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JORDAN

Technical report: Evaluation of Foundry Project
for the Ministry of Planning, Amman, Jordan*

Prepared for the Government of Jordan
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of D. Mellor, foundry consultant
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* The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Secretariat of the United Nations Industrial Development Organization (UNIDO). Mention of company names and commercial products does not imply the endorsement of UNIDO. This document has not been edited.

V.90-83654

TABLE OF CONTENTS

CHAPTER

TABLE OF CONTENTS (Cont'd)

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd.)

INTRODUCTION

This report should be read in conjunction with earlier reports under the same project number, namely:

Market Survey	17 April 1989
Technical Report	25 April 1989
Technical and Financial Evaluation	22 November 1989

The Financial Evaluation of November 1989 was not completed as the Technical Evaluation of that date revealed that the three bids differed greatly in Technical merit, making it impossible to compare the Commercial bids. As a result the bidders were requested to complete their offers in accordance with the Arab Engineering Industries Co. (AEICO) specifications.

Revised bids have now been received and this report examines their compliance with the Technical requirements and presents the Financial Evaluation.

Period of Mission

Daniel Mellor	31 Jan 90 - 17 Feb 90
Mongi Safra	03 Feb 90 - 11 Feb 90

Rates of Exchange

Sterling Pound	1.57 =	1 US$
0.54 DM	=	1 US$
1.47 JD	=	1 US$

Acknowledgment is made of the contribution made by Private Services Development Project (PSDP), working on behalf of the Ministry of Planning, and Arab Engineering Industries Co. Ltd. in the preparation of this report and the earlier ones under the same project number.

I. METHOD OF APPROACH

(A) Technical Evaluation

The revised bids take the form of comments from the bidders on technical deficiencies and omissions drawn to their attention following the November 1989 Technical Evaluation with, where appropriate, alternations and/or additions to their scope of supply.

This report notes in detail, only those Technical matters which are still not acceptable and in respect of which bidders have been requested for further changes, additions or explanations. It also lists aspects which require discussion when further meetings are held between AEICO and the bidders.

(B) Financial Evaluation

The Financial evaluation includes the following:

- Calculations of investment costs broken down by major components, including working capital requirements.
- Projections of annual investment expenditure during the construction period and, where necessary, during the production period.

- Calculations of total production costs; projected from start-up and through the assumed fifteen year life of the project.

- A cash-flow table of financial planning.

- Projected balance sheet.

- Projected income statement; interpretation of the financial statements by using relevant ratios in order to measure and analyse (a) liquidity (b) debt service (c) profitability and (d) total debt coverage.

- For the investment profitability evaluation: projected cash-flow table; analysis of the investment profitability through (a) simple methods comprising simple rate of return on total investment and on equity capital, and the pay back period, (b) discounted cash-flow methods comprising net present value and internal rate of return (IRR) on total investment and on equity.

- Sensitivity analysis by assuming higher and lower values of those variables or factors that could have a decisive influence on profitability. Computation and analysis of (a) the break-even tonnage and the effect on the IRR and net cash inflows of increment volume increases, and (b) the price break-even point and the effect on net cash flows of increment price increase from break-even price; analysis of the effect of plant under-utilization, of price decreases and exchange rate fluctuations.

(C) Socio-economic Evaluation

- For Economic evaluation: analysis of the project's contribution to the national economy by applying cost-benefit techniques and using the value methodology for appraisal purposes.

(D) Financial Bid Details Released by AEICO

- In order to maintain security and confidentiality in respect of the Prices and Financial Terms offered by the three bidders, the AEICO Board of Directors do not wish to release detailed information at this stage.

Instead they have provided one price, being representative of the offers, without disclosing which bidder it relates to. In addition the different financing terms offered by the bidders have been provided and these have been applied to the one representative price

II SUMMARY OF THE REPORT

(A) Overall Project Recommendation

It is recommended that AEICO should proceed with negotiations with a view to selecting their preferred Bidder as quickly as possible. This is subject to the Board of AEICO agreeing that the projected Financial results justify this decision. Final negotiations should lead to a reduction in the Bidders' prices and improve the financial return.

A foundry producing good quality castings is essential for the development of Jordanian engineering industries. The AEICO project will fulfill this need.

(B) Technical Evaluation

(a) The two alternative production programmes on which bidders were requested to base their offers are detailed below.

