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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

KRIESEL, BOHLAENDER & ASSOCIATES

17786

FEASIBILITY STUDY ON A MAIZE FLOUR MILL IN THE REPUBLIC OF MALAWI

NOVEMBER 1988

UNIDO-PROJECT-No.US/MLW/87/088

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EXECUTIVE SUMMARY

A. PROJECT BACKGROUND

United Nations Industrial Development Organization (UNIDO) has commissioned a Feasibility Study on a Flour Mill in Malawi to examine whether this new plant would benefit the economy of Malawi, and determine the technical and financial parameters for such a plant.

The feasibility study has confirmed that such a plant will be economically feasible, taking into consideration a joint venture between a German technical partner, Deutsche Finanzierungsgesellschaft für Beteiligungen in Entwicklungsländern GmbH (DEG) and local promotors as well as the Investment and Development Bank of Malawi, Limited.

The policy of the Malawian Government is to increase sustained economic growth and encourage the establishment of industries having a positive impact on the self-sufficiency of the country.

B. MARKET AND CAPACITY

Since the import of flour to Malawi has been prohibited, the chance to stabilize the market segment by local flour production and supply has become more realistic.

The theoretical milling capacity installed in Malawi amounts to approximately 98,550 tons, which would be sufficient to meet the theoretical demand in the five urban centres of the country.

In addition, 800 small hammer mills (up country) - their capacity adding up to roughly 1.9 million tons per year - have to be taken into consideration, which is more than sufficient.

But the actual supply of maize flour to the urban centres amounts to approx. 39,500 tons only. To close the demand/supply gap especially in the capital Lilongwe a new maize flour mill is proposed.

According to the Comfar calculation, the ex-factory prices including 35 % surtax will be as follows:

Product A (cream of flour)	DM 365.-/t	=	MK 539.43/t
Product B (super cream)	DM 506.-/t	=	MK 747.82/t
Product C (roller meal)	DM 310.-/t	=	MK 458.15/t
Product D (bran)	DM 65.-/t	=	MK 96.06/t

C. MATERIALS AND INPUT

The mill will require

22,950 tons of maize per year (refer to page 80 - 'standard quality of maize grain'), which will be locally produced.

D. LOCATION AND SITE

The entire complex for the mill, storages, administration, parking lots and roads requires approximately 30,000 sq.m.

The production building including stores covers 2,850 sq.m.

The ideal location for the mill is in the industrial area of Lilongwe, which was visited in the course of the Consultant's field research.

E. PROJECT ENGINEERING

The mill shall be constructed as a three-floor steel construction based on a cement floor (steel structure; walls and roof covered with corrugated sheet iron) and two stores (grain store and finished-product store including packing section).

The technology that has been selected is in accordance with German production standards.

The main equipment will consist of a cleaning section, degermination section, milling section, packing section and some general equipment such as forklift, truck weighing bridge, repair units, laboratory etc.

The civil engineering work has been laid out on a turnkey-basis.

F. PLANT ORGANIZATION AND OVERHEAD COSTS

The flour mill should be owned by a group of joint venture partners supported by DEG (FRG) and Indebank (Malawi).

The managers of the new mill should approach their task with professional knowledge and experience.

For the function of the technical manager a milling engineer ought to be selected who has already acquired relevant experience with an industrial background. He should undergo an overseas training.

The fixed investment consists of building, machinery and equipment which will be depreciated by 5 % respectively 20 %.

Capital also is required for vehicles, technology and start-up, auxiliary and service facilities as well as pre-production expenditures.

Apart from the financial charges, the factory overheads include indirect labour, cost of utilities, insurance and expendable items.

G. MANPOWER

The total number of employees is 76, i. e. 60 for production, 8 for administration, 6 for additional personnel, 1 general manager and 1 technical manager.

It is envisaged to hire and train the key personnel during plant erection and commissioning.

Due to the clearly arranged and simple diagram, the recruitment of personnel will not be difficult, and enough competent applicants can be found in Malawi.

H. IMPLEMENTATION SCHEDULE

The production of maize flour can be achieved 21 months after the financing scheme and the selection of partners have been concluded.

I. FINANCIAL AND ECONOMIC EVALUATION

The financial evaluation shows that the plant would generate sufficient revenues to meet its financial obligations with an IRR of 29.68 %.

In addition to that, this project will create additional employment, improve the milling industry and increase self-sufficiency, and it can be used to train local labour on the job. By its newly created 76 jobs it will also increase the population's spending money and thus benefit local trade.

J. CONCLUSIONS

The implementation of the envisaged flour mill is recommended for the following reasons:

- balance sheet projections over a period of 12 years show a very sound development;
- it will close the supply/demand gap for Lilongwe;
- the reasonable layout of the capacity will allow its increase according to an eventual increase of demand;
- the quality standard will be improved which implies export possibilities; this depends on the choice of future activities in the marketing of the products.

Modern dietetics have re-discovered and recognized the nutritive value of the full grain. Hence American and European food requirements tend more and more to wholemeal bread and other such products. Managers of a flour mill would be well-advised to expect Malawi to follow this trend in due time - the envisaged flour mill will be able to cope with the demand for full-grain products, too.

1. PROJECT BACKGROUND AND HISTORY

The overall objective is to enhance the social welfare and income of the agricultural community and Malawi's prosperity and stability as a whole by means of both improving self-sufficiency in food products and expanding and diversifying export receipts from agricultural produce.

In this way the Government of Malawi aims at the following targets:

- to promote import substitution and export orientation by encouraging the establishment of industries based on the maximum use of local agricultural and related raw materials;
- to encourage the establishment of industries that have a linkage effect on each other;
- to utilize technologies that are appropriate to the size of the domestic market and prevailing local conditions, and local participation in the agro-industrial sector.

The Government strongly welcomes foreign investment.

1.1 Regional Investment Promotion Meeting (Harare)

At UNIDO's Regional Investment Promotion Meeting for SADCC countries held from 3 to 7 November 1986 in Harare (Zimbabwe), the idea to implement a Maize Flour Mill at Lilongwe was introduced.

1.2 Project Promotor and/or Initiator

It is to be noted that at the Regional Investment Promotion Meeting in Harare the potential Malawian sponsor K. K. Millers agreed that the German investors supported by the German Industrial Development Finance Company (DEG) participate in the new venture.

The following partners/parties had been taken into consideration:

- K. K. Millers Ltd. (local)
- Braun / Kastenmüller (Millers) (FRG)
- The German Industrial Finance Company (DEG) (foreign)
- Industrial Development Bank of Malawi (INDEBANK) (local)

1.3 Visits / Correspondence

At the Harare Investment Promotion Meeting it was agreed to visit Malawi immediately upon closing of the meeting in order to review with the Government authorities the overall investment climate and discuss the envisaged joint venture with the local private partner.

A delegation consisting of representatives of DEG, IPS Cologne and Project Consultants visited Malawi mid of November 1986.

In a letter dated 11th November 1986, the Ministry of Trade, Industry & Tourism pointed out that it was the intention of the Ministry to see that the project be implemented in the most practical way with the interest of all parties taken into consideration (see Annex I).

Following the meeting held on 7th November 1986, the local private partner K. K. Millers Ltd. confirmed in a letter its interest in the joint venture with a German investor.

K. K. Millers Ltd. also pointed out that there was a gap between the actual wheat and maize milling capacity and the demand for flour which might be closed by the establishment of the new joint venture (see Annex II).

Considering the facts and figures which had been obtained at the first visit to Malawi, the parties concerned were convinced that the implementation of a flour milling plant would have a positive impact on the national economy.

In order to foster the good relations between the parties involved and also to familiarize themselves with the conditions in the Republic of Malawi and particularly with the possibilities to implement a new flour mill in Lilongwe, the Consultants together with the potential German technical partner paid another visit to Malawi end of March 1987.

Between March 28 and April 4, 1987 a number of meetings were held with the local millers (K. K. Millers Ltd. and Grain and Milling Company), UNDP, Ministry of Trade, Industry & Tourism, and Ministry of Agricultural.

The result of this visit was that a UNIDO-supported Feasibility Study was to determine the project's viability before deciding on the implementation (see Annex III).

Mid April 1987, the Government of Malawi put an official request to UNIDO/UNDP for assistance to finance a comprehensive Feasibility Study.

1.4 UNIDO-Contract and Formulation of the Project

On May 5, 1988 UNIDO in Vienna commissioned KRIESEL, BOHLAENDER & ASSOCIATES to carry out a techno-economic Feasibility Study including market, technical, financial and economic considerations for a flour mill in Malawi.

The feasibility study is determined by rather detailed terms of reference in compliance with the UNIDO document 10/401 "Guidelines for the Preparation of Industrial Feasibility Studies for Consulting Firms".

The feasibility study defines and analyses in detail all the critical elements that relate to the economics and technology of establishing the assembly including: the size and nature of current and optimal demand, projected demand; modes and channels of distribution of finished products, marketing strategy and sales promotion, related costs; feasible normal plant capacity taking into account demand, technology and available raw materials; the various raw material options, their availability, suitability and costs; the location and site of the plant, project engineering, selection of commercially proven process available for licensing and know-how transfer, list of equipment and machinery required for each section of the plant, their specifications and costs; infrastructure and other facilities in relation to the selected location and site; the manpower requirements; mode of implementation and time schedules and related costs, selection of engineering contractor; financial analysis: investment costs, production costs, sales revenues, project financing plan, and

ascertaining commercial profitability; costs of raw materials, selling price of finished products, constraints on cost reductions; economic evaluation: contribution of project to the national economy and SADCC member countries.

1.5 Field Mission

Between June 4 and June 24, 1988 the Consultant's study team visited Malawi:

- Mr. Hans-Henning Kriesel, team leader
- Mr. Reinhold Scharf, milling engineer.

During the mission of the study team, support was provided especially by UNDP/UNIDO in Lilongwe, The Ministry of Trade, Industry & Tourism, The Ministry of Agricultural, and the milling companies K. K. Millers Ltd. and Grain & Milling Company.

Mrs. Paola Barsotelli (JPO UNIDO) organized the mission in such a professional manner that the field research could be carried out in the most effective way.

Taking into consideration the TOR of the Feasibility Study, the team had to investigate into all technical, commercial, infrastructural and political impacts applicable to flour milling in Malawi.

Annex IV gives a summary of the persons who had been contacted by the team in Malawi.

Especially with regard to raw materials and capacities, the team discussed these matters with the two millers (K. K. Miller Ltd. and Grain & Milling Company) and the respective authorities.

Considering the facts and figures obtained at the first and second private visit of the Consultant to Malawi in 1985 and 1987, the team was convinced that the project could be continued on that basis.

But as a preliminary result of the research it must be stated that recently there has been a considerable change in the sector of milling.

The original idea to form a joint venture between a local sponsor (K. K. Millers Ltd.) and a German technical partner (Braun) cannot any more be regarded as realistic.

The following points have led to the change of the situation:

aa. According to the Consultant's findings, the milling capacity for wheat and maize flour in Malawi is sufficient.

The indicated figure of 124 mt per day for wheat milling (see Annex II) only applies to peak-times and can be met by the installed capacity, provided the technology is improved.

bb. A significant problem is the constant supply of wheat.

Grain & Milling Company is the only importer of wheat, and K. K. Millers Ltd. has to purchase this raw material from there. This means an 100 % dependency. The quality of the imported wheat mostly is not up to standard which creates enormous problems in the milling process on the one hand and for the customers of wheat flour (mainly bakeries) on the other hand.

cc. In principle the locally produced maize does not create any supply problems (also refer to chapter 2.9 page 3o ff).

dd. Grain & Milling Company works under the umbrella of ADMARC (Agricultural Development and Marketing Board).

ADMARC, a parastatal organization, is under divestment (denationalization), which implies that there is uncertainty about the future shareholders of Grain & Milling Company as well as a restriction of its own freedom of choice.

ee. A serious problem in Malawi is the provision of maize flour to approx. 650,000 refugees from Mozambique on the basis of AID-maize imported by World Food Program (WFP) and milled by the two local millers.

On short- and medium-term consideration, the supply of flour to the population of Malawi will be affected by a substantial portion of the installed milling capacity being utilized for milling the maize for the refugees.

This problem has to be solved at once, and viable recommendations, such as mobile hammer-mills, have been given to WFP by the Consultant.

ff. Provided the mill of Grain & Milling Company in Lilongwe which is more or less completely deteriorated, is replaced by a new mill having a capacity of 3.5 mt per day, and minor technical improvements of the other three mills are made, the thus achieved milling capacity will meet the requirements for wheat and maize-flour in Malawi.

gg. It was therefore concluded that a new mill should be implemented in Lilongwe to close the demand/supply gap.

hh. The Consultant recommends the following options to be accomplished by the potential partners:

- to request assistance from DEG regarding the identification of a foreign partner,
- to elaborate a financing pattern based on this feasibility study,
- final determination of the site in Lilongwe,
- to obtain the principal consent and support of the Government of the Republic of Malawi,
- to motivate the government authorities to take prompt and appropriate measures.

2. MACRO-ECONOMIC BACKGROUND

2.1 Location

Malawi is situated in the south-eastern corner of Central Africa, covering an area of 118,485 square kilometres of which approximately 28,000 square kilometres are inland waters. Malawi is a land-locked country, bordered by Tanzania to the north, Mozambique to the east, south and south-west, and Zambia to the west. It is 901 kilometres long with varying widths from 80 to 161 kilometres.

The geographical character of Malawi is dominated by Lake Malawi which stretches for 568 kilometres along the spine of the country with varying widths of 16 to 80 kilometres.

To the west of the Lake, the land rises in a plateau of 915 to 1,220 metres. The southern part of Malawi is dominated by massive Zomba and Mulanje mountains. Mulanje Mountain, which is the highest in Central Africa, rises to 3,050 metres.

2.2 Climate

Malawi has a tropical continental climate with some maritime influences. Mountain areas are cool with annual temperatures ranging from 14.4° C to 17.8° C. In the low-lying areas, temperatures above 37° C may be registered during the hottest months. Frost is quite common in places which are above 1,830 metres.

Malawi has three seasons: the hot dry, the cool dry and the hot wet season. It is cool and dry from May to August. July is the coldest month, with a maximum temperature of 22.2° C and a minimum of 11.7° C. It is hot and dry in September, followed by October and November as the hottest months when the mean maximum temperature is 29.4° C. Those temperatures are sustained until the rains start in November. Toward April, temperatures start to decrease as the cool season is about to begin. The raining season extends from November to April. Annual rainfall ranges from 635 to 3,050 millimetres according to altitude and position of the area to the rain-bearing winds.

2.3 Official Language

Chichewa is the national language while English is the official business language.

2.4 Population

The latest population census was carried out in 1987 (see Table 3).

The results of the census give a total population of about 8 million, while the former census in 1977 gave a total population of 5.5 million. This implies that from 1977 to 1987 the population has increased by 44 per cent. In addition, the results indicate an intercensal population growth rate of 3.7 per cent per annum during the 1977 - 87 intercensal period.

Malawi's population is predominantly rural with about 89 per cent living in rural areas. About 8 per cent of the total population live in the four major urban areas of Blantyre City, Lilongwe City, Mzuzu City and Zomba Municipality.

2.4.1 Main Urban Centres

Lilongwe:

It has been Malawi's capital city since January 1975. In 1987, the population was 234,000. Lilongwe is centrally situated in an agriculturally productive area lying on the hub of communication, artery-crisscrossed by the north-south and east-west roads as well as the Salimica-Michinji Railway and the Kamuzu International Airport.

Blantyre:

In the southern region, it is Malawi's major commercial and industrial centre with a population of 332,000 (1987). Served by a railhead in Limbe 8 kilometres away, Blantyre became a distribution point of the rest of Malawi. Limbe and Blantyre were amalgamated in 1956. Since 1966, Blantyre is served by Chilenka Airport, a railway line and roads to all directions in Malawi.

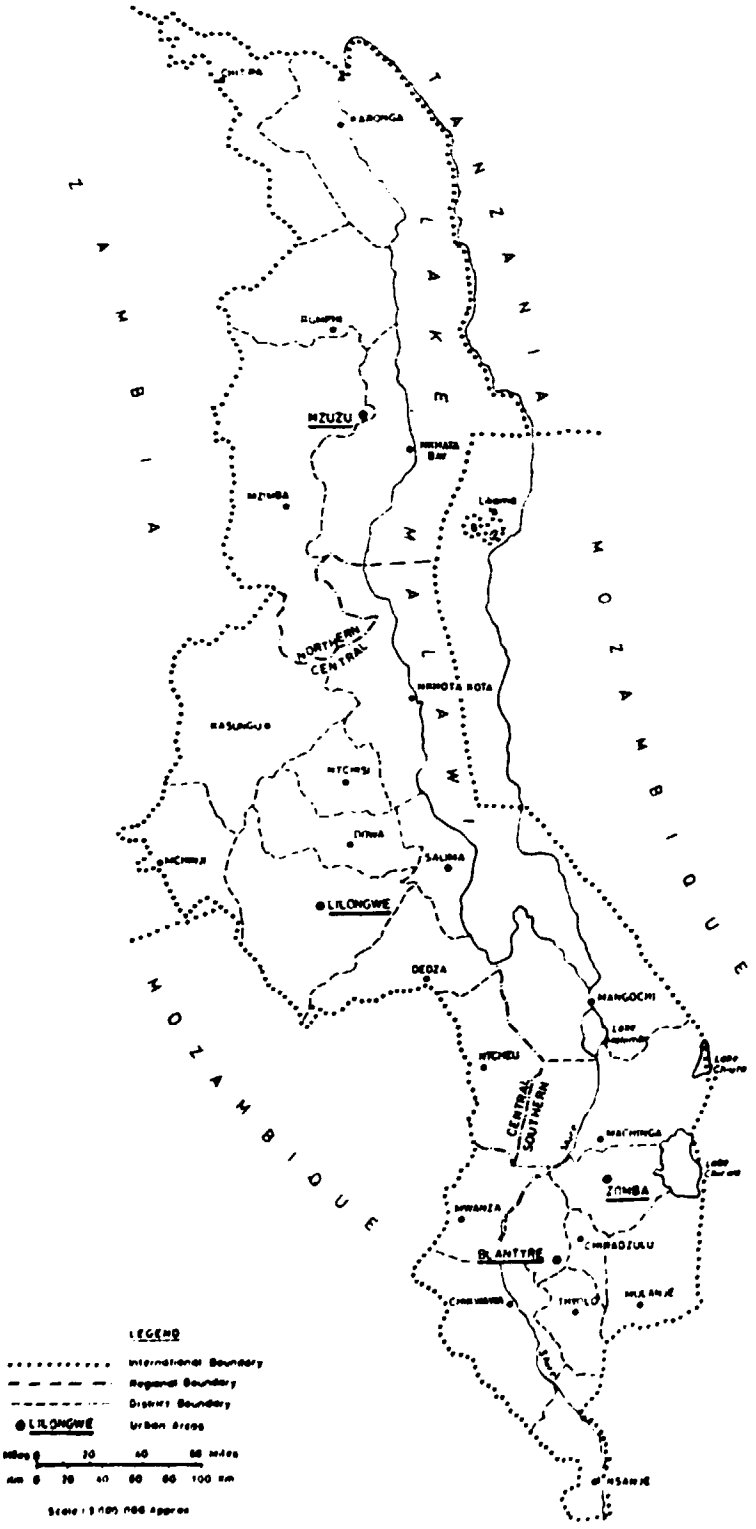
Zomba:

The former capital is now a university town with Chancellor College, the main campus of the University of Malawi. In 1987, the population was 43,000. Zomba is now a municipality. It lies 70 kilometres north-east of Blantyre.

Mzuzu:

This is the major commercial and industrial centre of the northern region with a population of 44,000.

MAP OF MALAWI



2.5 Labour and Wages

With a stagnation of economic activity in many major sectors, the average number of paid employees in Malawi in 1981, 1982 and 1983 was lower than in 1979 and 1980. In 1984 there were on the average (see Table 2) over 380,900 employees of which about 49,200 were in the manufacturing sector, 177,700 in the agricultural sector and 25,900 in the building and construction sector.

Malawi's labour force is stable and easily trainable. The training of many skills continues at various institutions in the country and abroad in cases where facilities are not available locally. The most difficult posts to fill are in the professional, technical and managerial category.

2.5.1 Minimum Rates and Conditions of Employment in Malawi

General: The Regulation of Minimum Wages and Conditions of Employment Act (Cap. 55:01), the Employment Act (Cap. 55:02), and The Workmen's Compensation Act (Cap. 55:03) form the basis of Labour Legislation in Malawi.

Normal hours of work: The duration of the working week should normally not exceed 48 hours, but special to the building industry, it should not exceed 45 hours in any one week.

Overtime: The rate of pay for overtime on a working day is time and a half. For overtime on a public holiday and/or rest day double wages are paid.

Annual leave: Employees on daily or hourly contracts one and a half days for each completed month of service.

Rest day: An employee is to be granted one day off duty each week (usually Sunday is taken as a rest day).

Sick leave: An employee is entitled to 12 days leave of absence on full pay and 12 days leave of absence on half pay in any one year of service with an employer.

Employment of labour: The employer is free to engage labour through advertisement in the local papers and/or Employment Exchanges freely available at all Labour Offices throughout the country.

Social Security: Government involvement in Social Security is limited to the enforcement of the Workmen's Compensation Act which requires employers to either insure against or pay compensation for industrial injuries incurred by workers earning MK 1,000 per annum or less (and for workers regardless of their level of pay whose work is of manual nature).

Employers must either privately insure all their workmen against industrial injury, or alternatively, be responsible themselves for the payment of the following benefits:

- Temporary disability:
  The benefit of 50 % of earnings which is paid after 3 waiting days. This benefit is paid until recovery of permanent degree of disability is ascertained.

- Permanent total disability:
  A lump sum is paid which is equivalent to 48 months' earnings, subject to a minimum of MK 80.00.

- Permanent partial disability:
  A lump sum benefit is paid on the total disability benefit being proportionate to the degree of disability as defined by the schedule in the law and so accorded by a Medical Officer.

- Survivor benefit:
  A lump sum of 36 months' earnings is paid to the deceased's dependents, less any disability benefit already paid to the deceased.

2.6 Currency

The currency in Malawi is the Malawi Kwacha, and it is divided into 100 Tambala.

Exchange rate (06/06/88): *)

1.00 Deutsche Mark (German Mark)	= 1.4779 Kwacha
1.00 Schweizer Franken (Swiss Franc)	= 1.7749 Kwacha
1.00 E.E.C.	= 3.0737 Kwacha

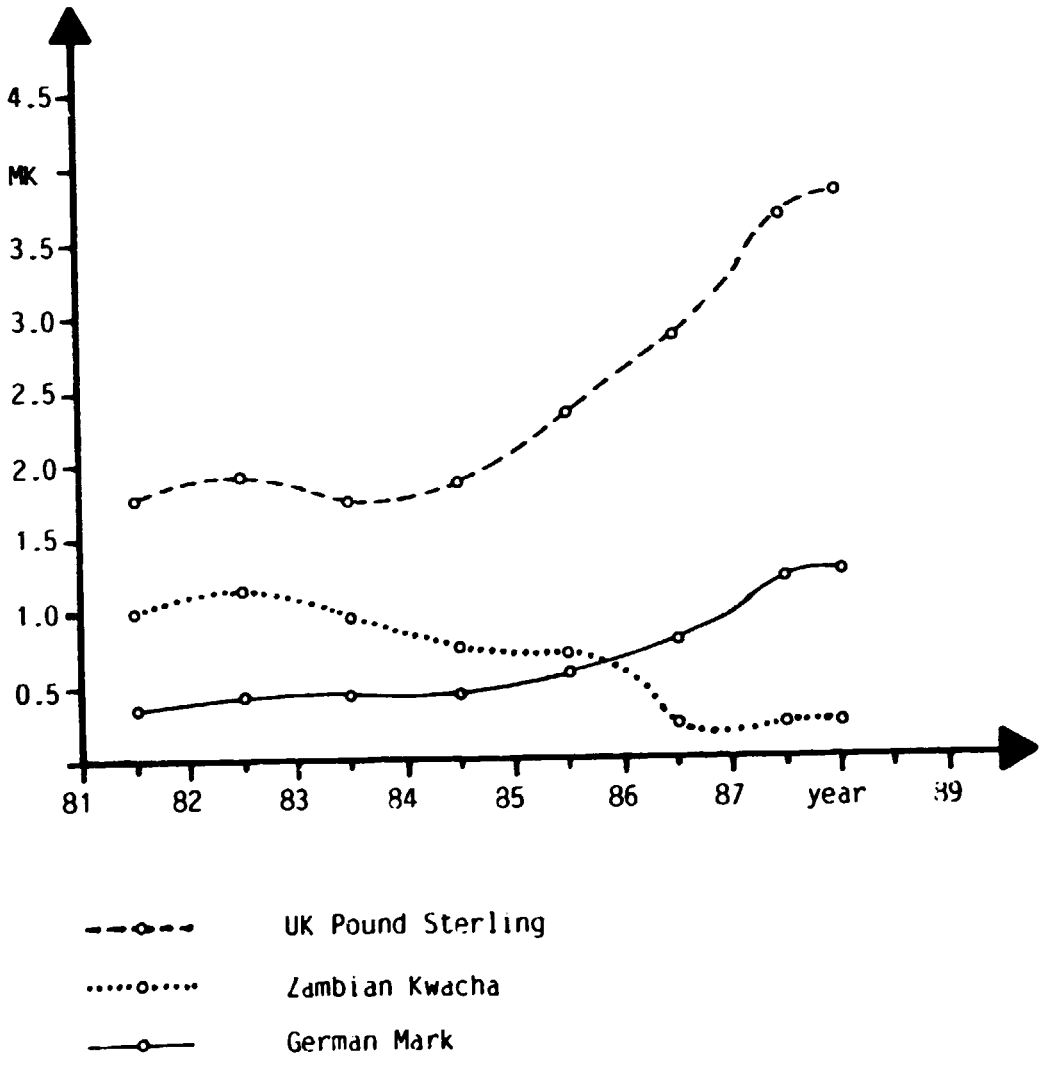
2.6.1 Development of the Malawi Kwacha

Until November 1973, the Malawi Kwacha was pegged to the Pound Sterling; from then to June 8, 1975 it was based on a weighted average of the Pound Sterling and the US Dollar; from August 1985 it was pegged to the Special Drawing Right (SDR), on April 24, 1982 it was devaluated by 15 % against the SDR and in September 1983 by 12 %. With effect from January 1984, the Kwacha was linked to a basket of seven currencies comprising the US Dollar, Pound Sterling, Deutsche Mark, Rand, Yen, the French Franc and the Dutch Guilder. It was further devaluated by 15 % on April 2, 1985, by 10 % on August 16, 1986, and on February 7, 1987 by 20 %.

*) Source: National Bank of Malawi

Table 1

MALAWI KWACHA PER UNIT OF FOREIGN CURRENCY



2.7 Exchange Control

Exchange control is administered by the Reserve Bank of Malawi under authority delegated by the Minister of Finance. Import and export policies are formulated by the Minister of Trade, Industry and Tourism who is also responsible for the issue of import and export licences.

There are no restrictions on the inward flow of capital except that the taking up of loans from abroad by residents requires prior Exchange Control approval, which is normally granted, provided that the terms of repayment, including the servicing costs, are acceptable. Outward transfers of capital are controlled, but non-residents are permitted to repatriate their investment when they have satisfied the Exchange Control that the original investment was made with funds brought into the country. In general, there are no restrictions on the transfer abroad of dividends and profits of foreign-owned companies provided that use is not made of local credit facilities at that time. Contractual interest on loans received from foreign sources is also remittable.

Residents may not purchase any foreign securities without specific Exchange Control approval. In general, residents are not permitted to transfer capital abroad and, with certain exceptions, they are required to offer for sale to an Authorized Dealer any foreign exchange which accrues to them. Foreign nationals employed in Malawi on contract and holding a temporary employment permit are allowed to remit part of their current net earnings.

Generous allowances are given to emigrants but any funds in excess of the permitted limits may be withheld for transfer at a later date.

Residents including resident financial institutions, require prior approval of the Exchange Control to make loans to non-residents or to resident firms controlled directly or indirectly from outside Malawi. In the latter case, approval may be withheld if it is felt that excessive recourse is being made to local borrowing, and that insufficient working capital has been brought from abroad.

Remittance of Earnings:
Foreign nationals employed in Malawi on contract and holding temporary employment permits are allowed to remit to their country of normal residence up to two-thirds of their net earnings (i. e. gross salary less deductions for income tax, loan repayments and other liabilities in Malawi). Remittances will normally be permitted only on a monthly basis and are not cumulative.

Remittance of Personal Maintenance:
Regular remittance may be approved to specified close relatives permanently resident outside Malawi and genuinely in need of assistance. Approved applications are reviewed annually. Blocked accounts for non-residents held with Authorized Dealers -

- On departure of the emigrant, the balance of this fund is blocked, but on each anniversary of his departure from Malawi, he is permitted to transfer to his new country of residence a reasonable amount subject to a certain limit.

- All entries to such accounts require prior approval of the exchange control authorities.
- Normally, approval is given for the investment of balances on blocked accounts in an approved manner.
- Interest on blocked account balances is transferrable to the owner's country of residence on application.

Remittance of Dividends and Profits:

- Dividends and profits due to non-resident shareholders are transferred abroad without restrictions, provided local taxes have been paid and no recourse is being made to local borrowing.

All the foregoing require the prior approval of the Exchange Control authorities.

Table 2

NUMBER OF PAID EMPLOYEES
AND AVERAGE MONTHLY EARNINGS
BY INDUSTRY GROUP AND BY QUARTER
IN 1984 *)

Industry group	1st Quarter		2nd Quarter	
	No. of Employees ('000)	Average Earnings (Kwacha)	No. of Employees ('000)	Average Earnings (Kwacha)
ALL INDUSTRIES	397.4	54.56	399.2	56.50
Agriculture, Forestry, Fishing	200.7	21.58	188.5	23.29
Mining+Quarrying	0.4	62.97	0.3	72.37
Manufacturing	49.0	65.45	51.3	65.83
Electricity+Water	4.6	99.80	4.6	103.73
Building + Construction	27.0	50.07	26.6	50.89
Wholesale+Retail Trade, Hotels + Restaurants	24.8	102.70	35.5	85.97
Transport, Storage + Communication	21.6	82.82	22.0	81.92
Financing, Insurance, Real Estate + Business Services	12.0	220.09	11.9	217.13
Community, Social + Personal Services	57.3	90.5	58.5	93.94

*) Source: Employment and Earnings Annual Report
1983 - 85
National Statistical Office, Zomba

(Table 2 continued)

NUMBER OF PAID EMPLOYEES
AND AVERAGE MONTHLY EARNINGS
BY INDUSTRY GROUP AND BY QUARTER
IN 1984 *)

Industry Group	3rd Quarter		4th Quarter	
	No. of Employees ('000)	Average Earnings (Kwacha)	No. of Employees ('000)	Average Earnings Kwacha
ALL INDUSTRIES	359.8	61.01	367.1	65.59
Agriculture, Forestry+Fishing	153.0	24.46	168.5	26.42
Mining+Quarrying	0.2	76.61	0.2	78.51
Manufacturing	47.6	72.55	49.1	86.27
Electricity Water	5.2	97.02	5.1	97.08
Building + Construction	25.4	51.89	24.7	55.23
Wholesale+Retail Trade, Hotels + Restaurants	38.2	80.10	28.4	177.72
Transport, Storage, Communication	22.1	82.96	22.3	88.45
Financing, Insurance, Real Estate, Business Services	11.3	234.75	11.0	238.16
Community, Social + Personal Services	56.8	94.65	57.8	96.58

*) Source: Employment and Earnings Annual Report
1983 - 85
National Statistical Office, Zomba

Table 3

POPULATION BY SEX, AGE AND HIGHEST LEVEL OF EDUCATION ATTAINED AS WELL AS PERCENTAGE FOR 1987 *)

	Malawi	Northern Region	Central Region	Southern Region
Total	7,982,607 (100 %)	907,121 (100 %)	3,116,038 (100 %)	3,959,488 (100 %)
Male	3,880,100 (48.6 %)	440,541 (48.6 %)	1,530,166 (49.1 %)	1,909,393 (48.2 %)
Female	4,102,507 (51.4 %)	466,580 (51.4 %)	1,585,072 (50.9 %)	2,050,055 (51.8 %)
Age				
0 - 4	1,396,005 (17.5 %)	159,794 (17.6 %)	571,519 (18.4 %)	664,692 (16.8 %)
5 - 14	2,290,881 (28.7 %)	259,460 (28.6 %)	882.405 (28.3 %)	1,149,016 (29.0 %)
15 - 64	3,978,483 (49.8 %)	451,375 (49.8 %)	1,546,476 (49.6 %)	1,980,632 (50.0 %)
64	317,238 (4.0 %)	36,452 (4.0 %)	115,638 (3.7 %)	165,108 (4.2 %)
Highest Level of Education Attained				
None	3,613,807 (54.9 %)	246,803 (33.0 %)	1,420,611 (55.8 %)	1,946,393 (59.1 %)
Primary	2,748.049 (41.7 %)	464,642 (62.2 %)	1,046,620 (41.1 %)	1,236,787 (37.5 %)
Secondary above	224,746 (3.4 %)	35,882 (4.8 %)	77,288 (3.0 %)	111,576 (3.4 %)

*) Source: Population and Housing Census 1987
Preliminary Report
National Statistical Office, Zomba

2.8 Structure of Economy

2.8.1 Agriculture

Malawi's economy is predominantly agriculture which accounts for 43 % of the total GDP and provides jobs to approximately 85 % of the population. Agricultural products account for 90 % of the country's export, and the growth rate of the economy is largely dependent on the performance of this sector.

The agricultural sector is divided into the distinct sectors: smallholder production which accounts for 85 % of the total agricultural output and concentrates on food crops, and estate farming which accounts for the resulting 15 %, but provides almost three quarter of the total exports, principally in the three main cash crops: tobacco, sugar and tea.

In chapter 2.9 a comprehensive view of the structure of agriculture, especially with regard to maize and wheat cultivation, is given.

Despite past efforts, domestic smallholder rain-fed production has declined to minimal levels. Most of the local production of 3,500 tons per year, therefore, comes from two irrigated estates.

It is planned to achieve Malawi's ecological potential to produce 30,000 tons per year by a combination of introducing wheat as a winter crop on the 650 hectares of smallholder irrigation schemes.

Wheat will also be promoted as a dry season crop on flue-cured tobacco estates which can get access to mains electricity for irrigation.

Malawi is agriculturally divided into eight Agricultural Development Divisions (ADDs) of Karonga, Mzuzu, Kasungu, Salima, Lilongwe, Liwonde, Blantyre and Ngabu.

Tables 4 and 5 show the customary land hectarage by crop, the mean yield of maize, and the hectarage and cultivation by region in 1980/81.

2.8.2 Industry

Malawi's industrial development policy aims at the substitution of imports particularly in the sector of consumer goods. The realization of this aim is impeded by the fact that Malawi, with the exception of minor deposits of low-grade coal and limestone, does not have any significant natural resources.

The industrial sector is broadly made up of three sub-sectors:

- a group of medium-scale establishments concerned with the processing of tobacco, tea and sugar for export,
- a group of medium-scale establishments concerned largely, but not wholly with import substitution, e. g. the manufacturing of foodstuff, beverage, cigarettes, textiles, blankets, footwear, soaps and detergents, matches, cement and ethanol,
- a large group of small-scale enterprises, many in the informal sector, concerned very largely with supplying the domestic market with a wide range of manufactured goods, e. g. bricks, farm-tools, kitchen-utensils and basket-ware.

2.8.3 Trade

Malawi is a small economy where foreign trade plays a vital role. Exports provide an essential outlet for goods which cannot be absorbed in the local market, and generate the foreign earnings that are vital for the imports needed both as inputs into agriculture and industry and as consumer goods. Boosting the level of foreign exchange earnings from both traditional and non-traditional exports is seen by the Government as a central tenet of economy over the next decade.

2.9 Aspects of Maize and Wheat Cultivation in Malawi

Maize is the country's major staple food, which is mainly cultivated by the smallholders. This group can be broken down into three sub-categories:

- 35 % with less than 0.7 ha (hectares) who cannot, with present technology, satisfy their own subsistence requirements;
- 40 % with between 0.7 and 1.5 ha who, with current technology, normally satisfy their subsistence requirements and have the potential for modest cash crop sales;
- 25 % with over 1.5 ha who are commonly already involved in cash cropping.

Between 1980/81 and 1986/87 the hectares cultivated under maize increased from 768,000 hectares to 1,110,476 hectares which means an increase of 57.6 per cent.

In 1986/87, the agricultural season experienced both variable weather conditions and an outbreak of pest.

Most places had less than normal rainfall, and mealy bug pest destroyed cassava in the northern region lake-shore districts.

People in these districts had to switch to maize for their subsistence requirements. Since maize is not grown in the affected districts, it had to be transferred from other districts.

Another factor was the reduction of hectarage planted to hybrid maize as the maize/fertilizer ratio continued to deteriorate due to static producer prices of maize (at MK 0.12/kg) and rising fertilizer prices.

As a result, maize production is estimated to have declined from 1,295 million tons in 1986 to 1,218 million tons in 1987 - a decrease of 6.0 per cent.

However, there is a 1.69 per cent increase between 1987's and 1988's estimated maize production. Even then the increase is not substantial.

Taking a population growth rate of 3.7 % per year into consideration, there has been a decline in real per capita availability of calories from maize.

Official agricultural sources argue that farmers have to adopt the idea of growing hybrid maize, for low-yield maize varieties require double the amount of land.

However, the growing of hybrid maize is associated with a number of problems, such as

- the need for a steady source of seed, which farmers have to purchase every year since they cannot preserve seeds from the preceding season's crop;
- the requirement of a lot of nutrients in the form of fertilizers;
- the storage of hybrid maize needs redressing;
- the application of insecticides in storage;
- the poundability of this variety (most hybrids have low pounding qualities, whereas the preparation of Nshima usually requires that the maize be pounded first).

