we shall consider cane and sugar production in a single manner.

In assessing the social and private costs of sugar production in Kenya we shall examine the factors that contribute to the cost as:

1. Yields of cane per acre
2. Harvesting season
3. Cost of land policy regarding ratooning (which is letting cane crop last forever),
4. Cost of labour
5. Labour productivity
6. Cost of capital
7. Imported machinery
8. Fields, fertilizer and chemicals
9. Skilled labour and Managerial staff

In this way we shall be able to conclude about the prospects of
Large-scale and small-scale industries, possibility in the sugar industry, did not be at disadvantage of other crops.

YIELDS: There is also a big difference between sugar estate yields and peddled yields of sugar cane per acre are not only an indication of the returns to land, but they may also be indication of returns to capital and labour.

Higher yields per annum reduce the acre by land ploughed, cultivated to produce that amount of sugar.

Variations in cane yield, per acre may depend on various factors, including length of growing season, ratooning policy, use of fertilizer by per varieties of cane used. At least they have only a few months of operation.

While we have mentioned a case where lower yields in reatons have proved more economical for farms, it is felt that even the reatons can be optimised and yield higher than currently possible.

The ministry of agriculture has a research station at National Sugar Research Station, Kibos near Kisumu where experiments are being carried out in ways of improving sugarcane yields. Where pests have reduced yields, are being under scrutiny of the station.

The sugarcane areas have almost similar soil conditions. For the future returns to the farms, high yields have got to be optimised.

There is no govenment policy regarding ratooning (which is letting cane grow without replanting).

In the face, the land gets scarcer it is expected that the government will encourage highest yield and hence may permit area only one reatoon per crop cycle.

One can therefore conclude that expansion of sugar industry should be undertaken by encouraging higher yields from existing...
farmers in addition to opening up a few more sugarcane areas. This should not be at disadvantage of other crops. There is also a big difference between sugar estate yields and peasant yields up to 50%. Hence the factories and the government should pay greater attention to farming practices of peasants.

**Harvesting Season**

Sugarcane is harvested practically the year around in Kenya. Thus factories can be kept in continual operation except for a month or so when the mill requires repairs and maintenance. This permits an economic use of capital and labour employed. In India, cane must be harvested before frost. Hence they have only a few months of operation. Kenya will thus expand with this advantage to its side.

**Land Costs**

In the past the opportunity costs of land in Kenya was lowest because the population was low density. Cost of a sugar factory probably was high. However, over the last few years this has changed considerably. Considering that sugarcane tends to grow in places which are suitable to other crops, there has to be an advantage for land to be transferred into sugarcane plantation. We assume the ex-factory price of sugar to be $1,100,000. Although direct capital costs are high, there are opportunities. The opportunity cost of land in Kenya is much lower than in many other countries, especially developed countries. Hence this fact should encourage expansion of the industry.

**Opportunity Cost of Labour and Labour Productivity**

Opportunity costs of labour in Kenya as indicated by per capita
income of 340/= per annum is low enough.

The marginal opportunity cost of employing labour in sugar areas is much lower considering that in these areas are rural. This favours expansion of industry in term of private cost.

However the labour productivity is then low. Even in areas which require little skills like cane cutting, a worker in Australia cuts 10 times as much as the worker in Kenya.

This is a big drawback for future expansion of the industry because in order to become competitive say on export market, the costs might be reduced to match those of other countries.

However considering that this may be done to the low wages, it may be expected to improve as the wages of workers improve.

**CAPITAL COST**

Capital is quite scarce in Kenya, hence its opportunity cost there is a considerable force of expatriates who are earning high must be high. The present day capital cost of a sugar factory positions. producing 50,000 tons sugar per year is about £30 million. About 1/3 of capital expenses in factory building, sugar mills, 1/3 is for mean a further high expenses of expatriates. It is regarded on as worker force, housing, offices, 1/3 is for preparation of land and expensive than for the government since they are paid in foreign plantation equipment. If we assume the ex-factory price of sugar to be about £150, a capital investment of £30 million, with an average capital life of 30 years and interest rate of 10% the annual value of output of 50,000 tons would be £75,000,000, with annual capital charges of £3,000,000. Although direct capital costs are high, there are a few indirect capital costs in sense that there are no large investments required for provision of intermediate goods. Nearly all the output of the industry represent value added. The major intermediate purchases are fuel, fertilizers and chemicals most of which have to be imported. These total intermediate costs represent about
30% value output still low. The opportunity cost of capital.

**IMPORT COSTS:**

Foreign capital and skilled manpower is quite high. The cost of capital of sugar enterprises involves purchase of capital equipment from abroad. It is usually about 40% of the total capital costs. Cost of labour. Hence future sugar market is very important. With scarcity of foreign exchange the opportunity cost of import costs are very high. This item will important when industry expands with view to exporting sugar.

Small scale industries even need higher percentage than large scale for import opportunity costs.

**SKILLED MANPOWER REQUIREMENTS** is expanded the present self-sufficiency will only small scale sugar factories have simple technology which does not require highly skilled technicians, scientists and engineers.

However, when one visits Mumias sugar factory, a large complex, there is a considerable force of expatriates who are manning key positions. The 200,000 acre farm produces about 200,000 tonne per annum over the next 5 years.

This means that large scale expansion of large factories will mean a further high expansion of expatriates. It is regarded on as expensive than for the government since they are paid in foreign exchange. Expansion of small scale sugar factories with save this item.

**REAL COSTS:**

Kenya as a whole is a high cost producer relative to many sugar producing countries. It is estimated that sugar produced in Kenya is twice the cost in India. This however is a temporary problem because the major new machinery is still taken substantial role in product costs. This is expected to yield considerable benefits to the government in giving foreign exchange.
Yields are still low. The opportunity cost of capital, especially foreign capital and skilled manpower is quite high, the opportunity cost of land increasing as population increases. The low productivity of labour perhaps more than compensates for the low opportunity cost of labour. Hence future sugar market is very important item in deciding on the expansion of the sugar industry.

**MARKET FOR EXPANDED PRODUCTION**

With rising population with disposable incomes, and assuring the sugar prices will be fairly stable on the next few years, there will be a greatly growing internal market for sugar in Kenya.

Hence unless production is expanded the present self-sufficiency will not be maintained and may need to import sugar which will drain on foreign exchange reserves.

The consumption is expected to increase at rate of 10% per annum. This together with indirect export of sugar, the demand is expected to double to 500,000 tons per annum over the next 5 years.

Expansion for export market is a different matter. The officials of sugar industry estimate that at current price, Kenya can only export at a loss (though slight). Hence planning must be within the scope of making and maintaining self-sufficiency in sugar for the near future.