Programme 1

Malleable Pipe Fittings	2165 tonnes
Engineering Castings	1724 tonnes
Steel Castings	2654 tonnes
TOTAL	6543 tonnes

Programme 2

Malleable Pipe Fittings	4282 tonnes
Steel Castings	2654 tonnes
ANNUAL TOTAL	7482 tonnes

Three bids are still under consideration:-

Davy McKee	Great Britain
Thyssen	Germany etc.
Klockner	Germany etc.

(b) Recommendation (Technical)

Subject to the Commercial Prices and Terms being acceptable it is recommended that both Davy McKee and Thyssen be invited to discuss final technical details with AEICO.

Until Klockner provide the answers to outstanding questions no recommendation can be made.

(c) The Davy McKee bid is Technically Compliant with requirements and is complete in its scope of supply in terms of equipment and technical services. No further information is required from Davy McKee before final negotiations commence.

The additional proposals made by Davy McKee as means of reducing the cost of the project have been examined and most are considered acceptable. These are the subject of Appendix 1.

(d) The Thyssen bid is technically Compliant with the requirements of Programme 2 and although there are still some outstanding Schedules, these have been promised for delivery during the next few days.

They have as yet made no offer against Programme 1.

The Thyssen proposal to change most of the Steel Moulding process from Furan to Shell still needs evaluating in terms of production costs.

(e) The Klockner bid still requires elaboration before it can be declared compliant and further information has been requested.

(f) Future UNIDO Assistance

UNIDO have advised AEICO that they are willing to provide a further 2-3 weeks technical foundry assistance when the next meetings are held in Amman with Bidders.

(C) Financial Evaluation

Two production programmes have been appraised. Rates of return have been computed at constant prices. Firstly, without taking into account the financing terms offered and then, after financing.

(a) Programme 1

This has shown a low return on investment (7.9%) and even after taking the grant into account it only increases to 9.9%. Return on equity is calculated at 9.2% with no leverage effect on equity since the interest rate on loan, which would be required with the grant, is 12%. Programme 1 is therefore unattractive financially and also economically since it is an important substitution project.

(b) Programme 2

This shows a better return on investment since the rate of return before financing is 9.2%, This is a real return which should be compared with the real opportunity cost of money used elsewhere in the economy. In most countries this is less than 7% on safe investments (after allowing for inflation).

(c) The decision on the worth of the project should depend on the risk associated with the project. The sensitivity analysis shows that this risk is quite low and the project is robust as long as the investment cost is kept under control. Two items are shown to be important in the sensitivity analysis. For example:-

- If investment cost increases by 10% the rate of return falls by 1/2%
- If Sales prices decrease by 5% the rate of return falls by 1%.

However since AEICO have taken a conservative view of selling prices it is more probable that they will be a higher rate rather than lower with a consequent increase in the rate of return.

As a conclusion the project is viable and bears a low risk (provided that the Export Sales can be achieved) and its return will very probably exceed the real return in alternative projects.

It should be noted that two negative aspects limit the return to the stated values:

(i) The high investment cost. However the bidders will have a negotiating margin in their prices and this should be not less than 5%; possible as high as 10%.

(ii) The second negative factor is the long period to full production which (on present forecasts) is 7 years from contract signature.

(d) Financing Alternatives

The return on equity varies with the differing financing schemes which have been considered. Four alternatives have been examined each requiring an Equity of 25 Million Jd. The resulting rates of return are shown below.

In Million JD

	Grant	Commercial Loan	Soft Loan	Development Bank Lease	Return on Equity
Scheme 1	11.5	23.0			11.5%
Scheme 2	11.5	12.0		7.9	12.0%
Scheme 3		9.0	20.0		11.4%
Scheme 4			20.0	7.9	11.7%

It is clear that the Development Bank Lease has to be considered since it allows a small leverage to the return on equity (about 1/2% additional return). On the other hand, Scheme 2 yields the highest return on equity and might be favoured over the others.

Finally a return on equity which reaches 12% is good compared with what the project yields after tax (8.3%) and also after taxes and grants (11.6%), showing that the equity owners are deriving a good benefit from soft financing conditions either presented in the form of grants or soft loans.

It remains for the investors to decided if a return of 12% is sufficient to take the risk and invest in this project.

Pay-Back Period (From Start of Production)

The pay-back period is as follows:

Programme 1	Before Financing	- 8.6 years
	After Financing	- 7.3 years
Programme 2	Before Financing	- 8 years
	After Financing	- 6.6 years

(D) Socio-Economic Evaluation

The Socio-Economic appraisal using cost/benefit techniques shows that the economic rate of return (9.5%) is slightly higher than the Financial rate computed before financing (9.1%). The benefits of cost reductions (related mainly to labour), are almost offset by reduction in the value of sales due to the protection of local production (i.e. by duties and taxes).