Table 4

HECTARAGE AND CULTIVATION BY REGION
1980/81 *)

Region	Land Hectarage ('000)	Hectarage Possible for Cultivation ('000)	%(1)	Hectarage under Cultivation ('000)	%(2)	Hectarage under Maize ('000)	%(3)
MALAWI	9.408	5,307	56	1,332	25	768	58
Northern Region	2.687	1,236	46	148	12	76	51
Central Region	3.552	2,249	63	687	30	409	60
Southern Region	3,169	1,822	57	506	28	283	56

(1) Hectarage possible for cultivation expressed as a percentage of total land hectarage.

(2) Hectarage under cultivation expressed as a percentage of hectarage possible for cultivation.

(3) Hectarage under maize expressed as a percentage of hectarage under cultivation.

*) Sources: Total land hectarage from the Malawi 1966 Population Census, Final Report.

Hectarage possible for cultivation from estimates prepared by the Department of Agriculture, 1965. Hectarage under cultivation and hectarage under maize from "National Sample Survey of Agriculture, 1980/81".

Table 5

CUSTOMARY LAND HECTARAGE BY CROP
BY AGRICULTURAL DEVELOPMENT DIVISION (ADD),
1980/81 *)

Thousand hectares

Agricultural Development Division	Total Hectarage under Cultivation	Maize Pure Stand		
		Hybrid	Composite	Local & Other
MALAWI	1332.00	43.78	34.32	689.89
Karonga	31.80	0.68	1.29	9.54
Mzuzu	116.44	5.16	8.02	51.02
Kasungu	289.43	10.38	13.27	156.43
Salima	76.88	0.34	4.33	40.50
Lilongwe	311.75	24.55	4.16	154.94
Liwonde	205.10	1.39	1.25	135.14
Blantyre	211.45	0.86	2.00	118.26
Ngabu	89.15	0.43	0.01	24.07

*) Source: National Sample Survey
of Agriculture,
1980/81

(Table 5 continued)

CUSTOMARY LAND HECTARAGE BY CROP
BY AGRICULTURAL DEVELOPMENT DIVISION (ADD),
1980/81 *)

Thousand hectares

Agricultural Development Division	Total Hectarage under Cultivation	Maize mixed with:			
		Ground-nuts	Pulses	Cassava	Other Crops
MALAWI	1332.00	52.90	103.75	13.31	31.64
Karonga	31.80	0.82	2.92	0.94	0.65
Mzuzu	116.44	2.28	11.81	0.61	1.06
Kasungu	289.43	3.07	10.92	-	0.15
Salima	76.88	2.07	0.14	0.29	0.97
Lilongwe	311.75	12.35	34.91	0.17	5.98
Liwonde	205.10	19.23	10.18	7.22	6.23
Blantyre	211.45	11.67	32.52	4.05	13.64
Mgabu	89.15	1.42	0.35	0.03	2.95

*) Source: National Sample Survey of Agriculture, 1980/81

(Table 5 continued)

CUSTOMARY LAND: MEAN YIELD OF MAIZE
BY AGRICULTURAL DEVELOPMENT DIVISION (ADD)
1980/81 *)

kg/hectare

Agricultural Development Division	Maize mixed with:			
	Ground-nuts	Pulses	Cassava	Other Crops
MALAWI	923	1,202	855	941
Karonga	1,376	1,488	793	965
Mzuzu	676	1,301	912	717
Kasungu	581	1,528	-	1,233
Salima	1,262	691	630	894
Lilongwe	762	1,347	-	1,296
Liwonde	942	904	870	914
Blantyre	1,033	1,131	876	857
Ngabu	-	-	-	891

*) Source: National Sample Survey
of Agriculture
1980/81

(Table 5 continued)

CUSTOMARY LAND: MEAN YIELD OF MAIZE
BY AGRICULTURAL DEVELOPMENT DIVISION (ADD)
1980/81 *)

kg/hectare

Agricultural Development Division	Maize Pure Stand		
	Hybrid	Composite	Local & Other
MALAWI	3,020	1,960	1,119
Karonga	3,084	2,442	1,369
Mzuzu	2,776	1,988	1,079
Kasungu	2,856	2,217	1,322
Salima	1,556	1,723	1,307
Lilongwe	3,442	1,850	1,206
Liwonde	1,255	1,196	870
Blantyre	1,196	1,960	1,087
Ngabu	1,394	-	1,273

*) Source: National Sample Survey of Agriculture, 1980/81

Within the frame of the Malawi Development Policies 1987 - 1996, strategies will be pursued in order to solve the above mentioned problems and the development of maize varieties of higher yield will continue as a research priority.

With the liberalization of marketing of smallholders produce (except tobacco and cotton), there are no reliable figures on the volume of traded maize.

The Agricultural Development and Marketing Corporation (ADMARC) has purchased in 1987 only 60,000 tons of maize. The volume that has been traded to the private sector, is not known.

Table 6 shows ADMARC's maize purchases.

There has been a considerable decline of ADMARC's trading in maize because private traders now actively compete with ADMARC in buying crops from farmers directly. This also applies to the existing milling companies in Malawi (refer to para. 6.6.5, page 121).

Table 6

ADMARC MAIZE PURCHASES
(VOLUME/VALUE)

Year	Quantity *) ('000 Metric Tons)	% Change over Preceding Year)	Value *) (Million Kwacha)	Price per Ton (Kwacha)
1980	91,888		6,083	66.20
1981	136,647	48.7	9,053	66.25
1982	246,062	80.0	27,284	110.88
1983	244,937	- 0.5	27,119	110.72
1984	296,292	21.0	35,573	120.06
1985	271,567	- 8.3	33,247	122.43
1986	112,639	- 58.5	13,703	121.65
1987	59,429	- 52.8	8.707	146.51

*) Source: Monthly Statistical Bulletin
November 1987

Between 1980 and 1985, the margins for maize were relatively high, and the marketed surplus more than trebled from 1980 to 1984.

But generally, at least until 1983 the prices offered by ADMARC to the smallholders were not conducive to rapid

expansion. In recent years, a programme of re-structuring ADMARC has got under way, crop pricing decisions have been made by the Government, subsidies on inputs have been steadily withdrawn, and special financial arrangements were introduced for the import of fertilizers.

In future, ADMARC will concentrate its activities on agricultural marketing, encouraging the private sector to purchase smallholder produce other than tobacco and cotton.

Private sector involvement will be encouraged with the introduction of higher producer prices.

The maize price will be used as an attempt to ensure that the market surpluses equal domestic demand, plus the accumulation of an appropriate strategic reserve. In this case, neither import nor export parity prices will be appropriate.

The information about wheat is very poor.

Wheat consumption is Malawi has reached 35,000 tons and is rising by 8 per cent per year.

Local production amounts to 3,500 tons per year and comes from two irrigated estates. It meets no more than a tenth of the local demand. Malawi has the ecological potential to produce about 30,000 tons of wheat, and it is planned to achieve this by introducing wheat as a winter crop on the 650 hectares of smallholder irrigation schemes.

It is the Consultant's opinion that the realization of this plan will take some time. Therefore the gap between demand and local supply amounting to 31,500 tons has to be imported.

In 1987, the average import price of wheat was MK 508.00 per ton which comes to a total of 16 million Mwacha a year in foreign exchange.

Unfortunately there are not other commodity figures available than 'Commodity and Input Prices 1986/87 - 1987/88', but no reliable figures on the volume of traded wheat (see Table 6 a).

Table 6 a

COMMODITIES AND INPUT PRICES IN MK
1986/87 - 1987/88 *)

Commodities	1986/87 t **)/kg*)	1987/88 t / kg	% change
Maize	12.2	16.6	36.1
Wheat	38.0	42.0	10.5
Cassava	4.0	6.0	50.0
Paddy rice			
Faya Grade I	22.0	27.0	22.7
" II	8.0	9.0	12.5
Blue Bonnet Grade I	22.0	27.0	22.7
" II	8.0	9.0	12.5

*) Source: ADMARC, 1988
Ministry of Agriculture

**) 1 Malawi Kwacha = 100 Tambala, in short 't'

The table on the previous page is an extract of a comprehensive commodity statistic and shows the comparison of input prices of the main crops that are produced in Malawi.

2.10 Economic Conditions in Malawi in 1987 *)

2.10.1 Overall Performance

Economic activity in 1987, as measured by GDP, showed little change from the previous year. Real GDP declined by 0.2 per cent during 1987 (see Table 7), reflecting an economy which was adjusting to its changed economic environment (GDP data, starting with 1987, has a provision for new series (NS) reflecting revisions in the calculation of government services, wages and salaries, other rent and miscellaneous expenditures statistics. Data comparisons with prior year are made using old series (OS) to preserve consistency). The overall performance in other sectors, such as manufacturing, construction, transport and communications, and financial and professional services, recorded negative growth rates, except the agricultural sector which registered a marginal growth of about 1.9 per cent. The worsening balance of payments position which started in 1986 and continued to the first half of 1987, contributed much to the weak growth. However, during the last quarter of 1987, the balance of payments position improved modestly due to increased tobacco exports and capital/grant inflows.

*) Source: Economic Report 1988
Budget Document No. 4

Table 7

GROSS DOMESTIC PRODUCT (GDP),
BY SECTOR OF ORIGIN AT
1978 CONSTANT FACTOR COST 1984 - 1988

MK million

	1984	1985	1986	1987 OS	1987 NS	1988 Fore-cast
Agriculture	306.5	308.0	311.5	317.3	317.3	319.9
small-scale	240.9	242.0	246.0	247.2	247.2	246.3
large-scale	65.6	66.0	65.5	70.1	70.1	73.6
Manufacturing	100.6	101.1	101.1	100.2	100.2	102.1
Electricity Water	16.1	16.4	17.3	18.7	18.7	19.6
Construction	29.6	39.3	49.5	36.6	36.6	37.9
Distribution	104.1	113.9	108.0	109.8	109.8	110.3
Transport Communication	47.0	49.5	52.2	50.2	50.2	50.4
Financial Profess-ional Services	51.2	54.9	55.8	54.2	54.2	55.3
Ownership of Dwellings	34.6	36.2	37.2	37.4	37.4	38.4
Private Social Community Services	34.3	35.6	36.4	37.4	37.4	38.7
Producers of Govern-ment Services	101.7	106.5	116.1	120.8	128.3	127.9
Unallocable Finance Charges	-20.6	-22.1	-22.1	-21.8	-21.8	-22.2
GDP at Factor Cost	805.1	839.3	862.4	860.8	868.3	878.3
% Change from Preceding Year	4.5	4.2	2.8	- 0.2	0.7	1.2

The value of total exports increased by 32.4 per cent in 1987. Some of this increase was largely contributed by tobacco export prices which increased by 46.0 per cent in nominal terms, apart from a reflection of the 20.0 per cent devaluation of the Malawi Kwacha earlier in 1987, and the general increase in international prices for tobacco in 1987.

The value of tea declined by 11.3 per cent in 1987 as a result of continued weak markets. The situation was aggravated by poor weather conditions which caused a decline in the production, and exportable volume of tea.

There was a substantial increase in the volume of pulses exported in 1987 (170.0 per cent). This was an exceptionally high increase considering that nominal unit values of pulses increased by only 10.7 per cent.

2.10.2 Growth in Output

GDP at constant factor cost registered a decline of 0.2 per cent in 1987 compared to a positive growth of 2.8 per cent in 1986. Most sectors in 1987 registered negative growth rates, with the construction sector showing the largest decline of 26.1 per cent. The slight growth that occurred in the agriculture sector was mainly due to a 7.0 increase in the large-scale agricultural output other than the small-scale agriculture sector which almost stagnated, growing only by 0.5 per cent.

Table 8

GDP AT CURRENT PRICES
AND DOMESTIC SUPPLY AND DEMAND

(MK million)

	1984	1985	1986
A. Domestic Supply			
GDP at 1978 Factor Cost	805.1	839.3	862.4
GDP at 1978 Market Prices	890.1	930.0	940.6
GDP Deflator	191.8	217.6	244.7
GDP at Current Market Prices	1,706.9	2,021.7	2,301.5
of which Indirect Taxes	178.1	216.0	216.4
Plus: Imports of Merchandise and Non-Factor Services (Net)	- 33.2	93.2	56.0
Total Supply	1,673.7	2.114.9	2,357.5
B. Domestic Demand			
Gross Fixed Capital Formation	222.7	259.5	242.9
Stock Building	- 2.8	102.2	5.3
Consumption	1,453.8	1,753.2	2,109.2
Government	268.0	344.0	433.8
Private	1,185.8	1.409.2	1,675.4
Total Demand	1,673.7	2.114.9	2,357.4

Table 8 continued

GDP AT CURRENT PRICES
AND DOMESTIC SUPPLY AND DEMAND

(MK million)

	OS 1987	NS 1987	1988
A. Domestic Supply	860.8	868.3	878.3
GDP at 1978 Factor Cost	860.8	868.3	878.3
GDP at 1978 Market Prices	935.9	943.4	954.2
GDP Deflator	306.8	306.0	365.2
GDP at Current Market Prices	2,871.1	2,886.2	3,484.3
of which Indirect Taxes	263.2	263.2	322.1
Plus: Imports of Merchandise and Non-Factor Services (Net)	68.3	68.3	145.3
Total Supply	2.939.4	2,954.5	3.629.6
B. Domestic Demand			
Gross Fixed Capital Formation	332.8	332.8	399.0
Stock Building	23.2	23.2	47.9
Consumption	2,583.4	2,598.6	3,182.7
Government	491.0	493.0	500.5
Private	2,092.4	2,105.6	2,682.4
Total Demand	2,939.4	2,954.6	3,629.6

The balance of trade deteriorated in 1987 to a deficit of MK 43.6 million, after a partial improvement in 1986. The devaluation of the Malawi Kwacha early in 1987 led to an increase in the Kwacha value of imports. Thus the import volume is estimated to have increased by 11.0 per cent over the 1986 level, which was, nonetheless, well below historic levels. International transportation problems also contributed to the high import costs.

The utilities sector grew by 8.1 per cent in 1987. This growth was mainly due to increased sales of water as well as electricity. In the large-scale utilities sector, the quantity of water sold increased by 11.1 per cent while the volume of electricity sales rose by 9.0 per cent.

The value added in the manufacturing sector decreased slightly by 0.8 per cent. Manufacturing output in industries with a high import content were especially constrained by the worsening balance of payments position which started in 1986 and continued through to the first half of 1987. Although the balance of payments position improved later in the year it had very little impact.

2.10.3 Domestic Supply and Demand

The supply of goods to the domestic economy grew by 24.7 per cent in 1987, similar to that of the nominal GDP (see Table 8). The deficit on merchandise and non-factor services, as a component of domestic supply, increased by 22.0 per cent in the same year, whilst the level of imports increased during the year.

The overall consumption expenditure increased by 22.5 per cent in 1987 in nominal terms, although as a percentage of GDP, consumption expenditure decreased by 1.6 points, from 91.6 per cent in 1986 to 90.0 per cent in 1987. Private consumption in 1987 maintained the level of consumption in relation to GDP of 72.8 per cent attained in 1986.

Domestic savings increased from MK 192.3 million in 1986 to MK 287.7 million in 1987. This reflected the decreased share of GDP going to government and private consumption. National savings increased from MK 108.9 (representing 4.7 per cent of GDP) to MK 220.8 million (representing 7.7 per cent of GDP). This improvement resulted from the increased domestic savings and private transfers.

The large-scale private sector increased its investment by about 156.7 per cent in 1987, after a big reduction in 1986 (see Table 7). As a percentage of GDP, this was an improvement from 2.4 per cent of GDP in 1986, to 4.3 per cent of GDP in 1987.

2.10.4 Money and Prices

Inflation, as measured by the composite retail price index, increased to 26.7 per cent in 1987 which is significantly higher than the 1986 rate of 14.9 per cent. The increase in consumer price inflation in 1987 is attributed to, among other things:

a) increased domestic borrowing by Government to finance the public sector deficit;

b) a general increase in import prices arising from world inflation and transport difficulties; and

c) the depreciation of the Malawi Kwacha in February 1987 relative to Malawi's major trading partner currencies.

The main highlights in 1987 in terms of money and credit were the liberalization of lending rates in July 1987, as a result, the minimum lending rate p.a. rose to 20.0 per cent.

2.10.5 Balance of Payments

Exports (f.o.b.) in 1987 amounted to MK 611.6 million, up by 32.4 per cent over the preceding year. The increase was largely attributed to better export values of tobacco, sugar and pulses.

Total imports (f.o.b.) amounted to MK 393.1 million in 1987, up by 51.4 per cent on the preceding year. The increase is partly accounted for by a rise in prices. In view of the above, there was a merchandise trade surplus of MK 218.5 million in 1987, an increase of 24.6 per cent compared to the previous year.

The value of domestic exports increased from MK 445.9 million in 1986 to MK 598.0 million in 1987. Re-exports, which exhibited continuous year-on-year increases since 1983, reversed their trend by declining to MK 13.5 million in 1987 from a level of MK 16.2 million in 1986.

The main export crop continued to be tobacco which contributed MK 370.1 million in 1987 compared to MK 244.3 million in 1986. The significant increase was mainly attributed to a 46.0 per cent rise in prices.

In 1987, total imports (c.i.f.) are estimated to have risen by about 37.0 per cent from MK 478.0 million in 1986 to MK 655.1 million in 1987. The increase was attributed to a rise in both volume and prices.

Table 9

IMPORTS BY END-USE

(MK '000)

	1985	1986	1987**
Consumer Goods	62,004 (13)	64,816 (14)	33,611 (11)
Plant, Machinery Equipment	70,405 (14)	66,475 (14)	67,350 (23)
Transport Means	62,833 (13)	71,043 (15)	30,108 (10)
Material for Building and Construction	29,782 (6)	26,138 (5)	12,534 (4)
Basic and Auxiliary Materials for Industry	178,273 (36)	158,771 (33)	101,983 (34)
Parts, Tools	16,288 (3)	17,898 (4)	9,646 (3)
Commodities for Intermediate and Final Consumption	70,859 (14)	69,887 (15)	40,403 (14)
Miscellaneous and Other Transactions	2,111 (-)	2,961 (-)	1,588 (-)
Total	492,552	477,990	297,223

** First 2 quarters of 1987 Estimate.

Figures in brackets are percentage shares of the total.

The composition of imports for the first two quarters of 1987, the latest period for which data are available, is shown in Table 9. The statistics indicate that an increase in the share of total imports is expected for plant, machinery and equipment as well as basic and auxiliary materials for industry.

Table 10

VISIBLE TRADE BALANCE 1986 - 88

	1986	1987 (Esti-mate)	1988 (Fore-cast)	% Change 1987 on 1986	% Change 1988 on 1987
Exports:					
Domestic	445,856	598,025	664,524	34.1	11.1
Re-exports	16,236	13,535	13,400	- 16.6	- 1.0
Total	462,101	611.560	677,924	32.2	10.9
Imports (c.i.f.)	477,990	655,118	785,400	37.1	19.9
Visible Trade Balance	-15,889	-43,558	-107,476	-174.1	-146.7

The outlook for 1988 is for a further worsening of the trade balance to a deficit of MK 107.5 million. This will be attributed to a decline in export volumes coupled with an expected increase in import prices of 20.0 per cent.

The current account in 1987 registered a deficit of MK 149.2 million, an increase of 7.0 per cent over 1986. The deficit on non-factor services amounted to MK 286.8 million, a 24.0 per cent rise over the 1986 figure. The deficit on factor services also rose in 1987 to MK 134.6 million mainly due to increases in interest payments on external debt. Such payments amounted to MK 113.0 million in 1987 as compared to MK 99.6 million in 1986. In the public sector alone, interest payments amounted to 90.4 million in 1987. The current account deficit of MK 149.2 million in 1987 would have been higher if private transfers or receipts had not gone up by 77.3 per cent over 1986 to MK 83.5 million in 1987.

The overall balance after debt relief in 1987 was MK 85.5 million. This improvement in the balance of payment was partly attributed to the debt relief and increased capital inflows in 1987.

2.10.6 External Trade

Total exports (f.o.b.) in 1987 are estimated to have increased by about 32.0 per cent from MK 462.1 million in 1986 to MK 611.6 million in 1987 (see Table 10). Domestic exports are estimated to have amounted to MK 598.0 million in 1987, an increase of about 34.0 per cent.

2.10.7 Terms of Trade

The unit value of imports and exports increased in 1987 by 24.0 per cent and 28.0 per cent respectively. As a result, the commodity terms of trade improved somewhat from an index of 87.78 in 1986 to 91.23 in 1987.

Table 11
TRADE INDICES 1983 - 88

	1983	1984	1985	1986	1987 (Estimate)	1988 (Forecast)
Imports:						
Volume	80.42	64.14	81.29	78.99	87.76	87.76
Unit value	138.48	164.18	173.67	223.20	275.67	330.55
Domestic Exports:						
Volume	109.22	79.35	94.79	98.93	102.06	97.72
Unit value	156.81	193.89	175.13	195.92	251.57	291.00
Commodity Terms of Trade	113.24	118.10	100.84	87.84	91.23	88.04
Income Terms of Trade	123.68	93.71	93.71	86.84	93.06	86.03

The structure of the country's external trade has long been dominated by the exchange of three primary commodities, namely tobacco, tea and sugar for imported consumer and intermediate manufactured goods. These traditional commodities are sold in a wide range of markets, although a large proportion of the tea has always gone to the United Kingdom. Non-traditional, largely manufactured exports, are sold almost entirely within the region and include such items as textiles, processed foods and fishing nets.

The pattern of import trade has shown a number of significant changes over 20 years. The dominant supplier changed from the United Kingdom to the Republic of South Africa which now supplies over 40 % of the total. The United States of America, West Germany, Japan, the United Kingdom, France and Zimbabwe are the other major suppliers (see Table 12). Although a member of the Preferential Trade Area (PTA) for eastern and southern African states, trade with the region is relatively small and has generally been declining in recent years.

Since 1980, however, foreign trade has suffered very directly from the closure of Malawi's traditional trade routes through Mozambique to the Indian Ocean ports of Beira and Nacala.

The trade gap, the amount by which total exports fall short of total imports, widened by about 174.0 per cent from MK 15.9 million in 1986 to MK 43.6 million in 1987. The worsening situation was mainly due to a significant increase in both the volume and value of imports in 1987 over 1986, which are estimated to have risen by about 11.0 per cent and 24.0 per cent respectively. On the other hand, export volumes only increased by about 3.0 per cent in 1987 over 1986, although export prices are estimated to have increased by about 28.0 per cent in 1987.

2.10.8 Direction of Trade

Malawi's major trading partners have not changed over the years. For 1986, United Kingdom (26.0 per cent), West Germany (10.0 per cent), United States of America (9.0 per cent), the Netherlands (7.0 per cent), South Africa (7.0 per cent) and the Preferential Trade Area (7.0 per cent) got most of Malawi's exports. The major supplier of Malawi's imports continued to be South Africa (29.0 per cent), United Kingdom (25.0 per cent) and Japan (9.0 per cent). Malawi's trade with the rest of the PTA countries declined in 1986.

Table 12

DIRECTION OF TRADE

(MK '000)

	Exports to		Imports from	
	1985	1986	1985	1986
United Kingdom	142,140 (34)	117,803 (26)	73,784 (15)	118,094 (25)
Netherlands	22,699 (5)	29,146 (7)	5,050 (1)	9,766 (2)
United States of America	43,302 (10)	40,049 (9)	24,172 (5)	16,292 (3)
South Africa	26,785 (6)	32,988 (7)	187,330 (38)	138,652 (29)
France	14,570 (3)	15,106 (3)	17,754 (4)	11,567 (2)
PTA Countries	39,931 (10)	31,770 (7)	38,631 (8)	23,053 (5)
West Germany	34,645 (8)	43,954 (10)	27,374 (6)	30,288 (6)
Other	81,265 (19)	107,377 (24)	85,281 (17)	86,285 (18)
Total:	419,145	445,865	497,553	477,990

Table 13

PRINCIPAL DOMESTIC EXPORT COMMODITIES
1985 - 88

(MK million)

	1985	1986	1987 (Estimate)	1988 (Forecast)
Agricultural crops:				
Tobacco	187.4	244.3	370.1	395.2
Tea	91.4	68.4	60.6	81.8
Sugar	44.4	39.9	63.5	73.6
Groundnuts	6.0	15.5	13.2	34.7
Rice	0.3	1.1	-	-
Cotton	13.0	2.1	0.8	-
Pulses	8.3	9.1	26.1	13.5
Coffee	11.6	22.5	19.8	28.2
Maize	29.4	12.8	-	-
Total	391.8	415.7	554.1	627.0
Other Crops including Manufacturing	27.3	30.2	43.9	37.5
Total Domestic Exports	419.1	445.9	598.0	664.5
Re-Exports	10.6	16.2	13.5	13.4
Total	429.7	462.1	611.5	677.9

2.11 Promotion of Industry and Commerce

In general all prospective investors who propose to establish a manufacturing firm which will employ ten or more persons (including managerial and clerical staff) or use machinery of twenty-five horse-power or more, are required to obtain an industrial licence from the Ministry of Trade, Industry and Tourism. Once granted, a licence remains valid for an indefinite period, provided the annual fee of MK 300 is paid and the licensee continues in production.

As a general rule, all applications for industrial licences are granted unless there are good reasons for not doing so. Reasons for refusing to grant a licence may be summarized as follows:

- if the capital, technical skill or raw materials are, in the opinion of the Minister, inadequate to secure the successful establishment and operation of the particular enterprise in which the applicant proposes to engage; and if the failure of the enterprise would likely prejudice the successful development of the industry concerned;

- if the place at which the applicant proposes to establish a manufacturing firm is not a suitable situation for the industry concerned;

- if the granting of such a licence would not, in the opinion of the Minister, be in the best interests of the economy or public weal of Malawi or of the particular industry concerned.

2.11.1 Industrial Incentives

In order to encourage the development of industry in Malawi, the Government offers a number of incentives, designed especially to be of help to manufacturers during the initial period of establishing their operations. These incentives fall into the following main headings:

- Exclusive Protection:
  In exceptional cases where it is economically justified, exclusive protection is granted to a pioneer industry for a limited period. When such protection is granted to a firm, no other enterprises are granted licences to manufacture products deemed to be competitive with those manufactured by the protected firm.

- Tariff Protection:
  It is not, in general, the policy of the Government to use direct import controls on products which compete with locally made goods, but local manufacturers may apply for tariff protection. If the application is granted, tariff rates may be raised to protect the local producer against imported products for a specific period.

- Industrial Rebates and Drawbacks:
  Manufacturer's rebates are granted on imported materials required for further processing in Malawi. The rates vary from commodity to commodity, with the effect that either reduced tariff rates apply or no duty is payable. Additional incentives are given to

registered manufacturers through industrial drawbacks regulations, which allow them to claim reimbursement of tariff duties paid on materials which have been used in the manufacture of articles which have been exported.

- Other Tariff Rebates:
  Goods imported for the establishment or development of any industrial undertaking or enterprise which is deemed by the Minister of Finance to be of national importance, are allowed under a special tariff item to enter Malawi at concessionary duty rates. A similar concession is also provided in respect of parts and materials, excluding fuels, of a kind, suitable only for consumption in the process of manufacture.

- Tax Rebates:
  There are generous capital allowances and other special deductions for industrialists in Malawi which include:

  Depreciation Allowances

  Initial allowances on capital expenditure are granted at the rates of 10 % on industrial buildings and 20 % on plant and equipment.

  Annual allowances are also given and are calculated on the basis of a reducing written down value; these allowances are individually assessed by the Commissioner of Taxes, and the rates include 5 % on certain industrial buildings and vary from 5 % to 33 1/3 % on plant and equipment, depending on the type of equipment.

  Investment allowances - In general an allowance of 10 % is granted to manufacturers for new plant and equipment other than motor vehicles.

Initial expenditure - The expenditure incurred by a manufacturing industry during the period of 18 months prior to the start of operations is deductible to the extent that it would have been allowed had it been incurred after the beginning of the business.

2.12 Taxation

Companies incorporated in Malawi:

The basic rate is 50 %. An additional tax of up to 5 % is payable on dividends remitted to external shareholders residing in countries where the gross rate of tax on taxable income involved would exceed 50 %; the company is liable for this tax and not the shareholders. There are provisions for the remission of the additional 5 % e. g. where it can be shown that a dividend paid to a shareholder resident outside Malawi is not liable to tax in his country of residence.

Companies not incorporated in Malawi
and branches of foreign companies:

The basic tax rate is 50 %. An additional amount of up to 5 % of the taxable income is payable if the tax payable on such taxable income would be in excess of 50 % in the country where the company is incorporated. Here again there are provisions for the remission of the additional

5 %; e. g. where it can be shown that the income derived in Malawi by a branch of foreign company is not liable for tax in the foreign country where the company is incorporated.

In both cases above, if the tax payable in the foreign countries is between 50 % and 55 %, the additional tax is limited to the excess over 50 %.

Special Deductions:

There are special deductions from taxable income which can be claimed by farmers and industrialists, including capital allowances, some of which are outlined under the section on 'Promotion of Industry and Commerce'. The legislation also provides relief for certain mining expenditure.

Double Taxation Agreements:

Malawi has double taxation agreements with the United Kingdom, Sweden, Denmark, Switzerland, Norway, France, the Netherlands, Kenya and South Africa.

There is no double taxation agreement with the Federal Republic of Germany; hence the project will not be affected in any way.

3. MARKET AND DISTRIBUTION

3.1 Market Supply and Demand

According to the Terms of Reference the supply and demand of maize flour had to be investigated.

In chapter 2.9 the maize cultivation in Malawi has been analyzed.

Although there were no comprehensive data available from the statistics (latest issue of the National Accounts Handbook is from 1985 with figures ending 1979), the indications are that the production of maize has more ore less kept pace with the population growth.

The estimated production for 1987 was 1,218 million tons of maize, but the situation appears to have improved in most districts, and the maize production in 1988 might be estimated to amount to 1.400 million tons.

In general it can be stated that the raw material basis for maize flour milling is sufficient in Malawi.

Only at peak season (which extends from October to February) there are some shortages from time to time. 'Peak season' refers to the harvest time when priority of supply may be given to the small hammer mills all over the rural areas which then implies a possible shortage of maize supply to the urban centres.

Since the import of flour to Malawi is prohibited, the chance to stabilize the market segment by local flour production and supply has become more realistic.

The result of the latest census in 1987 shows a population of 7,982,607.

The structure of Malawi's population is predominantly rural with about 91.8 per cent living in rural areas. 8.2 per cent are living in the four major urban centres.

Based on an average consumption of 0.400 kg (World Health Organization) of flour per capita and day, the total theoretical demand of maize flour might amount to 1,165,460 tons* per year, of which the population in rural areas would require 1,069,892 tons/year and the urban centres 95,568 tons/year.

Provided the 800 small hammer mills with an average capacity of 1.2 tons/hour that are spread all over the rural areas, would during peak season (see page 63) mill 8 hours/day, the total quantity thus produced would amount to 1,382,400 tons in 180 days, which is more than sufficient for the rural areas.

The theoretical milling capacity installed in Malawi (5 mills in Blantyre/Limbe, Lilongwe and Mzuzu) is approx. 98,550 tons per year.

This tonnage would be sufficient to meet the theoretical demand of maize flour of 95,568 tons in the four urban centres of Malawi.

* 0.400 kg x 7,982,605 : 1,000 x 365 days

The actual supply of maize flour by the above mentioned mills, however, only amounts to approx. 39,500 tons *, which means a supply gap of 58,058 tons of flour per year.

At his field research, the Consultant found out that one of the major contributing factors for the poor performance of the mills is the low extraction caused by the technical state of the mills which leaves much to be desired and can be described as follows:

Grain & Milling Company Ltd.

- The machinery of both milling complexes (in Limbe and in Lilongwe) - and this in particular refers to the plan-sifters - shows symptoms of material-fatigue; it is worn out and in constant need of repair;
- in the past, maintenance was neglected and that has caused the machinery to get worn out;
- since there are no original spare parts available, maintenance and repair to a large extent must be based on improvisation.

K. K. Millers Ltd.

- The layout of the Limbe mill is lowest standard and its capacity accordingly low (600 kg/h);
- main cause for the discontinuous milling operation is the weak and often interrupted power supply;
- the standard of the mill in Lilongwe is even more primitive and just sufficient to grind the refugee maize-flour.

* Figure according to the information obtained from Grain & Milling Company Ltd. and K. K. Millers Ltd.

More satisfactory results can be achieved by upgrading parts of the milling equipment.

To put the mills back into a fully satisfactory technical state will require a study on the rehabilitation of a mill. This study must be carried out by an independent institution and not, as had been done in the past, by suppliers of machinery.

The market research also revealed that, since the number of refugees in Malawi has been steadily increasing, the mills will use part of their equipment to mill the so-called 'refugee maize', which absorbs a considerable portion of their capacity.

Finally it has to be stated that the equipment of one mill in Lilongwe has reached the end of its working life, which means the necessity of complete replacement.

Provided all the above mentioned problems are solved as soon as possible, the future supply of maize flour will create no more problems.

This Feasibility Study proposes a new maize flour mill in Lilingwe in order to close the supply/demand gap especially for this town. The surplus of its output can be utilized to supply other regions with maize flour.

For a conservative assessment that is based on the figures obtained by the field research, Table 14 shows the comparison of the actual demand with the actual supply in 1987/88.

Table 14

ACTUAL DEMAND AND SUPPLY OF MAIZE FLOUR
(FIGURES BASED ON FOUR MAJOR TOWNS
BLANTYRE, LILONGWE, ZOMBA, MZUZU)

Population (1987)	7,982,607
Urbanization (8.2 %)	654,574
Urban households	121,458
Average number of persons per household	5.4
Actual demand of maize flour* (tons)	71,818
Actual supply of maize flour (tons)	39,500
Shortage of supply over demand (tons)	56,068

* Approx. 75 % of the urban households (= 91,094) are maize-flour consumers.

The situation of demand and supply in Lilongwe is shown in Table 15.

Table 15

DEMAND AND SUPPLY OF MAIZE FLOUR IN LILONGWE (1987/88)

Inhabitants	235,000
Households	41,484
Average number of persons per household	5.7
Actual demand of maize flour* (tons)	25,892
Actual supply of maize flour (tons)	8,093
Shortage of supply	17,799

* Approx. 75 % of the households (= 31,113) are consumers of maize flour.

3.2 Distribution of Expenditure

The Urban Household Expenditure Survey 1979/80 gives the average household size by major towns and income groups and the percentage distribution of expenditure for each town by income group and commodity.

The development of urban households between 1979 and 1987 was dependent on the growth of the population and the average size of the urban household in Malawi.

Table 16

GROWTH OF POPULATION IN FOUR MAJOR TOWNS FROM 1977 TO 1987 *)

Town	1977	1987	Increase
Blantyre	219,000	323,000	+ 51.6 %
Lilongwe	99,000	235,000	+ 137.3 %
Zomba	24,000	43,000	+ 79.2 %
Mzuzu	16,000	44,000	+ 175.0 %
Total	358,000	654,000	
Total population	5,547,460	7,982,607	
Percentage of total population	6.4 %	8.2 %	

* Source: Malawi Population and Housing Census 1987 (Preliminary Report)

The housing and demographic characteristics of the census 1987 point to the fact that the average household size, on the whole, increases as income increases. The household with higher incomes may have more members, as they tend to include more than the nuclear family and may employ servants living as household members. It is also much more common to find working wives in such household. The average household size in Blantyre, Lilongwe, Zomba and Mzuzu is 4.5, 4.2, 4.6 and 4.4 persons respectively.

Table 17 shows the average household size by income group for the respective towns, whereas Table 18 shows the percentage distribution of expenditures.

Table 17

AVERAGE HOUSEHOLD SIZE BY TOWN AND INCOME GROUP *)

Income Group	Blantyre	Lilongwe	Zomba	Mzuzu
All income groups	4.5	4.2	4.6	4.4
Less than MK 20.00	2.6	1.5	3.7	2.5
MK 20.00 - 39.99	3.7	2.6	3.0	2.5
MK 40.00 - 69.99	3.8	4.0	3.9	4.0
MK 70.00 - 99.99	4.3	4.4	5.4	4.8
MK 100.00 - 139.99	5.0	5.1	6.0	6.0
MK 140.00 - 199.99	6.1	5.7	6.1	6.8
MK 200.00 - 399.99	6.5	6.3	5.8	6.9
MK 400.00 and over	5.6	6.1	5.3	6.3

*) Source: Urban Household Expenditure Survey
National Statistical Office

Table 18

SUMMARY OF PERCENTAGE DISTRIBUTION
OF EXPENDITURE FOR EACH TOWN
BY INCOME GROUP AND COMMODITY *)

Income Group and Town	Food	Alcohol + Tobacco	Transport + Commu-nication	House-hold Equipm.	Other
High Income					
Blantyre	14.3	4.1	18.0	8.8	54.8
Lilongwe	14.5	2.5	26.4	13.9	42.7
Zomba	20.0	2.9	20.8	12.1	44.2
Mzuzu	15.5	1.0	26.2	10.3	47.0
Low Income					
Blantyre	43.5	2.1	4.0	9.7	40.7
Lilongwe	38.1	4.9	3.2	12.0	41.8
Zomba	47.9	2.0	2.4	11.4	36.3
Mzuzu	47.7	2.0	2.2	10.0	38.1

*) Source: Urban Household Expenditure Survey
National Statistical Office

These statistics show that the average distribution of expenditure for food amounts to 16.1 % in the high-income group and 44.3 % in the low-income group.

The average expenditure for maize flour, expressed in percentage of the total household expenditures is as follows:

	High income	Low income
Blantyre/Limbe	3.0 %	6.2 %
Lilongwe	1.8 %	3.6 %
Zomba	1.0 %	2.6 %
Mzuzu	1.5 %	3.5 %

3.3 Distributing and Pricing

Usually maize flour is sold to the following customer categories:

- bakeries,
- groceries, department stores,
- wholesalers.

The official statistics do not contain any figures about the supply/distribution of maize flour to these customers. In the course of his field research the Consultant obtained a certain amount of figures from the producers, some customers and other sources such as Chamber of Commerce and Industry. Therefore it is only possible to present a reflexion that is supposed to be fairly reliable in the way of maize flour supply/distribution.