**BY-PRODUCTS**

There is no clear policy by the government on encouraging other possible social and private benefits accruing to sugar production in Kenya is production of size-by-products. The molasses from sugar is already being used to produce spirits. Plans are underway to use it to produce power alcohol, yeast, citric acid and other chemicals. This is expected to yield considerable benefits to the government in giving foreign exchange.
Most of bagasse is being used as fuel to power the mills. Hence saving imported fuel. This, however, will be taken for granted.

**Employment Objectives**

Sugar production involves relatively large amount of labour. A sugar plantation producing about 5,000 tons of sugar can expect to employ up to 3,000 workers. If we assume capital to be £30 million the amount of capital per worker is £10,000. This is low compared to most of the industries.

Hence in view of the employment objections of current development plan. A low capital for the labour ratio should further encourage desirability of the expansion of the sugar industry.

**Comparison of Real Costs and Benefits**

Most of the evidence above points to a conclusion that a vigorous expansion of sugar industry should be pursued.

This conclusion should be verified in view of variations in the cost structure of the industry. A proper evaluation of opportunity costs of capital, foreign exchange and skilled labour is important for the government to make firm decision. It would be surprising if any other analysis would lead to a different conclusion.

**Large and/or Small Scale Industry**

There is no clear policy by the government on encouraging small scale sugar industries.

We feel that there is room for their maneuver since the relationship between private costs and benefits and that between social costs and benefit is largely determined by government policy, it is necessary to analyse the fate of small scale factories as opposed to the large scale are in Kenya.
Since literature on large scale enterprises like Mumias is extensive, most information about it will be taken for granted. We shall therefore examine closely the Ulumbi White Sugar factory as a typical example of a small scale sugar project (SSSP) and assess its future in view of the problems that it faces.

The factory draws immediate attention of almost everyone travelling along the Busia Road. With billows of smoke from the chimneys, it is a living testimony of rural industrialization in this isolated environment.

Almost simultaneously one sees patches of sugarcane farms in and around the area. Hence the first impression is that the factory is located in this area because the area is suitable for cane growing as sugar is made from sugar cane as its only raw material.

SUGARCANE GROWING AND CANE MANAGEMENT IN THIS AREA

The climate and soil around Yala is quite suitable for cane growing in addition to other crops.

The rain falls about every month with two peaks annually around April-June and October-November. The dry spells are quite tolerable. The cane is grown locally by small scale farmers who use varieties Co421 and Co331 since they are most suitable for this area.

Quite evidently Ulumbi factory has brought about significant changes in land utilization and employment in the agricultural labour in the locality.
CHAPTER 4

ULUMBI WHITE SUGAR FACTORY

The Ulumbi White Sugar Factory is a small scale, open pan, white sugar factory located 35 km west of Kisumu Town, on Busia Road in Nyenya province.

The factory is privately owned by a local entrepreneur from the area. It was started in 1978 and it occupies an area of 5 acres of land on the banks of River Yala.

The factory draws immediate attention of almost everyone travelling along the Busia Road. With billows of smoke from the chimneys, it is a living testimony of rural industrialization in this isolated environment.

Almost simultaneously one sees patches of sugarcane farms in and around the area. Hence the first impression is that the factory is located in this area because the area is suitable for cane growing as sugar is made from sugar cane as its only raw material.

In order to regulate the supply of cane to the factory, a system of contracts has been derived between the farmer and the factory. A farmer is expected to deliver a certain quantity of cane to the factory.

The climate and soil around Yala is quite suitable for cane growing in addition to other crops.

The rain falls about every month with two peaks annually around April-June and October-November. The dry spells are quite tolerable. The cane is grown locally by small scale farmers who use varieties Co421 and Co331 since they are most suitable for this area.

Quite evidently Ulumbi factory has brought about significant changes in land utilization and employment in the agricultural labour in the locality.
There are about 400 farmers who supply cane to the factory annually, with each supplying an average of about 20 tonnes.

It must, however, be noted that the area under cane in this area is much larger than can be accounted for by Ulumbi factory.

This is because there are some jaggery factories around this area who utilize the cane. It would have been much more advantageous for the economy if these factories were larger and could have handled the cane from the farmers.

The cane takes about 20 months to mature for plant crop and 18 months for the 1st and 2nd ratenes. It would of course, be easier to transport if the distance was shorter.

The farmers, with help from the Ministry of Agriculture and sometimes the factory itself, look after the cane until it is ready for harvesting. In case of difficulties in the process, the farmer may ask for financial assistance from the factory so that he is not deducted when the cane is supplied. This rarely happens, however, since the farmer may supply his cane elsewhere, according to the management.

In order to regulate the supply of cane to the factory, a system of contracts has been derived between the farmer and the factory. A farmer is allocated a certain quote of cane to deliver. This besides helps the factory in having a schedule for harvesting programmes well in advance, the reverse of earlier shortage when sugar was the most important commodity

The factory is constantly in touch with farmers to monitor any new development in the region fit for farmers as can be seen in the table below:

Once the cane is ready for harvesting, the factory may send its tractor with a trailer to collect the cane, or the farmer himself may make his own arrangements. This activity, according to factory management is more difficult than appears to be since it involves coordinating among three parties, the transporter, by the farmer and the factory. Often cane after being harvested may
delay in the field such that by the time it reaches the factory it is stale. In addition, roads are often in very poor state especially if the distance from the factory is long.

The cane supplied to the factory is grown within a radius of 10-15 miles. During rainy seasons, the roads can prove impassable even to tractors. In fact, it would have been much more advantageous for the factory to grow its own cane since it would be easier to control quality and quantity supply. It would, of course, be easier to transport such cane from a few hundred yards. The management stressed the problem of transporting from long distances to be sometimes very cumbersome.

The factory, however, maintains a policy of being supplied by about 400 small scale farmers deliberately, inspite of difficulties, so as to help to redistribute monetary benefits.

Each farmer, a small holder has about 2½ acres of cane and thus the area under cane in relation to Ulumbi factory is about 2000 acres.

Insipite of potential competition over cane from Jaggery factories, the management says of late, the cane supply has been adequate. Indeed they have been in situations where they have had to cope up with surplus cane. This is the reverse of earlier shortage when sugarcane prices were low. With cane being paid for at a rate of 133½/ per tonne, there is good profit for farmers as can be seen in the table below.

The cane quality supplied by the farmers is good with sugar output at an average of 10%. The average cane yields in this Vela region is about 25 tonnes per acre. This looks rather low for the area with suitable rainfall and soils like this one. Reports by the Ministry of Agriculture indicate that a properly managed
sugarcane farm should yield an average of 45 tonnes per acre. It is important however to realise that the low yields occur in 2nd and 3rd ratoons. Paradoxically the plant crop inspite of high yields has too much input costs and often are unprofitable. Hence farmers often opt to extend to 3rd ratoon whose yields per acre are lower still but profits higher due to lower input as can be seen in the following estimated cane production cash for 1979 in this area.