Sensitivity tests based on the exchange rate show that the project would benefit from a further depreciation in the value of the JD. e.g. a 10% depreciation would improve the return by 1/2% if it took place before investment and, by 2% if it was after the implementation period.

The Effective Protection Rate calculation shows that little protection has been given (only an average of 22% against an average of 37% for the Jordanian economy as a whole).

Finally one of the reasons for the small difference between the Financial and Economic results is that labour represents only 11% of the costs and the low cost of labour in Jordan, compared with foreign producers, does not help the calculations.

Foreign Exchange Savings

The Project shows a net saving in Foreign Exchange of 21,000,000 JD over its 15 year life (See Table 35).

(E) Market Update

Although the figures for Construction Activity issued by the Jordan Central Bank are not yet available for 1989, a corresponding record, issued by the Jordan Association of Engineers for Building Plans Approved, shows a 24% increase for 1989 over 1988.

building activity is the most important factor in the demand for Malleable Pipe Fittings. This trend indicates a faster rate of growth than was used in the Market Survey of 8 April 1989.

III DETAILED REPORTS

(A) UNRESOLVED TECHNICAL MATTERS

(a) Davy McKee

There are no matters which require elaboration before meetings are held with AEICO.

(b) Thyssen

(i) Schedule C (Performance and General Data) is incomplete.

(ii) Schedule B (Identification of Sources and Makers of Main Items of Equipment) is incomplete in several important respects.

(iii) Zinc dross distilling furnace has not yet been included.

(iv) Core sand distribution system is not in accordance with specifications.

(v) 2 magnets in Package 7 have not yet been included.

(vi) Thyssen's estimate of annual requirement for new sand is far too low at 3000 tonnes.

(vii) They have submitted an offer for Programme 1 only.

(viii) They must explain the function of the Mixer (item 4.46) which they have included in Package 4.

(ix) Product mix for Pipe Fittings should be in accordance with AEICO specifications.

All of these points have been drawn to Thyssen's attention and replies are awaited.

(c) Klockner

(i) Klockner's offer for 2 steel melting furnaces has only one 1000 Kw power pack on one document and two on another. One is insufficient.

(ii) They have offered only 70 sets of Pattern equipment for Pipe Fittings: 86 are required.

(iii) Klockner have included two Disamatic Moulding lines in their offer for Programme 2. This is considered to be an uneconomic proposal.

(iv) The Heat Treatment furnace offered for annealing Malleable Pipe Fittings (Programme 2) has insufficient capacity.

(v) Their equipment list does not include anything for sizing/broaching of Malleable Pipe Fittings.

(vi) They have included 12 pressure test machines for Malleable Pipe Fittings (programme 2). The other bidders offer less than half this number. Klockner do not describe their machines but it is suspected that they must be labour intensive, manual units which do not comply with AEICO specifications.

(vii) They offer only 13 machines for machining Malleable Pipe Fittings (Programme 2) but have only specified labour for a 2 shift operation. Either they need more machines or must work 3 shifts.

(viii) Their plant list offers 72 roller tracks for pouring and conveying of moulds on the Pattern Flow Line but their plant layout drawing shows only 10. They must also state by what method they propose to move the moulds on these tracks.

(ix) Their description of the mould turn-over machine on the Pattern Flow line does not match the AEICO specifications. They must elaborate.

(x) Schedule A (Equipment and Services Requirement Data) has not been provided.

(xi) Klockner state that "the detailed training programme will be worked out after the contract comes into force. This is accepted but they must provide figures for the number of man months of overseas training which they offer and the price for this training. This information is required pre-contract.

(d) General (1)

The following are matters which should be discussed with all bidders when the next meetings are held. They are possible means of achieving cost reductions.

(i) Package 2

- The sand pre-conditioning plant has always been based on a capacity of 10 tonnes per hour in AEICO's specifications. This could be reduced to 5t/hr.

(ii) Package 3

- Use 1/2 pattern plates instead of full plates for the small quantity types of Malleable Pipe Fittings on the Disa. (N.B. this has been proposed by Davy McKee).
  A further means of cost reduction would be the use of Polyurethane resin patterns, instead of metal, for soome of the low quantity items.
- Obtain clarification of exactly what equipment is to be used for cleaning of cutting fluid in the Malleable Pipe Fittings machine shop.
- The AEICO specification for the protective coatings for Malleable Pipe Fittings proposes an oil coating for galvanised and a hot dried resin coating for black. It should be possible to use a common, cold setting, protective coating both galvanised and black.