The bakeries play a significant role as customers. According to the two milling companies, they supply to approximately 94 bakeries all over the country, out of which 3 are big-size bakeries belonging to the government-owned Press Corporation Ltd. (in Blantyre, Lilongwe and Mzuzu), 1 is a medium-size bakery situated in Zomba, and the remaining 90 are small-size bakeries. The daily consumption of maize flour varies between 20 bags of 70 and 150 kg of 70 kg. For the 3 plus 1 bakeries an average consumption of 32.8 tons per day could be envisaged, which comes to a yearly quantity of approximately 10,000 to 12,000 tons. The remaining 90 bakeries will consume about 3,400 to 5,000 tons per year.

The next categories are department stores and groceries.

Through this distribution channel most of the private consumption will be satisfied. In this category the aspect of marketing the products play an important role.

Especially one group which is spread all over the country with departmental stores, supermarkets and shops is the main customer of maize flour: the Peoples Trading Centre (PTC).

The table on the next page shows PTC's retail trade:

Table 19

PEOPLES TRADING CENTRES IN MALAWI
1988

Town	Type	Number
Blantyre/Limbe	Departmental Store	2
	Shop	9
Balaka	Supermarket	1
	Shop	1
Deoza	Supermarket	1
Kia	Supermarket	1
Karonga	Shop	1
Kasungu	Supermarket	1
	Shop	2
Lilongwe	Departmental Store	1
	Supermarket	1
	Shop	5
Luchenza	Supermarket	1
Mangochi	Shop	1
Mcninji	Shop	1
Monkey Bay	Supermarket	1
Mponela	Shop	1
Mulaje	Shop	1
Mzimba	Shop	1
Mzuzu	Departmental Store	1
Nchalo	Shop	1
		35

(Table 19 continued)

Town	Type	Number
Number of Peoples Trading Centres carried over:		35
Nkhata Bay	Supermarket	1
Nkhota Kota	Supermarket	1
Ntcheu	Supermarket	1
Rumphi	Supermarket	1
Salima	Shop	1
Thyolo	Shop	1
Zomba	Departmental Store	1
	Total	42

It can be assumed that PTC will expand at the same pace as that of the overall development in Malawi.

Besides PTC another group of department stores (Kandodo) exists, which in 1988 has been bought from PTC by the Malawi Development Corporation. This group now starts a course of expansion and for the future should be regarded as an important customer.

In the shops the maize flour is sold under the following brand names:

- Gramil Super Cream,
- Gramil Cream of Flour,
- Swan Super Maize Flour,
- Cream of Maize,
- Special Meal.

The names are directly related to the quality of the maize flour, with Gramil Cream of Flour and Swan Super Maize Flour almost being the same quality and those products sold and consumed most in the country. Due consideration has been given to this point in the layout of the proposed new maize flour mill.

About 77 % of the capacity of the new mill will be dedicated to super maize flour respectively cream of flour.

The field research yielded the following list of retail prices:

Table 20

RETAIL PRICES FOR MAIZE FLOUR IN MALAWI KWACHA

1988

	2 kg	5 kg	10 kg	20 kg		50 kg		70 kg	
	PTC / KANDODO	PTC / KANDODO	PTC / KANDODO	PTC / KANDODO	WHOLE-SALER	PTC / KANDODO	WHOLE-SALER	PTC / KANDODO	WHOLE-SALER
I. Blantyre									
Super Cream	-	-	8.80	17.64	-	37.95	-	54.50	-
Cream of Maize	-	2.80	5.60	10.80	10.80	27.10	-	-	-
Super Maize	1.25	2.65	5.15	10.10	10.10	-	-	-	-
Roller Meal	-	2.45	4.90	9.55	9.55	23.75	23.75	32.80	-
II. Lilongwe									
Super Cream	-	-	-	18.15	-	-	38.40	55.00	-
Cream of Maize	-	3.35	6.10	11.30	-	-	-	-	-
Super Maize	1.80	3.20	5.65	10.60	-	-	-	-	-
Roller Meal	-	2.95	5.40	10.10	-	24.25	24.25	33.30	-
III. Zomba									
Super Cream	-	-	-	-	-	-	-	-	-
Cream of Maize	-	3.25	6.00	-	-	-	-	-	-
Super Maize	1.80	3.20	5.65	10.60	-	-	-	-	-
Roller Meal	-	-	-	-	-	-	-	-	-

4. EXPORT POSSIBILITIES

The Consultants have investigated the export possibilities of maize flour to neighbouring countries, such as Tanzania, Mozambique, Sambia and Zimbabwe.

At present it is not possible to make an assessment for these prospective markets, due to the fact that import figures of these countries for the product maize are not available.

Export at present will also be hampered by the fact that the production of maize just about meets the domestic demand.

At any case, in the long run the export possibilities to the SADCC countries should not be neglected, provided the various incentives and support schemes make such exports more attractive when the objectives of the Lusaka Declaration* have been realized.

* Aide memoire for preparation of SADCC Industry Programme, Memorandum of Action

5. Production Programme

5.1 General Characteristics of Maize Flour

According to the Malawi Standards Board (UDC 644.784; MBS 34.1985), maize flour is defined as follows:

(a) white maize flour (cream of maize or ufa) milled from dehusked white maize grains; and

(b) maize meal (roller meal or gayiwa) milled from whole yellow or white maize grains or a mixture thereof.

Maize flour (cream of maize or ufa) can be described as a white product obtained by milling cleaned dehusked white maize into fine maize flour in which there are no visible bran specks.

Maize meal (roller meal or gayiwa) is a product obtained by the milling of whole white or yellow maize grains or a mixture thereof, such that the product is finely granulated maize meal from which a very small portion of bran fractions have been removed.

The basis for the above mentioned quality is the maize grain

After the Consultant's field study it can be stated that the maize cultivated in Malawi is according to the standards MBS 32:1985, UDC 633.15.

Within the scope of supply of machinery and equipment, special laboratory equipment has been foreseen to determine moisture, fat, ash, fibre and protein content in order to meet the standards laid down by the Malawi Bureau of Standards.

Local investigations in Malawi in the course of the field study regarding the actual production programme of the two existing milling companies disclosed that at present the following products are produced:

1. K. K. Millers Ltd.:
   - Super maize flour
   - maize starch
   - bran

2. Grain & Milling Company:
   - Super cream of maize
   - cream of maize
   - roller meal
   - brewery grits
   - bran

5.2 Product Specifications

The actual production programme of the two existing milling companies will also apply for the selected maize flour products to be produced by the new flour mill.

In order to achieve an output which will meet the requirement of the market (see chapter 3), the mill has been laid out to produce super cream of maize and cream of maize as well as the by-product bran.

The daily output of 84 tons (which equals 3.5 tons per hour) can in general be subdivided into the following products:

Table 21

Item	Product Denomination	t	%
1	Super cream of maize	8.4	10
2	Cream of maize	64.7	77
3	Bran	10.9	13

If required, compound milling also allows the following product mix and percentage:

Table 22

Item	Product Denomination	t	%
1	Super cream of maize	5.9	7
2	Cream of maize	58.8	77
3	Roller meal	6.7	8
4	Brewery grits	0.8	1
5	Bran	12.6	15

The Malawi Bureau of Standards has published the specifications for maize flour and maize meal for human consumption (MBS 34 : 1985/UDC 664.784).

The main criteria of the requirements are stated below:

- The maize from which the flour is milled shall be of sound and marketable quality conforming with MBS 32 : 1985.
- The fineness of the flour shall be such that at least 90 % (m/m) of the flour shall pass through a 1.4 mm sieve.
- The flour shall be free of sand, soil particles or any other foreign matters.

- The flour shall conform to the compositional requirements as shown in Table 23.
- The flour shall be manufactured in accordance with good manufacturing practice.
  The premises in which milling is carried out shall be protected, as far as possible, against all infestation, insects, mites and rodents.
- The products shall be prepared in accordance with MBS 21-1984 (Code of Hygienic Conditions for Food and Food Processing Units).

Table 23

COMPOSITIONAL OR CHEMICAL REQUIREMENTS

Product	Moisture Content % (m/m)	Fat Content % (m/m)	Fibre Content % (m/m)	Ash Content % (m/m)	Protein Content % (m/m)
Cream of maize (ufa)	14.0 max	3.2 max	1.4 max	1.2 max	4.5 min
Maize meal (gayiawa)	14.0 max	3.2 min	2.0 max	1.5 max	5.5 min

Packaging shall safeguard the hygienic, nutritional and technological qualities of the product and not permit any transfer of toxic substances to the flour.

The product labelled 'maize flour' or 'maize meal' shall be deemed to conform in essential composition to the requirements mentioned in Table 23.

Regarding sampling and analysis, this should be done according to either routine methods or the method in the Official Methods of the Association of Analytical Chemists (AOAC) - 14.020 (1980 - 13th Edition).

5.3 Production Process

5.3.1 Description of Production Technology

In the following a description of the production process of the maize flour mill at continuous (three-shift) operation corresponding to the figures shown in the layout of the mill (drawing no. K 88 543) is given. Under normal conditions - such as constant power supply, constant raw material supply and sufficient maintenance - a three-shift operation can be guaranteed.

Raw material

The production volume of the product 'flour' is basically determined by the volume of the raw material 'maize' that is processed.

The milling capacity of this plant under study is 3.5 tons/hour.

The daily requirement of maize comes to approximately 85 tons/day.

Assuming 270 working days per year the maize supply required per year will be 22,950 tons.

The supply of maize can be made either in bulk (railway or truck) or in bags by truck.

In this study the raw material will be supplied by trucks (in 90-kg bags).

According to the provided storage equipment, the bags are stacked in a shed from where the maize is conveyed for the milling needs via the intake hopper (1) and the intake elevator (2) to the intake bin. This intake bin has a capacity of 100 tons, which equals the supply for three shifts, thus serving as the day bin.

Cleaning

Below the day bin (3) a quantity regulator (5) is installed at the outlet regulating the cleaning quantity per hour. The bin contains full and empty level indicators (4) indicating whether the bin is ready for operation. From the quantity regulator the raw material is conveyed by the elevator (6) to the automatic weigher (8). In case of the weigher being overcharged, the level indicator (7) of the quantity regulator (5) which is installed at the intake, automatically switches the quantity regulator off. After the automatic weigher (8) which serves for the registration of the quantity milled in one day (24 hours) or one shift (8 hours), the maize reaches the respirator (9). This respirator contains 2 sieves to separate coarse impurities and fine particles such as sand etc. Furthermore the principle of counterflow by air is applied to remove from the product flow any parts that are lighter than maize. The discharge of the apparatus contains a permanent magnet which sorts out any iron particles from the maize to protect the machinery that comes next in the grinding process. It also prevents grain dust explosions which may be caused by sparking.

Next stage is the stoner (10), which utilizes the principle of gravity to sort out any stones that are of the same size as maize kernels and heavier than maize.

These two devices, namely the respirator and the stoner, guarantee the satisfactory cleaning of the maize from impurities.

Via the elevator (11) the maize is conveyed to the damper (12) with damping screw of stainless steel.

Here the degermination process starts.

Degermination

In the damper (12) the maize, according to its quality and degree of hardness, achieves the optimum degree of humidity that it requires to be properly degerminated in the degerminator.

Next to the damper (12), there is the tempering bin (13) where, for up to 12 hours, the maize, according to its degree of hardness, can be tempered and conditioned for the following degermination and grinding. Just as the day-bin (3), this tempering bin is controlled by level-indicators (14).

Degermination is made in the degerminator (16) which breaks up the maize and to a large part separates the germ from the rest of the maize grain. This is achieved by a beater-rotor which rotates at high speed in a sifting drum and breaks up the maize.

The quantity regulator (15) installed at the discharge of the tempering bin (13) regulates the even feeding and control of the hourly quantities of the degermination (16) and the milling section.

Milling

From the discharge of the degerminator the material to be ground is conveyed via the conveying pipe which belongs to the pneumatic system (18), to the plan sifter section of the square sifter (19). This sifter section is part of the square sifter which operates in the grinding process. In this section the various granulations or particle sizes resulting from the degermination (16) are graded and conveyed to the respective suitable grinding passages. The grinding system consists of 4 breaks (B 1 - B 4), each with a pair of rolls and one half of a plan sifter section. The plan sifter (19) has 6 departments, five of which are subdivided horizontally.

Apart from the 4 breaks, there are 2 germ passages (1 G and 2 G) which also each consist of one pair of rolls and one half of a plan sifter section, 2 reduction roll passages (1 S and 2 S), each with one pair of rolls and one half of a plan sifter section and 2 gradings (1 D and 2 D), each consisting of one half of a plan sifter section.

Furthermore there are 4 tarars (aspirators) (21) installed as auxiliaries, to remove from the grinding process the husks and other light particles which are separated from the endosperm and which will always be found in the passages.

The impact finisher (23) separates from the fine flour mixture which is separated by the cyclone of the pneumatic conveying system (18), the fine bran particles from the flour portion. The various passages are connected by a spouting system which is determined by the diagram. Having been separated by the sifters, the particles of matching sizes are led together by the diagram and conveyed to the further grinding process.

The pneumatic conveying system (18) consists of several pneumatic liftings, which connect the roller mills (20) with the pertaining plan sifter section. The square sifter (19) is arranged above the roller mills (20). Apart from the function of the lifting, the pneumatic conveying system also has to cool the material to be ground, or in other words: it must emit from the product the heat that has been generated in the process of grinding.

The finished products are conveyed to the three worms (25). These worm conveyors convey the products to the finished products storage shed where in three-shift operation they are continuously bagged via sack filling sleeves.

According to the requirements of the feedstock mill, the bran can be milled at another stage in a hammer mill.

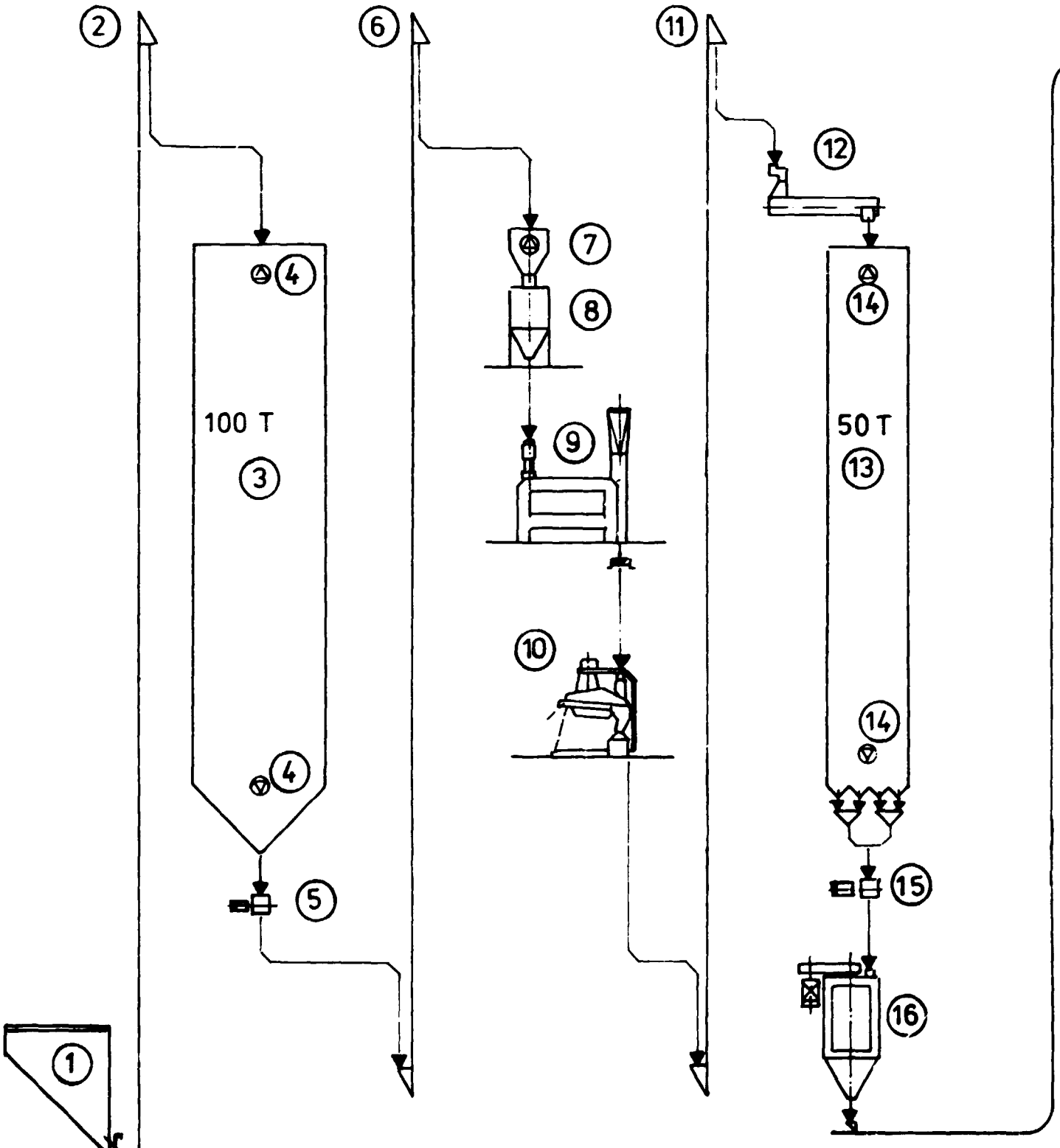
The proposed plant is able to process both white maize and yellow maize. Since for the preparation of nshima only white maize is used, the processing of yellow maize will hardly come into consideration.

Legend

1. Intake hopper
2. Intake elevator
3. Intake bin
4. Full and empty level indicator
5. Quantity regulator
6. Elevator
7. Level indicator
8. Automatic weigher
9. Respirator
10. Stoner
11. Elevator
12. Damper with damping
13. Bin
14. Full and empty level indicator
15. Quantity regulator
16. Degerming machine
17. Cleaning section aspiration
18. Pneumatic conveying system
19. Square sifter (with 6 sections)
20. Roller mill
21. Aspirator (tarar)
22. Aspiration of aspirator (tarar)
23. Impact finisher
24. Hammer mill
25. Worms

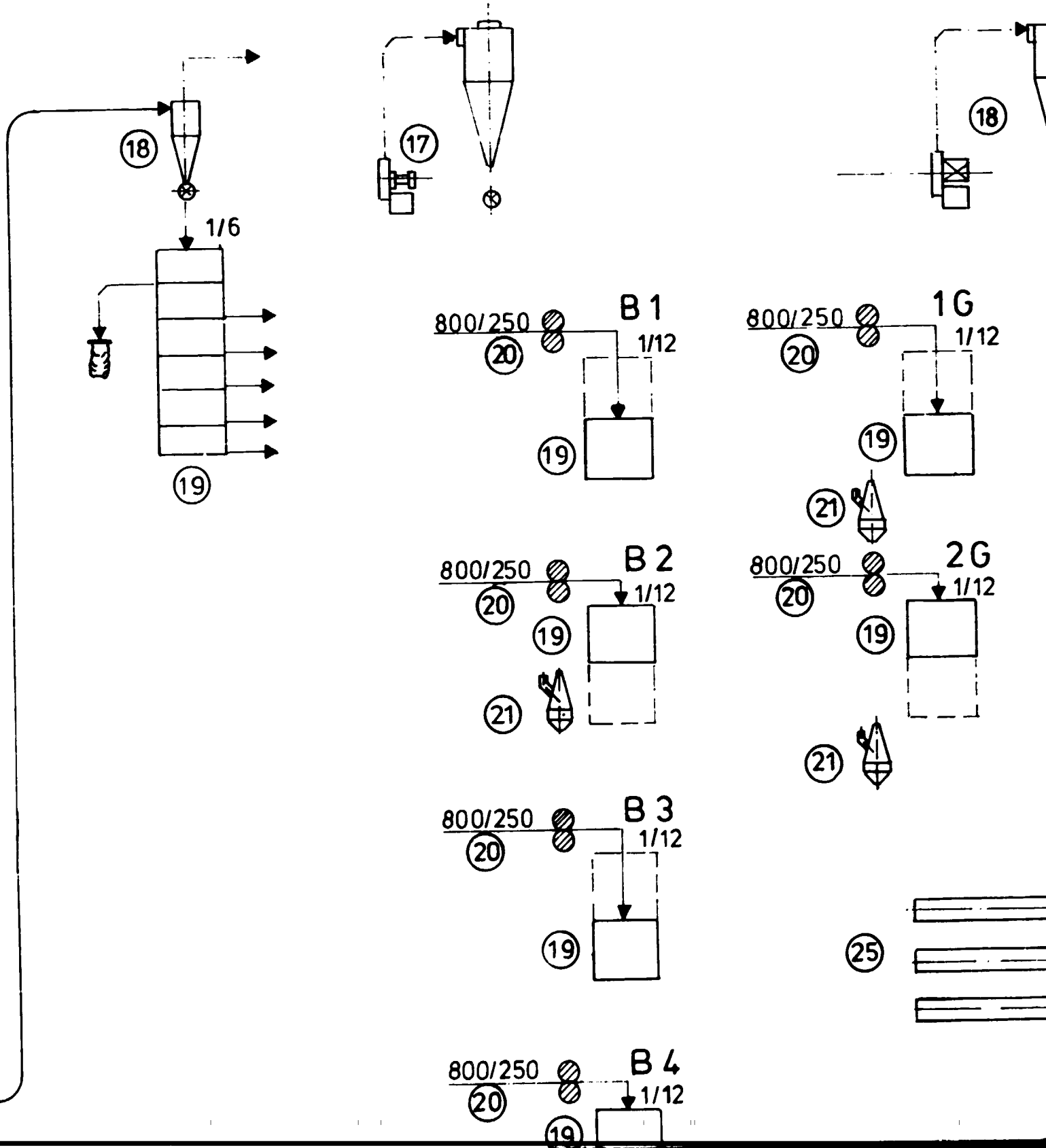
INTAKE SECTION CLEANING DEGERMINATION

SECTION 1

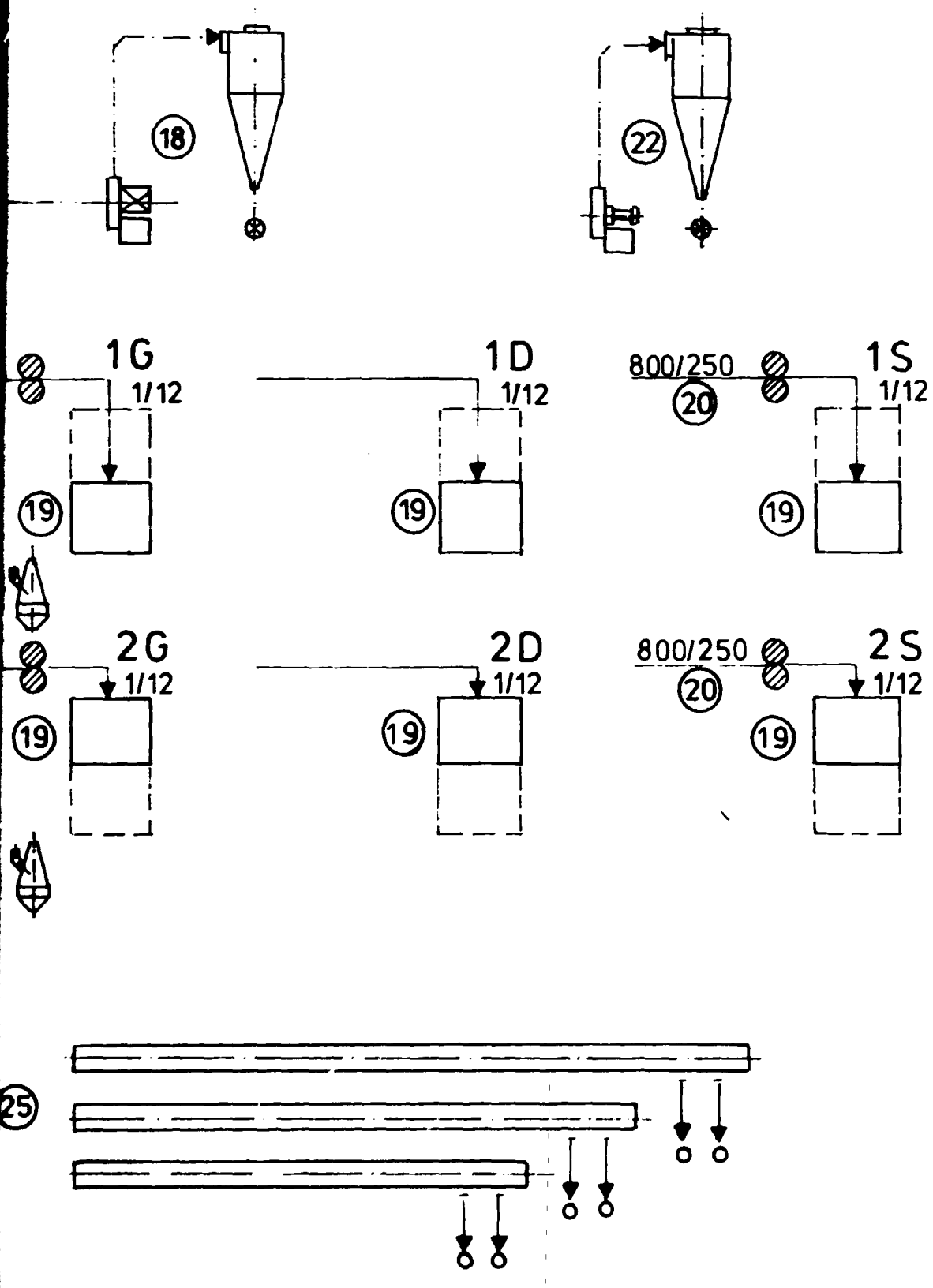


SECTION .2

MILLING



SECTION 3


18
22
1G
1/12
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1D
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800/250
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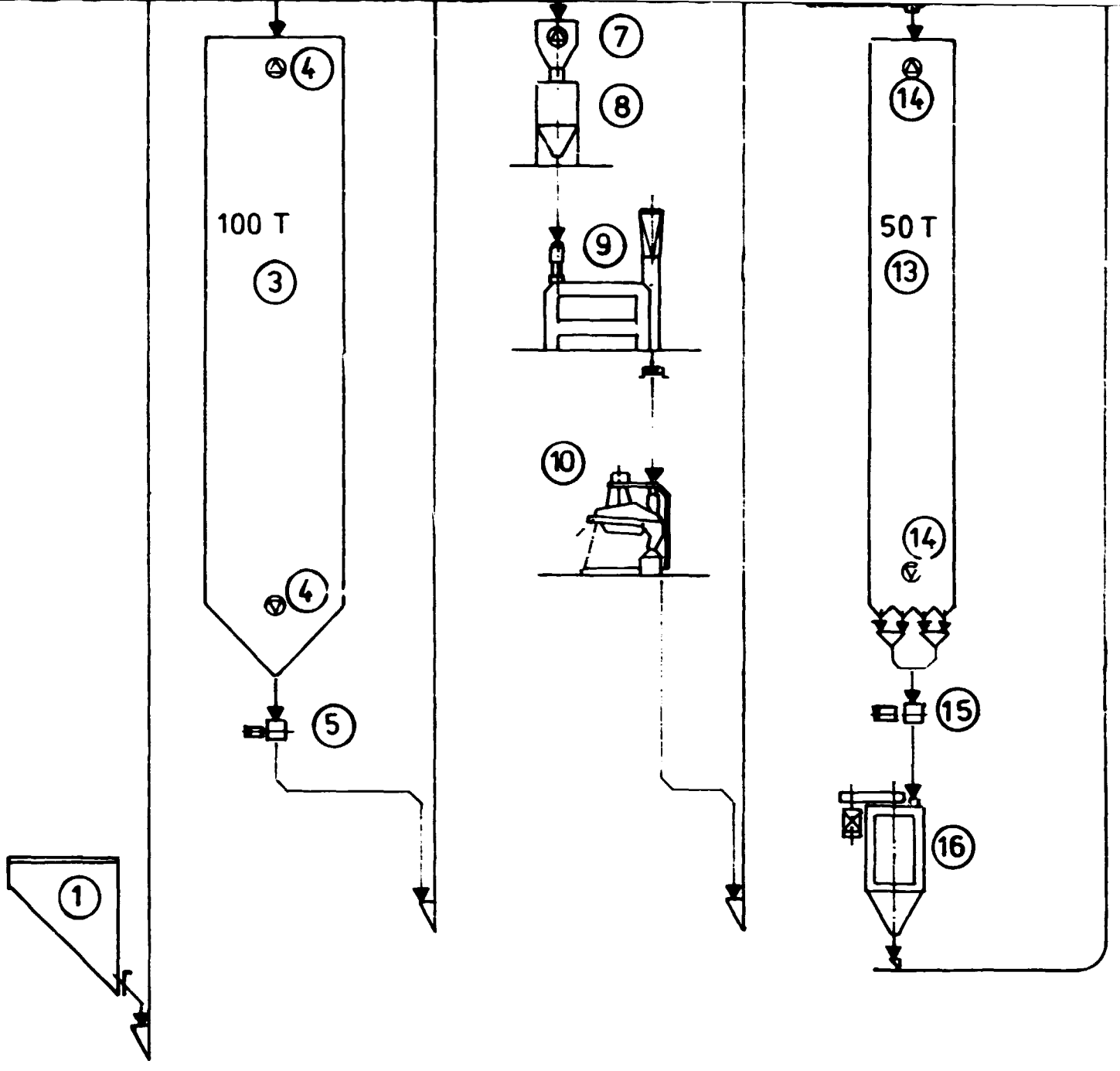

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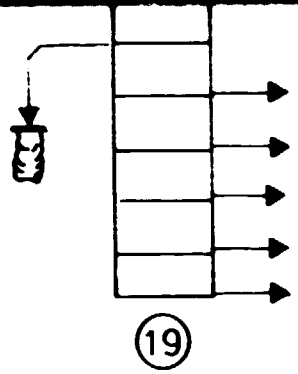
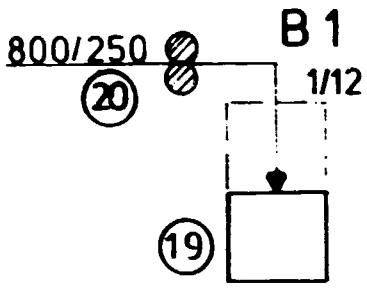
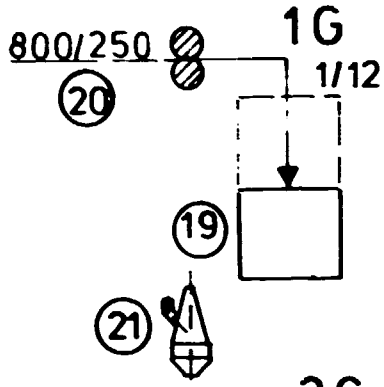
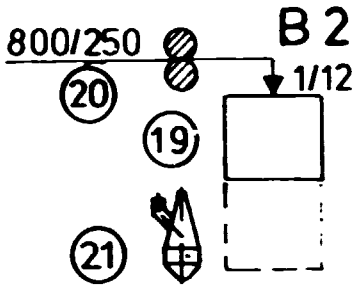
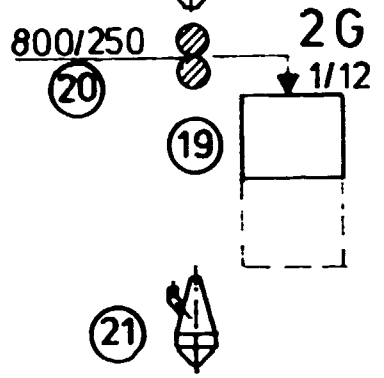
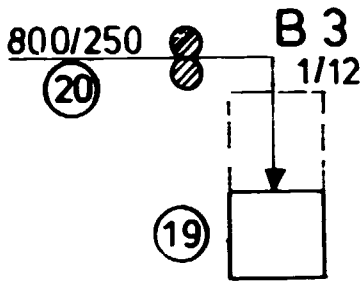


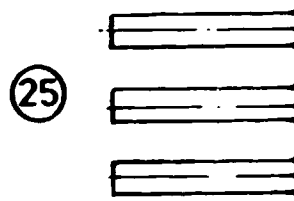


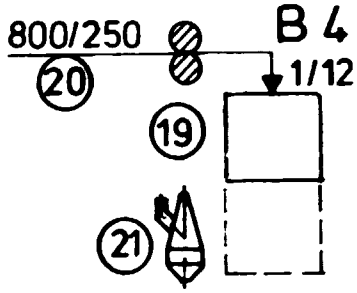


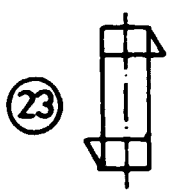






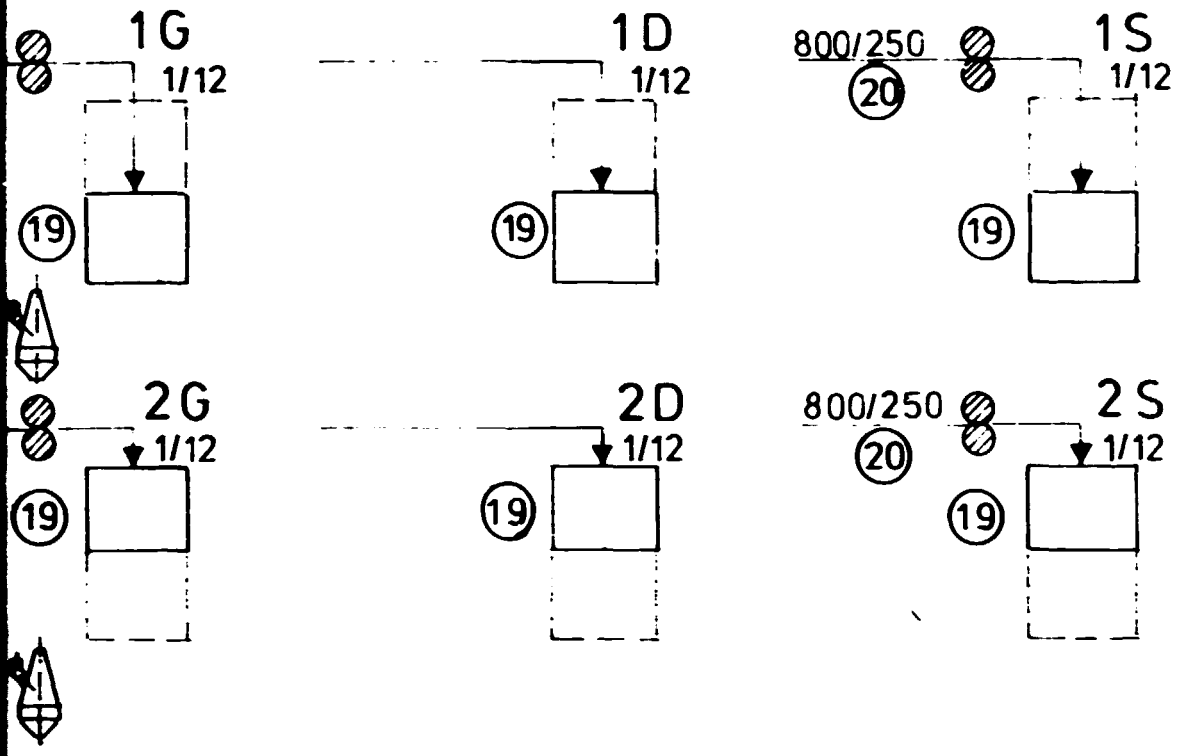


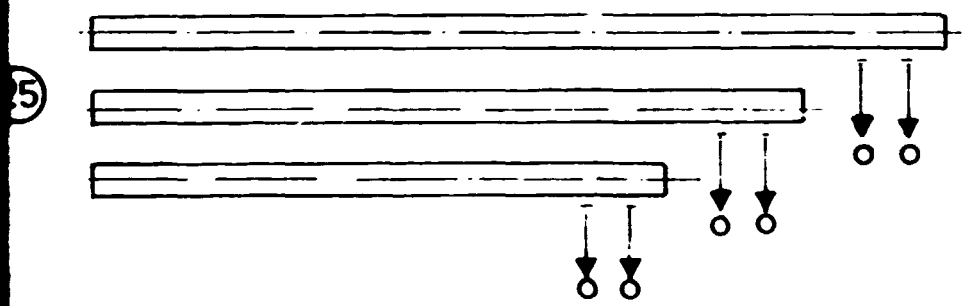




SECTION 5

4 Roller mill 800/250
1 Square sifter
4 Aspirator (tarar)
1 Impact finisher
1 Hammer mill





SECTION 6

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5.4 Machinery and Equipment

The plant is designed as a compact plant to guarantee an easily controllable production process.

The mill consists of the following machinery and equipment:

Item 1

1 Maize bin

with a capacity of 100 tons,
design in steel in a rectangular shape;
sides made of profiled metal with the necessary struttings and a slope of 45°; ceiling made of steel with a manhole according to directions;
support and steel-construction made of profiled metal with a prime coat

Item 2

1 Maize bin

of the same construction as Item 1,
yet with 3 slopes and a capacity of 50 tons of maize

Item 3

1 Automatic weigher

to register the quantity to be produced in one hour and/or per shift or/and per 24 hours

Item 4

1 Respirator

for the separation of coarse impurities and fine particles;
this machine contains 2 sieves, an aspiration system for the separating of light particles and a permanent magnet

Item 5

1 Stoner

for sorting out stones that are of the same size as maize kernels and heavier than maize

Item 6

1 Damper with damping screw of stainless steel

to increase the moisture content of the grains for the optimum preparation of the maize for grinding

Item 7

1 Degerminator

for breaking up the maize and separating the germ from the rest of the grain

Item 8

1 Plan Sifter Section (with 6 departments)

for grading the granulations or particle sizes of the sundry passages;
the sifter consists of 6 departments, 5 of which are subdivided horizontally

Item 9

8 Roller Mills 800/250

each roller mill having 2 pairs of rolls of 800 mm length and 250 mm diameter each;
to each pair of rolls a feeding system which operates by feeding rolls and a cylinder of glass as inlet, is co-ordinated

Item 10

1 Aspirator (Tarar)

The aspirator (tarar) is a machine which separates light particles from a product stream by way of a counter-air strem. A cyclone (dust collector) removes these particles from the airflow.