Farmers are paid according to the weight of cane delivered. The policy of paying according to dead weight can be harmful and expensive since it does not take into account the cane quality. The policy has made farmers take advantage of infected cane; cane with trash for the sake of increasing the weight of such cane. The factory would prefer a system of paying on the cane according to the quality.

The factory officials say that the problem of cane quality can be acute especially during rainy season. Farmers complain about irregular payment by the factory for their cane. They say that once the factories sense cane is in an over supply, the gross returns from 30 tonnes of cane will be about lower 4,000.00. This gives a profit of 500.00 per acre but they sometimes have to pay a little cash for their cane to be accepted by the factory.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivation</td>
<td>600.00</td>
</tr>
<tr>
<td>Seed Cane</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Planting &amp; Gapping</td>
<td>200.00</td>
</tr>
<tr>
<td>Weeding</td>
<td>200.00</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>200.00</td>
</tr>
<tr>
<td>Harvesting</td>
<td>300.00</td>
</tr>
<tr>
<td>Transport Costs</td>
<td>1,000.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,500.00</strong></td>
</tr>
</tbody>
</table>

The gross returns from 30 tonnes of cane will be about lower 4,000.00. This gives a profit of 500.00 per acre but they sometimes have to pay a little cash for their cane to be accepted by the factory.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st RATOON</strong></td>
<td><strong>ESTIMATE PER ACRE</strong></td>
</tr>
<tr>
<td>Cultivation</td>
<td>300.00</td>
</tr>
<tr>
<td>Weeding</td>
<td>200.00</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>200.00</td>
</tr>
<tr>
<td>Harvesting</td>
<td>200.00</td>
</tr>
<tr>
<td><strong>Transport (20 tonnes)</strong></td>
<td><strong>600.00</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,500.00</strong></td>
</tr>
</tbody>
</table>

Many farmers complain about the irregular payment by the factories for their cane. They say that once the factories sense cane is in an over supply, the gross returns from 30 tonnes of cane will be about lower 4,000.00. This gives a profit of 500.00 per acre but they sometimes have to pay a little cash for their cane to be accepted by the factory.
The gross returns from a lower yield of 20 tonnes will be Kshs. 2,600.00. The profit is Kshs. 1,100.00. The 2nd ratoon will even have lower yields but better profit margins still than the 1st ratoon. It can therefore be seen why farmers prefer ratoon cane due to its lower activity cost inputs.

This factory, because it is situated in a typical rural area, has acquired a relative lack of sophistication both inside and outside. More or so, the plant crops take longer time to mature while ratoon only take 18 months or less.

Farmers are paid according to the weight of cane delivered. The external prominent feature is the chimney where smoke can be seen which will indicate work in progress. Paying according to dead weight can be harmful and expensive since it does not take into account the cane quality. This policy has made farmers take advantage of infested cane; cane with trash for the sake of increasing the weight of such cane. The factory would prefer a system of paying for the cane according to the quality. In addition, employ about 120 casual labourers, and 40 casuals are on farms, under normal crushing conditions.

Farmers complain about irregular payment by the factory for their crushing at full capacity, which is not often. They say that once the factories sense that there is an over supply of cane, they will use unofficial methods of reporting lower weights than that actually delivered. They say that they sometimes have to pay a little cash for their cane to be accepted by the factory over 600 miles away. They get in touch with the factory by telephone.

Farmers who supply cane to the factory are trying to organize themselves in co-operative societies through which they can handle their grievances against the factory.

During this research, it became evident by touring there and around the factory that cane growing has acquired new popularity due to the returns compared to other crops.
In this way, the Ulumbi White Sugar Factory has helped to bring change in the land utilization. Cash is injected into the local community and continues to circulate within it.

THE FACTORY: MANAGEMENT, PROCESSING AND THE ECONOMICS

This factory, because it is situated in a typical rural area, has acquired a relative look of sophistication both inside and outside.

The external prominent features are the chimney where smoke can be seen which will indicate work in progress.

However, compared to other large factories, it is very simple even according to the capital equipment.

The factory employs about 40 permanent staff, of whom administration takes about 10. The rest are in factory processing. The factory in addition employs about 120 casual labourers, and 40 casuals are on farms, under normal crushing conditions.

The factory officials however said that when the factory is crushing at the full capacity (which is not often) they can have up to 300 employees.

The official chain of command stems from the managing director, about a wide range of issues. He always spends time to solve their problems, who is the owner of the factory, and is mainly in his Nairobi Office over 800 miles away. He gets in touch with the factory by telephone.

This type of management is quite noteworthy especially considering that the managers have not been given special training on management techniques.

He feels that if the government organised courses for managers of small scale industries, he would be particularly grateful to learn.
ADMINISTRATION STRUCTURE AND CHAIN OF COMMAND

Managing Director

Factory Manager

Production Manager

Farm Officer

Chief Accountant

Individual Farmers

Administrative Staff (Clerks, Secretaries, etc.)

Production Supervision

Production Workers

There are two shifts operating the factory for 24 hours. One

The day to day factory activities are under the factory manager. for 12 hours. The workers on this shift are given overtime over the
He reports, with deep satisfaction, that there are almost no labour official work hours of 8 hours per day.
problems that he has got in the factory.
The reason for having two shifts instead of three is to avoid

The factory workers are directly under the Production Manager.

One notices workers coming in his office with various complaints
about a wide range of issues. He always spares time to solve their
problems. Workers who start at 7.00 p.m. will end their shift at

In his own words, "80% of the problems are personal while 20% go for 11 hours. The shorter shift is needed, to enable the workers are technical," during normal processing period.

This type of management is quite noteworthy especially
considering that the managers have not been given special training
they change over two shifts, on management techniques.

Each production worker has a specific duty to report out. For example, as of June 1981, shift I had the following experiment:
of small scale industries, he would be particularly grateful to learn
in production.
the formal techniques. He however feels that although there is an official chain of command, his success depends on the factory's peculiarity of little specialization in management. There is close personal contact of top management with production workers and to some extent (though much less), with farmers. Hence there is a relatively close integration with the community.

Almost all workers here are drawn from the local community. This includes top management. The instructions are given in the local languages. The workers have to learn the technical terms which inevitably are in English. The officials say that while they would prefer workers with long enough formal education, they do not have a serious problem on level education of workers. This situation dictates that the supervisor should be of better education than the workers.

There are two shifts operating the factory for 24 hours. One for 13 hours. The workers on this shift are given overtime over the official work hours of 8 hours per day.