(iii) Package 4

- Obtain estimates of the amount of Chromite sand which is required for Manganese Steel casting production (Davy McKee have provided a figure) and discuss the extent to which mould paints might be substituted to reduce costs.

(iv) Package 5

- Reduce the number of core machines having loose piece controls to one.

General (2)

Matters not related to cost savings but which need clarification.

(i) Package 3 (Machine Shop)

- Ascertain exactly what is included in "Tools for the Machining of Malleable Pipe Fittings"; for what period they are intended to last (i.e. 1 year, 2 years..etc); what is the annual volume that AEICO must purchase and get estimate of the annual cost.

(ii) All equipment

Obtain the following information concerning spares for equipment and plant:-

- What is included in their offers for the initial supply of spares?
- obtain break down into quick-wearing spares and other spares.
- for what period are they intended to last (i.e. 1 year, 2 years..etc)?
- what estimates can the bidders provide for AEICO's annual cost of spares in the years after the initial supplies are consumed?
- confirm that all spares needed in the first year (the guarantee year) will be provided free of charge by the successful bidder. This may not include quick wearing parts.
- confirm that the equipment guarantee period will only start from the handing over of the plant to AEICO, at the end of the Commissioning period.

The bidders should be requested, in advance of the meetings, to prepare all necessary information to answer the questions (General 2. (i) and (ii)) concerning Machine Shop Tools and all Spares.

General (3)

The following are points to be discussed with individual Bidders which it has not been deemed necessary to resolve until meetings take place with AEICO. These points are listed to serve as "Aide-Memoire" for AEICO personnel at these meetings:

(a) Davy McKee

(i) Their calculation for the annual tonnage of liquid metal needed for Steel Castings is about 6% lower than those of the other bidders. This leads Davy McKee to propose only one power pack on the melting furnace. (N.B. AEICO have included the price of a second power pack in the Financial Evaluation).

(ii) Discuss the cost reduction measures proposed by Davy McKee (detailed Appendix 1).

(iii) Manning Schedules

These should be examined in detail e.g. Although they provide for Casting Sorters after the Disa line Shotblast, they make no mention of personnel for Hard Inspection (i.e. before heat treatment).

(b) Thyssen

(i) Package 3

- Explanation required of capacity of proposed cartoning unit (item 3.11.4) and method of operation.

(ii) Package 4

- Absolute assurance required that shell moulding is satisfactory for the biggest Track Pads. Samples of these castings are at AEICO.
- More precise details of costs benefits if Shell is used instead of Furan.

(iii) Package 5

- Possible inclusion of a second Hollow Shell Core machine for Malleable Pipe Fitting cores. They should provide details of their Design Basis calculations to determine if this is needed.

(iv) Package 8

- They propose that the dust collector item 8.07 should serve both the Shotblast machine and the Fettling Cabins. The Shotblast machine should have a separate dust collector

(v) Manning Schedules

- These should be examined in detail. e.g. They do not refer to any personnel for inspection of hard castings before Malleable Heat Treatment.

(c) Klockner

(i) Their latest technical documents (submitted 8 Jan 90) still make reference to many items which are excluded from their supply.

(ii) The use of 6 Hydraulic Trimming Presses for removing flash and gates from Malleable Pipes Fittings needs discussion. They will use more labour than the alternative of Pedestal Grinding Machines and are more expensive and complex machines.

(iii) They offer a single spindle Copy Milling machine for Package 11 item 2.15.1.1. instead of the double spindle specified.

(iv) Manning Schedule

- These should be examined in detail as Klockner's manning figures appear to be far too low.e.g. There is no provision for inspection of Malleable Fittings before annealing.
- 4 People per shift on the pattern Flow line is not enough.
- 6 maintenance men per shift is not enough for a modern high-tech foundry.
- There is no mention of manning for internal transport (fork lift trucks..etc)
- They have 12 Pressure Test machines and 13 thread cutting machines in the Pipe Fittings machines shop (Programme 2) but only 15 operators for the complete shop.
- It is improbable that they can operate the Galvanising ship with only 2 men per shift.

(B) PRODUCTION COSTS

All production costs are still based on the parameters detailed in the TECHNICAL AND FINANCIAL EVALUATION of 22 November 1989. There have been some changes in the consumption and prices of Materials due to receipt of up-to-date information and some very minor changes to other costs.