Item 11

1 Impact Finisher

consisting of a high-speed rotor and a screen. It separates specks and other coarse particles from the flour in the pneumatic conveyor system and the aspiration of the tarar.

Item 12

1 Hammer Mill

It consists of a rotor with hammers in a grinding screen and mills the bran according to requirements to the particle size that is wanted.

Item 13

3 Worm Conveyors

to convey the final products to the bagging section.

Other Equipment Directly Related to the Process:

- 4 Wooden frames for the roller mills
- 8 Discharge funnels
- 1 Pneumatic conveying system
- 1 Device for the mounting and demounting of the rolls (roller mills)
- 1 Set of special tools
- 1 Bag-sewing machine
- 1 Weighing machine

Other Equipment:

- 1 Forklift (manual)

- 1 Laboratory equipped with:

  -- 1 electrical rapid moisture tester for the determination of the moisture content

  -- 1 analytical balance,
  -- 1 muffle furnace (1,000° C),
  -- 1 desiccator with accessories,
  all three for ash analyses

  -- 1 protein determination system, consisting of 1 destillation unit and 1 infrared dressing device for the determination of the protein content

  -- 1 test sifting apparatus with accessories

- 1 Truck weighing bridge

6. Project Site and Physical Infrastructure

6.1 Project Site

The flour mill shall be erected at a site which ought to be located in the industrial area of the City of Lilongwe.

Due to the fact that a local sponsor could not yet be identified, the Consultant can do nothing more than propose to buy land in the industrial area which from the infrastructural point of view is already developed.

In other words: In this area roads, railway, power, water and telephone can easily be connected to a new plot.

During his field research, the Consultant visited the industrial area approx. 15 km outside the City of Lilongwe, and it can be stated that there are still enough suitable plots available.

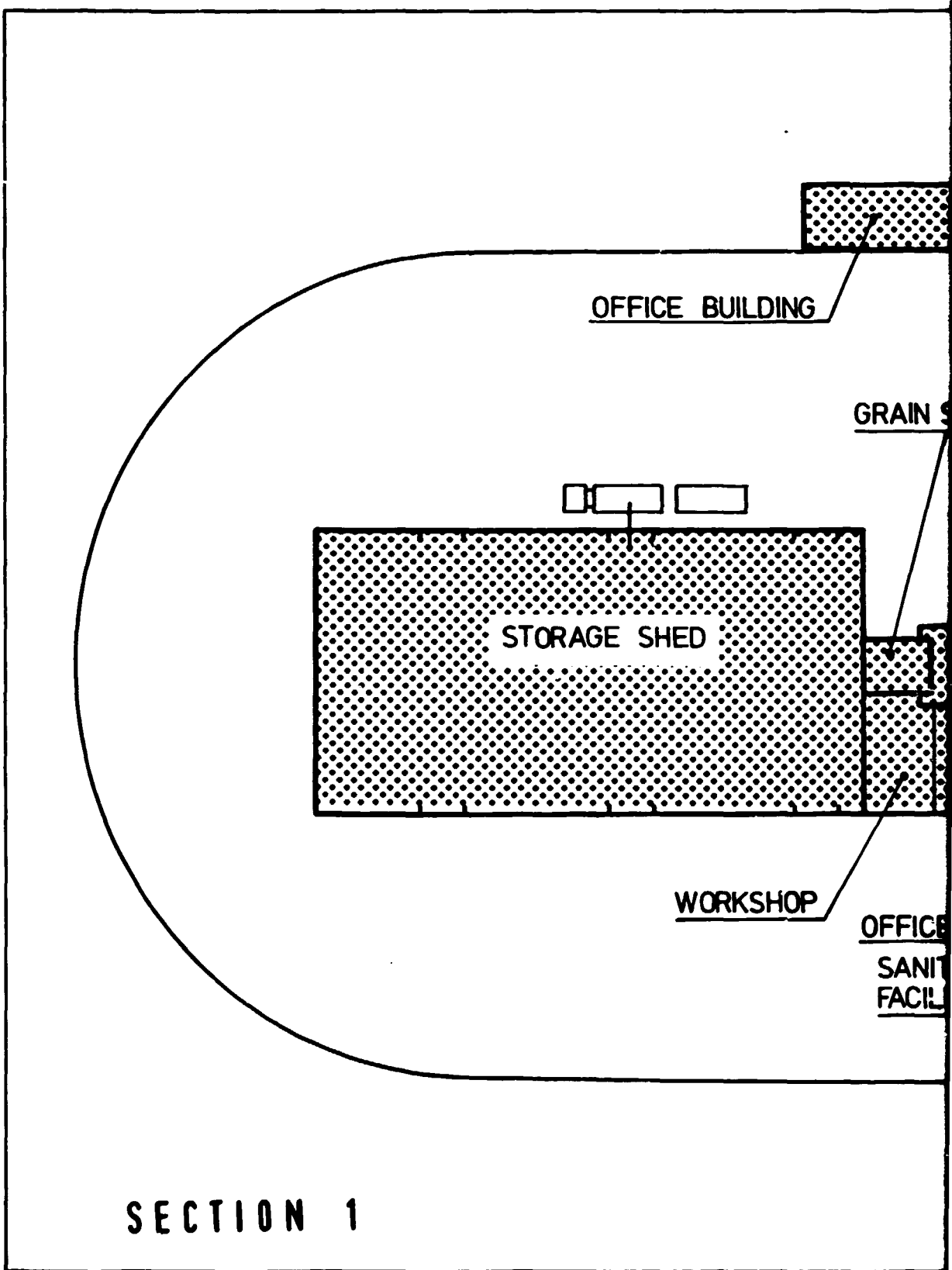
The entire complex for the mill, storages, administration, parking lots and road should comprise 30,000 sq.m, thus also offering ample possibilities for eventual extensions.

The cost of such site amounts to approx. MK 37,500.00.

The factory shall be constructed as a three-floor steel construction based on a cement floor. The walls and the roof shall be covered with corrugated sheet iron.

The stores shall be constructed as steel construction based on a cement floor. The walls are to be made of brickwork, and the roof shall be covered with corrugated sheet iron.

6.2 Site Plan



SECTION 1

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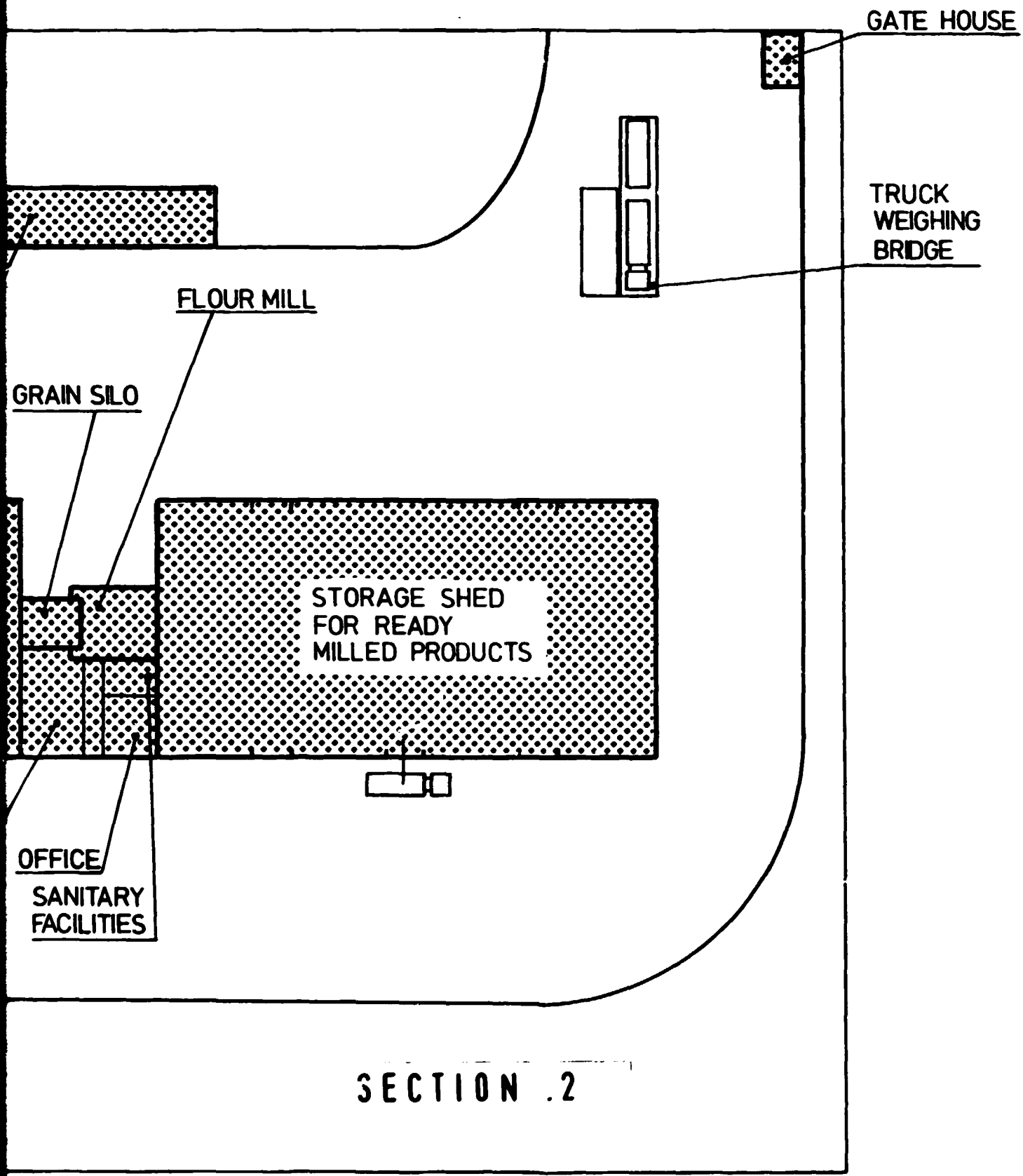


SECTION .2

	Standard	Document Type	KRIESEL, BOHLAENDER & ASSOCIATES CONSULTANTS
	Process		SITUATION PLAN
Rev B A-Verfilmung	Document No K 8854 4		Original Size: A
	Job or Project No	Serial No	Rev

6.3 Production and Office Building

6.3.1 Production Building

The total area necessary for the production, storages, offices etc. covers 5,000 sq.m. The building (3 stories) will consist of the following sections:

1. Silos (bins)	20 sq.m
2. Flour mill basement (packing)	75 sq.m
3. Flour mill 1st floor (roller mills)	75 sq.m
4. Flour mill 2nd floor (sifter)	75 sq.m
5. Grain store	1,250 sq.m
6. Finished products store (including packing)	1,250 sq.m
7. Office	15 sq.m
8. Toilets	15 sq.m
9. Showers	12 sq.m
10. Workshops/Spare parts	20 sq.m
11. Miscellaneous	43 sq.m
	2,850 sq.m

The storages I and II each have 6 sliding doors of the size of 4 m x 4 m. Their floor is sealed against dust; maximum bearing capacity 1,500 kg/sq.m.

The production building has three floors:

(a) Basement
The floor is sealed against dust;
maximum bearing capacity: 500 kg/sq.m

(b) First Floor
The floor is sealed against dust;
maximum bearing capacity: 1,000 kg/sq.m

(c) Second floor
The floor is sealed against dust;
maximum bearing capacity: 500 kg/sq.m

The earthing of the steel structure and machinery:

sheathing or copper ring circuit

6.3.1.1 Specifications and Technical Data of the Production Building and Silos

Dimensions

Silo I	Length	4.50 m	
	Width	3.00 m	
	Height	11.00 m	
	Clearance height	17.50 m	
Silo II	Length	4.50 m	
	Width	1.50 m	
	Height	11.00 m	
	Clearance height	17.50 m	
Production building (3 floors)	Length	10.00 m	
	Width	7.50 m	
	Height	4.00 m	each floor
	Clearance height overall and above	16.50 m	
Storage I Raw material	Length	50.00 m	
	Width	25.00 m	
	Clearance height	6.00 m	
Storage II	Length	50.00 m	
	Width	25.00 m	
	Clearance height	6.00 m	

6.3.1.2 Required Installation Material

Electrical Installation:

in the production building	lamps 250 Lux
in the administration building	lamps 350 Lux
sockets and conbinations	230/440 V

automatic excess-voltage cut-off switches

Compressed Air Supply:

1 screw compressor
capacity 93 Ncu.m/hr
including pressure vessel and drier

steel pipes, fittings, fixing material, connections etc.

Connections/installations to be installed at the height of 1.30 m above the floor.

Water Supply:
Water distribution with filter and meter,
feeding pipes made of steel, galvanized,
drain pipes (PE),
fittings, valves, etc.

6.3.2 Office Building / Gate House

Office building:

The office building is a separate building which should preferrably be situated opposite the mill.

The clearance height of the building is 3 m.

The total building covers a surface of 150 sq.m (25 m x 6 m) composed of the following sections:

1. Reception	16.0 sq.m
2. Three offices	57.0 sq.m
3. Office of the general manager	21.0 sq.m
4. Secretariat	12.0 sq.m
5. Toilets	8.0 sq.m
6. Tea-kitchen	5.0 sq.m
7. Miscellaneous	31.0 sq.m
Total:	150.0 sq.m

The offices will be fully equipped with furniture, such as desks, filing cabinets as well as with appliances such as typewriters, calculators, copying machine, telephone, telex, etc.

The office building is designed as a steel structure with burnt bricks.

Gate House:

The gate house covers a surface of 20 sq.m (4 m x 5 m) and is situated directly at the main gate near the truck-weighing bridge.

It comprises two sections:

1. guard room	15.0 sq.m
2. weighing room	5.0 sq.m

The gate house will be equipped with the necessary furniture.

6.3.3 Roads and Parking Lots

The road within the site as well as the parking lots shall be asphalted. A ring road should lead around the plant with accesses to the two storage sheds (raw material and finished products).

1. Roads within the site	3,200 sq.m
2. Parking lots and manoeuvring space	2,500 sq.m
Total	5,700 sq.m

6.4 Utilities

6.4.1 Electric Power

Voltage	230/400 V ± 6 %
Frequency	50 Hz ± 2.5 %

It is assumed that in direct neighbourhood to the site, a public current line providing other industrial establishments of the region with electricity, is available. This line could be tapped. For the industrial customers of ESCOM (Electricity Supply Commission of MaLAWI) up to 80 % of the costs of the connection to the supply line including the transformer can be waived.

Particularly in the wet season (from December to March) a constant voltage supply is not guaranteed. Apart from voltage failures, there are voltage deviations which considerably exceed the rated tolerances of ± 6 %.

Power failures total in 1987:

High voltage	1,900
Low voltage	5,560
Consumer faults	6,800

Power failures in December 1987 (wet season):

High voltage	350
Low voltage	500
Consumer faults	1,600

Taking this situation of power supply into consideration, the following preventive measure is planned:

For the protection of machinery and equipment an automatic excess-voltage cut-off system is foreseen.

Schedule of Standard Tariffs:

Charges for Electricity from the Interconnected System
Scale IV - Maximum Demand Tariff

For the supply of electricity to a consumer with an average maximum demand of 25 kVA or more:

(a) fixed charge	MK 19.12
(b) for each of the first 60 kVA per month	MK 19.12 per kVA, per unit
(c) for each of the next 240 kVA per month	MK 17.52 per kVA, per month
(d) charge per kWh	MK 0.023 per unit

6.4.2 Drinking Water

Industrial areas are supplied by a public drinking water provision. Responsible is the Lilongwe Department of Water. There is no public sewage system. Consequently any waste water must be stored in a septic tank.

Water Rates in Lilongwe

Tariff Group:

All consumers other than those in traditional housing areas and those served by stand pipes and kiosks:

the first 6.8 cu.m used	MK 2.40
thereafter up to 51.8 cu.m per cu.m	MK 0.71
thereafter per cu.m	MK 0.77

6.4.3 Telecommunication

The connection to the telephone system will be made by the Department of Posts and Telecommunications. Cost for telephone and telex connection is included in site preparation.

6.4.4 Vehicles

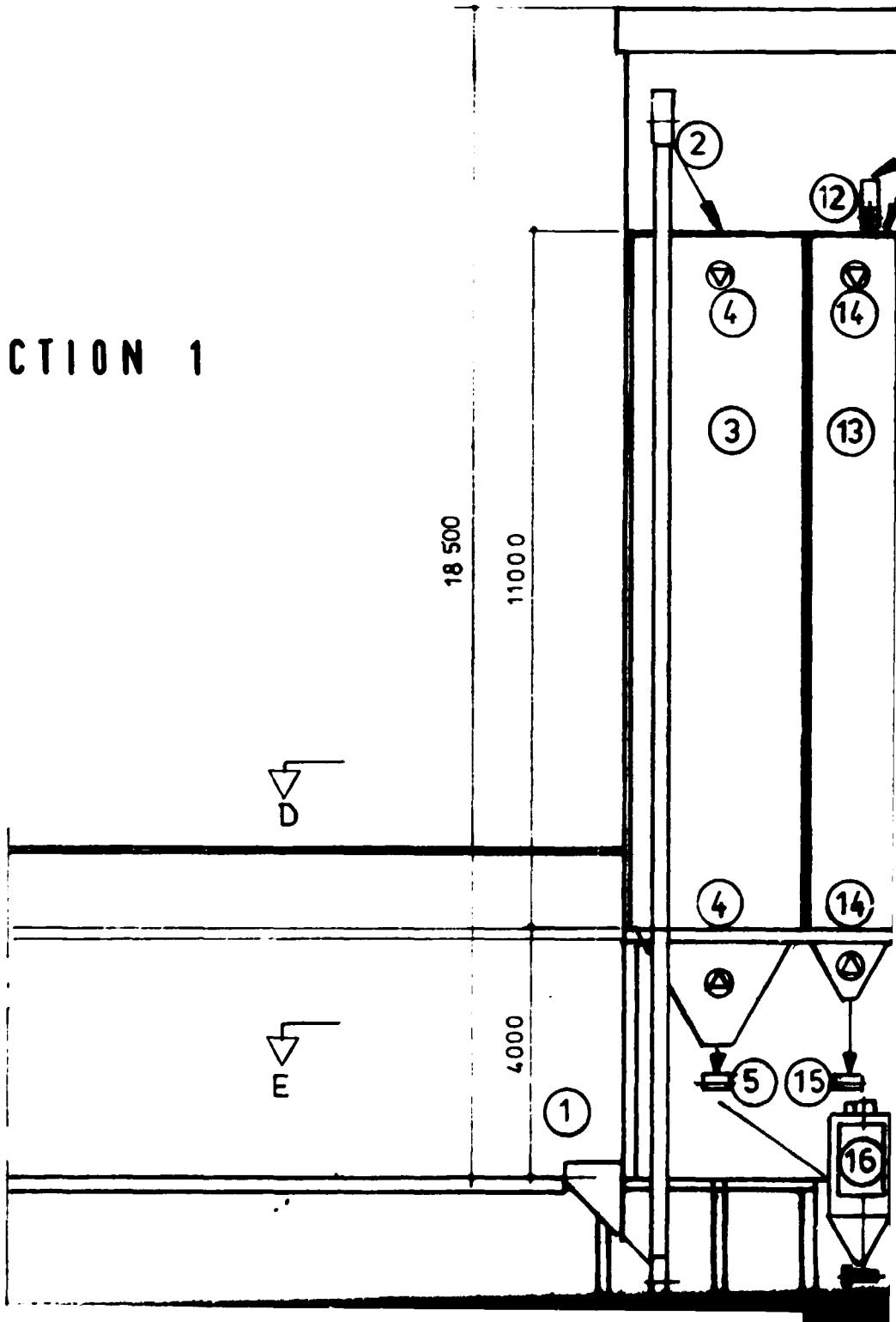
The plant should be equipped with 5 vehicles, namely 3 passenger cars and 2 pickups. The passenger cars are to be used by the management, the pickups will be at disposal for service purposes and transport.

Cost of vehicles:

3 passenger cars	DM 150,000.00
2 pickup cars	DM 80,000.00

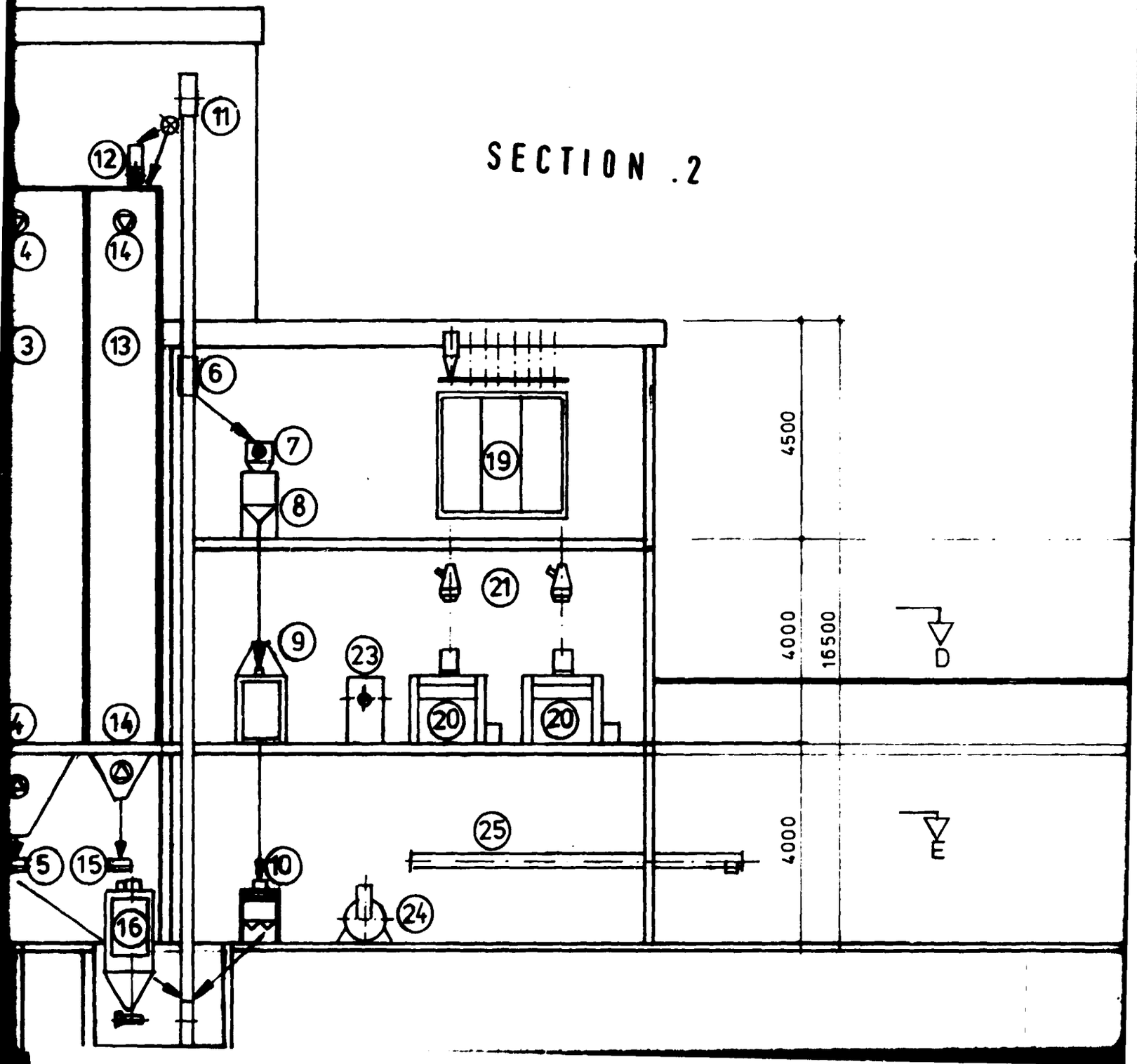
LONGITUDINAL SECTIO

SECTION 1



L SECTION A-A

SECTION .2



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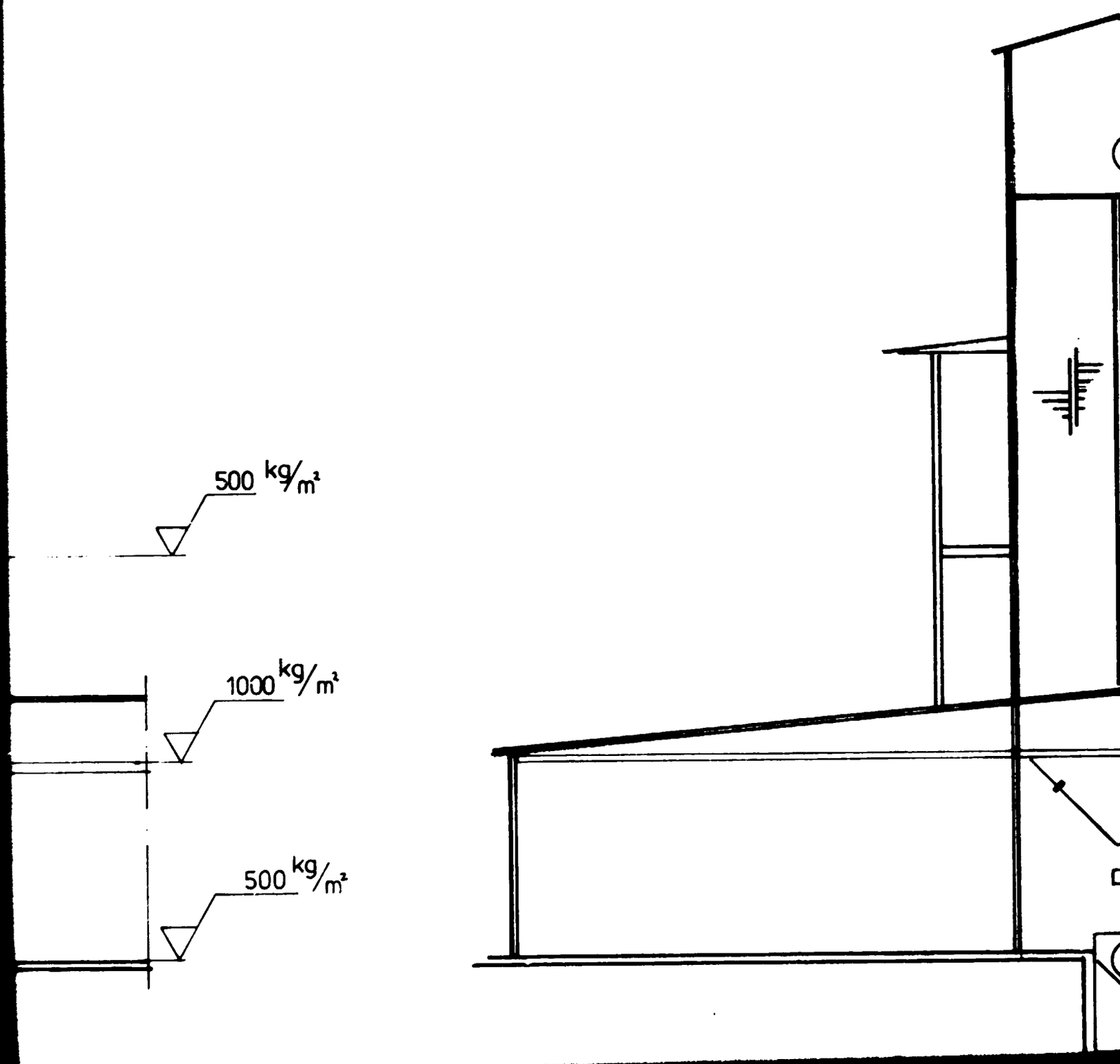
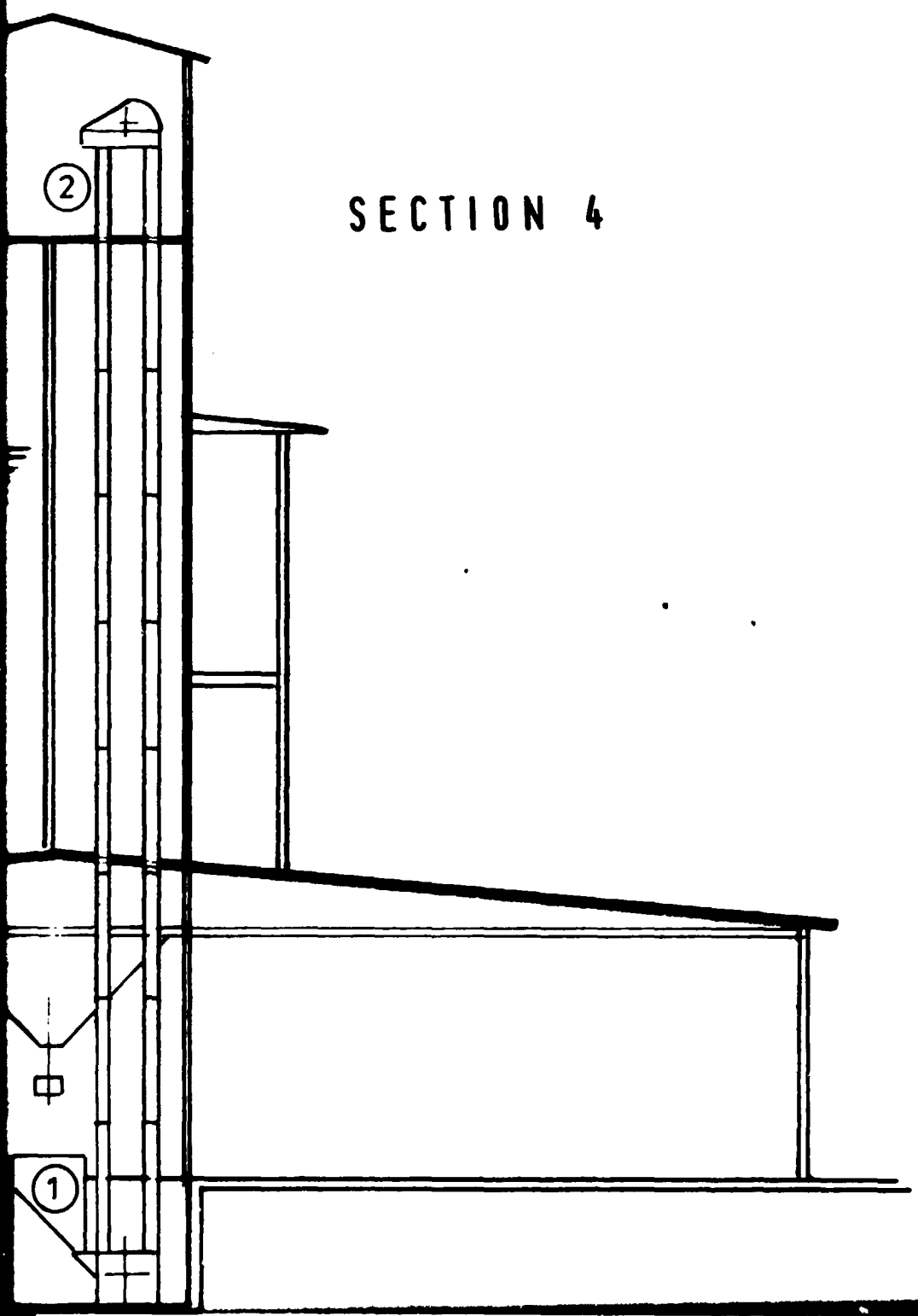
SECTION 3



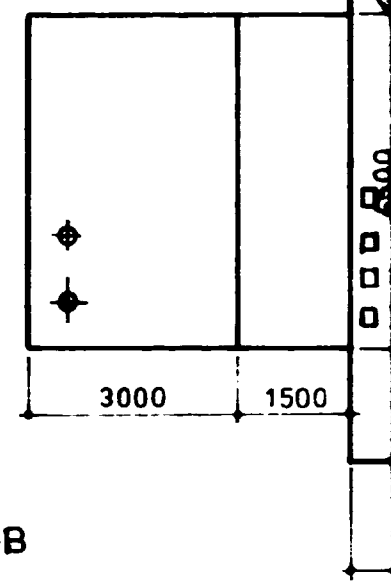
SECTION B-B



SECTION 4

B

HORIZONTAL PROJECTION D-D



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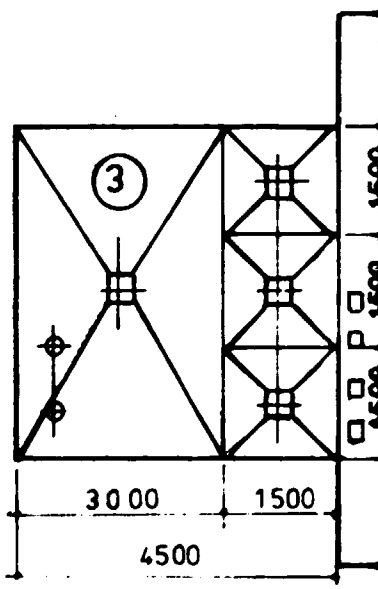
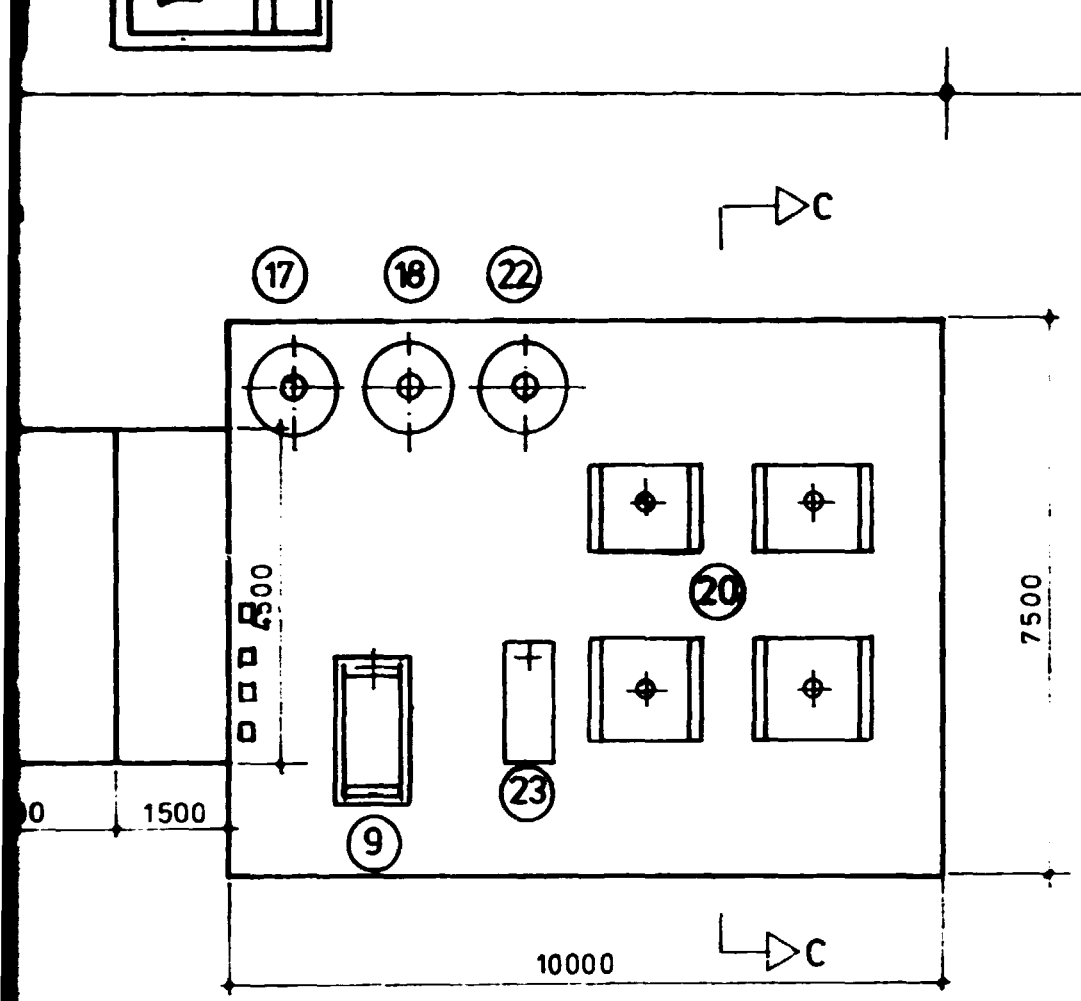
SECTION 5