The reasons for having two shifts instead of three is to avoid shift changing at night since there is no transport for the workers to go home at night. 1. Long working

Hence workers who start at 7.00 p.m. will end their shift at 8.00 a.m. (13 hours shift) giving way to another shift which will go for 11 hours. The shorter shift of day, is to enable the workers to come or get home when it is still almost day. After one month, they change over the shifts.

Each production worker has a specific duty to carry out. For example, as of June, 1981, shift 'A' had the following requirement in production:
OPERATION

<table>
<thead>
<tr>
<th></th>
<th>NO. OF LABOURERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cane Weighing</td>
<td></td>
</tr>
<tr>
<td>Crusher</td>
<td>16</td>
</tr>
<tr>
<td>The sugarcane is delivered to the factory on flatbeds being pulled by tractors. The flatbed is pulled to the weigh-bridge.</td>
<td></td>
</tr>
<tr>
<td>Clarifier</td>
<td>12</td>
</tr>
<tr>
<td>Juice Boiling</td>
<td>20</td>
</tr>
<tr>
<td>On the weigh-bridge, which is standardized by Kenya Weights and Measures, the weight of the cane is determined and the farmer is given a receipt, for later payment.</td>
<td></td>
</tr>
<tr>
<td>Molasses</td>
<td>16</td>
</tr>
<tr>
<td>Centrifugal/Drier</td>
<td>10</td>
</tr>
<tr>
<td>Greasing</td>
<td>5</td>
</tr>
</tbody>
</table>

The cane, after this, may be stored temporarily in the compound ready to be processed.

A similar number had been allocated for shift 19. The number of workers in total can be increased or decreased depending on the amount of work there is.

Officials said that though they have good market for sugar and cane is usually available, they operate at low capacity mainly due to technical problems. Often the pumps may take up to a week to be repaired. There is no serious problem of absenteeism. The labour turnover sometimes tends to be high, especially among casual labourers, so there is a risk of affecting the factory's output.

SUGAR PROCESSING AT THE FACTORY

The cane which is passed is then put in the cane yard for further selection.

The sugar manufacture as seen at this factory can be subdivided into the following categories:

1. Cane Weighing
2. Cane Preparation
3. Juice Extraction By Milling
4. Purification of Juice
5. Evaporation
6. Crystallization
7. Centrifuging
8. Drying and Bagging.

There are three (3) tenders of rather small 3-roller mills.
Cane Weighing

The sugarcane is delivered to the factory on trailers being pulled by tractors. The trailer is pulled to the weigh-bridge. On the weigh-bridge, which is standardized by Kenya Weights and Measures, the weight of the cane is determined and the farmer is given a receipt for later payment.

The cane, after this, may be stored temporarily in the compound ready to be processed.

Also at the weigh-bridge, the cane is inspected for quality and to determine the amount of trash present. If the cane is found within reasonable limits, it is passed. However, as it often happens, if the farmer delayed in delivering his cane and it has gone stale, it can be rejected. To avoid this conflict, the factory prefers to inspect the farmers’ cane in the field just before delivery.

I noted that farmers whose cane is rejected feel very bitter and so threaten to take the factory to court.

The cane which is passed is then put in the cane yard for further selection.

Cane Preparation

The cane after being finally selected is manually fed into a conveyor. There are two sets of shredders on the conveyor. The shredders, operated by a motor will break the cane into small bits which can be fed into mills. Immediately after the shredders, there is a magnetic device which attracts magnetic substances which may be in the cane and could damage the mills.

Juice Extraction

There are three (3) tandems of rather small 3-roller mills
operated by an engine, like in the big factories where the juice is
heated. The shredded cane is pressed hydraulically by the mills to
extract the juice. The improved juice extraction is affected by
spraying the last mill with water.

The residue cane left behind is called bagasse. This is taken
to the furnace to be used as a source of fuel. Even though it is too expensive
for a small factory on the other hand.

Juice Clarification

The thick syrup is transferred to the crystallization tanks, which
are fitted with stirrers. The juice is then stirred while being cooled
pumped into sulphitation tanks which are at a height of about 10 feet.
by air until the thick juice becomes saturated with crystals.

The juice is then heated for about half an hour. This heating
process is an effective clarifying agent. The scum that is formed of
albuminoid substances is led off from the top.

This is a delicate stage and an important one in sugar manufacture.
To the hot juice, sulphur dioxide is added which is a bleaching
agent. Then lime is added to correct the pH neutral. Finally,
when to decide whether the molasses is ready for "striking" meaning
phosphates are added to form precipitates with the calcium impurities
in the juice. With further heating, the impurities
will now settle down.

The clear juice at the top of the pan is pumped to juice boiling
pans, while the bottom dirty juice is taken to the filters. In the
filters, the residue is pressed and clear juice is extracted leaving
behind what is called filter press mud (f.p.m.). Since this mud is
rich in chemicals, it is taken to the cane fields as fertilizer.

Finally, the juice may be corrected for pH by sulphur dioxide
or lime depending on whether it is acidic or alkaline.

Evaporation and Crystallization

As the pan is rotated, the screen retains sugar crystals, whilst
the molasses is troughed through the perforations. The retained sugar
is washed with water which is sprayed on by hand pumps. This is a most
interesting activity to watch because it will assure that the sugar
opposed to closed pan like in the big factories where the juice is heated under vacuum.

The juice is evaporated until it becomes a thick syrup of about 50° Brix. This type of boiling, however, according to standard sugar technology texts, is much less efficient than the vacuum pan boiling of the larger factories. This more efficient method is too expensive for a small factory on the other hand.

The thick syrup is transferred to the crystallization tanks which are fitted with stirrers. The juice is then stirred while being cooled by air until the thick juice becomes saturated with crystals.

The contents of the tanks is now called messecuite and may stay for a day before it is ready for centrifugation.

This is a delicate stage and an important one in sugar manufacture. It will have the most experienced workers. For example, when the workers want to decide whether the messecuite is ready for "striking" meaning centrifugation, they hold the messecuite between their fingers and pull them apart. If it is ready, it will form a string of about an inch thick before it breaks.

Centrifuging

The factory taking advantage of the situation and reporting later the heavy messecuite is carried by pails and poured into revolving machines called centrifuges; which are basically cylindrical baskets inside shells. The basket is suspended on a spindle which is coupled to a high speed motor. The basket has perforations on the wall which is lined with fine mesh screens made of brass.

As the basket is rotated, the screen retains sugar crystals whilst the molasses is troughed through the perforations. The retained sugar is washed with water which is sprayed on by hand pumps. This is a most interesting activity to watch because it will appear that the sugar
suddenly changes from very brown to very white in a matter of seconds as the water is sprayed. High demand on the market and is sold at profit. The workers will then slow down the centrifuge and scrap off the sugar for drying, which is not taxed and not Customs controlled.