This report presents only the summaries for each type of cost with explanations for any changes (since November 1989) where necessary.

(a) Labour Costs

(i) Monthly salary levels of operating personnel are unchanged and are detailed below:

Grade	Current Monthly Salaries in JD
(7) A	285
(8) B	235
(8) C	235
(9) D	195
(9) E	195
(10) F	175
(11) G	145
(11) H	145
6 K	335

(ii) These figures are inclusive of all allowances except Social Security, Medical Insurance and Provident & Life Insurance which are included in Overhead Costs.

Appendix 2 details the manning figures used in the Financial Evaluation. The only difference from the November 1989 figures is the addition of 5 people to the previous total of 38 for miscellaneous personnel.

(iii) The cost of labour for the first full year of operation is calculated as:-

Programme 1	1,069,800 JD
Programme 2	1,244,237 JD

(b) Material Costs

AEICO have updated the price of some raw materials and included a greater number of items which will be obtained from local sources.

The annual consumption figures have been adjusted in a few cases, the most significant being an increase in the annual consumption of Chromite Sand from 300 to 825 tonnes. This is based on figures recently provided by Davy McKee.

In addition an annual provision of 93,710 JD has been made for Taps and Chasers for cutting Malleable Pipe Fitting Threads. This figure is based on estimates made by UNIDO and requires verification by Bidders.

Total estimated annual cost of materials is:-

	Used in Nov 88	Used Now
Programme 1	4,726,684 US$ 3,016,583 JD	2,866,500 JD
Programme 2	5,105,747 US$ 3,258,502 JD	3,255,100 JD

(c) Fuel and Power Costs

(i) Calculations for consumption of Power and Services are again based on the estimates provided by Davy McKee.

(ii) Electrical Power Costs provided by AEICO and used in the financial assessment were as follows:

Day Rate	0.020 JD per kWh
Night Rate	0.014 JD per kWh
Maximum demand	3.050 JD per kWh

(iii) As in previous assessments, compressed air cost has been calculated on the basis of the power consumed by the compressors, using the above tariff. The cost of the services have been taken as follows:

Water	0.430 JD per m^3
Gas	0.016 JD per m^3
Oil	0.076 per litre

(iv) The cost of power and other services, based on the requirements of the plant offered by Davy McKee, for a year at full production is calculated to be:-

Programme 1	901.100 JD
Programme 2	1,106.600 JD

These costs are shown in detail in Appendix 3.

(d) Overhead Costs

(i) Staff salaries

The following rates have been used:

Grade		Monthly Salary
Special	A	1843
Special	B	1217
	1	977
	2	897
	3	602-722
	4	492-632
	5	411-531
	6	345
	7	261
	8	216
	10	159
	Total Annual Cost	**425,000 JD**

(ii) Social benefit allowances used are:

Social Security	8%
Medical Insurance	2%
Provident & Life Insurance	5%
Total	15%

Total Annual Cost **250,400 JD**

(iii) Other

Annual total of other Overhead costs **767,700 JD**

(iv) Annual Total Overhead Costs for Programme 2 **1,432,100 JD**

(v) Annual Total Overhead Costs for Programme 1 **1,370,400 JD**

(e) Depreciation and Amortisation

Depreciation rates for different classes of expenditure have been dealt with in the same manner as was used in the last Financial Evaluation carried out by Foundry Management and Design Co. Ltd. in May 1988. i.e. Straight line basis as follows:

Buildings and Services	4% per annum
Plant and Equipment	10% " "
Motor Vehicles	15% " "
Furniture and Fittings	15% " "
Patterns and Tooling	20% " "
Project Engineering	20% " "
Pre-Operational Expenses	20% " "

A change has been made in the method of recovering the cost of "Tools for the machining of Malleable Iron Pipe Fittings". In previous Financial Evaluations these have been capitalised along with the Machines on which they are used and depreciated at an annual rate of 10%. However, some of these tools are the Taps and Chasers used for thread cutting and these are consumable items and should not be capitalised. A sum of 93,710. JD has now been added to the annual production material costs (at 100% production) to provide for the purchase of these items. The balance of the costs of "Tools for the machining of Malleable Iron Pipe Fittings: has been capitalised. It is recommended that, in discussions with the bidders, AEICO obtain a clear understanding of what the "Tools" include to ensure that they are being dealt with correctly in the Financial accounts.

Similarly the initial stock of Spares purchased with the plant and equipment was capitalised and depreciated over 10 years in the May 1988 Evaluation. In addition to this depreciated amount, a further sum of 184,800 JD per year is included in the Operating Costs under Overheads) for Maintenance Materials.