HORIZONTAL PROJECTION E-E

A

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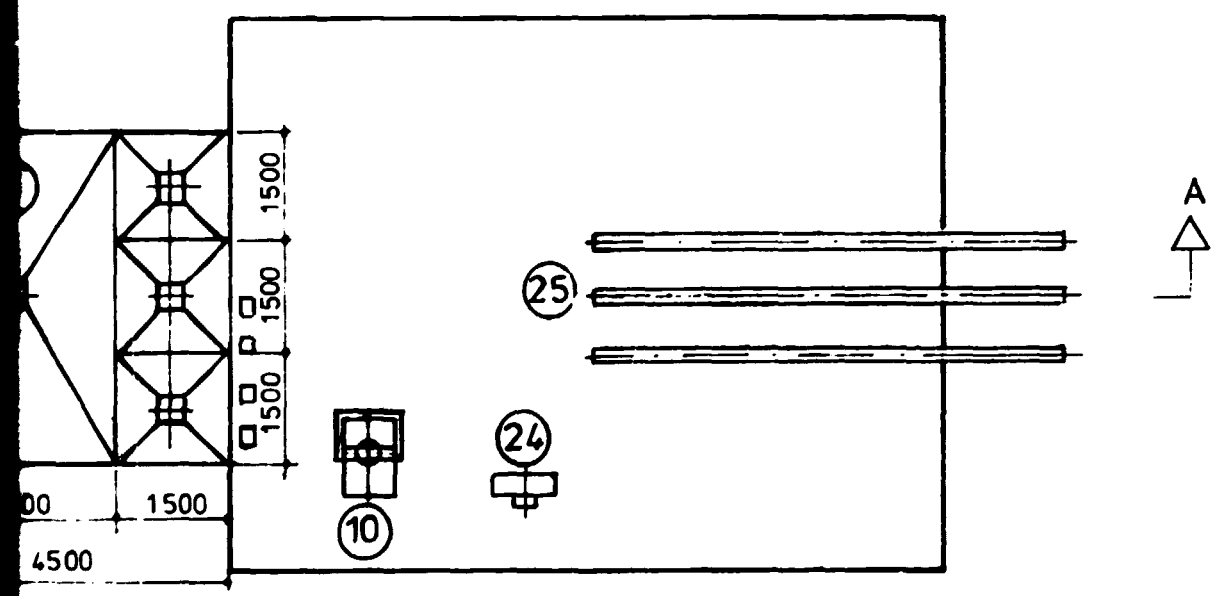
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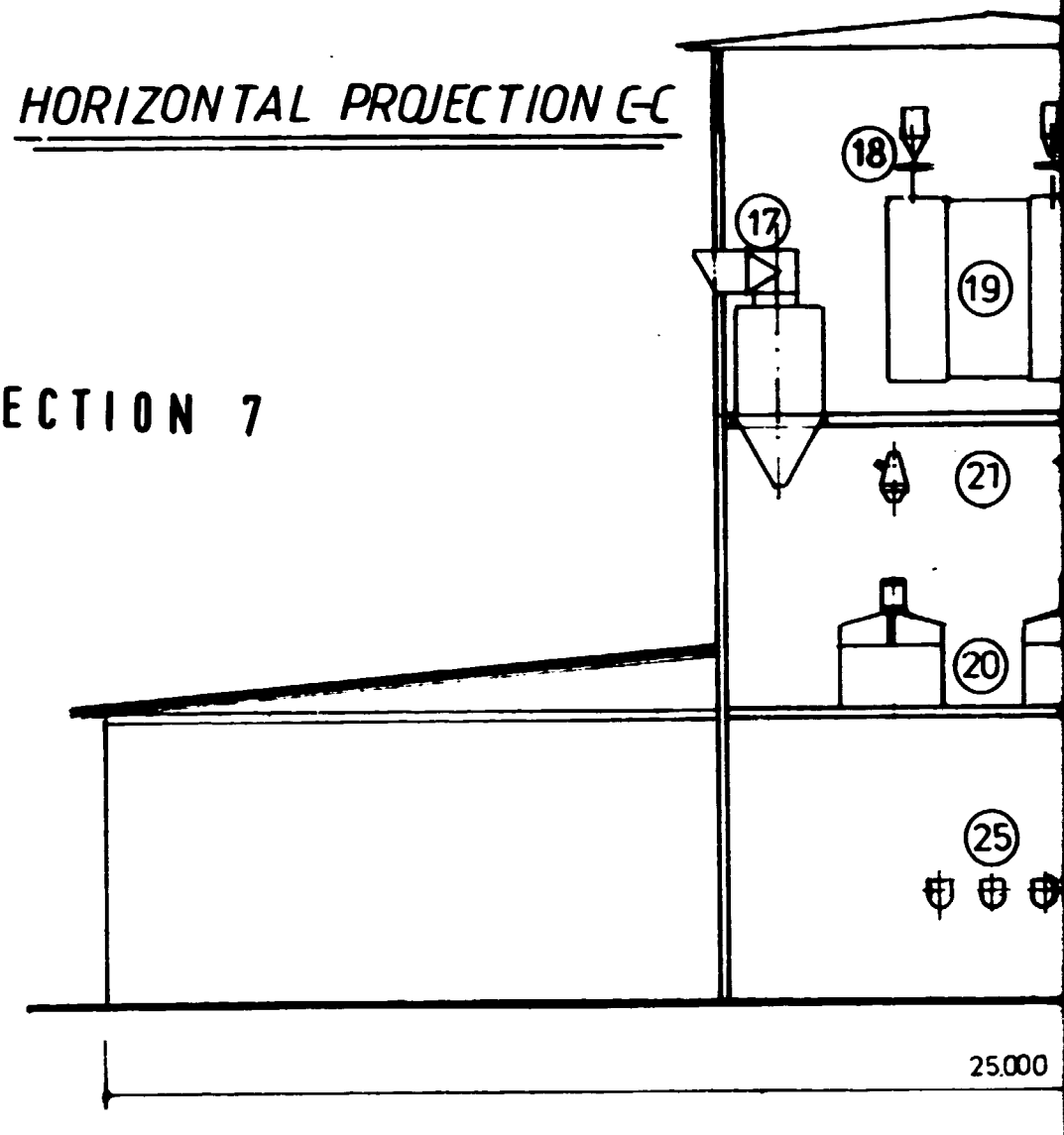
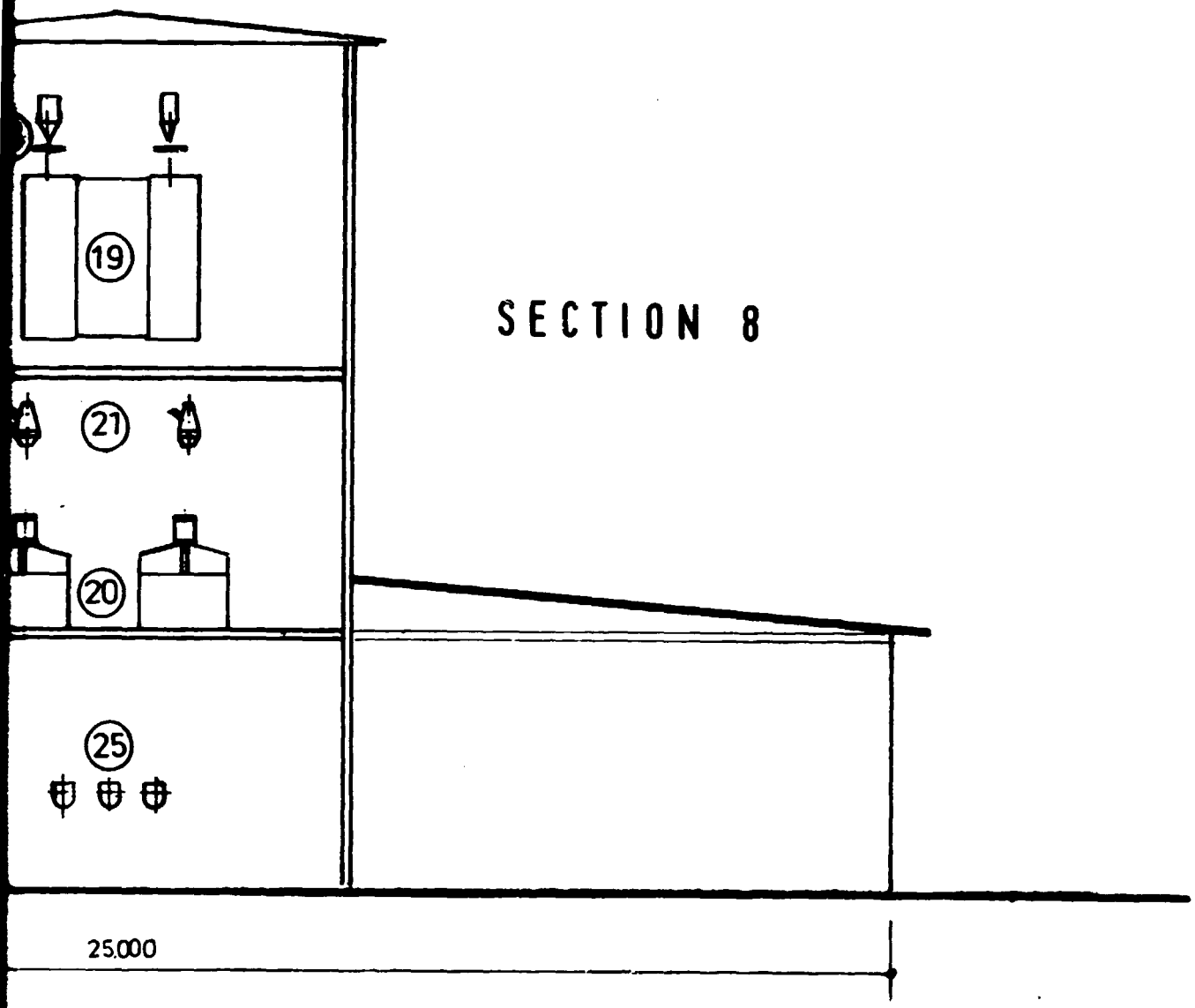
HORIZONTAL PROJECTION C-C

SECTION 7





SECTION 8

						Maßstab 1 : 100	
						KRIESEL, BOELAENDER & ASSOCIATES CONSULTANTS CONSEILLERS	
		6.9.88	Kes		Datum	Name	
				Bearb	26.7.88		PROJECTIONS AND SECTIONS
				Gepr			
				Norm			
				K88544			Blatt
Zust	Änderung	Datum	Name				

6.6 Cost Estimations

6.6.1 Cost Estimation of Production Equipment

Table 24

MACHINERY AND EQUIPMENT (EX WORKS)

Item	Description	Costs
1	Milling equipment	DM 1,016,500.00
2	Laboratory	DM 21,000.00
3	Final product store	DM 13,500.00
4	Spare parts	DM 130,000.00
	Total	DM 1,181,000.00

Table 25

INSTALLATION MATERIAL AND GENERAL EQUIPMENT (EX WORKS)

Item	Description	Costs
1	Internal transport	DM 5,000.00
2	Weighing bridge	DM 90,000.00
3	Installation material (electrical)	DM 215,000.00
4	Installation material (water)	DM 10,000.00
5	Compressed air system	DM 35,200.00
6	Spare parts	DM 15,200.00
	Total	DM 370,400.00

6.6.2 Construction Works

The cost of the construction works was calculated on the basis of offers according to specification from several Malawian contractors.

1. Construction of the factory, office building, gate house and weighing bridge, including foundation, steel structures, corrugated steel roofing, flooring, walls and doors	MK	975,000.00
2. Construction of road and parking lots with bitumen top	MK	150,000.00
3. Fencing all around the complex including two main gates	MK	20,000.00
4. Construction of drain of 0.45 m x 0.60 m with base slab, vertical side walls and pre-cast cover slab	MK	10,000.00
5. Preparation of the site	MK	8,200.00
6. Indoor works, installation of sanitary and water systems, compressed air system, telecommunications and lighting	MK	125,000.00

7. Connection of power, tele-communications and water-supply to the factory		MK 25,550.00
Cost of construction		MK 1,313,750.00
Cost of local engineering		MK 70,000.00
Total cost of construction works		MK 1,383,750.00

The average maintenance costs for the buildings are valued with approx. 1.5 % of the construction costs per year.

The annual maintenance costs are	approx.	MK 19,700.00

6.6.3 Cost Estimation Utilities

6.6.3.1 Electric Power

- Connected load	500 kW
- Effective consumption per hour	245 kW
- Annual consumption	1,587,600 kWh
	(= 132,300 kWh/month)

According to the electricity tariff of ESCOM (see para. 6.4.1), the cost for electricity is made up by

a) fixed charges	MK 19.12
b) charge per kWh	MK 0.023

The energy charges for 132,300 kWh/month will be:

MK 0.023 x 132,300 + MK 19.12 = MK 3,062.02

Total cost of energy per year:

MK 3,062.02 x 12 = MK 36,744.24

6.6.3.2 Water

Consumption	per hour	0.4 cu.m
	per day	9.6 cu.m
	per year	2.592 cu.m
	per month	216 cu.m

Charges for 216 cu.m/month water consumption:

2.40 + MK 0.71 x 45 + MK 0.77 x 171

= MK 166.02

Total cost of water per year:

MK 166.02 x 12 = MK 1,992.24

6.6.3.3 Telecommunication

According to the information given by the Department of Post and Telecommunication, and after estimation of the communication expenditure, the following costs are expected:

Average costs per month	MK 700.00
Average costs per year	MK 8,400.00

6.6.3.4 Vehicles

- Fuel costs:

Number of vehicles	5
Cost of fuel	MK 1.95/ltr
Annual mileage per vehicle	15,000 km
Fuel consumption	12 ltr fuel/100 km

Calculation of the annual fuel costs:

$$\frac{15{,}000 \text{ km} \times 12 \text{ ltr} \times 5}{100 \text{ km}} = 9{,}000 \text{ ltr/year}$$

9,000 ltr x MK 1.95/ltr = MK 17,500.00/year

- Maintenance:

The average maintenance costs for the vehicles have been calculated with 5 % of the value of new vehicles, which amounts to

MK 16,995.00/year

Table 26

COST ESTIMATION UTILITIES
ALLOTTED TO PRODUCTION, ADMINISTRATION
AND FACTORY OVERHEADS

	Costs MK	Admini-stration	Production	Factory Overheads
Electric power	36,744.24	10 % 3,674.42	80 % 29,395.39	10 % 3,674.42
Water	1,992.24	0 % -	80 % 1,593.80	20 % 398.44
Telecommu-nication	8,400.00	45 % 3,780.00	10 % 840.00	45 % 3,780.00
Vehicles	34,495.00			100 % 34,495.00
Total cost	81,631.48	7,454.42	31,829.19	42,347.87

6.6.4 Transportation and Freight

6.6.4.1 Transportation of Machinery and Equipment

The required machinery and equipment for the production of maize flour will be transported in 40-foot containers.

Table 27

TECHNICAL DATA OF 40-FT CONTAINERS

Volume	approx. 60	cu.m
Height (interior)	approx. 2.38	m
Width (interior)	approx. 2.36	m
Length (interior)	approx. 12.07	m

Basis of the Freight Calculations:

- Transport of three 40-ft containers ex factory Germany to f.a.s. European North sea port	DM 9,600.00
- Terminal handling charges	DM 1,398.00
- Transport from European port to Durban port (RSA)	DM 13,080.00
- Transport from Durban port to project site Lilongwe	DM 46,893.00
Total transport cost for machinery and equipment	DM 70,971.00

In the above calculation of transportation costs the following items are included:

Wharfage handling and clearing charges, customs examination charges and transport insurance.

6.6.5 Raw Material

Since ADMARC does not have the purchase monopoly for maize any more, millers are allowed to purchase maize also from the estates and farmers directly.

The Government of Malawi, however, determines the price every year. At present (for the season 1988/89), the price per 90-kg bag (delivered) is MK 22.00.

This means a price of MK 244.44 per ton delivered.

The input of raw material for the new maize mill will be approx. 22,950 tons in 12 months.

Based on the above mentioned price, a total amount of MK 5,609,898.00 must be calculated for the purchase of the raw material per year.

7. PREPARATION AND IMPLEMENTATION OF THE PROJECT

7.1 Preparation of the Project

Due to the fact that a foreign partner has not yet been determined, the project has to be subdivided into two phases: the preparation and the implementation.

The most important point of the preparation phase is the establishment of a financing scheme based on this Feasibility Study in order to either find a potential partner or convince the existing milling companies in Malawi to invest in the implementation of a new maize flour mill to be built in Lilongwe.

7.2 Planning and Supervision of Construction, Supplies and Installation

The factory and office buildings and the infrastructural measures and installations shall be executed by local contractors.

Construction plans and statical calculations are in the responsibility of the contractor.

The supplier of machinery and equipment (who might also be the potential partner) shall provide the comprehensive specifications with regard to the layout of the building.

The supervision of construction should be executed by an independent local civil consultant/quantity surveyor.

Finally the factory and office buildings have to be examined.

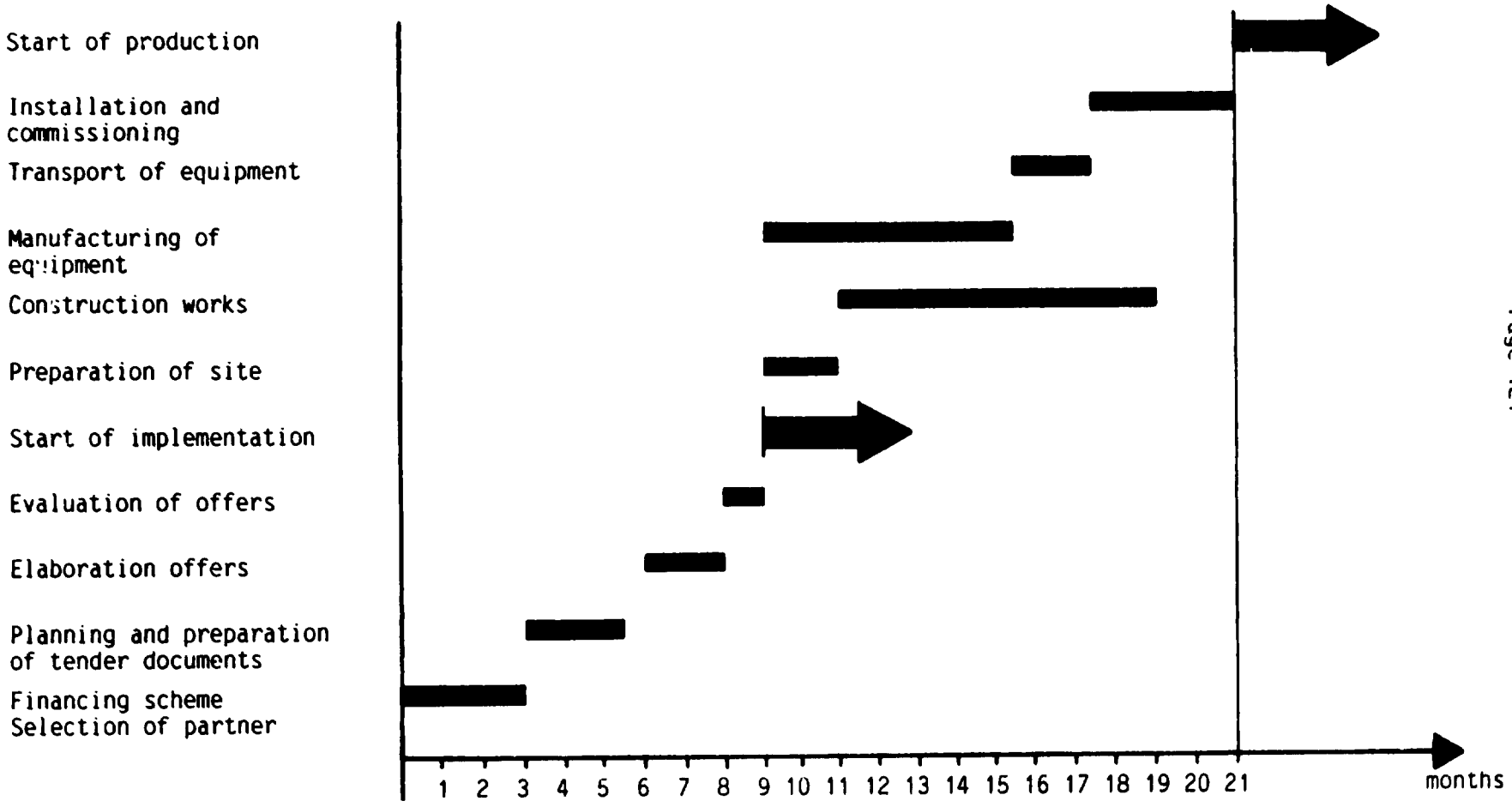
The supply and installation of the machinery and equipment is in the responsibility of the equipment supplier, and so is the commissioning of the plant.

The following schedules show the sequences of the project.

Table 28

PREPARATION AND IMPLEMENTATION OF THE PROJECT

BAR CHART



7.3 Schedule of Activities

The time schedule of the project is shown in the following table.

Table 29

TIME SCHEDULE OF PHASE I
AND PHASE II OF THE PROJECT

Activity	Duration	Start in month
Selection of potential partners, financing	3 months	1st month
Planning and preparation of tender documents	2.5 months	3rd month
Elaboration of offers by the suppliers	2 months	6th month
Evaluation of the offers	1 month	8th month
Preparation of site	2 months	9th month
Construction works	8 months	11th month
Manufacturing of machinery	6.5 months	9th month
Transport of equipment	2 months	15.5th month
Installation, commissioning and test run	3.5 months	17.5th month

The production of maize flour at 100 % production capacity can be achieved in the 21st month after the decision to proceed with the project.

8. Manpower

8.1 Recruiting of Personnel

The envisaged plant is to be located in Lilongwe.

Lilongwe is becoming the second important economic and industrial centre in the country after Blantyre. That is why the recruiting of personnel will not prove difficult.

Due to the clearly arranged and simple diagram, the production process can be operated by semi-skilled and unskilled staff, with the provision that the responsible manager is a qualified milling engineer.

The production personnel can be trained in the course of an on-the-job programme. For this training phase on the average 8 weeks should be sufficient.

For the function of the technical manager a milling engineer ought to be selected who has already acquired relevant experience with an industrial background. His main responsibility will be the smooth running of the process.

When this position is filled, due consideration must be given to the point that the technical manager has comprehensive knowledge of flour milling, both where the sequence of production and the machinery and equipment of the production plant are concerned.

It would be useful to provide for him a training in co-operation either with the potential technical partner or the equipment supplier.

On account of the importance of the technical manager's position within the company structure, he is to be recruited at rather an early stage in the project schedule.

The general manager is responsible for the commercial and administrative management. His responsibility comprises the sectors of

- distribution and marketing,
- cost calculation and control,
- staff planning,
- organization, and
- material planning,

and it goes without saying that he and the technical manager should direct their activities in close co-operation.

The general manager is directly accountable to the Board of Directors.

The position of the general manager will therefore be of great importance, and a professional with several years' practical experience in flour milling should be engaged. This position ought to be filled at the start of the project.

The additional office staff is composed of employees for general administration, acccunting and sales.

The recruiting of suitable personnel should pose no problems both in qualitative and quantitative regard.

8.2 Labour inputs

Labour Production:

According to the calculation of the production capacity, the total output of 22,950 metric tons of maize flour including by-products at 100 % capacity level can be can be reached in 6,480 working hours per year.

The corresponding production labour input totals 76 employees allotted to qualification categories as follows:

Table 30

LABOUR PER QUALIFICATION CATEGORIES

Qualification	Number
Miller	1
Supervisor	3
Skilled worker	5
Semi-skilled worker	11
Unskilled worker	40
Total production labour:	60

Office Staff:

The office staff is composed of employees for general administration, accounting and sales.

Table 31

CATEGORIES OF OFFICE STAFF

Category	Number
Accountant	1
Accountant's clerk	1
Secretary	1
Typist	1
Salesman	1
Office clerk	1
Messengers	2
Total office staff:	8

Table 32

CATEGORIES OF ADDITIONAL PERSONNEL REQUIREMENTS

Category	Number
Driver	2
Watchman	4
Total additional personnel:	6

A total of 76 staff are required (in which figure both the General and the Technical Manager are included).

8.3 Cost Estimation Labour

8.3.1 Annual Cost

Table 33 shows the basic wages and salaries in Malawi broken down in production and administration.

Table 33

BASIC WAGES AND SALARIES (IN MK)

Position	Per Position	Number	Total Expenses
Production			
Technical Manager	5,000.--	1	5,000.--
Miller	3,500.--	1	3,500.--
Supervisor	500.--	3	1,500.--
Foreman	400.--	5	2,000.--
Semi-skilled workers	250.--	11	2,750.--
Unskilled workers	35,--	40	1,400.--
Administration			
General manager	4,000.--	1	4,000.--
Accountant	1,500.--	1	1,500.--
Accountant's clerk	500.--	1	500.--
Secretary	800.--	1	800.--
Typist	275.--	1	275.--
Salesman	350.--	1	350.--
Office clerk	350.--	1	350.--
Messenger	75.--	2	150.--

Table 33 continued

BASIC WAGES AND SALARIES (IN MK)

Position	Per Position	Number	Total Expenses
Additionel personnel			
Driver	150.--	2	300.--
Watchman	150.--	4	600.--
Total basic wages and salaries:			24.975.--

8.3.2 Annual Cost

Table 34 on the following page shows the total annual personnel expenses in Malawi Kwacha including an annual increase of 5 % and a bonus of 0.5 month, starting from the first year of production (capacity 100 %).

Table 34

TOTAL ANNUAL PERSONNEL EXPENSES IN MALAWI KWACHA

Position	Monthly Pay per Employee	Commencement of Pay in Project Month	Total Payment of Wages and Salaries		
			Year 1 *)	Year 2 **) *)	Year 3 **) *)
1 General manager	4,000.00	5	34,000.00	52,500.00	55,125.00
1 Technical manager	5,000.00	1	62,500.00	65,625.00	68,906.25
1 Miller	3,500.00	10.5	7,000.00	45,937.50	48,234.38
3 Supervisors	500.00	10.5	3,000.00	19,687.50	20,671.88
5 Foremen	400.00	10.5	4,000.00	26,250.00	27,562.50
11 Semiskilled workers	250.00	10.5	5,500.00	36,093.75	37,898.44
40 Unskilled workers	35.00	10.5	2,800.00	18,375.00	19,293.75
1 Accountant	1,500.00	9	6,750.00	19,687.50	20,671.88
1 Accountant's clerk	500.00	9	2,250.00	6,562.50	6,890.63
1 Secretary	800.00	1	10,000.00	10,500.00	11,025.00
1 Typist	275.00	10.5	550.00	3,609.38	3,789.85
1 Salesman	350.00	10.5	700.00	4,593.75	4,823.45
1 Office clerk	350.00	9	1,575.00	4,593.75	4,823.45
2 Messengers	75.00	9	675.00	1,968.75	2,067.88
2 Drivers	150.00	10.5	600.00	3,937.50	4,134.38
4 Watchmen	150.00	1	7,500.00	7,875.00	8,268.75
Total annual personnel expenses:			149,400.00	327,796.88	344,187.47
Average expenses per month:			12,450.00	27,316.41	28,682.29

*) including 0.5 M/M bonus
**) annual increase of wages and salaries by 5 %

8.3.3 Labour (Direct), Administration (Labour), Overheads

The annual personnel expenses broken down into portions (%) of the different costs are based on the following assumptions:

- Production

  The assumed number of working hours amounts to 6.480 hours per year.

  The following factors reduce that total of annual working hours:

  -- non-productive hours due to failures in the plant (5 % of the total annual working hours) 324 h

  -- non-productive hours due to illness (4.2 % of the total annual working hours) 272 h

  -- non-productive hours due to leave of absence (4.2 % of the total annual working hours) 272 h

  Total: 868 h

  = 13.4 % of the total annual working hours.

  These non-productive hours which amount to an average 18.5 % of the total annual working hours, are to be deducted from the production cost and allotted to the factory overheads.

- Administration

The assumed number of working hours amounts to 2,920 hours per year.

The following factors reduce that total of annual working hours:

-- general non-productive hours (3.7 % of the total annual working hours)	108 h
-- non-productive hours due to illness (4.2 % of the total annual working hours)	123 h
-- non-productive hours due to leave of absence (4.2 % of the total annual working hours)	123 h
Total:	354 h

= 12 % of the total annual working hours.

These non-productive hours which amount to 12 % of the total annual working hours, are to be deducted from the administration costs and allotted to the factory overheads.

- Additional Personnel

The assumed number of working hours amounts to 2,920 hours per year.

The following factors reduce the total annual working time:

-- general non-productive hours (3.7 % of the total annual working time)	108 h
-- non-productive hours due to illness (4.2 % of the total annual working time)	123 h
-- non-productive hours due to leave of absence (4.2 % of the total annual working time)	123 h
Total:	354 h

= 12 % of the total annual working hours.

Since the personnel expenses of the additional personnel have already been allotted 100 % to the factory overheads, the non-productive hours will not cause any alteration of the allotment of costs.

Table 35

TOTAL ANNUAL PERSONNEL EXPENSES ALLOTTED TO ADMINISTRATION, PRODUCTION AND OVERHEADS (IN MK)

	First Year			Second Year			Third Year		
	Administration	Production	Overheads	Administration	Production	Overheads	Administration	Production	Overheads
General manager	15 % 5,100.00		85 % 28,900.00	40 % 21,000.00		60 % 31,500.00	40 % 22,050.00		60 % 33,075.00
Technical manager			100 % 62,500.00		60 % 39,375.00	40 % 26,250.00		60 % 41,343.75	40 % 27,562.50
Miller			100 % 8,750.00		85.5 % 39,276.56	14.5 % 6,660.94		85.5 % 41,240.40	14.5 % 6,993.99
Supervisor			100 % 3,750.00		85.5 % 16,832.80	14.5 % 2,854.69		85.5 % 17,674.45	14.5 % 2,997.42
Foreman			100 % 5,000.00		85.5 % 22,443.75	14.5 % 3,806.25		85.5 % 23,565.95	14.5 % 3,996.46
Semiskilled workers			100 % 6,875.00		50 % 18,046.88	50 % 18,046.88		50 % 18,949.22	50 % 18,949.22
Unskilled workers			100 % 3,500.00		50 % 9,187,50	50 % 9.187.50		50 % 9,646.87	50 % 9,646.88
Accountant	15 % 1,012.50		85 % 5,737.50	90 % 17,718.75		10 % 1,968.75	90 % 18,604.70		10 % 2,067.19
Accountant's clerk			100 % 2,250.00	90 % 5,906.25		10 % 656.25	90 % 6,201,57		10 % 689.06
Secretary	20 % 2,000.00		80 % 8,000.00	88 % 9,240.00		12 % 1,260.00	88 % 9,702.00		12 % 1,323.00
Typist			100 % 687.50	88 % 3,176.25		12 % 433.13	88 % 3,335.07		12 % 454.78
Salesman			100 % 875.00			100 % 4,593.75			100 % 4,823.45
Office clerk	30 % 472.50		70 % 1,102.50	88 % 4.042.50		12 % 551.25	88 % 4,244.64		12 % 578.89
Messenger	30 % 202.50		70 % 472.50			100 % 1,968.75			100 % 2,067.88
Driver			100 % 750.00			100 % 3,937.50			100 % 4,134.38
Watchman			100 % 7.500.00			100 % 8,875.00			100 % 8,268.75

8.3.4 Summary Annual Personnel Expenses

Table 36

TOTAL ANNUAL PERSONNEL EXPENSES

	First Year	Second Year	Third Year
Administration	8,787.50	61,083.75	64,137.98
Production		145,162.49	152,420.64
Overheads	146,650.00	121,550.64	127,628.85
Total annual personnel expenses:	155,437.50	327,796.88	344,187.47

9. Institutional, Fiscal and Legal Matters

9.1 General

Although the original idea to form a joint venture between a local sponsor and a German partner does not apply any more (see item 1.5), the first task of this study is to form a sound basis for investment and prepare the way to find a potential partner from abroad.

When the project is to be realized, it will be, in accordance with the Consultant's research, recommendable to consider the following potential partners for the establishment of a joint venture:

- Deutsche Finanzierungsgesellschaft fuer Beteiligungen in Entwicklungslaendern (DEG), Cologne, Federal Republic of Germany

  DEG prefers joint-venture investments in the form of co-operation between German companies and companies in developing countries. It is investing by way of loans and shareholding in such projects that have development value and are operated on a commercial basis.

- Investment and Development Bank of Malawi Ltd. (Indebank), Blantyre, Republic of Malawi

  Indebank is a commercial organization which, amongst its development objectives, considers participation in limited liability companies investing by way of

local or foreign currency loans and/or shareholding in projects which have development value and are operated on a commercial basis.

One of its shareholders is Deutsche Finanzierungsgesellschaft fuer Beteiligungen in Entwicklungslaendern (DEG).

- Malawi Development Corporation (MDC), Blantyre, Republic of Malawi

  MDC is a statutory body wholly owned by the Malawi Government.

  MDC's objectives are to develop the economy of the country.

  MDC might participate with equity and/or loans in the financing of the project.

9.2 Establishment of a Joint Venture Company

When the new company is to be implemented, the following fictitious proposal how to form a joint venture may apply for the overall financing.

The aim of the company is the production of maize flour in the Republic of Malawi.

The name of the new company is yet to be determined.

It shall be registered in Malawi and will operate as a private limited company.

In accordance with the rules and regulations laid down in the Companies Act, a 50 % Malawian ownership is required.

The Consultant proposes the following possible partition of shares:

- local company	40 %	
- foreign partner	20 %	local : foreign
- DEG	20 %	= 60 : 40
- Indebank/MDC	20 %	

This partition of shares is applied in the financial evaluation of the project.

These matters, however, remain subject to further discussions and the final investment decisions.

The new company should be run by its own management responsible to the shareholders.

Those are the main steps of procedure of industrial registration and incorporation:

(a) A certified copy of the instrument constituting or defining the constitution of the entity (Registrar of Companies).

(b) Details of the corporate name and the nature of the entity business.

(c) Details of the local directors and chairmen. A local board is required. The number of local directors should not exceed 9, and ministerial consent is required to reduce the size of the local board.

(d) Principal approval of location (site) by the Ministry of Trade, Industry & Tourism.

(e) Preparation of a memorandum of association and articles of association (to be filed as public information wit the Registrar of Companies).

(f) Exchange Control approval is administered by the Reserve Bank of Malawi under authority delegated by the Minister of Finance. *

* According to the Assistant General Manager (Exchange Control) of the Reserve Bank of Malawi (on 22/6/88) and the Senior Deputy Secretary of the Ministry of Finance (on 20/6/99)

- There are no restrictions on inward flow of capital. Only residents require an Exchange Control approval for taking up loans from abroad, which is normally granted.

- Outwards transfer of capital by non-residents is permitted when they satisfy the Exchange Control that the original investment was made with funds brought into the country.

- Dividends and profits due to non-resident shareholders are transferred abroad without restriction, provided local taxes have been paid and no recourse is being made to local borrowing (approval of the Exchange Control authorities is required).

- Contractual interest on loans received from foreign sources are remittable.

- The allocation of foreign exchange to buy grain for the production of maize flour will be granted by the Reserve Bank of Malawi according to the normal application procedure (proforma to commercial bank, application to Reserve Bank, foreign currency allocation by Reserve Bank).

The whole procedure usually takes a short time, but it is advisable to use the services of a local corporate lawyer and/or public accountant.

9.3 Industrial Incentives

In order to encourage the development of industry in Malawi, the Government offers a number of incentives which have to be applied for:

- Duty

  Reduced rate for import duties for equipment and machinery.
  Application has to be issued to the Controller of Customs. Approval by Committee (Customs, Treasury and Ministry of Industry).

- Tariff

  In the case of locally processed products facing unfair competition with imported products, the local manufacturer may apply for tariff protection.

- Capital allowances and other special deductions to be approved by the Commissioner of Taxes, such as

  -- Depreciation Allowances
  Initial allowances on capital expenditures are granted (10 % on industrial buildings, 20 % on plant and equipment).
  Annual allowances calculated on the basis of a reducing written down value (5 % on industrial building, 20 % on plant and equipment)

  -- Investment Allowance
  10 % to manufacturer for new plant and equipment

  -- Initial Expenditures
  Expenditures incurred during a period of 18 months prior to the start of operations are deductible.

9.4 Taxation, Bonus, Fees, Allowances and Insurance

9.4.1 Income Tax

According to the Department of Taxes, income tax for individuals is charged at the rates shown below:

Table 37

INCOME TAX RATES

Annual	Income	Rate of Tax
First	MK 1,200	3 %
Next	MK 1,200	7 %
Next	MK 1,800	15 %
Next	MK 1,800	20 %
Next	MK 2,400	25 %
Next	MK 2,400	30 %
Next	MK 2,400	35 %
Next	MK 2,400	40 %
Next	MK 8,400	45 %
In excess of	MK 24,000	50 %

It is the employer's responsibility to collect the tax and affix graduated tax stamps on tax cards.

9.4.2 Taxation of Companies

Companies incorporated in Malawi:

The basic tax rate is 50 %. An additional tax of up to 5 % is payable on dividends remitted to external shareholders residing in countries where the gross rate of tax on taxable income involved would exceed 50 %; the company is liable for this tax and not the shareholders. There are provisions for the remission of the additional 5 % e. g. where it can be shown that a dividend paid to a shareholder resident outside Malawi is not liable to tax in his country of residence.

Companies not incorporated in Malawi
and branches of foreign companies:

The basic rate is 50 %. An additional amount of up to 5 % of the taxable income is payable if the tax payable on such taxable income would be in excess of 50 % in the country where the company is incorporated. Here again there are provisions for the remission of the additional 5 % e. g. where it can be shown that the income derived in Malawi by a branch of a foreign company is not liable for tax in the foreign company where the company is incorporated.

Special deductions:

There are special deductions from taxable income which can be claimed by farmers and industrialists, including capital allowances, some of which are outlined under item 9.3.

9.4.3 Surtax

According to the Department of Customs and Excise a 35-% surtax on the sales price of the finished product is applicable.

9.4.4 Allowance, Bonus

Employees in Malawi receive

(a) 2 weeks per year allowance,
(b) 2 weeks salary as December bonus,
(c) medical welfare 5 % of their salary.

9.4.5 Registration and Legal Fees

For the registration of a company the amount of MK 1,000.00 has to be paid.

The stamp duties are MK 7.50/MK 1,000.00 capital.

9.4.6 Insurance

According to the local insurance company, the insurance of this manufacturing company will amount to max. MK 30,000.00 p. a. including fire insurance, vehicle insurance, workmen's compensation insurance and liability insurance.

10. FINANCIAL EVALUATION

10.1 General Approach

For the financial and economic evaluation of the project, the UNIDO Computer Model for Feasibility Analysis and Reporting (COMFAR) has been applied. COMFAR is an interactive, computerized, cash-flow oriented simulation model and can be regarded as a very flexible tool for the evaluation of industrial projects.

10.2 The Data

Most of the data utilized in this study were obtained through personal contacts and research conducted in Malawi in June 1988.

The standardized input data entry form is the basis of evaluation and data inputs for use of the COMFAR computer programme package.

Hence it is considered necessary to briefly explain on the following pages the data which have been used as inputs for the programme.

Initial Fixed Investment
in German Marks

Description	Basis	Local	Foreign
1. Land	In the Industrial Area of Lilongwe land with all the advantages of an industrial plot is available	25,500.-	
2. Site preparation	The area which has been envisaged does not need more than some levelling for site preparation and development	5,500.-	
3. Structures and civil engineering (a)	All construction costs including office building, gate house and weighing bridge, road, parking lots	727,385.-	

Description	Basis	Local	Foreign
3. Structures and civil engineering (b)	1. All construction costs for fencing and drains as well as the installations for sanitary and electrical equipment etc.	122,167.-	
	2. It is recommandable to have a local civil consultant for engineering and supervision of the construction works	40,000.-	
	3. In the scope of supply of the foreign partner all materials for electrical and water installation have been incorporated.		225,000.-
4. Transport *	Five vehicles have to be provided: 3 passenger cars 2 pickups		230,000.-

* Vehicles may also be leased or rent instead of being purchased, which would help to reduce the initial fixed investment. This is subject to the general manager's decision.