During our discussion, the management seemed to say that they could make more money if the factory was to produce only molasses (or jam).

The wet sugar is placed on rotating drums where the sugar comes into contact with warm air. The drier is connected to a hopper which has an outlet for bagging. The bags are then sealed in 100 kg. units.

At this stage officially, the sugar becomes the property of the government under the Customs bond.

This factory has the capacity to crush 100 tonnes of cane per day which should give about 50 x 100 kg. bags. However, on the average, the factory produces about 15 - 20 bags of sugar daily due to various reasons.

It is important however to note that the production figures are highly susceptible to distortions under these circumstances where one has to pay high duty fee per kilogram of sugar produced. With little or no government supervision unlike the big factories. One suspects the factory taking advantage of the situation and reporting lower figures than actually the case.

Molasses, as well within the limits set by the Kenya Bureau of Standards, is not taxed. When the sugar is retained in the centrifuges, the molasses pass through the perforations and is collected at the bottom of the centrifuges.

This molasses is of high quality in the sense that it still has a lot of sugar retained in it. Indeed in the "open pan" factories, they are well known for producing such good quality sugar.
most sugar lost in the process is lost in the form of molasses.

The molasses is on high demand on the market and is sold at premium prices. A very reasonable income of the factory is from molasses since it is not taxed and not custom controlled. The ratio 21 means that 21 tonnes of cane are needed to produce 1 tonne of sugar. (A factory like Mufara could make more money if the factory was to produce only molasses.)

During our discussion, the management seemed to say that they say that the molasses bought ends up in the manufacture of an illegal brew called "Changesa".

The officials however emphasised that unlike bigger factories, the molasses plays an important role in the economics of small scale sugar factories. The S.H.A. simply puts the figures back when compared with Mufara's figure of about 60%. But it is the boiling house recovery (S.H.A.) which, due to open pan boiling, puts the figures very low. The S.H.A. simply says that the sugar produced to the sugar which was in the juices.

Sugar Quality

The low recoveries which result in cane/sugar ratio of over 20% are due to the inefficient operations inherent in the open pan factories. This makes these factories less economically competitive from this factory has the following characteristics on average:

- **Polarization**: 99.5% (indicates amount of pure sugar)
- **Moisture**: 0.1% m/m
- **Ash**: 0.1% m/m
- **Reducing Sugar N/A**: 126,000.00
- **Colour**: 350 (CUMSA units)

This is well within the limits set by the Kenya Bureau of Standards, and compares favourably (if not better) with the other large factories. The sample that was collected during my visit looked quite attractive by visual appearance.

It has been observed as a whole that small scale sugar factories are well known for producing such good quality sugar.
FACTORY PERFORMANCE (TECHNICAL & ECONOMICAL)

The average figures for cane/sugar ratio for 1980 were 21, ranging from 16 - 24. The ratio 21 means that 21 tonnes of cane are needed to produce 1 tonne of sugar. (A factory like Mumias Sugar Factory over the same period had an average ratio of 8.5). Hence Ulumbi factory has a much lower sugar recovery than Mumias. In fact, it recovers less than half as much.

The milling performance at 72% extraction is not too bad when compared with Mumias figure of about 80%. But it is the boiling house recovery (B.H.R.) which, due to open pan boiling, puts the figures very low. The B.H.R. simply goes into closed pan system. He invited me to compare the results.

Hence the low recoveries which result in cane/sugar ratio of over 20 are due to the inefficient operations inherent in the open pan factories. This makes these factories less economically competitive as can be seen in the following estimates of cost of processing 1000 tonnes of cane in one month, to produce 50 tonnes of sugar.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COST (SHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugarcane</td>
<td>126,000.00</td>
</tr>
<tr>
<td>Transport (30/- per tonne)</td>
<td>30,000.00</td>
</tr>
<tr>
<td>Wages (9,000 man days)</td>
<td>90,000.00</td>
</tr>
<tr>
<td>Fuel &amp; Power</td>
<td>32,000.00</td>
</tr>
<tr>
<td>Depreciation (10%)</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Cost of Capital (about)</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Maintenance &amp; Repair</td>
<td>5,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>203,000.00</strong></td>
</tr>
</tbody>
</table>
Earnings and Social Impact of Uluguru White Sugar Factory

1. Sugar sales from 1,000 tonnes cane is equal to 50 tonnes sugar @ 2,000/= per tonne which is equal to 140,000/=.

Hence we can see that from sugar alone, the factory would be running at a loss. The sales for molasses from 1,000 tonnes of cane are estimated to be 60,000/=. Hence total revenue is 200,000=/=

\[
\text{Total Revenue} = 140,000/\text{cane} + 60,000/\text{molasses} = 200,000/\text{total}
\]

The area is fairly isolated and hence a household unit of 10 people will be considered. This is just above the breakeven. Because of the production for the year 1960, the following estimate was considered valid.

The managing director told me he was seriously considering going into closed pen system. He invited me to compare the results after that. He was confident that the picture would be quite different in less than 1 1/2 years time.

<table>
<thead>
<tr>
<th>People Involved</th>
<th>Cash Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cane growers + household</td>
<td>4,000</td>
</tr>
<tr>
<td>Unskilled workers + household</td>
<td>2,500</td>
</tr>
<tr>
<td>Skilled workers + household</td>
<td>400</td>
</tr>
<tr>
<td>Factory owner + household</td>
<td>10</td>
</tr>
</tbody>
</table>

This shows that over 50% of the beneficiaries are low income peasant and workers.

Since the Kenya Agriculture Development Plan specifically considers income distribution as one of the major issues influencing project selection, this factory greatly fulfills such requirements.

The income of the factory owner estimated at 5,000,000 annually can also contribute to formation and strengthening of African
CHAPTER III

ECONOMIC & SOCIAL IMPACT OF ULUMBI WHITE SUGAR FACTORY

1. INCOME DISTRIBUTION.

The Sugar Industry is among the forefront agencies in transforming in due course. He was particular considering opening an alcohol land utilization in Kenya. It injects cash into the local community plant (from cane) within the region, which continues to circulate in the region where cane is grown.

During the period this factory has been in existence, the land I will therefore assess the economic impact of this factory by value in the area has gone up and some say it has unstriped. This considering cane growers and their households, factory workers and is another benefit for the peasants who may not even grow cane and yet benefit from it.

The area is fairly densely populated and hence a household unit The incomes from cane for farmers has not yet had a profound of 10 people will be considered.

For the year 1980, the following estimate was considered valid:

One notices that the farmers tend to entertain themselves after they are given the money. But this, will of course correct itself when incomes are more stabilized. Evidently the peoples are better and possibly are to better health.