However, these spares should be discussed with bidders during the next negotiations to ensure that they are being correctly charged.

(C) SALES REVENUES

Small changes have been made by AEICO to some of the proposed Selling Prices since the 22 November 1989 report. These are detailed in the following sections:

(a) Malleable Pipe Fittings

The proposed selling price for sales within Jordan has been increased from 3172.5 US$ per tonne to 3214 US$. This is due to a change in customs duty on imported fittings from 28% to 30%.

(b) Malleable Pipe Fittings For Export

No change has been made to the proposed selling price. As stated in the November 1989 report, a conservative view has been taken of the price which can be obtained in these export markets and prices equal to the home market (Jordan) price without the 30% Customs and taxes have been used.

This will give AEICO an advantage over European (and other) pipe fitting manufacturers as duties will be applied to their deliveries to ACC and neighbouring countries but not to AEICO sales.

Although there is a strong case for using this low price level initially to break into the market there is no reason why a price level approaching that to be used for Jordan sales, should not be considered for the later years. Higher Sales revenues could be used in the Financial Evaluation.

A further important consideration is the increasing size if the Jordanian market for Malleable Pipe Fittings over the life of the project. The Market Survey of April 1989 forecasts a local demand for 2165 tonnes per year in year 4, i.e. the year in which the foundry reaches full production. With an estimated total capacity of 4828 tonnes per year, 2663 tonnes have been allocated to exports.

But, if the local demand continues to grow by 3.8% per year (See April 1989 Market Report), the Jordan Sales can be increased by that percentage each year with a corresponding reduction in the export tonnage. This will increase Sales revenues over the life of the project.

There are arguments in favour of exports to earn foreign exchange but, if the time comes when AEICO's allocation of Malleable Pipe Fittings to the home market does not satisfy the full demand, the Jordan merchants would have to import with a consequent need for foreign exchange.

(c) Ductile Fitting and Castings

No change has been made to the November 1989 prices.

2397 US$ per tonne has been used.

(d) Grey Iron Castings

No change has been made to the November 1989 prices, The following prices have been used:

SML Fittings	2327	$/tonne
GA Fittings	1495	$/tonne
Railway Brake Blocks	1086	$/tonne
Roof and Floor Drains	2693	$/tonne
Gas oven castings (domestic)	3540	$/tonne
Gas oven castings (export)	2584	$/tonne*

* Jordan Companies manufacturing gas ovens export about 70% of their output. On these sales any duties which the manufacturers paid on importing castings is refunded. In calculating the AEICO sales revenue only 30% of anticipated sales have been priced with the 37% allowance for customs duty.

It should be noted custom duties are applied to the SML and GA fittings which are imported into Jordan but AEICO took no advantage for this in establishing their proposed sales prices.

Higher Sales Revenues could be used for these in the Financial Evaluation.

(e) Other Malleable Castings

These prices have not been altered and are :-

- Galvanised Electrical Hardware
  A Price of 2,754 $ per tonne has been used.

- Galvanised Wire Rope Clamps
  Based on a 1989 quote from Japan 2,754 $ per tonne has been used.

- Telecommunication Galvanised Clamps
  An estimated price of 2,754 $ per tonne has been used.

- Galvanised Hose Couplings
  Based on a 1989 quote from Japan the average price is 4,165 $ per tonne. However, a more conservative price of 2,754 $/tonne has been used by AEICO.

(f) Steel Castings

In response to comments made in the November 1989 to report to the effect that some steel castings could require machining operations, AEICO have reduced the proposed price levels for Track Pads (Military) by 5% and Earthmoving Equipment castings (Civil) by 10%

Prices used in the Financial Evaluation are:-

Track Pads	4567.6 $/tonne
Parts for Cement Factories	3625.0 $/tonne
Stone Crusher Parts	2667.0 $/tonne
Earthmoving Equipment	3968.1 $/tonne

(g) Summary Of Sales Revenues

	ANNUAL SALES REVENUE JD Programme 1	JD Programme 2
Malleable Fittings	4,622,400	9,098.800
Ductile Fittings	785,600	-
Other Ductiles	244,500	-
Grey Iron	1,388,100	-
Other Malleable	280,900	-
Steel Castings	6,447,000	6,447,000
	13,768,500	15,545,300

(h) Comments on Prices Used

The selling prices have been set by AEICO and, as already stated, they have taken a conservative view. The use of higher prices would have been justified in some cases.