Description	Basis	Local	Foreign
5. Technology, start-up	1. For supervision of erection and commissioning of the plant		350,000.-
6. Contingencies	1. For structure and civil engineering 10 % contingencies have to be considered	85,500.-	
	2. For plant machinery and equipment as well as auxiliary and service facilities 10 % contingencies have to be considered		155,100.-
7. Plant Machinery and equipment	The selection of the equipment and machinery is in accordance with the latest standard of technology and related to the quality of the products required		1,181,000.-

Description	Basis	Local	Foreign
8. Auxiliary and service facilities	For internal transport two manual lift-trucks are necessary. A truck weighing bridge is essential. A compressed air system for machinery and equipment as well as for cleaning purposes has to be provided.		130,200.-
9. Pre-production expenditures	1. Feasibility study		105,000.-
	2. Training It has been taken into consideration that the technical manager will have a two months'training in the premises of the machinery supplier.		20,000.-
	3. For establishment costs such as personnel, insurances, legal expenses, utilities, etc.	130,000.-	

Standard Production Costs
in German Marks

Description	Basis	Local	Foreign
Raw material	Maize grain will be purchased in 90-kg jute bags. The total input is 22,950 tons. The price per ton delivered is MK 244.44 which equals DM 165.40 per ton	3,795,930.-	
Utilities	1. Packaging material for finished products: approx. 2,590,000 bags	375,100.-	
	2. Cost for process water	10,504.-	

Description	Basis	Local	Foreign
Energy	Cost of energy required for the production process	16,575.-	
Labour direct	Costs of maintenance are based on the following percentage: Building 1.2 % Equipment 1 %	11,395.-	15,510.-
Factory overheads	The factory overheads include the following items: Indirect labour cost Cost of utilities Insurance Expendable items	129,825.-	
Administration labour cost	Administration personnel	41,332.-	
Administration non-labour cost	Electric power, telecommunication	4,630.-	

Production Cost
in German Marks

Description	Basis	Local	Foreign
Spare parts	From 3rd production year onwards, 2 % of the purchase price of machinery and equipment has been calculated. (For the first two years spare parts are included in the supply of machinery and equipment.)		23,620.-
Marketing non-labour cost		10,000.-	

Production Programme and Sales
in German Marks

Description	Basis	Local	Foreign
Total production price	Cream of maize or Super maize flour DM 328.00/t x 16,065 t	5,269,320.00	
	Super cream DM 527.00/t x 1,607 t	846,889.00	
	Roller meal DM 293.00/t x 1,836 t	537,948.00	
	Bran DM 65.00/t x 3,441 t	223,665.00	
	Total:	DM 7,177,822.00	

Working Capital
(days)

Description	Basis	Local	Foreign
	The minimum coverage of days has been determined for current assets and liabilities.		
Accounts receivable		60	
Cash in hand		30	
Raw materials		60	
Utilities		30	
Energy		30	
Spare parts			180
Work in progress		20	
Finished products		15	
Accounts payable		60	

10.3 COMFAR Computation

The computation of all data and figures has been done in German Marks (DM).

The exchange rate to the Malawi Kwacha (MK) in July 1988 was

DM 1.00 equal to MK 1.4779.

-- COMFAR 2.0 - Project Consultants Data, Mannheim, FRG -----

Flour Mill
24.11.1988
Feasibility Study

1 year of construction, 15 years of production
currency conversion rates:
foreign currency 1 unit = 1.0000 units accounting currency
local currency 1 unit = 1.0000 units accounting currency
accounting currency: 1000 German Marks (DM)

Total initial investment during construction phase

fixed assets:	3572.76	67.878 % foreign
current assets:	0.00	0.000 % foreign
total assets:	3572.76	67.878 % foreign

Source of funds during construction phase

equity & grants:	1263.94	59.762 % foreign
foreign loans :	2132.76	
local loans :	0.00	
total funds :	3396.70	80.751 % foreign

Cashflow from operations

Year:	1	2	3
operating costs:	3571.04	4622.18	4842.62
depreciation :	245.15	245.15	245.15
interest :	238.09	210.18	178.53
production costs	4054.29	5077.51	5266.30
thereof foreign	10.71 %	8.00 %	7.11 %
total sales :	5977.44	8221.63	9043.79
gross income :	-551.97	528.15	1161.52
net income :	-551.97	264.07	580.76
cash balance :	-1364.24	-108.40	459.85
net cashflow :	-871.35	394.49	952.74

Net Present Value at: 23.50 % = 1806.08
Internal Rate of Return: 29.68 %
Return on equity1: 35.51 %
Return on equity2: 30.71 %

Index of Schedules produced by COMFAR

Total initial investment
Total investment during production
Total production costs
Working Capital requirements
Cashflow Tables
Projected Balance
Net income statement
Source of finance

Total Initial Investment in 1000 German Marks (DM)

Year	1989	1990
Fixed investment costs		
Land, site preparation, development	31.00	0.00
Buildings and civil works	899.56	225.00
Auxiliary and service facilities .	0.00	130.30
Incorporated fixed assets	85.50	735.10
Plant machinery and equipment . . .	0.00	1181.00
Total fixed investment costs	1006.06	2271.30
Pre-production capital expenditures.	121.00	125.00
Net working capital	0.00	0.00
Total initial investment costs . . .	1136.06	2396.30
Of it foreign, in %	0.00	100.00

Total Current Investment [illegible]

Year	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fixed investment costs						
Land, site preparation, development	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Buildings and civil works	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Auxiliary and service facilities	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Incorporated fixed assets	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Plant, machinery and equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total fixed investment costs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Preproduction capitals expenditures.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Working capital	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total current investment costs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% of it foreign, %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Total Current Investment [illegible]

Year	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fixed investment costs						
Land, site preparation, development	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Buildings and civil works	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Auxiliary and service facilities	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Incorporated fixed assets	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Plant, machinery, and equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total fixed investment costs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00
Preproduction capitals expenditures.	0.00	0.00	0.00	0.00	0.00	0.00
Working capital	50.06	66.16	34.47	58.18	76.97	99.13
Total current investment costs	50.06	66.16	34.47	58.19	76.97	99.13
% of it foreign, %	0.00	0.00	17.67	0.00	0.00	17.61

Total Current Investment in 1000 German Marks (DM)

Year	[illegible]	[illegible]	[illegible]
Fixed investment costs			
Land, site preparation, development	0.00	0.00	0.00
Buildings and civil works	0.00	0.00	0.00
Auxiliary and service facilities	0.00	0.00	0.00
Intangible fixed assets	0.00	0.00	0.00
Plant, machinery and equipment	0.00	0.00	0.00
Total fixed investment costs	0.00	0.00	0.00
Preproduction capitals expenditures	0.00	0.00	0.00
Working capital	67.76	89.52	114.24
Total current investment costs	67.76	89.52	114.24
Of it foreign, %	0.00	0.00	17.51

Total Production Costs in 1000 German Marks (DM

Year	1991	1992	1993	1994	1995	1996
% of max. capacity (single product)	0.00	0.00	0.00	0.00	0.00	0.00
Raw material 1	3036.74	3987.46	4186.84	4396.18	4615.99	4846.79
Other raw materials	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	388.33	393.25	411.16	409.18	417.35	425.71
Energy	16.58	19.07	21.92	25.22	29.00	33.35
Labor, direct	11.40	11.97	12.57	13.20	13.86	14.55
Repair, maintenance	12.41	15.82	16.15	16.47	16.80	17.14
Spares	0.00	0.00	0.00	0.00	0.00	30.15
Factory overheads	125.87	136.32	143.14	150.29	157.81	165.71
Factory costs	3515.29	4563.94	4781.77	5010.54	5250.81	5532.39
Administrative overheads	45.75	46.04	50.44	52.96	55.61	58.39
Indir. costs, sales and distribution	10.00	10.20	10.40	10.61	10.82	11.04
Direct costs, sales and distribution	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	245.15	245.15	245.15	245.15	245.15	199.15
Financial costs	238.09	210.18	178.53	142.52	101.79	54.25
Total production costs	4054.29	5077.52	5266.30	5461.78	5663.79	5855.21
Costs per unit (single product)	0.00	0.00	0.00	0.00	0.00	0.00
Of it foreign, %	10.71	8.00	7.11	6.21	5.25	4.23
Of it variable,%	82.81	81.93	87.47	88.33	89.17	91.32
Total labor	55.77	55.77	55.17	55.14	54.65	57.71

Total Production Costs in [illegible]

Year	1997	1998	1999	2000	2001	2002
% of nom. capacity (single product)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Raw material 1	5929.12	5741.58	[illegible]	[illegible]	[illegible]	[illegible]
Other raw materials	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Utilities	474.00	[illegible]	451.77	[illegible]	[illegible]	[illegible]
Energy	73.75	[illegible]	51.73	57.77	[illegible]	[illegible]
Labour, direct	15.03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Repair, maintenance	17.43	17.87	18.19	[illegible]	18.51	[illegible]
Spares	0.00	[illegible]	74.51	[illegible]	[illegible]	[illegible]
Factory overheads	177.53	[illegible]	191.82	[illegible]	[illegible]	[illegible]
Factory costs	5763.44	[illegible]	6774.57	[illegible]	[illegible]	[illegible]
Administrative overheads	61.71	64.37	67.53	70.57	74.50	78.25
Indir. costs, sales and distribution	11.01	11.49	11.73	11.95	12.15	12.47
Direct costs, sales and distribution	0.00	0.00	0.00	[illegible]	[illegible]	[illegible]
Depreciation	199.15	199.15	199.15	199.15	[illegible]	[illegible]
Financial costs	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]
Total production costs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Costs per unit (single product)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Of it foreign, %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Of it variable, %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total labour	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Total Production Costs [illegible]

Year	[illegible]	[illegible]	[illegible]
Production capacity [illegible]	[illegible]	[illegible]	[illegible]
Raw material [illegible]	[illegible]	[illegible]	7516.95
Other raw materials	[illegible]	[illegible]	[illegible]
Utilities	[illegible]	[illegible]	[illegible]
Energy	[illegible]	[illegible]	[illegible]
Labour, direct	[illegible]	[illegible]	[illegible]
Repair, maintenance	[illegible]	[illegible]	[illegible]
Spares	[illegible]	[illegible]	[illegible]
Factory overheads	[illegible]	[illegible]	[illegible]
Factory costs	[illegible]	8046.10	8491.[illegible]
Administrative overheads	[illegible]	[illegible]	90.59
Indir. costs, sales and distribution	[illegible]	12.94	[illegible]
Direct costs, sales and distribution	0.00	[illegible]	[illegible]
Depreciation	[illegible]	[illegible]	[illegible]
Financial costs	[illegible]	[illegible]	[illegible]
Total production costs	[illegible]	[illegible]	[illegible]
Costs per unit (single product)	[illegible]	[illegible]	[illegible]
Of it foreign [illegible]	[illegible]	[illegible]	[illegible]
Of it local [illegible]	[illegible]	[illegible]	[illegible]
Total labour	[illegible]	[illegible]	[illegible]

Net Working Capital in [illegible]

Year			1991	1992	1993	1994	1995	1996
Coverage	mdc	coto						
Current assets :								
Accounts receivable	60	6.0	947.55	1204.73	1247.10	1281.42	1333.20	1345.86
Inventory and materials	30	12.0	272.73	345.06	382.33	400.45	419.45	435.77
Energy	30	12.0	1.79	1.59	1.83	2.10	2.42	2.79
Spares	180	2.0	0.00	0.00	0.00	0.00	0.00	15.47
Work in progress	15	24.0	145.47	190.16	199.24	208.77	218.79	229.33
Finished products	10	36.0	99.92	128.11	134.27	140.15	147.40	154.57
Cash in hand	15	24.0	8.70	8.84	9.26	9.71	10.17	10.74
Total current assets			1477.82	1900.13	1969.99	2042.76	2121.42	2214.75
Current liabilities and								
Accounts payable	30	12.0	293.94	380.33	398.49	417.54	437.57	461.11
Net working capital			1184.89	1519.80	1571.51	1625.21	1683.85	1753.64
Increase in working capital			1184.89	334.92	51.70	54.71	57.04	70.80
Net working capital, local			1184.89	1519.80	1571.51	1625.21	1683.85	1742.77
Net working capital, foreign			0.00	0.00	0.00	0.00	0.00	10.87

[illegible] coverage, coto = coefficient of turnover.

Net Working Capital in [illegible]

Year			1997	1998	1999	2000	2001	2002
Coverage	mdc	coto						
Current assets :								
Accounts receivable	60	[illegible]	[illegible]	[illegible]	1515.00	1557.87	[illegible]	[illegible]
Inventory and materials	[illegible]	[illegible]	451.03	481.24	[illegible]	509.74	554.[illegible]	[illegible]
Energy	[illegible]	[illegible]	[illegible]	[illegible]	4.07	4.31	[illegible]	[illegible]
Spares	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Work in progress	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Finished products	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	180.64	[illegible]	[illegible]
Cash in hand	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total current assets			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Current liabilities and								
Accounts payable	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Net working capital			[illegible]	[illegible]	1951.75	2014.87	[illegible]	[illegible]
Increase in working capital			[illegible]	[illegible]	64.47	63.12	[illegible]	[illegible]
Net working capital, local			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Net working capital, foreign			[illegible]	[illegible]	14.37	[illegible]	[illegible]	[illegible]

[illegible] coverage, coto = coefficient of turnover.

Net Working Capital in 1000 German Marks "D"

Year			2002	2004	2005
Coverage	edc	cotc			
Current assets :					
Accounts receivable	60	6.0	1730.25	1797.60	1861.84
Inventory and materials	31	12.0	609.06	629.31	645.95
Energy	30	12.0	7.39	8.52	9.75
Spares	180	2.0	0.00	0.00	22.75
Work in progress	15	24.0	319.62	325.74	350.41
Finished products	11	36.1	215.36	226.95	237.07
Cash in hand	15	24.8	14.81	15.53	16.81
Total current assets			2896.56	3007.51	3168.77
Current liabilities and					
Accounts payable	30	12.0	639.24	670.67	707.66
Net working capital			2257.31	2346.83	2461.07
Increase in working capital			67.78	89.52	114.24
Net working capital, local			2257.31	2346.83	2461.07
Net working capital, foreign			0.00	0.00	00.00

edc = credit time in days | cotc = coefficient of turnover

Source of Finance, construction

Year	1990	1991
Equity, ordinary, ..	1500.00	767.94
Equity, preference.	0.00	0.00
Subsidies, grants .	0.00	0.00
Loan A, foreign .	0.00	1251.70
Loan B, foreign..	0.00	533.30
Loan C, foreign .	0.00	282.36
Loan A, local....	0.00	0.00
Loan B, local....	0.00	0.00
Loan C, local....	0.00	0.00
Total loan	0.00	2067.36
Current liabilities	0.00	0.00
Bank overdraft	0.00	0.00
Total funds	1500.00	2835.30

Source of Finance, production in 1000 German Marks (DM)

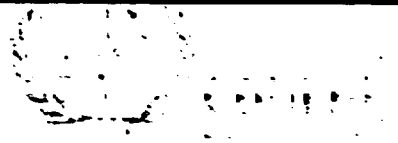
Year	1991	1992	1993	1994	1995	1996	1997
Equity, ordinary ..	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Equity, preference.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subsidies, grants .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan A, foreign .	-170.29	-184.03	-198.75	-214.65	-231.82	-250.37	0.00
Loan B, foreign..	-55.33	-67.33	-76.42	-86.74	-98.45	-111.74	0.00
Loan C, foreign .	-25.03	-31.35	-39.19	-48.98	-61.23	-76.54	0.00
Loan A, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan B, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan C, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total loan	-254.80	-282.71	-314.36	-350.37	-391.50	-438.64	0.00
Current liabilities	292.94	87.39	18.15	19.06	20.02	23.55	19.59
Bank overdraft	1000.30	108.40	-459.25	-648.85	0.00	0.00	0.00
Total funds	1078.44	-86.92	-756.05	-980.15	-371.47	-415.09	19.59

Source of Finance, production in 1000 German Marks (DM)

Year	1998	1999	2000	2001	2002	2003	2004
Equity, ordinary ..	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Equity, preference.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subsidies, grants .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan A, foreign .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan B, foreign..	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan C, foreign .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan A, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan B, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loan C, local....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total loan	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Current liabilities	22.37	27.32	22.76	26.99	31.75	26.50	31.47
Bank overdraft	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total funds	22.37	27.32	22.76	26.99	31.75	26.50	31.47

Source of Finance, production [illegible]

Year	2005
Equity, ordinary ..	0.00
Equity, preference.	0.00
Subsidies, grants .	0.00
Loan A, foreign .	0.00
Loan B, foreign..	0.00
Loan C, foreign .	0.00
Loan A, local....	0.00
Loan B, local....	0.00
Loan C, local....	0.00
Total loan	0.00
Current liabilities	36.98
Bank overdraft	0.00
Total funds	36.98



Cashflow Tables, construction

Year	[illegible]	[illegible]
Total cash inflow	[illegible]	2756.30
Financial resources	[illegible]	2756.30
Sales, net of tax	[illegible]	0.00
Total cash outflow	[illegible]	2756.30
Total assets	[illegible]	2756.30
Operating costs	0.00	0.00
Cost of finance	0.00	0.00
Repayment	0.00	0.00
Corporate tax	0.00	0.00
Dividends paid	0.00	0.00
Surplus / deficit	767.94	0.00
Cumulated cash balance	767.94	767.94
[illegible] total	[illegible]	[illegible]
[illegible] loss	[illegible]	[illegible]
[illegible] deficit	[illegible]	[illegible]
[illegible] repay	[illegible]	[illegible]
[illegible] profit	[illegible]	[illegible]
[illegible] profit	[illegible]	[illegible]
Net [illegible]	[illegible]	[illegible]
[illegible] rate of return	[illegible]	[illegible]

Cashflow tables, production [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total cash inflow . . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total cash outflow . . .	[illegible]	[illegible]	[illegible]	6575.55	[illegible]	7574.61	8205.67
Total assets	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Operating costs . . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cost of finance . . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54.25	[illegible]
Repayment	254.50	282.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Corporate tax . . .	0.00	264.07	551.76	975.21	[illegible]	1780.54	[illegible]
Dividends paid . . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Surplus (deficit) . .	-1364.24	[illegible]	[illegible]	775.49	[illegible]	[illegible]	[illegible]
Cumulated cash balance	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

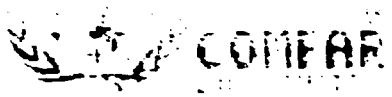
Cashflow tables, production in [illegible]

Year	1998	1999	2000	2001	2002	2003	2004
Total cash inflow . .	11570.38	13432.99	15033.49	16797.20	18740.58	20871.17	23218.46
Financial resources .	[illegible]	27.32	25.66	26.99	31.75	29.57	31.47
Sales, net of tax . .	11549.15	13405.67	15007.83	16770.21	18708.83	20841.71	23187.04
Total cash outflow . .	9125.89	9942.19	10853.67	11984.26	13172.11	14367.13	15754.10
Total assets	85.78	111.79	81.57	107.86	127.59	94.28	120.95
Operating costs . . .	6123.91	6454.30	6736.39	7058.63	7447.64	7765.78	8147.30
Cost of finance . . .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repayment	0.00	0.00	2.91	0.00	0.00	3.37	0.00
Corporate tax . . .	2813.50	3376.11	4036.84	4821.77	5598.58	6503.75	7485.85
Dividends paid . . .	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surplus (deficit) .	2946.49	3490.79	4179.82	4812.93	5568.48	6504.00	7464.37
Cumulated cash balance	8113.36	11604.16	15783.95	20596.91	26165.38	32669.38	40133.75
Inflow, local . . .	11570.38	13470.08	15033.49	16797.20	18777.21	20871.17	23218.46
Outflow, local	9125.89	9889.46	10868.[illegible]	11984.26	13111.06	14364.46	15754.10
Surplus (deficit) .	2946.49	3581.62	4164.89	4812.93	5626.15	[illegible]	7464.37
Inflow, foreign . . .	0.00	2.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Outflow, foreign . .	[illegible]	52.[illegible]	14.[illegible]	[illegible]	61.[illegible]	[illegible]	[illegible]
Surplus (deficit)	[illegible]	-49.[illegible]	14.[illegible]	[illegible]	-57.[illegible]	[illegible]	[illegible]
Net cashflow	2946.49	3490.79	4179.82	4812.93	5568.48	6504.[illegible]	7464.37
Cumulated net cashflow	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Cashflow tables, production [illegible]

[illegible]	[illegible]
[illegible]	[illegible]
Total cash inflow	[illegible]
Financial resources	[illegible]
Sales [illegible]	[illegible]
Total cash outflow	[illegible]
Total assets	[illegible]
Operating costs	[illegible]
Cost of finance	[illegible]
Repayment	[illegible]
Corporate tax	[illegible]
Dividends paid	[illegible]
Surplus deficit	[illegible]
Cumulated cash balance	[illegible]
Inflow, total	[illegible]
Outflow, total	[illegible]
Surplus deficit	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]



Cashflow Discounting:

a) Return on Equity 1:

Net present value	2650.14 at	20.00 %
Internal Rate of Return (IRR1) ..	35.58 %	

b) Return on Equity 2:

Net present value	1845.12 at	20.00 %
Internal Rate of Return (IRR2) ..	30.71 %	

c) Internal Rate of Return on total investment:

Net present value	1806.08 at	20.00 %
Internal Rate of Return (IRR) ..	29.69 %	

Equity 1 = Total equity paid : Net income

Equity 2 = Initial equity paid : Net cash return

[illegible] Project Consultant [illegible]

Net Income Statement : [illegible]

Year	[illegible]	[illegible]	[illegible]	1994	1995	[illegible]
Total sales [illegible]	5577.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Less variable costs, incl. sales tax	5451.75	[illegible]	[illegible]	[illegible]	7666.[illegible]	[illegible]
Variable margin	537.09	[illegible]	[illegible]	[illegible]	[illegible]	4[illegible]
As % of total sales	8.82	14.7[illegible]	[illegible]	25.[illegible]	25.94	34.[illegible]
Non-variable costs, incl. depreciation	840.96	470.75	487.47	497.47	510.25	[illegible]
Operational margin	-317.88	738.33	1340.05	2012.94	2764.62	[illegible]
As % of total sales	-5.25	8.93	14.62	20.[illegible]	25.[illegible]	[illegible]
Cost of finance	235.09	210.18	178.53	142.52	101.79	54.25
Gross profit	-551.97	528.15	1161.52	1870.42	[illegible]	3515.[illegible]
Allowances	0.00	0.00	0.00	[illegible]	[illegible]	[illegible]
Taxable profit	-551.97	528.15	1161.52	1870.42	[illegible]	[illegible]
Tax	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Net profit	-551.97	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] % of total sales	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] % of total sales	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Net [illegible] % of invest	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Net Income Statement

Year	1997	1998	1999	2000	2001	2002
Total sales, incl. sales ta	12241.00	14565.12	16021.63	17627.80	19756.16	21724.80
Less: variable costs, incl. sales tax	8156.80	8420.29	8496.68	8986.62	9290.77	9495.64
Variable margin	5084.21	6144.83	7524.95	8637.18	10465.41	12229.16
As % of total sales	38.41	42.19	46.72	49.01	52.98	56.29
Non-variable costs, incl. depreciation	499.74	517.84	572.74	559.50	451.87	517.87
Operational margin	4584.83	5626.99	6752.21	8077.68	9643.54	11197.16
As % of total sales	34.67	38.63	42.14	45.83	48.78	50.51
Cost of finance	0.00	0.00	0.00	0.00	0.00	0.00
Gross profit	4584.83	5626.99	6752.21	8077.68	9643.54	11197.16
Allowances	0.00	0.00	0.00	0.00	0.00	0.00
Taxable profit	4584.83	5626.99	6752.21	8077.68	9643.54	11197.16
Tax	2292.44	2813.50	3376.11	4038.84	4821.77	5598.58
Net profit	2292.44	2813.50	3376.11	4038.84	4821.77	5598.58
Dividends paid	0.00	0.00	0.00	0.00	0.00	0.00
Undistributed profit	2292.44	2813.50	3376.11	4038.84	4821.77	5598.58
Accumulated undistributed profit	4584.89	9445.39	12824.29	16863.13	21684.90	27283.48
Gross profit % of total sales	34.67	38.63	42.14	45.83	48.78	50.51
Net profit % of total sales	17.33	19.32	21.07	22.91	24.39	25.25
ROI Net profit % of equity	100.00	100.00	100.00	100.00	100.00	100.00
ROI Net profit+interest % of invest.	42.06	42.06	42.06	42.06	42.06	42.06

Net Income Statement in 1000 German Marks (DM)

Year	2003	2004	2005
Total sales, incl. sales tax	23457.28	25803.00	28383.30
Less: variable costs, incl. sales tax.	9944.57	10295.74	10664.16
Variable margin	13512.70	15507.26	17719.14
As % of total sales	57.61	60.10	62.43
Non-variable costs, incl. depreciation	505.21	535.58	615.50
Operational margin	13007.49	14971.70	17103.64
As % of total sales	55.45	58.02	60.26
Cost of finance	0.00	0.00	0.00
Gross profit	13007.49	14971.70	17103.64
Allowances	0.00	0.00	0.00
Taxable profit	13007.49	14971.70	17103.64
Tax	6503.75	7485.85	8551.82
Net profit	6503.75	7485.85	8551.82
Dividends paid	0.00	0.00	0.00
Undistributed profit	6503.75	7485.85	8551.82
Accumulated undistributed profit	33787.23	41273.08	49824.90
Gross profit, % of total sales	55.45	58.02	60.26
Net profit, % of total sales	27.73	29.01	30.13
ROE, Net profit, % of equity	346.92	401.61	458.80
ROI, Net profit+interest, % of invest.	112.33	127.32	142.65

Projected Balance Sheets, construction [illegible]

ear	1989	1990
otal assets	[illegible]	[illegible]
ixed assets, net of depreciation	0,00	[illegible]
onstruction in progress	[illegible]	[illegible]
urrent assets	0,00	0,00
ash, bank	0,00	0,00
ash surplus, finance available .	[illegible]	[illegible]
oss carried forward	0,00	0,00
oss	0,00	0,00
otal liabilities	[illegible]	[illegible]
quity capital	[illegible]	[illegible]
eserves, retained profit	0,00	0,00
rofit	0,00	0,00
ong and medium term debt	0,00	[illegible]
urrent liabilities	0,00	0,00
ank overdraft, finance required.	0,00	0,00
otal debt	0,00	[illegible]
quity, % of liabilities	100,00	47,84

Projected Balance Sheets, Production in 1000 German Marks (DM)

Year	1991	1992	1993	1994	1995	1996
Total assets	4934.74	5111.90	4672.53	4339.70	5299.84	6667.30
Fixed assets, net of depreciation	2904.96	2659.80	2414.65	2169.49	1924.34	1725.19
Construction in progress	0.00	0.00	0.00	0.00	0.00	0.00
Current assets	1445.51	1291.25	1960.73	2032.65	2110.25	2206.04
Cash, bank	8.31	8.84	9.26	9.71	10.17	10.74
Cash surplus, finance available	0.00	0.00	0.00	124.85	1255.08	2725.34
Loss carried forward	0.00	551.97	287.90	0.00	0.00	0.00
Loss	551.97	0.00	0.00	0.00	0.00	0.00
Total liabilities	4934.74	5111.90	4672.53	4339.70	5299.84	6667.30
Equity capital	1863.94	1863.94	1863.94	1863.94	1863.94	1863.94
Reserves, retained profit	0.00	0.00	0.00	292.87	1226.08	2559.69
Profit	0.00	264.07	580.76	935.21	1331.61	1782.56
Long and medium term debt	1777.56	1494.86	1180.50	830.13	435.64	0.00
Current liabilities	292.94	380.33	399.48	417.54	437.57	461.11
Bank overdraft, finance required	1000.30	1108.70	646.85	0.00	0.00	0.00
Total debt	3070.80	2983.88	2227.83	1247.68	874.21	461.11
Equity, % of liabilities	37.77	36.46	39.89	42.95	35.17	27.96

Projected Balance Sheets, Production in 1000 German Marks (DM)

Year	1997	1998	1999	2000	2001	2002
Total assets	8979.33	11816.06	15219.46	19281.08	24129.84	29760.17
Fixed assets, net of depreciation	1526.07	1326.85	1127.72	928.57	840.54	782.51
Construction in progress	0.00	0.00	0.00	0.00	0.00	0.00
Current assets	2075.26	2364.11	2475.27	2555.67	2659.91	2785.04
Cash, bank	11.17	11.71	12.27	12.86	13.49	14.24
Cash surplus, finance available	5164.57	8113.27	11604.16	15797.52	20596.91	26185.79
Loss carried forward	0.00	0.00	0.00	0.00	0.00	0.00
Loss	0.00	0.00	0.00	0.00	0.00	0.00
Total liabilities	8979.33	11816.06	15219.46	19281.08	24129.84	29760.17
Equity capital	1863.94	1863.94	1863.94	1863.94	1863.94	1863.94
Reserves, retained profit	4742.25	6634.69	9448.19	12924.29	16867.17	21484.90
Profit	2292.44	2813.50	3376.11	4038.84	4821.77	5598.58
Long and medium term debt	0.00	0.00	0.00	0.00	0.00	0.00
Current liabilities	480.70	502.97	531.22	554.01	580.99	612.75
Bank overdraft, finance required	0.00	0.00	0.00	0.00	0.00	0.00
Total debt	480.70	502.97	531.22	554.01	580.99	612.75
Equity, % of liabilities	20.76	15.77	12.25	9.67	7.72	6.28

Projected Balance Sheets, Production in 1000 German Marks (DM)

Year	2003	2004	2005
Total assets	36290.41	43807.70	52396.50
Fixed assets, net of depreciation	724.47	656.43	588.41
Construction in progress	0.00	0.00	0.00
Current assets	2981.75	3001.98	3152.32
Cash, bank	14.81	15.53	16.41
Cash surplus, finance available	32669.39	40133.75	48639.36
Loss carried forward	0.00	0.00	0.00
Loss	0.00	0.00	0.00
Total liabilities	36290.41	43807.70	52396.50
Equity capital	1863.94	1863.94	1863.94
Reserves, retained profit	27283.48	33787.23	41273.08
Profit	6503.75	7485.85	8551.82
Long and medium term debt	0.00	0.00	0.00
Current liabilities	639.24	670.67	707.66
Bank overdraft, finance required	0.00	0.00	0.00
Total debt	639.24	670.67	707.66
Equity, % of liabilities	5.14	4.25	3.56

Tab: MILL9 : Suitable Working capital req., foreign

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

Col		1	2	3	4	5	6	7	8	9
		rec	ccts	required Y1	required Y2	required Y3	required Y4	required Y5	required Y6	required Y7
L	1 receivables.....	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	2 raw material 1st..	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	3 raw material other	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	4 utilities.....	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	5 energy.....	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	6 spare-parts.....	180.00	2.00	0.00	0.00	0.00	0.00	0.00	15.07	0.00
L	7 work-in-progress..	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	8 finished products.	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	9 liabilities.....	30.00	12.00	0.00	0.00	0.00	0.00	0.00	2.51	0.00
L	10 cash in hand.....	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	11 current assets....	182.00	2822.00	0.00	0.00	0.00	0.00	0.00	15.41	0.00
L	12 net work'g capital	152.00	2870.00	0.00	0.00	0.00	0.00	0.00	12.90	0.00
L	13 NWC increase.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.90	-12.90

Tab: MILL9 : Suitable Working capital req., local

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

Col		1	2	3	4	5	6	7	8	9
		rec	ccts	required Y1	required Y2	required Y3	required Y4	required Y5	required Y6	required Y7
L	14 receivables.....	60.00	6.00	943.99	1206.36	1263.10	1281.69	1325.20	1384.77	1409.51
L	15 raw material 1st..	30.00	12.00	257.06	332.29	348.90	366.35	384.67	417.91	424.09
L	16 raw material other	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	17 utilities.....	30.00	12.00	25.69	32.77	33.42	34.10	34.78	35.49	36.19
L	18 energy.....	30.00	12.00	1.38	1.59	1.82	2.10	2.42	2.78	3.20
L	19 spare-parts.....	1.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L	20 work-in-progress..	15.00	24.00	146.47	190.16	199.24	208.77	218.75	229.71	240.75
L	21 finished products.	10.00	36.00	95.92	128.11	134.27	140.65	147.49	154.49	161.94
L	22 liabilities.....	30.00	12.00	295.94	381.37	398.49	417.54	437.57	458.61	480.70
L	23 cash in hand.....	15.00	24.00	9.71	8.84	9.24	9.71	10.17	11.41	11.17
L	24 current assets....	192.00	846.00	1477.82	1906.10	1969.99	2043.26	2126.82	2231.77	2335.47
L	25 net work'g capital	162.00	934.01	1184.88	1519.89	1571.51	1625.81	1682.85	1768.77	1815.77
L	26 NWC increase.....	0.00	0.00	1184.88	334.92	51.71	54.31	57.04	85.92	47.94

Tab: MILL9 : Suitable Working capital req., consolidated

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

Col		1	2	3	4	5	6	7	8	9
		rec	ccts	required Y1	required Y2	required Y3	required Y4	required Y5	required Y6	required Y7
L	27 NWC,correct.....	326.00	2704.01	1184.88	1519.89	1571.51	1625.81	1682.85	1768.77	1815.77
L	28 increase correct...	0.00	0.00	1184.88	334.92	51.71	54.31	57.04	85.92	50.94

Tabw **MILL9** : Subtable **Working capital req., foreign**

10	11	12	13	14	15	16	17		
required Y8	required Y9	require-Y10	require-Y11	require-Y12	require-Y13	require-Y14	require-Y15		
0.00	0.10	0.00	0.00	0.11	0.00	0.00	0.12	L	1
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	2
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	3
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	4
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	5
0.00	17.45	0.00	0.00	20.20	0.00	0.00	23.39	L	6
0.00	0.10	0.00	0.00	0.11	0.00	0.00	0.13	L	7
0.00	0.10	0.00	0.00	0.11	0.00	0.00	0.13	L	8
0.00	2.91	0.00	0.00	3.37	0.00	0.00	3.90	L	9
0.00	0.10	0.00	0.00	0.11	0.00	0.00	0.13	L	10
0.00	17.84	0.00	0.00	20.65	0.00	0.00	23.90	L	11
0.00	14.93	0.00	0.00	17.28	0.00	0.00	20.01	L	12
0.00	14.93-	-14.93	0.00	17.28	-17.28	0.00	20.01	L	13

Tabw **MILL9** : Subtable **Working capital req., local**

10	11	12	13	14	15	16	17		
required Y8	required Y9	require-Y10	require-Y11	require-Y12	require-Y13	require-Y14	require-Y15		
1456.50	1505.90	1557.83	1612.43	1669.87	1730.29	1793.89	1860.81	L	14
445.30	467.56	490.94	515.49	541.26	568.33	596.74	626.59	L	15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	16
36.91	37.65	38.40	39.17	39.95	40.75	41.57	42.40	L	17
3.68	4.23	4.86	5.59	6.43	7.39	8.50	9.78	L	18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	19
251.96	264.17	277.00	290.50	304.69	319.62	335.34	351.88	L	20
169.76	177.99	186.64	195.73	205.30	215.36	225.95	237.10	L	21
503.93	528.34	554.01	580.99	609.39	639.24	670.67	703.76	L	22
11.71	12.27	12.86	13.48	14.13	14.81	15.53	16.28	L	23
2375.81	2469.76	2568.53	2672.39	2781.62	2896.56	3017.51	3144.83	L	24
1871.88	1941.42	2014.53	2091.40	2172.25	2257.31	2346.83	2441.07	L	25
66.16	69.54	73.10	76.87	80.85	85.06	89.52	94.24	L	26

Tabw **MILL9** : Subtable **Working capital req., consolidated**

10	11	12	13	14	15	16	17		
required Y8	required Y9	require-Y10	require-Y11	require-Y12	require-Y13	require-Y14	require-Y15		
1871.88	1956.35	2014.53	2091.40	2189.57	2257.31	2346.83	2441.07	L	27
66.16	84.47	58.16	76.87	98.17	67.76	89.52	114.24	L	28

Tabs **MILL9** : Subtable **initial fixed investment - foreign**

Col	1	2	3	4	5	6	7	8	9
	sum foreig	sum fval/f			invest- P1	invest- P2	invest- P3	invest- P4	invest- P5
L 1 land, site.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 2 civil A+E.....	225.00	225.00	0.00	0.00	0.00	225.00	0.00	0.00	0.00
L 3 equipment A+E.....	1181.00	1181.00	0.00	0.00	0.00	1181.00	0.00	0.00	0.00
L 4 equipment C.....	130.20	130.20	0.00	0.00	0.00	130.20	0.00	0.00	0.00
L 5 incorporate.....	735.10	735.10	0.00	0.00	0.00	735.10	0.00	0.00	0.00
L 6 pp-expenses.....	125.00	125.00	0.00	0.00	0.00	125.00	0.00	0.00	0.00
L 7 total fixed.....	2396.30	2396.30	0.00	0.00	0.00	2396.30	0.00	0.00	0.00
L 8 inventory.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 9 receivables.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 10 t o t a l.....	2396.30	2396.30	0.00	0.00	0.00	2396.30	0.00	0.00	0.00

Tabs **MILL9** : Subtable **initial fixed investment - local, consolidated**

Col	1	2	3	4	5	6	7	8	9
	sum local	sum fval/l	sum consol	sum fval/c	invest- P1	invest- P2	invest- P3	invest- P4	invest- P5
L 11 land, site.....	31.00	31.00	31.00	31.00	31.00	0.00	0.00	0.00	0.00
L 12 civil A+E.....	889.56	889.56	1114.56	1114.56	889.56	225.00	0.00	0.00	0.00
L 13 equipment A+E.....	0.00	0.00	1181.00	1181.00	0.00	1181.00	0.00	0.00	0.00
L 14 equipment C.....	0.00	0.00	130.20	130.20	0.00	130.20	0.00	0.00	0.00
L 15 incorporate.....	85.50	85.50	820.60	820.60	85.50	735.10	0.00	0.00	0.00
L 16 pp-expenses.....	130.00	130.00	255.00	255.00	130.00	125.00	0.00	0.00	0.00
L 17 total fixed.....	1136.06	1136.06	3532.36	3532.36	1136.06	2396.30	0.00	0.00	0.00
L 18 inventory.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 19 receivables.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 20 t o t a l.....	1136.06	1136.06	3532.36	3532.36	1136.06	2396.30	0.00	0.00	0.00