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<td>400</td>
</tr>
<tr>
<td>Factory owner + household</td>
<td>10</td>
</tr>
</tbody>
</table>

This shows that over 90% of the beneficiaries are low income peasants and workers.

Since the Kenya Agriculture Development Plan specifically considers income distribution as one of the major issues influencing project selection, this factory greatly fulfills such requirements.

Clearly contrasting with the negative economic impacts of other aspects of this factory, one other social aspect greatly desired.

The income of the factory owner estimated at 3,000,000 annually can also contributes to formation and strengthening of African
entrepreneurship if it is reinstated. This was quite clear after the managing director, who is the owner, had said. He had plans to open many other projects in the country and he hoped to move in large scale industry in due course. He was particularly considering opening an alcohol plant (from cane) within the region.

During the period this factory has been in existence, the land value in the area has gone up and some say it has quadrupled. This is another benefit for the peasants who may not even grow cane and yet benefit from it.

The incomes from cane for farmers has not yet had a profound effect since they have only been in their exercise for hardly 4 years. One notices that the farmers tend to entertain themselves after they are given the money. But this will of course correct itself when incomes are more stabilized. Evidently, these people dress better and possibly are in better health.

SOCIAL IMPACT

The Ministry of Planning has estimated that unemployment in rural areas reaches up to 90%. This Vafa area is no exception in this regard. The government has observed that because of this, there is a strong trend to migrate to the urban areas.

The fact that this factory is placed in a typical rural setting and is able to retain 40 skilled workers and 250 unskilled workers means that it is acting as a powerful force in reversing that trend to migrate to towns. In this way, small scale rural factories can have tremendous social impact.

Sharply contrasting with the positive economic and employment impact of this factory are other social effects largely considered
negative. We have observed that molasses plays an important role in the incomes of the factory. Almost all molasses finds its way into manufacture of "changaa" an illegal local drink. The health officials say that this drink is not suitable for the human body. The administrative officials claim to have a correlation between changaa drinkers and crime and prostitution.

This very fact has placed the government in a dilemma where they have to balance between 'positive' and 'negative' aspects of small scale sugar factories.

The result has been unclear government policy. Hence the factory officials claim that they almost operate mainly within the 'informal' sector of the economy.

PROBLEMS FACED BY ULUMBI SUGAR FACTORY

The most important problem faced by the factory according to the officials is the low recovery due to the technical inefficiency inherent.

A study carried out by the Agroinvest group of T. J. Cottington (1976), concluded that it costs more to produce 1 kg of sugar from a small scale industry than a large scale industry. It predicted a broadaven figure of 300 tonnes cane per day which is above the factory capacity. Hence the factories are not very competitive economically.

The second problem pointed out by the factory officials is the poor infrastructure. During rainy seasons, roads can be so bad that they greatly hamper transportation of cane from farms to the factory. The management complained that the larger factories are given better assistance by the government in this respect.
The third problem is that cane delivered is sometimes infested with pests. Since payment is on dead weight, the factory suffers lower recovery. Indeed, it was pointed out that some recovery figures indicated an improvement of up to 30% recovery with better cane quality.

There are generally two approaches to the definition of small scale industries (4) and is to use the objectionable qualitative measure such as employment, capital equipment, at some convenient valuation. The second approach is to attempt a functional definition in which small industries are distinguished from large ones or even medium ones on the basis of suspected or proved characteristics. The second approach has been used in this paper. The second approach has been used in the work of Stanford Research Institute (4). The small scale industry should have the following characteristics:

1. Little specialization in management.
2. Close personal contact of top management with production workers.
3. Lack of access to capital.
4. No special bargaining power in buying and selling.
5. Close interrelation with local community.

Many workers at the Ulumbi White Sugar Factory even consider their factory large scale. One could easily do so if you apply the first definition.

But, Ulumbi Factory can only be distinguished from the large Sugar Factories according to the second definition.

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CHAPTER IV

DISCUSSION AND SURVEY OF LITERATURE

DEFINITION OF SMALL SCALE INDUSTRIES

There are generally two approaches to the definition of small scale industries (4) one is to use the objectionable quantitative measure such as employment, capital equipment, at some convenient valuation. The second approach is to attempt a functional definition in which small industries are distinguished from large ones or even medium ones on the basis of suspected or proved characteristics. The second approach has been used in this paper. The second approach has been used in the work of Stanford Research Institute (4). The small scale industry should have the following characteristics:

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Many workers at the Ulumbi White Sugar Factory even consider their factory large scale. One could easily do so if you apply the first definition.

But, Ulumbi Factory can only be distinguished from the large Sugar Factories according to the second definition.

Reference (4) = Stanford Research Institute (1958) Research Programme on Small Scale Industries in Developing Countries.
SOURCES OF FINANCING FOR SMALL SCALE INDUSTRIES

It is a common knowledge that difficulties of financing small businesses in Kenya arise from their lack of credit worthiness and security. Even the government itself has sometimes been reluctant. Many bodies that tried to assist small scale industries have done so under special schemes. Part of financing Ulumbi White Sugar Factory illustrates the conditions which they had to fulfill to the Kenya Commercial Bank before they could get a loan.

The loan was to start and to expand this industry. It was provided for under the SMSIE Scheme of Kenya Commercial Bank Limited (5).

The Kenya Commercial Bank and the International Finance Corporation, Washington, have developed a scheme to assist small and medium scale industrial enterprises by providing long term loans and working capital. To be eligible for finance under this scheme, the Ulumbi Sugar Factory had to comply with the following conditions:

1. It is a limited liability.
2. It is engaged in one (or more of the following:—)
   a) Agro-industries
   b) Manufacturing
   c) Construction and service industry
3. It is essentially a private owned enterprise.

During this exercise the scheme a veil of secrecy over the production figures. Even the Ministry of Commerce is suspicious about production returns they get from small scale sugar factories. It is essentially a private owned enterprise.

This means, that there is a conflict of interests in this regard.

Reference (5) = Kenya Commercial Bank Limited, Brochure on SMSIE Scheme, Pg 1 - 2.
4. It has been in operation for two years on starting a venture for an industry in the managing of which it has substantial experience.

5. It plans to use the proceeds to finance acquisition of fixed and current assets including land, buildings, machinery equipment, vehicles, inventories.

6. Its total investment in fixed assets is not likely to exceed Shs. 5 million.

Hence the Ulumbi Sugar Factory was quite in a position to fulfill most of the conditions of the loan and that is how they got part of the loan. It must however be pointed out that it is difficult to get a proper financial and capital structure of such private firms like this one. So one has to rely on what the management tells you. Access to figures sometimes proved difficult.