AEICO have adopted the same conservative approach in arriving at the Purchase prices of raw materials and this tends towards an overstatement of costs coupled with an understatement of Revenue.

(D) FINANCIAL EVALUATION

(1) Capacity Utilization

Financial appraisals have been carried out for Programme 1 and 2 using the following assumptions for capacity utilization agreed upon by the Board of AEICO:

	Year 1	Year 2	Year 3	Year 4
Capacity use rate	40%	60%	80%	100%

Other hypotheses are tested in the sensitivity analysis especially those adopted by previous consultants:

	Year 1	Year 2	Year 3	Year 4
Buderus	23%	88%	100%	100%
FMD	32%	70%	87%	100%

(2) Investment Costs

2.1 Fixed investment (Excluding Capitalized Interest)

The basic hypothesis is based on the total investment price given by AEICO and stated by them to be representative of the bids.
The investment costs are as follows:

(a) Programme 1

Table 1.1 Fixed Investment (P1)

In 1000 JD	-2	-1	0	1	Total
Land	241				241
Building and Services	4059	4040	1440	480	10019
Plant Equipment	10710	14280	7140	3570	35700
Motor Vehicle,Furniture	35	50	150		235
Project Engineering	394	1563	318		2275
Pre-operating Expenses	422	576	1190		2168
TOTAL	15861	20509	10238	4050	50638

(b) Programme 2

Table 1.2 Fixed Investment (P2)

In 1000 JD	-2	-1	0	1	Total
Land	241				241
Building and Services	3819	3800	1350	450	9419
Plant Equipment	11100	14800	7400	3700	37000
Motor Vehicle,Furniture	35	50	150		235
Project Engineering	394	1563	318		2275
Pre-operating Expenses	422	576	1190		2188
TOTAL	16011	20789	10408	4150	51358

Investment can not be broken in more detailed components because of confidentiality but an estimate of the foreign share has been provided by AEICO as follows:

- Building and Services:
  419,000 JD are local civil engineering expenses, 40% of the required amount for building is local.

- Plant and Equipment
  This item includes equipment, spare parts, know how and general services. AEICO estimate that 10% would be local.

- Motor Vehicles (185,000) are imported and furniture (50,000) is local.

- Project Engineering is totally foreign.

- Pre-Operating expenses:
  The local part includes staff salaries (440,300 JD), Labour costs (219,400 JD), Social costs (99,000 JD), Professional fees (10,000 JD), travel expenses (150,000 JD), training (600,000 JD), administration (219,000 JD) and expenses for years 1984-89 (223,600 JD).

Other pre-operating costs are commissioning material and utilities spent in year 0 (191,480 JD) for Programme 1 and (212,014 JD) for Programme 2 which represents 5% of full production cost and is shared between foreign and local components (of the total pre-operating cost 5% imported). Capital interest varies according to the financing scheme offered (see paragraph on financing).

2.2 Depreciation Rates

The following rates have been used according to AEICO's assumptions based on FMD 1988 re-appraisal.

- Building and Services = 4%
- Plant and Equipment = An average of 10%
- Motor Vehicle & Furniture = 15%
- Project Engineering & Pre-operating expenses = 20%

These rates will lead to salvage value of 4,248,600 JD for Programme 1 and of 4,008,600 JD for Programme 2 since the forecasts have been carried out for 15 years.

Finally no allowance for replacement has been made except for tools and parts included in the current costs.

2.3 Working Capital

They have been estimated on the basis of the following ratios required:

- Thirty days of raw material needed for next year's consumption (1 year = 284 working days).
- Goods under process = 7.5 days of costs of variable cost of production (Raw materials, labour and utilities).
- Finished goods = 24 days inventory.
- A/C receivable = 30 days collection period on sales.
- A/C payable = 30 days payment period on raw materials.

These hypotheses lead to the following annual needs:

Table 2 Working Capital

in 1,000 JD	0	1	2	3	4	Total
Programme 1	124	1077	461	466	400	2528
Programme 2	136	1203	526	531	458	2853

Total Working Capital represents only 5% of total investment and requires efficient management. (See Table 2)

(3) Financial Appraisal of Programme 1

3.1 Return on Investment on Programme 1

- Sales by item for programme 1 are shown in Table 3.
- An Income Statement covering the fifteen years of forecast is presented in Table 4.
- All items are valued at constant 1989 prices.
- In order to compute the rate of return on investment before considering the effect of financing schemes (grant or soft loan etc.), net flows to the project have to be computed on the basis of the differences between sales on the one side and operating costs (raw material, labour, utilities and overhead) and investment costs on the other side.
- The results of financial appraisal of Programme 1 are presented in Table 7.
  (Table 5 shows projected flow of funds and Table 6 projected balance sheet).
- The IRR of Programme 1 before financing and taxes is calculated to be 7.9% which is quite low.
- How would this rate be affected by financial leverage effect would depend on the financing scheme.