Tabs **MILL9** : Subtable **initial fixed investment - consolidated, foreign, lo**

Col	1	2	3	4	5	6	7	8	9
	grant tota	FVAL	sum nval	sum fval	sum P1	sum P2	sum P3	sum P4	sum P5
L 21 sum, cons/f.....	3532.36	3532.36	3396.30	2396.30	0.00	2396.30	0.00	0.00	0.00
L 22 sum, local.....	0.00	2.00	1136.06	1136.06	1136.06	0.00	0.00	0.00	0.00

Tabc **MILL9** : Subtable **investment during production, foreign**

COMFAR 2.0 - Project Consultancy GmbH, Mainhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl- Y7	cashfl- Y8
L 151 land, site.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 152 civil A+B.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 153 equipmt A+B.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 154 equipment C.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 155 incorporate.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 156 pp-expenses.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 157 total fixed.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 158 in progress.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 159 inventory.....	0.00	0.00	0.00	0.00	0.00	0.00	15.24	-15.24	0.00
L 160 receivables.....	0.00	0.00	0.00	0.00	0.00	0.00	0.09	-0.09	0.00
L 161 cash, bank.....	0.00	0.00	0.00	0.00	0.00	0.00	0.08	-0.08	0.00
L 162 tot.current.....	0.00	0.00	0.00	0.00	0.00	0.00	15.41	-15.41	0.00
L 163	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 164 total asset.....	0.00	0.00	0.00	0.00	0.00	0.00	15.41	-15.41	0.00
L 165 depreciation.....	0.00	196.13	196.13	196.13	196.13	196.13	150.13	150.13	150.13

Tabc **MILL9** : Subtable **investment during production, consolidated**

COMFAR 2.0 - Project Consultancy GmbH, Mainhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl- Y7	cashfl- Y8
L 166 land, site.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 167 civil A+B.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 168 equipmt A+B.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 169 equipment C.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 170 incorporate.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 171 pp-expenses.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 172 total fixed.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 173 in progress.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 174 inventory.....	0.00	525.57	159.40	72.70	34.34	36.07	53.14	24.55	41.85
L 175 receivables.....	0.00	943.99	262.37	36.74	39.58	40.52	42.45	44.54	47.00
L 176 cash, bank.....	0.00	8.31	0.53	0.42	0.44	0.46	0.47	0.47	0.54
L 177 tot.current.....	0.00	1477.87	422.31	69.86	73.37	77.04	96.36	69.55	89.39
L 178 loss c/f.....	0.00	551.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 179 total asset.....	0.00	1477.87	422.31	69.86	73.37	77.04	96.36	69.55	89.39
L 180 depreciation.....	0.00	245.15	245.15	245.15	245.15	245.15	199.15	199.15	199.15

Tabc **MILL9** : Subtable **investment during production, local**

COMFAR 2.0 - Project Consultancy GmbH, Mainhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl- Y7	cashfl- Y8
L 181 total fixed.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 182 tot.current.....	0.00	1477.87	422.31	69.86	73.37	77.04	96.36	69.55	89.39

Tabs **MILL9 : Suitable production costs, foreign**

Col	1	2	3	4	5	6	7	8	9
		Case#1- Y1	Case#1- Y2	Case#1- Y3	Case#1- Y4	Case#1- Y5	Case#1- Y6	Case#1- Y7	Case#1- Y8
L 106 raw material.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 107 other RM.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 108 utilities.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 109 energy.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 110 labour.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 111 maintenance.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 112 spares.....	0.00	0.00	0.00	0.00	0.00	0.00	30.15	0.00	0.00
L 113 factory ovh.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 114 sub-total.....	0.00	0.00	0.00	0.00	0.00	0.00	30.15	0.00	0.00
L 115 (variable).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 116 admin. ovh.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 117 M+distrib.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 118 operating c.....	0.00	0.00	0.00	0.00	0.00	0.00	30.15	0.00	0.00
L 119 depreciation.....	0.00	196.12	196.12	196.12	196.12	196.12	150.12	150.12	150.12
L 120 sub-total.....	0.00	196.12	196.12	196.12	196.12	196.12	180.27	150.13	150.13
L 121 interest.....	0.00	238.09	210.19	178.52	142.52	101.39	54.25	0.00	0.00
L 122 total PCost.....	0.00	434.21	406.31	374.64	338.64	297.52	234.52	150.13	150.13
L 123 (variable).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 124 (labour).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table MILL9 : Subtable production costs, consolidated

COMFAR 2.0 - Project Consultancy GmbH, Maierhauser,FRG

Col	1	2	3	4	5	6	7	8	9
		cash-fl- Y1	cash-fl- Y2	cash-fl- Y3	cash-fl- Y4	cash-fl Y5	cash-fl- Y6	cash-fl- Y7	cash-fl- Y8
L 126 raw material.....	0.00	3826.74	3987.45	4154.84	4329.15	4510.99	4700.79	4899.12	5105.55
L 127 other RM.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 128 utilities.....	0.00	308.33	321.29	334.79	348.86	363.52	378.79	394.69	411.24
L 129 energy.....	0.00	16.58	17.27	18.00	18.76	19.55	20.37	21.23	22.12
L 130 labour.....	0.00	11.46	11.94	12.44	12.96	13.51	14.08	14.67	15.29
L 131 maintenance.....	0.00	15.41	15.83	16.15	16.47	16.81	17.14	17.48	17.83
L 132 spares.....	0.00	0.00	0.00	0.00	0.00	0.00	20.15	0.00	0.00
L 133 factory ov.....	0.00	129.87	134.32	142.14	150.29	157.81	165.70	173.98	182.68
L 134 sub-total.....	0.00	3515.29	4563.94	4781.77	5010.54	5250.81	5577.38	5748.44	6047.15
L 135 (variable).....	0.00	3357.49	4396.58	4604.14	4821.87	5050.15	5289.67	5541.87	5804.32
L 136 admin. ovh.....	0.00	45.75	48.04	50.44	52.96	55.61	58.39	61.31	64.37
L 137 Redistrib.....	0.00	10.00	10.20	10.40	10.61	10.82	11.04	11.26	11.49
L 138 operating c.....	0.00	3571.04	4622.18	4842.62	5074.11	5317.25	5602.81	5841.01	6123.01
L 139 depreciation.....	0.00	245.15	245.15	245.15	245.15	245.15	199.15	199.15	199.15
L 140 sub-total.....	0.00	3816.20	4867.33	5087.77	5319.26	5562.40	5801.96	6040.17	6322.16
L 141 interest.....	0.00	238.09	210.18	178.53	142.52	101.39	54.25	0.00	0.00
L 142 total POcost.....	0.00	4054.29	5077.51	5266.30	5461.78	5663.79	5856.21	6040.17	6322.16
L 143 (variable).....	0.00	3357.49	4396.58	4604.14	4821.87	5050.15	5289.67	5541.87	5804.32
L 144 (labour).....	0.00	52.73	55.37	58.13	61.04	64.09	67.30	70.66	74.20
L 145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table MILL9 : Subtable local costs; marketing distribution foreign, consolida

COMFAR 2.0 - Project Consultancy GmbH, Maierhauser,FRG

Col	1	2	3	4	5	6	7	8	9
		cash-fl- Y1	cash-fl- Y2	cash-fl- Y3	cash-fl- Y4	cash-fl- Y5	cash-fl- Y6	cash-fl- Y7	cash-fl- Y8
L 146 variable.....	0.00	3357.49	4396.58	4604.14	4821.87	5050.15	5289.67	5541.87	5804.32
L 147 labour.....	0.00	52.73	55.37	58.13	61.04	64.09	67.30	70.66	74.20
L 148 total POcost.....	0.00	3420.07	4471.21	4681.65	5107.14	5365.25	5621.49	5890.74	6172.48

Tab: MILL9 : Suitable sales (= production programme) foreign

Cc:	1	2	3	4	5	6	7	8	9
		cash-fl- Yi	cash-fl- Y2	cash-fl- Y3	cash-fl- Y4	cash-fl- Y5	cash-fl- Y6	cash-fl- Y7	cash-fl- Y8
L 56 A,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 57 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 58 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 59 B,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 60 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 61 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 62 C,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 63 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 64 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 65 D,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 66 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 67 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 68 E,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 69 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 70 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 71 F,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 72 -net of ta.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 73 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 74 total sales.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Suitable sales (= production programme) local

Col	1	2	3	4	5	6	7	8	9
		case[1]- Y1	case[1]- Y2	case[1]- Y3	case[1]- Y4	case[1]- Y5	case[1]- Y6	case[1]- Y7	case[1]- Y8
L 77 A,sales pa.....	0.00	4691.25	6852.11	7957.01	7817.05	8527.75	9461.57	10751.15	11431.21
L 78 -net of tax.....	0.00	3347.90	4799.17	5044.39	5754.11	6574.81	7767.59	8735.24	9777.74
L 79 -net dir.c.....	0.00	3347.90	4799.17	5044.39	5754.11	6574.81	7767.59	8735.24	9777.74
L 80 B,sales pa.....	0.00	652.74	896.17	995.74	1094.31	1192.74	1312.02	1443.22	1587.54
L 81 -net of tax.....	0.00	424.28	611.00	700.61	799.19	907.61	1026.89	1158.09	1302.41
L 82 -net dir.c.....	0.00	424.28	611.00	700.61	799.19	907.61	1026.89	1158.09	1302.41
L 83 C,sales pa.....	0.00	455.74	627.44	696.19	765.20	835.12	918.67	1010.51	1111.55
L 84 -net of tax.....	0.00	296.20	427.80	490.54	559.56	635.49	718.05	810.81	911.91
L 85 -net dir.c.....	0.00	296.20	427.80	490.54	559.56	635.49	718.05	810.81	911.91
L 86 D,sales pa.....	0.00	178.75	245.94	270.56	297.61	327.37	360.11	396.12	435.73
L 87 -net of tax.....	0.00	116.19	167.70	192.30	219.35	249.11	281.85	317.84	357.47
L 88 -net dir.c.....	0.00	116.19	167.70	192.30	219.35	249.11	281.85	317.84	357.47
L 89 E,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 90 -net of tax.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 91 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 92 F,sales pa.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 93 -net of tax.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 94 -net dir.c.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 95 total sales.....	0.00	5977.44	8021.63	9043.79	9948.17	10962.99	12077.29	13241.02	14545.13
L 96 -net of tax.....	0.00	3884.57	5405.66	6427.82	7330.30	8327.62	9421.33	10625.05	11949.15
L 97 -net dir.c.....	0.00	3884.57	5405.66	6427.82	7330.30	8327.62	9421.33	10625.05	11949.15

Tab: MILL9 : Suitable sales (= production programme) consolidated

Col	1	2	3	4	5	6	7	8	9
		case[1]- Y1	case[1]- Y2	case[1]- Y3	case[1]- Y4	case[1]- Y5	case[1]- Y6	case[1]- Y7	case[1]- Y8
L 95 total sales.....	0.00	5977.44	8021.63	9043.79	9948.17	10962.99	12077.29	13241.02	14545.13
L 96 -net of tax.....	0.00	3884.57	5405.66	6427.82	7330.30	8327.62	9421.33	10625.05	11949.15
L 100 -net dir.c.....	0.00	3884.57	5405.66	6427.82	7330.30	8327.62	9421.33	10625.05	11949.15
L 101 tax foreign.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 102 tax corp.....	0.00	2092.87	2615.97	2615.97	2615.97	2615.97	2615.97	2615.97	2615.97
L 103 labour, fg.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 104 labour, loc.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 105 labour,corp.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Suitable finance - initial investment = foreign

Col	1	2	3	4	5	6	7	8	9
	total Euro	total EVAL			Euro 01	Euro 02	Euro 03	Euro 04	Euro 05
23 equity paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24 equity paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25 subsidies.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26 loan A paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27 loan B paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28 loan C paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29 total loan.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30 debt A.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31 debt B.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32 debt C.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
33 total debt.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34 debt/funds?.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tab: MILL9 : Suitable finance - initial investment = local

Col	1	2	3	4	5	6	7	8	9
	total Euro	total EVAL	local+forg	total EVAL	Euro 01	Euro 02	Euro 03	Euro 04	Euro 05
35 equity paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36 equity paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37 subsidies.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
38 loan A paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39 loan B paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40 loan C paid.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41 total loan.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42 debt A.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43 debt B.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44 debt C.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45 total debt.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
46 debt/fund.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tab: MILL9 : Suitable finance - initial investment = consolidated

Col	1	2	3	4	5	6	7	8	9
	total Euro	total EVAL			Euro 01	Euro 02	Euro 03	Euro 04	Euro 05
47 our equity.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48 our loan DM.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49 total funds.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50 debt funds?.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
51 interest A.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
52 interest B.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53 interest C.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tab: **MILL9 : Suitable funds during production, foreign**

COMFAR 2.0 - Project Consultancy GmbH, Maierhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl Y7	cashfl- Y8
L 185 equ.C paid.....	1117.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 186 equ.F paid.....	0.00	0.00	0.00	.00	0.00	0.00	0.00	0.00	0.00
L 187 balance ret.....	0.00	0.00	0.00	.00	0.00	0.00	0.00	0.00	0.00
L 188 profit dist.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 189 loanA,cflow.....	1250.00	-170.39	-184.03	-198.75	-214.65	-231.82	-250.37	0.00	0.00
L 190 loanB,cflow.....	500.00	-59.32	-67.33	-76.42	-86.74	-98.45	-111.74	0.00	0.00
L 191 loanC,cflow.....	282.36	-25.08	-31.35	-39.19	-48.99	-61.23	-76.54	0.00	0.00
L 192 debt A.....	1250.00	1079.61	895.58	696.83	482.18	250.37	0.00	0.00	0.00
L 193 debt B.....	500.00	440.68	373.35	296.92	210.19	111.74	0.00	0.00	0.00
L 194 debt C.....	282.36	257.28	225.93	186.75	137.76	76.54	0.00	0.00	0.00
L 195 subsidies.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 196 net worth.....	1113.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 197 total loan.....	2032.36	1777.56	1494.86	1180.50	830.13	438.64	0.00	0.00	0.00
L 198 s.term,bank.....	0.00	0.00	0.00	0.00	0.00	0.00	2.51	-2.51	0.00
L 199 total funds.....	3146.30	-254.80	-282.71	-314.36	-350.37	-391.51	-436.17	-2.51	0.00

Tab: **MILL9 : Suitable funds during production, local**

COMFAR 2.0 - Project Consultancy GmbH, Maierhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl- Y7	cashfl- Y8
L 200 equ.C paid.....	750.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 201 equ.F paid.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 202 balance ret.....	0.00	75.44	509.23	825.92	1180.37	1576.77	1981.71	2491.63	3012.65
L 203 profit dist.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 204 loanA,cflow.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 205 loanB,cflow.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 206 loanC,cflow.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 207 debt A.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 208 debt B.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 209 debt C.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 210 subsidies.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 211 net worth.....	750.00	75.44	509.23	825.92	1180.37	1576.77	1981.71	2491.63	3012.65
L 212 total loan.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 213 s.term,bank.....	0.00	292.94	87.35	18.15	15.01	21.60	21.67	22.11	23.27
L 214 total funds.....	750.00	368.38	596.61	844.07	1195.42	1598.38	2003.38	2513.74	3035.92

Tab: **MILL9 : Suitable funds during production, consolidated**

COMFAR 2.0 - Project Consultancy GmbH, Maierhauser,FRG

Col	1	2	3	4	5	6	7	8	9
	for Calcul	cashfl- Y1	cashfl- Y2	cashfl- Y3	cashfl- Y4	cashfl- Y5	cashfl- Y6	cashfl- Y7	cashfl- Y8
L 215 equity paid.....	1867.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 216 net worth.....	1867.94	75.44	509.23	825.92	1180.37	1576.77	1981.71	2491.63	3012.65
L 217 long term.....	2032.36	-254.80	-282.71	-314.36	-350.37	-391.51	-436.17	0.00	0.00
L 218 short term.....	0.00	292.94	87.35	18.15	15.01	21.60	22.11	19.87	23.27
L 219 total funds.....	3900.30	117.58	313.87	529.71	845.01	1206.86	1567.65	2511.50	3035.92
L 220 loan repa.....	3900.30	254.80	282.71	314.36	350.37	391.51	436.17	0.00	0.00

Tab: MILL9 : Suitable funds income, cashflows, consolidated

COMPAS 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col:	1	2	3	4	5	6	7	8	9
	Calc. CF	Cashfl- Y1	Cashfl- Y2	Cashfl- Y3	Cashfl- Y4	Cashfl- Y5	Cashfl- Y6	Cashfl- Y7	Cashfl- Y8
L 221 gross profit.....	0.00	-551.97	528.15	1161.52	1870.42	2667.23	3565.11	4584.69	5826.99
L 222 foreign inc.....	0.00	-434.21	-401.21	-374.66	-326.64	-297.52	-234.52	-159.17	-150.13
L 223 allowances.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 224 taxable inc.....	0.00	-551.97	528.15	1161.52	1870.42	2667.23	3565.11	4584.69	5826.99
L 225 income tax.....	0.00	0.00	264.07	580.76	935.21	1333.61	1782.56	2292.44	2913.50
L 226 net income.....	0.00	-551.97	264.07	580.76	935.21	1333.61	1782.56	2292.44	2913.50
L 227 tx/dividend.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 228 net dividend.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 229 acc. income.....	0.00	-551.97	-287.90	292.87	1228.08	2559.69	4342.25	6634.69	9449.19
L 230 incl interest.....	0.00	-313.88	160.38	919.67	1997.40	3430.40	5267.21	7559.65	10373.14
L 231 CF-out,prod.....	3532.36	4756.52	5221.17	5475.09	6063.67	6705.90	7458.18	8187.52	9002.66
L 232 CF-in,prod.....	0.00	3884.57	5605.66	6427.82	7332.20	8327.02	9421.32	10625.05	11949.15
L 233 net CF,prod.....	-3532.36	-871.35	384.49	952.74	1268.53	1621.12	1963.14	2441.53	2946.49
L 234 acc. net-CF.....	-3532.36	-4403.71	-4019.22	-3066.49	-1797.91	-176.79	1786.35	4227.89	7174.38
L 235 equ. NPV/IRR.....	0.00	2690.14	75.51	1948.12	30.71	0.00	0.00	0.00	0.00
L 236 NCF/sales %.....	0.00	-14.59	4.65	10.52	12.75	14.81	16.31	18.44	20.23
L 237 NCF/invest %.....	0.00	-18.47	7.61	18.67	24.59	31.08	37.12	45.74	54.52
L 238 net income ROI%...	0.00	-551.97	264.07	580.76	935.21	1333.61	1782.56	2292.44	2913.50
L 239 NPV, IRR.....	0.00	1806.08	29.68	0.00	0.00	0.00	0.00	0.00	0.00
L 240 netCF (ROCE).....	0.00	-1364.24	-100.40	459.85	775.69	1128.27	1470.26	2441.53	2946.49
L 241 total CF,out.....	3532.36	5248.81	5714.06	5967.99	6556.51	7198.79	7951.06	8187.52	9002.66
L 242 total CF, in.....	3884.30	3884.57	5605.66	6427.82	7332.20	8327.02	9421.32	10625.05	11949.15
L 243 total netCF.....	363.94	-1364.24	-100.40	459.85	775.69	1128.27	1470.26	2441.53	2946.49
L 244 acc. netCF.....	367.94	-1000.30	-1100.70	-640.85	134.85	1263.12	2725.34	5166.87	8113.36
L 245 depr. allow.....	0.00	627.40	245.15	245.15	245.15	245.15	195.15	195.15	195.15
L 246 tax% if var.....	0.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
L 247 tax due.....	0.00	0.00	264.07	580.76	935.21	1333.61	1782.56	2292.44	2913.50
L 248 acc. investm.....	3532.36	4217.24	5052.16	5103.87	5158.17	5215.21	5388.03	5375.09	5414.24

Table MILL9 : Subtable initial fixed investment - foreign

10	11	12	13	14	15	16	17	18	
invest- P6	invest- P7	invest- P8	Not used	Not used	Not used	Not used	Not used	scrap valu	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	1
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.25 L	2
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	3
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	4
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	388.77 L	5
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.00 L	6
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	570.03 L	7
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	8
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	9
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	570.03 L	10

Table MILL9 : Subtable initial fixed investment - local, consolidated

10	11	12	13	14	15	16	17	18	
invest- P6	invest- P7	invest- P8	Not used	Not used	Not used	Not used	Not used	scrap valu	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.88 L	11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	278.64 L	12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	410.25 L	15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	255.00 L	16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	970.88 L	17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L	19
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	970.88 L	20

Table MILL9 : Subtable initial fixed investment - consolidated, foreign, loca

10	11	12	13	14	15	16	17	18	
sum P6	sum P7	sum P8	Not used	Not used	Not used	Not used	Not used	scrap valu	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	570.03 L	21
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	400.64 L	22

Tabc **MILL9** : Subtable **investment during production, foreign**

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 151
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 152
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 153
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 154
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 155
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 156
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 157
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 158
17.64	-17.64	0.00	20.42	-20.42	0.00	23.64	0.00	0.00	L 159
0.10	-0.10	0.00	0.11	-0.11	0.00	0.13	0.00	0.00	L 160
0.10	-0.10	0.00	0.11	-0.11	0.00	0.13	0.00	0.00	L 161
17.84	-17.84	0.00	20.65	-20.65	0.00	23.90	0.00	0.00	L 162
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 163
17.84	-17.84	0.00	20.65	-20.65	0.00	23.90	0.00	0.00	L 164
150.13	150.13	19.01	19.01	19.01	19.01	19.01	0.00	570.03	L 165

Tabc **MILL9** : Subtable **investment during production, consolidated**

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 166
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 167
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 168
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 169
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 170
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 171
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 172
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 173
61.63	28.60	45.63	71.58	23.45	56.65	82.25	0.00	0.00	L 174
49.50	51.82	54.61	57.55	60.71	63.59	67.07	0.00	0.00	L 175
0.66	0.45	0.62	0.76	0.57	0.72	0.89	0.00	0.00	L 176
111.79	80.93	100.86	129.89	84.28	120.95	151.22	0.00	0.00	L 177
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 178
111.79	80.93	100.86	129.89	84.28	120.95	151.22	0.00	0.00	L 179
199.15	199.15	68.03	68.03	68.03	68.03	68.03	0.00	570.44	L 180

Tabc **MILL9** : Subtable **investment during production, local**

COMFAR 2.0 - Project Consultancy GmbH, Meinhausen,FRG

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 181
87.55	91.77	103.81	109.24	114.97	120.95	127.32	0.00	0.00	L 182

Tab: MILL9 : Suitable production costs, foreign

10	11	12	13	14	15	16	17	18
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 106
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 107
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 108
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 109
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 110
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 111
34.90	0.00	0.00	40.40	0.00	0.00	46.77	0.00	0.00 L 112
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 113
34.90	0.00	0.00	40.40	0.00	0.00	46.77	0.00	0.00 L 114
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 115
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 116
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 117
34.90	0.00	0.00	40.40	0.00	0.00	46.77	0.00	0.00 L 118
150.13	150.13	19.01	19.01	19.01	19.01	19.01	0.00	0.00 L 119
185.02	150.13	19.01	59.40	19.01	19.01	65.77	0.00	0.00 L 120
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 121
185.02	150.13	19.01	59.40	19.01	19.01	65.77	0.00	0.00 L 122
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 123
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 124

Table MILL9 : Subtable production costs, consolidated

11	12	13	14	15	16	17	18
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used
5610.76	5851.31	6105.66	6495.15	6819.91	7160.91	7518.95	0.00	0.00 L 126
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 127
451.77	460.80	470.02	479.42	489.01	498.79	508.76	0.00	0.00 L 128
50.72	58.33	67.08	77.14	88.71	102.01	117.32	0.00	0.00 L 129
16.84	17.69	18.57	19.50	20.47	21.50	22.57	0.00	0.00 L 130
18.18	18.55	18.92	19.30	19.68	20.08	20.48	0.00	0.00 L 131
34.90	0.00	0.00	40.40	0.00	0.00	46.77	0.00	0.00 L 132
191.82	201.41	211.48	222.05	233.16	244.81	257.05	0.00	0.00 L 133
6374.99	6646.07	6971.92	7352.96	7670.94	8049.10	8491.99	0.00	0.00 L 134
6060.71	6370.65	6674.80	6993.87	7328.60	7679.77	8048.19	0.00	0.00 L 135
67.59	70.97	74.52	78.25	82.16	86.27	90.58	0.00	0.00 L 136
11.72	11.95	12.19	12.43	12.68	12.94	13.19	0.00	0.00 L 137
6454.30	6730.99	7058.63	7443.64	7765.78	8147.30	8595.69	0.00	0.00 L 138
199.15	199.15	68.03	68.03	68.03	68.03	68.03	0.00	0.00 L 139
6653.45	6930.15	7126.67	7511.67	7833.82	8215.33	8663.70	0.00	0.00 L 140
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 141
6653.45	6930.15	7126.67	7511.67	7833.82	8215.33	8663.70	0.00	0.00 L 142
6060.71	6370.65	6674.80	6993.87	7328.60	7679.77	8048.19	0.00	0.00 L 143
77.91	81.80	85.89	90.19	94.70	99.43	104.40	0.00	0.00 L 144
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 145

Table MILL9 : Subtable local costs; marketing distribution foreign, consolid

10	11	12	13	14	15	16	17	18
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used
6060.71	6370.65	6674.80	6993.87	7328.60	7679.77	8048.19	0.00	0.00 L 146
77.91	81.80	85.89	90.19	94.70	99.43	104.40	0.00	0.00 L 147
6469.43	6780.02	7107.66	7452.27	7814.81	8196.33	8597.93	0.00	0.00 L 148

Tab: MILL9 : Schedule sales (= production programme) foreign

COMFAR 2.1 - Project Consultancy, ...

10	11	12	13	14	15	16	17	18		
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	56
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	57
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	58
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	59
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	60
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	61
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	63
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	65
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	66
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	68
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	69
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	70
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	71
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	72
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	73
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L	74

Tabc **MILL9** : Subtable **sales (= production programme) local**

COMFAR 3.0 - Project Consultancy GmbH, Weinhausen,FRG

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used	
12573.33	13836.66	15213.73	16735.10	18408.61	20249.47	22274.42	0.00	0.00	L 77
10520.39	11777.72	12160.79	14682.16	16355.67	18196.53	20221.48	0.00	0.00	L 78
10520.39	11777.72	12160.79	14682.16	16355.67	18196.53	20221.48	0.00	0.00	L 79
1746.30	1920.93	2113.02	2324.32	2556.75	2812.43	3093.67	0.00	0.00	L 80
1461.17	1635.89	1827.89	2039.19	2271.62	2527.30	2808.54	0.00	0.00	L 81
1461.17	1635.89	1827.89	2039.19	2271.62	2527.30	2808.54	0.00	0.00	L 82
1222.70	1344.97	1479.47	1627.42	1790.16	1969.18	2166.09	0.00	0.00	L 83
1022.06	1145.33	1279.83	1427.78	1590.52	1769.54	1966.45	0.00	0.00	L 84
1022.06	1145.33	1279.83	1427.78	1590.52	1769.54	1966.45	0.00	0.00	L 85
479.31	527.24	579.96	637.96	701.75	771.93	849.12	0.00	0.00	L 86
401.05	448.58	501.70	559.70	623.49	693.67	770.86	0.00	0.00	L 87
401.05	448.98	501.70	559.70	623.49	693.67	770.86	0.00	0.00	L 88
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 89
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 90
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 91
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 92
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 94
16021.63	17623.80	19386.18	21324.80	23457.28	25803.00	28383.30	0.00	0.00	L 95
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00	L 96
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00	L 97

Tabc **MILL9** : Subtable **sales (= production programme) consolidated**

COMFAR 3.0 - Project Consultancy GmbH, Weinhausen,FRG

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	Not used	Not used	
16021.63	17623.80	19386.18	21324.80	23457.28	25803.00	28383.30	0.00	0.00	L 98
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00	L 99
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00	L 100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 101
2615.97	2615.97	2615.97	2615.97	2615.97	2615.97	2615.97	0.00	0.00	L 102
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 103
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 104
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 105

Tabs **MILL9** : Subtable **finance - initial investment = foreign**

10	11	12	13	14	15	16	17	18	
funds P6	funds P7	funds P8	Not used	Not used	Not used	Not used	Not used	Not used	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 27
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 28
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 30
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 31
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 32
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 34

Tabs **MILL9** : Subtable **finance - initial investment = local**

10	11	12	13	14	15	16	17	18	
funds P6	funds P7	funds P8	Not used	Not used	Not used	Not used	Not used	Not used	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 38
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 40
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 41
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 42
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 43
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 44
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 45
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 46

Tabs **MILL9** : Subtable **finance - initial investment = consolidated**

10	11	12	13	14	15	16	17	18	
funds P6	funds P7	funds P8	Not used	Not used	Not used	Not used	Not used	Not used	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 47
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 48
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 49
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 50
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 51
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 52
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 53

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 185
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 186
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 187
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 188
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 189
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 190
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 191
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1250.00	L 192
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	L 193
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.36	L 194
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 195
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 196
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 197
2.91	-2.91	0.00	3.37	-3.37	0.00	3.90	0.00	0.00	L 198
2.91	-2.91	0.00	3.37	-3.37	0.00	3.90	0.00	0.00	L 199

Tabo **MILL9** : Subtable **funds during production, local**

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 200
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 201
3575.26	4238.00	4889.80	5666.61	6571.78	7553.89	8619.84	0.00	1352.91	L 202
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 203
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 204
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 205
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 206
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 207
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 208
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 209
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 210
3575.26	4238.00	4889.80	5666.61	6571.78	7553.89	8619.84	0.00	0.00	L 211
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 212
24.41	25.66	26.99	28.39	29.87	31.43	33.09	0.00	0.00	L 213
3599.67	4263.66	4916.79	5695.00	6601.65	7585.31	8652.93	0.00	0.00	L 214

Tabo **MILL9** : Subtable **funds during production, consolidated**

10	11	12	13	14	15	16	17	18	
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	for Calcul	for Calcul	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 215
3575.26	4238.00	4889.80	5666.61	6571.78	7553.89	8619.84	0.00	0.00	L 216
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 217
27.32	28.71	30.99	31.75	33.50	35.19	36.98	0.00	0.00	L 218
3602.58	4266.71	4919.79	5698.36	6605.28	7588.71	8656.82	0.00	0.00	L 219
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	L 220

Table MILL9 : Subtable funds income, cashflows, consolidated

COMFAR 2.0 - Project Consultant …

10	11	12	13	14	15	16	17	18
cashfl- Y9	cashfl-Y10	cashfl-Y11	cashfl-Y12	cashfl-Y13	cashfl-Y14	cashfl-Y15	salvage va	for Calcul
6752.21	8077.65	9643.54	11197.16	13007.49	14971.70	17103.64	0.00	0.00 L 221
-185.02	-150.13	-19.01	-59.49	-19.01	-19.01	-65.77	0.00	0.00 L 222
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 223
6752.21	8077.65	9643.54	11197.15	13007.49	14971.70	17103.64	0.00	0.00 L 224
3376.11	4038.84	4821.77	5598.58	6503.75	7485.85	8551.82	0.00	0.00 L 225
3376.11	4038.84	4821.77	5598.58	6503.75	7485.85	8551.82	0.00	0.00 L 226
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 227
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 228
12524.29	16563.13	21664.90	27283.48	33787.23	41273.08	49824.93	0.00	0.00 L 229
13749.25	17788.09	22609.86	28208.44	34712.19	42195.04	50749.86	0.00	0.00 L 230
9914.87	10828.01	11957.28	13140.35	14337.31	15722.67	17261.74	0.00	0.00 L 231
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00 L 232
3490.79	4179.82	4812.93	5568.48	6504.00	7464.37	8505.60	3049.49	0.00 L 233
10665.17	14944.99	19657.93	25226.40	31730.40	39194.77	47700.37	50749.86	0.00 L 234
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 235
21.79	23.72	24.83	26.11	27.73	28.93	29.97	0.00	0.00 L 236
63.60	75.35	85.58	97.32	112.34	126.96	141.93	0.00	0.00 L 237
3376.11	4038.84	4821.77	5598.58	6503.75	7485.85	8551.82	0.00	0.00 L 238
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 L 239
3490.79	4179.82	4812.93	5568.48	6504.00	7464.37	8505.60	3049.49	0.00 L 240
9914.87	10828.01	11957.28	13140.35	14337.31	15722.67	17261.74	0.00	0.00 L 241
13405.67	15007.83	16770.21	18708.83	20841.31	23187.04	25767.34	0.00	0.00 L 242
3490.79	4179.82	4812.93	5568.48	6504.00	7464.37	8505.60	0.00	0.00 L 243
11604.15	15783.98	20596.91	26165.35	32669.38	40133.74	48639.34	0.00	0.00 L 244
199.15	199.15	68.03	65.03	68.03	68.03	68.03	0.00	0.00 L 245
50.00	50.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00 L 246
3376.11	4038.84	4821.77	5598.58	6503.75	7485.85	8551.82	0.00	0.00 L 247
5488.71	5546.89	5623.76	5721.89	5789.67	5879.19	5993.43	0.00	0.00 L 248

Tab: MILL9 : Text Variables

Project Name: Flour Mill

Date: 04.11.1985

Name of Alternative: Feasibility Study

Accounting currency: 1000 German Marks (DM)

Name of Product (A): Cream of Maize

AB): Super Cream

BC): Roller Meal

CD): Bran

Tab: MILL9 : General Variables

Multiplier to compute foreign into accounting currency:	1.000
Multiplier to compute local into accounting currency:	1.000
Construction phase: 2 year(s), planned yearly	
Interest rate for computation of future values in % p.a.:	0.000
Percent rate for DF-Discounting:	22.500

Equity - D: first disbursement in year 1

Equity - P: not specified

Subsidies : not specified

Loan A: first disbursement in period 2
Amortization: annuity
lasting for 6 year(s)
paying yearly rates
Period of grace: 1 year(s)
Interests payable: 8.0 % for year 3 through 8

Loan B: first disbursement in period 2
Amortization: annuity
lasting for 6 year(s)
paying yearly rates
Period of grace: 1 year(s)
Interests payable: 13.5 % for year 3 through 8

Loan C: first disbursement in period 2
Amortization: annuity
lasting for 6 year(s)
paying yearly rates
Period of grace: 1 year(s)
Interests payable: 25.0 % for year 3 through 8

Overdraft: not specified

Equity - C: first disbursement in year 1

Equity - P: not specified

Subsidies : not specified

Loan A: not specified

Loan B: not specified

Loan C: not specified

Overdraft: not specified

Tab MILL9 : Subtable Initial Fixed Investment - [illegible]

Col		1	2	3	4	5	6	7	8
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
L	1 Land..............................	[illegible]	1.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
L	2 Site preparation and development	0.00	1.00	0.00	0.00	0.00	0.00	[illegible]	[illegible]
L	3 Structures and civil (a)......	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	4 Structures and civil (b)......	5.00	1.00	0.00	0.00	0.00	225.00	0.00	0.00
L	5 Incorporated fixed assets,-(a	20.00	1.00	0.00	0.00	0.00	221.00	0.00	0.00
L	6 Incorporated fixed assets,-(b	0.00	1.00	0.00	0.00	0.00	251.00	0.00	0.00
L	7 Incorporated fixed assets,-(c)	5.00	1.00	0.00	0.00	0.00	155.40	0.00	0.00
L	8 Plant machinery and equipm-(a)	10.00	1.00	0.00	0.00	0.00	1016.50	0.00	0.00
L	9 Plant machinery and equipm-(b)	10.00	1.00	1.00	0.00	0.00	164.50	0.00	0.00
L	10 Auxiliary and service facilit	10.00	1.00	0.00	0.00	0.00	170.20	0.00	0.00
L	11 Pre-production expenditures...	0.00	1.00	0.00	0.00	0.00	125.00	0.00	0.00
L	12 Inventory, working capital....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab MILL9 : Subtable Initial Fixed Investment - local

--- COMFAR 2.0 - Project Consultancy, GmbH, Mainhausen,FRG ---

Col		1	2	3	4	5	6	7	8
		Depreci- %	Type of de	Scrap - %	Depreciati	Amount- P1	Amount- P2	Amount- P3	Amount- P4
L	13 Land..............................	0.00	1.00	0.00	0.00	25.50	0.00	0.00	0.00
L	14 Site preparation and developme	5.00	1.00	0.00	0.00	5.50	0.00	0.00	0.00
L	15 Structures and civil (a)......	5.00	1.00	0.00	0.00	727.79	0.00	0.00	0.00
L	16 Structures and civil (b)......	5.00	1.00	0.00	0.00	160.17	0.00	0.00	0.00
L	17 Incorporated fixed assets,-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	18 Incorporated fixed assets,-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	19 Incorporated fixed assets,-(c)	5.00	1.00	0.00	0.00	55.50	0.00	0.00	0.00
L	20 Plant machinery and equipm-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	21 Plant machinery and equipm-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	22 Auxiliary and service facilit	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L	23 Pre-production expenditures...	0.00	1.00	0.00	0.00	171.00	0.00	0.00	0.00
L	24 Inventory, working capital....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Suttable Current Fixed Investment - foreign

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col	1	2	3	4	5	6	7	8
	Deprec-n %	Depreciati	Scrap - %	Depreciati	Amount- Y1	Amount- Y2	Amount- Y3	Amount- Y4
L 25 Land.....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 26 Site preparation and developme	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 27 Structures and civil (a).....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 28 Structures and civil (b).....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 29 Incorporated fixed assets,-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 30 Incorporated fixed assets,-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 31 Incorporated fixed assets,-(c)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 32 Plant machinery and equipe-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 33 Plant machinery and equipe-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 34 Auxiliary and service faciliti	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 35 Pre-production expenditures...	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 36 Inventory, working capital....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Suttable Current Fixed Investment - local