SMALL SCALE INDUSTRY AS A BUSINESS ORGANIZATION

As any other business organization, these small scale industries have profit goals and a desire to grow. However due to the poor financial position as we see above, the entrepreneurs sometimes become unethical in order to fulfill the business objectives.

During this survey, one senses a veil of secrecy over the production figures. Even the Ministry of Commerce is suspicious about production returns they get from small scale sugar factories in the country. At Shs.4.50 per liter of sugar, a family can afford may be this could be a way of avoiding taxes which could harm the business.

This means, that there is a conflict of interests in this regard. It means that the small scale industries do not operate properly as said that production cost of the factory used in response to the demand of the products by local community.
TECHNOLOGY IN SMALL PLANTS

The manufacture of sugar which was explained in the previous chapter, gives an outline on the technical processes and technology involved.

Given that these processes are being well managed and run by relatively unsophisticated managers and unskilled workers, it shows that the technology for small scale industry is appropriate for most conditions obtaining in developing countries.

The management felt there were no particular difficulties that they were experiencing and most of the day to day maintenance was being done internally.

ENTREPRENEURSHIP AND MANAGEMENT OF SMALL SCALE INDUSTRY

The fact that the Ulumbi factory is African owned and having little specialization in management shows that these small businesses present a good opportunity for the country to indigenous capital and management within the scope of the unsophisticated African entrepreneur.

Though the high proportion of relatives within the management would show signs of nepotism, this is quite understandable considering the rapidity in the business and the scarcity of trained workers in all areas. It has a strong price advantage due to their more efficient operation.

MARKETS AND DEMAND FOR PRODUCTS OF SMALL INDUSTRIES

Sugar is consumed intensively in this locality like other areas in the country. At Shs.4/50 per kilo, an average family can afford an average from the small producer. This has resulted in some overproduction because these small scale sugar factories do not submit their production for the purpose of taxation.

Since the products are sold to the local community, it can be said that establishing of the factory was in response to the demand of the products by the local community.
In this way, we can conclude that small scale industries often do satisfy the demand of local consumption.

RELATIONSHIP BETWEEN SMALL SCALE SUGAR PROJECTS AND THE AGRICULTURAL INSTITUTIONS.

However, one can immediately grasp their fear of small scale plants for the ever present danger of being swallowed up by the big factories.

Sugarcane apparently fetches better prices than other crops like beans, maize and cotton.

Most farmers in the area thus concentrate more on sugar cane at the expense of other crops. In this connection, many people have been alarmed at the way the sugar industry is therefore killing other crops. With recent food shortage acting as a pointer, it is important to realise the potentially harmful effects of sugarcane specialization over production of adequate food supply. It is therefore a task for the government to have a policy of balanced food/cash crop development by having balanced incentives.

RELATIONSHIP WITH THE LARGE SCALE PLANTS

Hardly 15 miles North-West of Ulumbi Sugar Factory is the giant Mumias Sugar Company.

Moving from Ulumbi to Mumias, one straight away get the impression that Mumias dominates the area in all spheres. It has a strong price leadership due to their more efficient operations.

One even feels that due to the nearness of Mumias, there is a tendency for the government to ignore Ulumbi.

An official from the Ministry of Commerce explained that this neglect has resulted in some losses for the government because these small scale sugar factories do not submit their production returns for the purpose of taxation.

The management of these factories however say that the government hardly considers them for any services that they offer the large
companies. He added that the small companies are never mentioned
even in the press. Indeed, one is told that a researcher is therefore
one of the rare visitors to the Company.

However, one can immediately grasp their fears of small scale
plants for the ever present danger of being swallowed up by the
big factories.

A DEVELOPMENT MODEL FOR THE KENYAN SMALL SCALE INDUSTRY

Myrdal’s model of economic development process provides a

In discussing the Kenyan model of economic growth, we shall

good case for favouring small scale industries. Ranji observes

raise the following question: “Is there a general development model

that it has received widespread favourable comments in developing

economic nature which suggests that part of Kenyan planning could

do well by emphasizing on small scale industries?”

Myrdal observes that international inequalities between

Two economic models will be discussed briefly. They are,

advantaged and developing countries are widening and maintain that

1. Models of Walt W. Rostow (3).

traditional equilibrium theory cannot explain this result. Thus,


the world is not purely competitive, and feasibility of more impor-

ECONOMIC STAGES

Rostow’s model suggests that large investments in some key

industry (or industries), would trigger off a “take off” into

sustained growth.

References

Rostow, W.W. The Stages of Economic Growth:
Cambridge University Press, 1960 Pg. 179.

Ranji, G. W. Small-Scale Industries and Planned
Economy (India Journal of Economics 33, April
1963) Pg 363 - 378.

Myrdal, Gunner. Economic Theory and Under-
developed Regions: London - Gerald Cluckworth
& Co. Ltd, 1957 Pg. 168.

Polar Regions Living Issues in Development
Economics: New York: Oxford University Press,
1964 Pg. 972.
The Kenyan economy being seen as in its pre-condition stage, hence the sugar industry being a key industry (6 billion shillings investment as of today) would encourage large investments. There is no doubt that acceptance of Rostow forms the basis of a model for the Kenyan sugar industry. This model suggests little, if any emphasis on small scale, would be especially suitable for this.

VICIOUS CIRCLES AND CUMULATIVE GROWTH

Myrdal's model of economic development process provides a
And yet, in order to implement their own development plans it will
good case for favouring small scale industries. Rao observes
be necessary to emphasise small units,
that it has received widespread favourable comments in developing
These shortcomings are inherent in development planning as a
countries.

While, they are traceable to faulty model of government decision-
Myrdal observes that international inequalities between
making policy in planning models. This implication is that under-
advanced and developing countries are widening and maintaining that
ment operates in the model of economic and profit maximisation of the
traditional equilibrium theory cannot explain this result. Thus,
the world is not purely competitive, and possibly of more importance

The reality is that
social and political factors unevenly assist development. A country
1. Government may not have clear stable objectives, rather
embedded in relative poverty will be unable to uplift itself because
they try to avoid social conflict and to maintain authority;
it's adjustment processes are weak. This is the vicious circle under
2. The insufficiency of optimality and consistency caused by
such circumstances.

uncertainties and power fragmentation.

3. The existence of societal pluralism requiring good

conflict management.

References:

Rao, R. V.: Small Scale Industries and Planned
and national Economy (Indian Journal of Economics 33, April
1963 Pg. 363 - 372.

Reference (9) = Meier, Gerald M: Leading Issues in Development

Reference (8) = Killick, Tony: The Possibilities of
Economics: New York; Oxford University Press,
1964 Pg. 572.
Development Planning: Oxford Economic
Hope arises in the possibility of cumulative movement by strengthening what he called "spread effects". This is done by creating a class of entrepreneurs and a pool of skilled workers.

Here then is a place of small scale industries in Kenyan policy, for if it desired to have a new class of African entrepreneurs a proper loaning programme would be especially suitable for this.

In the overall approach of Kenyan planners however, as far as the sugar industry is concerned is cast within Rostow's framework. And yet, in order to implement their own development plans it will be necessary to emphasise small units.

These shortcomings are inherent in development planning as a whole. They are traceable to faulty model of government decision-making implied in planning models. This implication is that government operate in the model of economic and profit maximization of the firm.

The reality is that:

1. Government may not have clear stable objectives, rather they try to avoid social conflict and to maintain authority.

2. The impossibility of optimality and consistency caused by uncertainties and power fragmentation.

3. The existence of societal pluralism requiring good conflict management.

4. Conflict between politicians' personal objectives and national interests.

Reference

This then results in making decision-making a bundle of compromises rather than a search for optimal and even consistency destroyed. Hence conflict between large scale and small scale.

In 1973 review on small scale industries in Kenya, David Dans (10) cited an ILO report which focussed attention to small businesses. These were seen as employers, training grounds for developing skills in management, and entrepreneurship. The small scale businesses were seen as suppliers of goods and services to low income groups and lastly (though not least), as a source of economic growth. An interdependence between agriculture and industry as stressed. Industries are not encouraging. What went wrong?

In this respect, what has happened at Ulumbi, is that this interdependence between agriculture and industry has created for the peasant economy a more utilization of land and labour without resorting to new technology.

However to what extent can the government refrain from monetary Reference (10) = Child, Frank (ed) Small Scale Enterprises maximization in order to promote the greater ideals of small scale Occasional Paper No.6 by Institute for industries contained in their own development plans? Development Studies University of Nairobi (1975).

Address by Minister ............... Pg. 3

- David Dans ......................... Pg. 146
- Muhia, F.M. ........................ Pg. 120
- Ichiron Inakiri ...................... Pg. 88
- Dharan Ghali ....................... Pg 11 (Foreword)

GOVERNMENT POLICY

Adelman, (11) in his study on economic growth and social justice says that the most powerful agent in improving income distribution is the government. He points out however that there is a tendency to have a conflict between economic efficiency and distributive justice (depending on whom benefits from the development). Hence if we conclude that small scale industries are good agents for implementing government policies of distribution and justice, the government should thus play a leading role in effecting this ideal.

It would appear that the government’s attitudes in Kenya towards small scale industries are not encouraging. What went wrong?

Hugen, (12) points out that the government resources can be guided by “optimization” or “maximization”. In this, he feels that there is a danger that the government will be tempted to go in for maximization of returns (by taxes, employment). This draws the government (at least for the sugar industry) to go in the direction of large scale industries.

However to what extent can the government refrain from monetary maximization in order to promote the greater ideals of small scale industries contained in their own development plans?


On 26th February, 1973, a Minister for Commerce and Industry addressed a seminar on small-scale industry in Kenya. He said that for industries to make a worthwhile contribution to Kenyan economy, they should be able to certify at least a few of the following conditions and goals:

a) To create additional employment.
b) Geographical dispersal of industrial activity.
c) Processing of domestic raw materials.
d) Conservation of foreign exchange.
e) Kenyanization of the economy.
f) Equitable distribution of national income.

The Minister went on to say that on most of the above, small-scale industries are even more competitive than large ones.

A paper presented by Mudhia during the same seminar on "role of Kenyan government on small scale industries: organization and policy", went further to outline how the Kenyan government was promoting small scale enterprises. He said the government had a number of financial institutions and services institutions to facilitate a more rapid growth of small units.

These institutions were, he said, the I.C.D.C., The Kenya Commercial Bank Schemes, The Kenya Industrial Training Institute (KITI), and several rural industrial development centres.

Hence, it is evident as already pointed out that while Kenyan economy, as far as sugar industry indicates, has been planned within the framework of Rostow's model.

The actual philosophy, policies or intentions are different and appear to be more of Myrdal.
Indeed the role of the government has even been more negatively assessed. Dharan Ghai (1973) then director of the Institute of Development Studies of the University of Nairobi wrote that there is a tendency among scholars and policy makers to neglect small scale enterprises despite their great importance in employment generated and diversification of the economy. A study by Ichiron Inskki (10) on legal framework for small scale enterprises, concluded that laws and regulations in Kenya, particularly the licensing system are not consistent with the more important objective of creating employment and better distribution of income which both be fulfilled by small scale industries.

This conflict of ideas within the government proves Killick Tony's fears that a decision-making within the government is more a bundle of compromises than a search for optimum.

Thus growth philosophy has to shift from free enterprise in order to harmonize development strategies.

It is economically possible and desirable for Kenya to develop small scale industries as complementary with large scale rather than as an alternative strategy to national development.

RECOMMENDATIONS

Because of their important role in balanced economic development and growth in a developing country like Kenya, the government can and should promote small scale industries offering them incentives so as to make them more economically competitive, create a more favourable legal environment, sufficient access to credit facilities despite lack of proper securities, and to offer management guidance so that the indigenous entrepreneur can overcome the various constraints they face.
CHAPTER V

CONCLUSION

The example of Ulumbi White Sugar Factory at Yala, a small scale factory, has served to illustrate that small scale enterprises can be of great importance in fulfilling government objectives of creating employment, growth and diversification of the economy, rural development, development of indigenous entrepreneurship and promotion of equitable distribution of incomes and growth.

However, there are social, structural, political, technical and economic constraints that have hampered the growth of these small scale trades and industries.

I would thus conclude that the study has illustrated dilemma of how a developing country with free enterprise system shows conflicts between developmental ideals of small scale enterprises and financial benefits of large enterprises.

Thus growth philosophy has to shift from free enterprise in order to harmonise development strategies.

It is economically possible and desirable for Kenya to develop these small scale industries as complementary with large scale rather than as an alternative strategy to national development.

RECOMMENDATIONS

Because of their important role in balanced economic development and growth in a developing country like Kenya, the government can and should promote small scale industries offering them incentives so as to make them more economically competitive, create a more favourable legal environment, sufficient access to credit facilities despite lack of proper securities, and to offer management guidance so that the indigenous entrepreneurs can overcome the various constraints they face.
REFERENCES AND BIBLIOGRAPHY


4. Stanford Research Institute (1958) Research Programme on Small Scale Industries in Developing Countries. During the above Pg. 15).


- Address by Minister ....................... Pg. 3
- David Dans ................................ Pg. 146
- Mweha, F.M. ................................. Pg. 120
- Ichiron Inakoni ............................. Pg. 88
- Dharan Ghai ................................. Pg. ii (Foreword)