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col	1	2	3	4	5	6	7	8
	Deprec-n %	Depreciati	Scrap - %	Depreciati	Amount- Y1	Amount- Y2	Amount- Y3	Amount- Y4
L 37 Land.....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 38 Site preparation and developme	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 39 Structures and civil (a).....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 40 Structures and civil (b).....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 41 Incorporated fixed assets,-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 42 Incorporated fixed assets,-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 43 Incorporated fixed assets,-(c)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 44 Plant machinery and equipe-(a)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 45 Plant machinery and equipe-(b)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 46 Auxiliary and service faciliti	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 47 Pre-production expenditures...	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
L 48 Inventory, working capital....	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl MILL9 : Subtable Production Costs - foreign

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col	1	2	3	4	5	6	7	8
	Inflator %	Adjust- Y1	Adjust- Y2	Adjust- Y3	Adjust- Y4	Adjust- Y5	Adjust- Y6	Adjust- Y7
L 52 Raw material, annual cost (a).	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 53 Raw material, annual cost (b).	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 54 Utilities, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 55 Energy, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 56 Labour (direct), annual cost..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 57 Maintenance, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 58 Spares, annual cost.....	5.00	0.00	0.00	0.00	0.00	0.00	23.62	0.00
L 59 Factory overheads, annual cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 60 Administration, labour cost...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 61 Administration, non-labour cos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 62 Marketing, labour cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 63 Marketing, non-labour cost....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl MILL9 : Subtable Standard Production Costs - foreign

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col	1	2	3	4	5	6	7	8
	Quanti- A	Variat- A	Quanti- B	Variat- B	Quanti- C	Variat- C	Quanti- D	Variat- D
L 64 Raw material (a).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Product A	Not used	Product B	Not used	Product C	Not used	Product D	Not used
L 65 Raw material, unit price (a)..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quanti- A	Variat- A	Quanti- B	Variat- B	Quanti- C	Variat- C	Quanti- D	Variat- D
L 66 Raw material (b).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Product A	Not used	Product B	Not used	Product C	Not used	Product D	Not used
L 67 Raw material, unit price (b)..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standa- A	Variat- A	Standa- B	Variat- B	Standa- C	Variat- C	Standa- D	Variat- D
L 68 Utilities, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 69 Energy, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 70 Labour (direct), annual cost..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 71 Maintenance, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 72 Spares, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 73 Factory overheads, annual cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 74 Administration, labour cost...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 75 Administration, non-labour cos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 76 Marketing, labour cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 77 Marketing, non-labour cost....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Foreig- A	Foreig- B	Foreig- C	Foreig- D	Foreig- E	Foreig- F	Local - A	Local - B
L 78 % of annual depreciation costs	70.00	7.00	8.00	15.00	0.00	0.00	100.00	0.00

Tabl MILL9 : Subtable Production Costs - local

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

Col	1	2	3	4	5	6	7	8
	Inflator %	Adjust- Y1	Adjust- Y2	Adjust- Y3	Adjust- Y4	Adjust- Y5	Adjust- Y6	Adjust- Y7
L 82 Raw material, annual cost (a).	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 83 Raw material, annual cost (b).	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 84 Utilities, annual cost.....	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 85 Energy, annual cost.....	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 86 Labour (direct), annual cost..	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 87 Maintenance, annual cost.....	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 88 Spares, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 89 Factory overheads, annual cost	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 90 Administration, labour cost...	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 91 Administration, non-labour cos	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 92 Marketing, labour cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 93 Marketing, non-labour cost....	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl MILL9 : Subtable Standard Production Costs - local

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG

		Quanti- A	Variat- A	Quanti- B	Variat- B	Quanti- C	Variat- C	Quanti- D	Variat- D
L 94	Raw material (a).....	16.07	100.00	1.61	100.00	1.84	100.00	3.44	100.00
		Product A	Not used	Product B	Not used	Product C	Not used	Product D	Not used
L 95	Raw material, unit price (a)..	165.40	0.00	165.40	0.00	165.40	0.00	165.40	0.00
		Quanti- A	Variat- A	Quanti- B	Variat- B	Quanti- C	Variat- C	Quanti- D	Variat- D
L 96	Raw material (b)..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Product A	Not used	Product B	Not used	Product C	Not used	Product D	Not used
L 97	Raw material, unit price (b)..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Standa- A	Variat- A	Standa- B	Variat- B	Standa- C	Variat- C	Standa- D	Variat- D
L 98	Utilities, annual cost.....	269.90	100.00	26.99	100.00	30.85	100.00	57.84	100.00
L 99	Energy, annual cost.....	11.60	0.00	1.16	0.00	1.33	0.00	2.49	0.00
L 100	Labour (direct), annual cost..	7.98	0.00	0.80	0.00	0.91	0.00	1.71	0.00
L 101	Maintenance, annual cost.....	10.84	100.00	1.09	100.00	1.24	100.00	2.33	100.00
L 102	Spares, annual cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 103	Factory overheads, annual cost	90.89	0.00	9.09	0.00	10.39	0.00	19.47	0.00
L 104	Administration, labour cost...	28.93	0.00	2.89	0.00	3.31	0.00	6.20	0.00
L 105	Administration, non-labour cos	3.05	0.00	0.31	0.00	0.37	0.00	0.69	0.00
L 106	Marketing, labour cost.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 107	Marketing, non-labour cost....	7.00	0.00	0.70	0.00	0.80	0.00	1.50	0.00

Col	1	2	3	4	5	6	7	8
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 110 Yearly production, export - A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 111 Unit price, export product A.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 112 Sales tax, export product A..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 113 Other direct variable cost- A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 114 Direct non-variable cost, - A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 115 Labour included in direct - A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 116 Yearly production, export - B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 117 Unit price, export product B.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 118 Sales tax, export product B..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 119 Other direct variable cost- B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 120 Direct non-variable cost, - B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 121 Labour included in direct - B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 122 Yearly production, export - C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 123 Unit price, export product C.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 124 Sales tax, export product C..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 125 Other direct variable cost- C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 126 Direct non-variable cost, - C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 127 Labour included in direct - C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 128 Yearly production, export - D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 129 Unit price, export product D.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 130 Sales tax, export product D..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 131 Other direct variable cost- D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 132 Direct non-variable cost, - D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 133 Labour included in direct - D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 134 Yearly production, export - E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 135 Unit price, export product E.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 136 Sales tax, export product E..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 137 Other direct variable cost- E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 138 Direct non-variable cost, - E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 139 Labour included in direct - E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Not used	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 140 Yearly production, export - F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 141 Unit price, export product F.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 142 Sales tax, export product F..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 143 Other direct variable cost- F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 144 Direct non-variable cost, - F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 145 Labour included in direct - F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Suitable Production Program and Sales - local

COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG --

Col	1	2	3	4	5	6	7	8
	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 164 Yearly production, local C- A	16.07	12.85	16.07	16.07	16.07	16.07	16.07	16.07

L 147 Unit price, local product A..	10.00	385.00	385.00	385.00	385.00	385.00	385.00	385.00
L 148 Sales tax, local product A...	0.00	1540.35	2052.94	2052.94	2052.94	2052.94	2052.94	2052.94
L 149 Other direct variable cost- A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 150 Direct non-variable cost, - A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 151 Labour included in direct - A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 152 Yearly production, local p- B	1.61	1.29	1.61	1.61	1.61	1.61	1.61	1.61

	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 153 Unit price, local product B..	10.00	506.00	506.00	506.00	506.00	506.00	506.00	506.00
L 154 Sales tax, local product B...	0.00	228.46	285.13	285.13	285.13	285.13	285.13	285.13
L 155 Other direct variable cost- B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 156 Direct non-variable cost, - B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 157 Labour included in direct - B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 158 Yearly production, local p- C	1.84	1.47	1.84	1.84	1.84	1.84	1.84	1.84

	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 159 Unit price, local product C..	10.00	310.00	310.00	310.00	310.00	310.00	310.00	310.00
L 160 Sales tax, local product C...	0.00	159.50	199.64	199.64	199.64	199.64	199.64	199.64
L 161 Other direct variable cost- C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 162 Direct non-variable cost, - C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 163 Labour included in direct - C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 164 Yearly production, local p- D	3.44	2.75	3.44	3.44	3.44	3.44	3.44	3.44

	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 165 Unit price, local product D..	10.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00
L 166 Sales tax, local product D...	0.00	62.56	78.26	78.26	78.26	78.26	78.26	78.26
L 167 Other direct variable cost- D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 168 Direct non-variable cost, - D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 169 Labour included in direct - D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 170 Yearly production, local p- E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 171 Unit price, local product E..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 172 Sales tax, local product E...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 173 Other direct variable cost- E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 174 Direct non-variable cost, - E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 175 Labour included in direct - E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Reference	Quanti- Y1	Quanti- Y2	Quanti- Y3	Quanti- Y4	Quanti- Y5	Quanti- Y6	Quanti- Y7
L 176 Yearly production, local p- F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Inflat- %	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
L 177 Unit price, local product F..	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 178 Sales tax, local product F...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 179 Other direct variable cost- F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 180 Direct non-variable cost, - F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 181 Labour included in direct - F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Col:	1	2	3	4	5	6	7	
	Covera- F	Covera- L	Covera- F	Covera- L	Not used	Not used	Not used	Not used
L 182 Accounts receivable (1/52; cas	1.00	60.00	1.00	15.00	1.00	1.00	1.00	1.0
	Covera- F	Covera- L	not used	not used	Not used	Not used	Not used	Not used
L 183 Inventory, raw material (a)...	1.00	30.00	1.00	1.00	1.00	1.00	1.00	1.0
L 184 Inventory, raw material (b)...	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
L 185 Inventory, utilities.....	1.00	30.00	1.00	1.00	1.00	1.00	1.00	1.0
L 186 Inventory, energy.....	1.00	30.00	1.00	1.00	1.00	1.00	1.00	1.0
L 187 Inventory, spare parts.....	180.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
L 188 Inventory, work-in-progress...	1.00	15.00	1.00	1.00	1.00	1.00	1.00	1.0
L 189 Inventory, finished products..	1.00	10.00	1.00	1.00	1.00	1.00	1.00	1.0
L 190 Accounts payable.....	30.00	30.00	1.00	1.00	1.00	1.00	1.00	1.0

Col	1	2	3	4	5	6	7	8
	1st disbu	2nd disbu	3rd disbu	4th disbu	5th disbu	6th disbu	7th disbu	8th disbu
L 191 Equity-O (ordinary shares)...	750.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 192 Equity-P (preference shares).	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 193 Subsidies, grants.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 194 Loan A, foreign (AF).....	1250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 195 Loan B, foreign (BF).....	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 196 Loan C, foreign (CF).....	282.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 197 Overdraft during production...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Subtable Source of Finance - local

Col	1	2	3	4	5	6	7	8
	1st disbu	2nd disbu	3rd disbu	4th disbu	5th disbu	6th disbu	7th disbu	8th disbu
L 198 Equity-O (ordinary shares)...	750.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 199 Equity-P (preference shares).	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 200 Subsidies, grants.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 201 Loan A, local (AL).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 202 Loan B, local (BL).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 203 Loan C, local (CL).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 204 Overdraft during production...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Col	1	2	3	4	5	6	7	8
	Variab- ?	Yearly- %	Tax holiy	Years loss	Tax credit	Differ- F	Differ- L	Not used
L 205 Income tax......................	0.00	50.00	1.50	0.00	0.00	0.00	0.00	0.00

	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year
L 206 Investment allowance (deducted	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 207 Depreciation allowance (initia	382.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 208 Adjustment of income tax......	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 209 Tax rate in % (if defined var	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 210 Profit distributed Equity--PF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 211 Profit distributed Equity--PL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 212 Profit distributed Equity--OF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
L 213 Profit distributed Equity--OL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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------------------------------------------------------------------------ COMFAR 2.0  -  Project Consultancy GmbH, Mainhausen,FRG ----
          9          10          11          12          13          14          15          16          17          18          19

 Amount- P5  Amount- P6  Amount- P7  Amount- P8    Not used    Not used    Not used    Not used    Not used    Not used    Not used
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
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Tabl MILL9 : Subtable Initial Fixed Investment - local

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------------------------------------------------------------------------ COMFAR 2.0  -  Project Consultancy GmbH, Mainhausen,FRG ----
          9          10          11          12          13          14          15          16          17          18          19

 Amount- P5  Amount- P6  Amount- P7  Amount- P8    Not used    Not used    Not used    Not used    Not used    Not used    Not used
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00
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-- COMFAR 2.0 - Project Consultancy GmbH, Mainhauser,FRG --

9	10	11	12	13	14	15	16	17	18	19
Amount- Y5	Amount- Y6	Amount- Y7	Amount- Y8	Amount- Y9	Amount-Y10	Amount-Y11	Amount-Y12	Amount-Y13	Amount-Y14	Amount-Y15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl MILL9 : Subtable Current Fixed Investment - local

-- COMFAR 2.0 - Project Consultancy GmbH, Mainhauser,FRG --

9	10	11	12	13	14	15	16	17	18	19
Amount- Y5	Amount- Y6	Amount- Y7	Amount- Y8	Amount- Y9	Amount-Y10	Amount-Y11	Amount-Y12	Amount-Y13	Amount-Y14	Amount-Y15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9	10	11	12	13	14	15	16	17	18	19
Adjust- Y8	Adjust- Y9	Adjust-Y10	Adjust-Y11	Adjust-Y12	Adjust-Y13	Adjust-Y14	Adjust-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	23.62	0.00	0.00	23.62	0.00	0.00	23.62	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Subtable Standard Production Costs - foreign

------ COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG --

9	10	11	12	13	14	15	16	17	18	19
Quanti- E	Variat- E	Quanti- F	Variat- F	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product E	Not used	Product F	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- E	Variat- E	Quanti- F	Variat- F	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product E	Not used	Product F	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standa- E	Variat- E	Standa- F	Variat- F	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Local - C	Local - D	Local - E	Local - F	Not used	Not used	Not used	Not used	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Subtable Production Costs - local

------ COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG --

9	10	11	12	13	14	15	16	17	18	19
Adjust- Y8	Adjust- Y9	Adjust-Y10	Adjust-Y11	Adjust-Y12	Adjust-Y13	Adjust-Y14	Adjust-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tab: MILL9 : Subtable Standard Production Costs - local

------ COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG --

9	10	11	12	13	14	15	16	17	18	19

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     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

Product E  Not used Product F  Not used  Not used  Not used  Not used  Not used  Not used  Not used  Not used
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

Quanti- E Variat- E Quanti- F Variat- F  Not used  Not used  Not used  Not used  Not used  Not used  Not used
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

Product E  Not used Product F  Not used  Not used  Not used  Not used  Not used  Not used  Not used  Not used
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

Standa- E Variat- E Standa- F Variat- F  Not used  Not used  Not used  Not used  Not used  Not used  Not used
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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9	10	11	12	13	14	15	16	17	18	19
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[illegible] MILL9 [illegible] Production Program and Sales - local

[illegible] - Project Consultancy GmbH, [illegible]

9	10	11	12	13	14	15	16	17	18	19
Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
16.67	16.67	16.67	16.67	16.67	16.67	16.67	16.67	0.00	0.00	0.00

2052.94	2052.94	2052.94	2052.94	2052.94	2052.94	2052.94	2052.94	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	0.00	0.00	0.00

8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
506.00	506.00	506.00	506.00	506.00	506.00	506.00	506.00	0.00	0.00	0.00
285.13	285.13	285.13	285.13	285.13	285.13	285.13	285.13	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	0.00	0.00	0.00

8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
310.00	310.00	310.00	310.00	310.00	310.00	310.00	310.00	0.00	0.00	0.00
199.64	199.64	199.64	199.64	199.64	199.64	199.64	199.64	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	0.00	0.00	0.00

8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	0.00	0.00	0.00
78.26	78.26	78.26	78.26	78.26	78.26	78.26	78.26	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quanti- Y8	Quanti- Y9	Quanti-Y10	Quanti-Y11	Quanti-Y12	Quanti-Y13	Quanti-Y14	Quanti-Y15	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8th year	9th year	10th year	11th year	12th year	13th year	14th year	15th year	Not used	Not used	Not used
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[illegible] MILLS : [illegible] Working Capital Requirements [illegible]

[illegible]

9	10	11	12	13	14	15	16	17	18	19
Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used	Not used
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl MILL9 : Suitable Source of Finance - foreign

--- COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG ---

9	10	11	12	13	14	15	16	17	18	19
9th dist.	10th dist.	11th dist.	12th dist.	13th dist.	14th dist.	15th dist.	16th dist.	17th dist.	18th dist.	19th dist.
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tabl **MILL9** : Suitable **Source of Finance - local**

--- COMFAR 2.0 - Project Consultancy GmbH, Mainhausen,FRG ----

9	10	11	12	13	14	15	16	17	18	19
9th disbu	10th disbu	11th disbu	12th disbu	13th disbu	14th disbu	15th disbu	16th disbu	17th disbu	18th dist.	19th disbu
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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[illegible] MILLS : [illegible] Income, Tax, Cashflow
------------------------------------------------------------------------------------------ COMFAR [illegible] - Project Consultancy Bath, [illegible] ----
          9         10         11         12         13         14         15         16         17         18         19

   Not used   Not used   Not used   Not used   Not used   Not used   Not used   Not used   Not used   Not used   Not used
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00

  9th  year  10th year  11th year  12th year  13th year  14th year  15th year   Not used   Not used   Not used   Not used
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
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10.4 COMFAR Evaluation

I. Pre-Construction Phase

Due to the fact that a foreign partner has not yet been determined, a pre-construction phase has to be considered. On the basis of the feasibility study certain activities have been envisaged, such as elaboration of a financing scheme and the final selection of partners, planning and preparation of tender documents, elaboration and evaluation of offers.

These activities, planned for 1989, will take nine months. Pre-production capital expenditures have been considered for 1989 and 1990.

II. Construction Phase

After 9 months the construction phase can start. It will take 12 months.

The height of the non-variable costs is explained by the fact that DM 350,000.-- are included for technology and start-up (supervision of erection and commissioning of the plant).

On the basis of equity capital cash amounting to DM 3,532,360.-- is needed in short term (1989/1990) to finance implementation.

III. Income Statement

1991 is the first year of production with a capacity of 80 % = 18,360 tons/year.

In 1992 production runs with 100 % capacity = 22,950 tons/year.

The increase of sales depends on a 10 % increase of the ex-factory prices over the period of 14 years.

The variable margin will increase because of the lower increase of costs of raw material.

Losses of the first year of production originate from the full depreciation of supervisory costs (supervision of erection and commissioning).

From 1992 the mill will run with 100 % capacity.

The first year's net profit of 3.2 % will have increased to 30.1 % in the 14th year of production.

The net profit accumulates within the project period of 14 years to DM 49,824,900.--.

From 1997 the costs of finance for foreign loans are not any more applicable. They will be compensated by the accumulated profits.

IV. Balance Sheet Projections

Over the whole project period of 14 years the balance sheet projections show a very sound development.

According to the present structure of the project dividends are not distributed. On the assumption of fully retained profits (reserves) long-term debts will be repaid after the sixth year of operation.

However, dividends could be distributed on the assumption of a 43 % ratio (equity : liabilities) from the fourth year onwards. The cash surplus depends on the loan financing structure.

V. Cashflow Tables

It can be stated that the cashflow situation of the mill will be good.

The cashflow tables 'production' show a positive net cashflow from the second year of operation onwards and will steadily increase, representing continued surplusses. Sales outweigh the costs of investments and operation.

Although large repayments and the total cash that is required to start operation, have to be considered, the investment will have been recovered by mid of the seventh year of operation.

VI. Break Even Point (BEP)

The break even point is given as the operational level at which sales revenues equal production costs.

BEP calculation was done using data from the 'production costs' chart.

$$BEP = \frac{f}{p - v}$$

where

f = total fixed costs
p = unit sales price
v = variable unit costs

For the fifth year of production the following will apply:

$$BEP = \frac{613{,}640}{362.83 - 22.05} = 4{,}298 \text{ tons}$$

Expressed in terms of sales revenue

$$BEP = p \cdot \frac{f}{p - v}$$

$$362.83 \cdot \frac{613{,}640}{362.83 - 220.05} = \text{DM } 1{,}559{,}371{,}--$$

To calculate the rate of capacity utilization at BEP the following formula will apply:

$$BEP = \frac{f}{r - v}$$

where

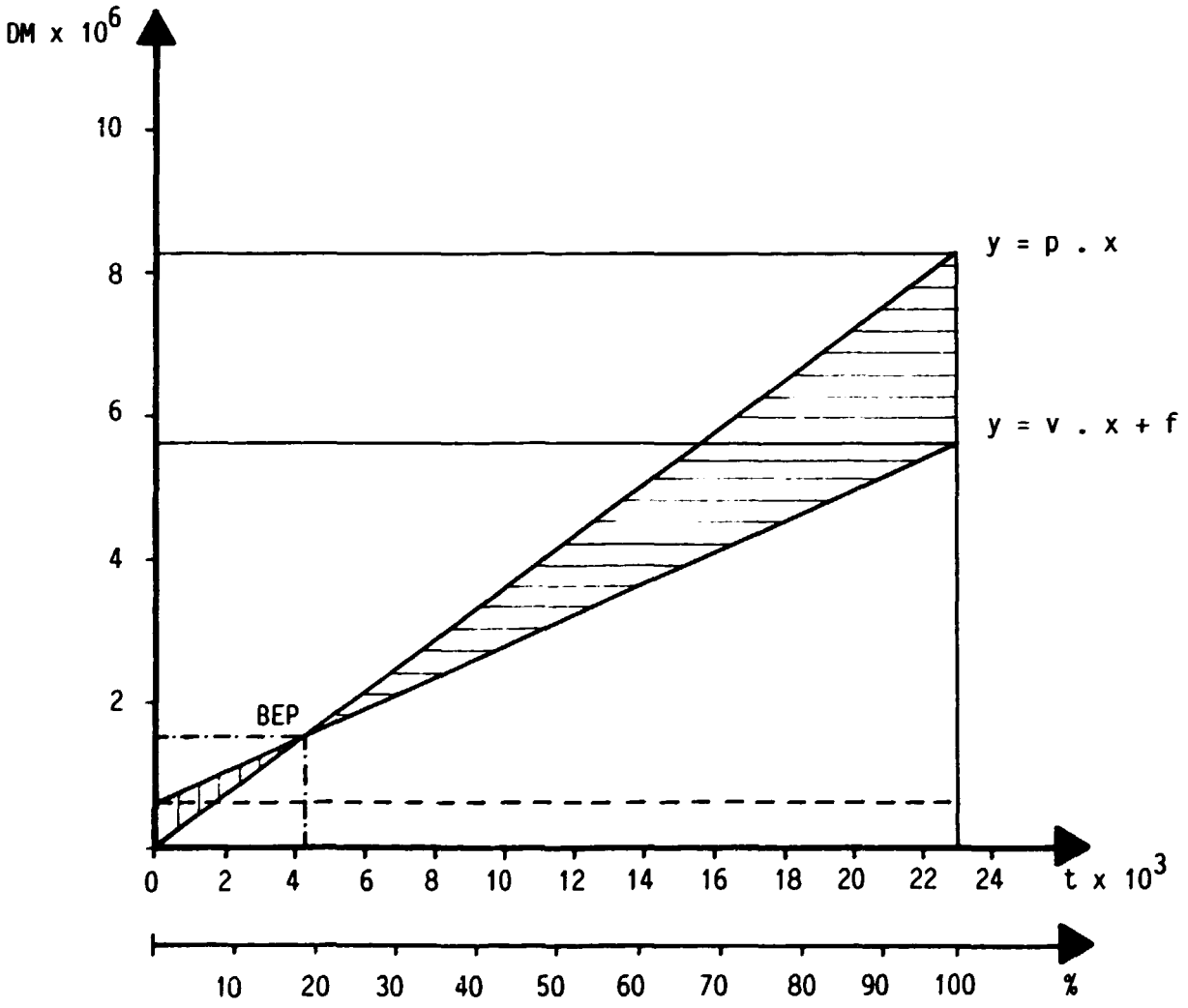
r is the sales revenue at full capacity,

f and v have been defined before.

$$BEP = \frac{613,640}{3,276,870} = 18.7\ \%$$

Graphically the BEP can be determined on the basis of the two equations

$y = p \cdot x$ and $y = v \cdot x + f$



At 18.7 % capacity utilization the break-even point will be reached.

The safety margin in terms of output is determined by the rate of capacity utilization at the break-even point and by the envisaged full capacity utilization.

The margin is:

100 % ./. 18.7 % = 81.3 %

VII. Fiscal Effects

From year 2 of production the fiscal effects on the Malawian economy will be positive, generated as net tax income of the Government.

The main tax contributions will be sales tax on the produced goods and the corporate tax on profits.

VIII. Capital Requirements

The total fixed assets amount to DM 3,896,300.-- of which the amount of DM 1,500,000.-- has to be made available in the year of 1989 and DM 2,396,300.-- in 1990.

It has to be stated that apart from the initial investment requirements, foreign currency in future only has to be provided for the purchase of spare parts.

IX. Financing Plan

Based on the input data and remarks in Chapter 10, the total given finance will be sufficient in order to establish and run the plant.

The equity - debt ratio of 385 : 61.5 % as well as the shares of the potential Malawian and foreign partners of 60 : 40 % were established in accordance with the provisional statements of the possible parties concerned.

X. Production of Sales Forecast

Beginning with the second year of production (at 100 % level of production capacity), the annual net sales amount to DM 5,605,660.-- (MK 8,284,605.--).

The COMFAR computations are based on the assumption of constant production figures (22,950 tons per year) and average price increases for raw material of 5 % per year and sales prices of 10 % per year.

Higher future inflation, which cannot yet be anticipated, will affect production costs in the same manner as sales prices.

Increases of costs, therefore, have to be balanced by respective increases of sales prices.

Telephone: Lilongwe 732 711
Telegrams: TRADEMIN, Lilongwe

In reply please quote No. KD/59.2/69

MINISTRY OF TRADE, INDUSTRY AND TOURISM
P.O. BOX 30366
CAPITAL CITY
LILONGWE 3
MALAWI

11th November, 1986

Mr. K. Kempf,
UNIDO Investment Promotion Service,
P.O. Box 102065,
Unter Sachsenhausen 10 - 26
D - 5000 Cologne 1
Federal Republic of Germany

Dear Mr. Kempf,

FLOUR MILLING PROJECT

Following the recent UNIDO Regional Investment Meeting and your visit to Malawi as a follow-up to the above Project, I wish to advise you that my Ministry is fully aware about this Project and therefore would like it implemented.

As pointed out at our meeting, it is the intention of my Ministry to see that this Project is implemented in the most practical way with the interests of all parties taken into consideration.

I am, therefore, looking forward to your continued and active interest in this Project so that the implementation is realised in time.

Yours Sincerely,

S.B. Mpata
SECRETARY FOR TRADE, INDUSTRY & TOURISM

K. K. MILLERS LTD.
Manufacturers of all types of flour

Your Ref:

Our Ref:

P.O. BOX 5882
LIMBE MALAWI

Telephone 650 820 651 644
Cables FLOURMILL
Telex 4952 KKMLW

19 November 1986

Mr Hans-Henning Kriegel
Managing Director
Rathenaustrasse 32
D-6461 MAINTAUSEN 1
West Germany

Dear Sir

RE: JOINT INVESTMENT IN THE MILLING PROJECT

Further to our meeting held on 7th November 1986, I herewith confirm our interest in the above joint venture with the German investor who is also a miller.

Reviewing the discussions, we basically agree to the participation from the miller and the German bank. Our participation of capital will be in the form of building while the miller will provide the machinery and erection cost. The problem of working capital is to be looked into by the German bank.

Malawi presently has a wheat milling capacity of 124MT per day which satisfies 60% of the country's requirement. Thus the additional capacity which can be installed should not exceed 100MT per day unless an export market is available. As to the maize flour machinery the installation can be up to 120MT per day. In my view, the stockfeeds machinery should also be installed in order to use the by-products from the milling of maize and wheat. Needless to state that the stockfeeds machinery should not be neglected as the market is wide open.

The site plans and the photographs for Lilongwe plot are to follow. Should you require any further information please do not hesitate to contact me.

Our Managing Director (Mr Patel) was unable to travel to Germany on 13th November due to the Doctors' refusal.

Yours faithfully

J V PATEL (MRS)
COMPANY SECRETARY

Ref. No. KD/59.2/84 1st April, 1987

FROM : THE SECRETARY FOR TRADE, INDUSTRY AND TOURISM,
P.O. BOX 30366, LILONGWE 3.

TO : THE SECRETARY TO THE TREASURY, P.O. BOX 30049,
LILONGWE 3.
(EXTERNAL AID SECTION)

RECOMMENDED INPUTS FOR POSSIBLE UNDP/UNIDO ASSISTANCE FOR FEASIBILITY STUDIES FOR MAIZE AND WHEAT FLOUR MILLING AND STOCKFEEDS AND REFRIDGERATOR ASSEMBLY PROJECTS

During the last SADCC Regional Investment Meeting held in Harare, Zimbabwe in November, 1986 to which Malawi was represented, two projects from Malawi attracted interests from investors from West Germany and the Industrial Investment Division of UNIDO. The two projects were Flour Milling and Stockfeeds; and Refridgeration Assembly. Find enclosed the Exposes of the two Projects.

As a follow-up UNIDO's Feasibility studies Section has indicated through its Mr. Suzuki that the requisite feasibility studies should first be carried out to determine the Projects' viability before deciding on the implementation. It is against that I formally request you to submit a request to UNIDO for assistance to finance the studies.

Both Projects have my full support since once implemented will substitute imports and utilise local resources. Import substitution and utilization of local resources are some of the policies of the Government in her industrialization process.

S.B. Mpata
SECRETARY FOR TRADE, INDUSTRY AND TOURISM

PROJECT EXPOSES

A. MAIZE AND WHEAT FLOUR MILL AND STOCKFEEDS PROJECT

1. TITLE OF THE PROJECT : FLOUR MILL, LILONGWE (MAIZE AND WHEAT)

2. ASSISTANCE REQUIRED : CARRYING OUR OF A FEASIBILITY STUDY

IMPLEMENTING AGENCY : MINISTRY OF TRADE, INDUSTRY AND TOURISM

PROJECT OBJECTIVES : CLOSING THE GAP OF THE COUNTRY'S REQUIREMENTS FOR MAIZE AND WHEAT FLOUR AS WELL AS TO USE THE BY-PRODUCTS FOR STOCKFEEDS

PROJECT OUT PUT : APPROXIMATELY 60 - 80 MT/DAY WHEAT FLOUR

APPROXIMATELY 80 - 120 MT/DAY MAIZE FLOUR

PRESENT STATUS : LOCAL AND FOREIGN PARTNERS ALREADY IDENTIFIED

: SITE ALREADY DETERMINED BETWEEN PARTNERS

: FOREIGN INVESTOR FROM WEST GERMANY TO VISIT MALAWI TOGETHER WITH CONSULTANT BETWEEN APRIL 1 - 4 APRIL, 1987

: JOINT VENTURE PARTNERS IN STAGE OF NEGOTIATION INCLUDING WEST GERMAN DEG(GERMAN FINANCE COMPANY FOR INVESTMENTS IN DEVELOPING COUNTRIES) (WAITING FOR RESULT OF FEASIBILITY STUDY TO BE ELABORATED.

ANNEX IV

GOVERNMENT DEPARTMENTS, MINISTRIES, INSTITUTIONS, BANKS, PARASTATALS; RETAILERS, INDUSTRIAL FIRMS, ETC. CONTACTED BY THE TEAM

1.	UNDP/UNIDO	Lilongwe 3	Mrs. K. Leitner, Resident Representative; Mrs. P. Barsotelli, JPO
2.	Ministry of Trade, Industry & Tourism	Lilongwe 3	Mr. J. Phiri, Permanent Secretary; Mr. Mambakulu, Deputy Secretary; Mr. Malindi; Mr. Mazuka; Mr. Givah
3.	German Embassy	Lilongwe 3	Dr. Th. van Rossum, Ambassador
4.	Ministry of Agri-cultural	Lilongwe 3	Mr. Soko, Chief Planning Officer; Mr. Buckland, Advisor (Economist); Mr. Mikkelsen, Advisor (Economist)

5.	Ministry of Labour	Lilongwe 3	Mr. J. D. Msanjana, Mr. Bauleni, Mr. Gondwe, Factory Inspectors
6.	Economic Planning & Development (Office of the President)	Lilongwe 3	Mr. Stryk German Advisor
7.	Ministry of Finance	Lilongwe 3	Mr. H. M. Mapondo, Senior Deputy Secretary; Mr. Gomani, Chief Economist
8.	Reserve Bank of Malawi	Lilongwe 3	Mr. M. S. Chalanda, Ass. General Manager (Exchange Control); Mr. B. S. M. Nyondo, Manager (Exchange Control); Mr. O. Zimpita, Divisional Head (Exchange Control); Mr. H. Katele, Officer (Exchange Control)
9.	Chamber of Commerce & Industry of Malawi	Blantyre	Mr. S. G. Mpasu, Acting General Manager

10.	National Bureau of Statistics	Zomba	Mr. Gclosi
11.	Malawi Bureau of Standards	Blantyre	Mr. S. Chokotho Mr. H. E. Gaga
12.	Customs & Excise	Blantyre	Mr. Ngomo
13.	Investment and Development Bank of Malawi Ltd.	Blantyre	Mr. C. L. Mphande, General Manager
14.	Malawi Development Corporation	Blantyre	Mr. W. Ulbrich, General Manager; Mr. V. Y. Kapalamula, Projects Manager; Mr. S. D. Mwakasungula, Senior Projects Eng.; Mr. A. Jacob, UNIDO Expert
15.	Grain & Milling Co. Ltd.	Limbe	Mr. R. Dickie, General Manager; Mr. J. Nyilenda, Technical Manager
16.	Grain & Milling Co. Ltd.	Lilongwe	Mr. Kwizombe, General Manager; Mr. Gondwe, Technical Manager

17.	K. K. Millers Ltd.	Limbe	Mr. N. B. Patel, Chairman; Mr. J. Patel, Managing Director; Mrs. N. Patel, Company Secretary
18.	K. K. Millers Ltd.	Lilongwe	Mr. Adams, Technical Manager
19.	Press (Bakeries) Limited	Blantyre	Mr. A. N. O. MacIntyre, General Manager
20.	Peoples' Trading Centre PTC	Blantyre	Mr. R. Burgell, General Manager
21.	Group Commodity Brokers Ltd.	Limbe	Mr. A. Schwarz, Chairman
22.	UN-World Food Programme	Blantyre	Mr. Th. Ruegg, Project Officer
23.	UN-World Food Programme	Lilongwe 3	Mr. B. Vanderberg, Project Officer
24.	Richard F. Fitzsimons Quantity Surveyor	Blantyre	Mr. J. Kabalamentore
25.	U.S. Agency for International Development; USAID/Malawi	Lilongwe 3	Mr. John Hicks, Mission Director
26.	Produce Export Company Ltd; Nali Limited	Limbe	Mr. A. P. Khoromana, General manager

27.	Falconhurst International Wheat Merchants	Johannesburg RSA	Mr. Q. Mitchell, Director
28.	International Marketing & Promotion Services Ltd.	Blantyre	Mr. J. Muwamba, General Manager

BIBLIOGRAPHY

1. Population and Housing Census 1987
Preliminary Report
National Statistical Office, Zomba
June 1988

2. Malawi Statistical Yearbook 1983
National Statistical Office, Zomba
October 1985

3. Malawi Statistical Yearbook 1985
National Statistical Office, Zomba
October 1987

4. Urban Household Expenditure Survey 1978/80
National Statistical Office, Zomba
September 1983

5. Annual Economic Survey 1980 - 1981
National Statistical Office, Zomba
June 1985

6. National Accounts Handbook
Sources and Methods
National Statistical Office, Zomba
April 1985

7. The Appropriate Accounts Revenue
Statements and Other Public Accounts
(for the year ended 31st March 1986)
Ministry of Finance, Lilongwe
September 1986

8. Annual Statement of External Trade 1984
(including 1982 and 1983)
National Statistical Office, Zomba
October 1987

9. Monthly Statistical Bulletin
November 1987
National Statistical Office, Zomba
November 1987

10. Employment and Earnings
Annual Report 1983 - 85
National Statistical Office, Zomba
January 1987

11. Transport Statistics 1985
National Statistical Office, Zomba
May 1987

12. Economic Report 1988
Office of the President and Cabinet
(Department of Economic Planning and Development)
Budget Documents No. 4
March 1988

13. A Guide for Prospective Investors
Ministry of Trade, Industry and Tourism,
Lilongwe
June 1985

14. Malawi Standard
Specification for Maize Grain
The Malawi Standards Board
1985

15. Malawi Standard
Specification of Maize Flour (Ufa)
The Malawi Standards Board
1985

16. Malawi Standard
Specification of Wheat Flour
The Malawi Standards Board
1985

17. Malawi Standard
Specification of Common Bread
The Malawi Standards Board
1985

18. Ministry of Works and Supplies
Factory Regulations Chapter 55 : 07
Lilongwe 1985

19. Investment & Development Bank of Malawi Limited
Annual Report and Accounts 1986

20. National Bank of Malawi
Annual Report 1986

21. Malawi Development Corporation
Annual Report 1985

22. Malawi Development Organization
Information Guide on Investment
Criteria and Terms

23. Electrical Supply Commission of Malawi (ESCOM)
Annual Report 1985

24. Aide Memoire
for the Preparation of SADCC
Industry Programme -
Memorandum of Action

25. Deutsche Finanzierungsgesellschaft
für Beteiligungen in Entwicklungsländern GmbH (DEG)
"Joint Ventures in Developing Countries"
March 1986

26. Manual for the Preparation of Industrial
Feasibility Studies
United Nations Industrial Development Organization
Vienna 1986

27. Bundesstelle für Aussenhandelsinformation
Malawi - Kurzmerkblatt und Wirtschaftslage

28. National Sample Survey of Agriculture
1980/81