3.2 Financing Scheme for Programme 1 and its effect on return:

Table 5 shows the sources and uses of funds in the case of a grant estimated at 10.5 Million JD. Equity contribution is maintained at 25.0 Million JD for all alternatives in this report. The balance would be funded by a 22 M JD commercial credit at 12%.

Programme 1: Financing Scheme

Equity	:	25.0 Million JD
Grants	:	10.5 Million JD
Commercial Credit (12%)	:	22.0 Million JD
TOTAL	:	57.5 Million JD

This scheme requires also a local over draft (at 14%) of 1.6 Million JD in Year 2 and 3 of operation to compensate cash deficit due to losses and loan repayment.

The rate of return to AEICO taking into accounts grants which are deducted from the investment cost and taxes added to operating costs is shown in Table 7 (Results of Financial Appraisal) and is calculated to be 9.9%.

This is certainly the most important criteria to use as an indicator of project worth once it is known that the grant is confirmed.

But, even so this rate of return is still open to question. The last rate of return shown in Table 5 relates to the return on equity once all payments to banks have been deducted from the flow from operations (and loans received deducted also from investment costs.) The return on equity (R.O.E.) is valued at 9.2% confirming that there is no leverage effect since the interest rate (12%) is higher than the return to AEICO (9.9%).

The Financial leverage is even negative here.

These results suggest that Programme 1 has to be questioned on financial grounds unless important measures are taken to increase sales prices through higher protection of AEICO products.

Sensitivity analysis results for Programme 1 are shown in Table 8 and suggest changes which would be needed to succeed financially are:-

It requires at least a decrease of investment cost of 15% for the return to AEICO to reach about 13%.

Alternatively, if selling prices were increased by 10% the return to AEICO would be approximately by 12.5%

Programme 1 was developed on the instructions of the Ministry of Planning who wanted an appraisal of the project based only on Sales within Jordan. This was in March 1989 and there now is a much greater acceptance of projects with export potential.

(4) Financial Appraisal of Programme 2

4.1 Financing Schemes:

Four different financing schemes have been considered for Programme 2 and are presented below:

Financing Schemes For Programme 2

In Million JD	Scheme 1	Scheme 2	Scheme 3	Scheme 4
Equity	25.0	25.0	25.0	25.0
Grants	11.5	11.5		
Commercial Loan (12%)	23.0	12.0	9.0	
Development Bank (8%)		7.9		7.9
Soft Loans (2%)			20.0	20.0
TOTAL:	59.0	56.4	54.0	52.9
Investment Costs (Fixed & Working Capital)	54.2	54.2	54.2	54.2
Interest During Construction	2.9	1.2	1.2	0.5
Short Term Loan required (Year 1)		0.8		0.5

The differences in investment and financing are due to cash movements related to operations (see Flows of Funds statement for each Scheme).

Scheme 1 requires excess cash in order to pay back the commercial loan starting Year 1 since the operating cash flow is negative in year 1 and not sufficient in year 2 (Table 14).

Scheme 2 has a lower funding than Scheme 1 because the Development Bank Loan does not bear interest during construction and is softer than the commercial loan (Table 19).

Scheme 3 benefits from a soft loan at 2% interest with five years grace period and reimbursed during a 20 year total period but no grants are given. (Table 23)

Scheme 4 accumulates the advantages of soft loan and development banks financing which explains why resources needed are even lower than the investment cost (the difference is internal financing through positive cash flow) but there are no grants (Table 27).

For each of these schemes forecasts of income statements, flows of funds, balance sheets are carried out for 15 years. then rates of return to AEICO (IRR net of tax and grants) and return on equity have been computed. Finally, break even analysis and ratio analysis have been carried out.

Before considering these financing schemes, Programme 2 has also been studied independent of financing terms, based only on revenues, operating and investment costs (excluding interest during construction) and results are presented in the next paragraph.

4.2 Return on investment for programme 2 independent of financing sources.

The IRR before financing and taxation is calculated to be 9.2% shown in Table 12-1 on the basis of:-

- sales revenues shown in table 9.
- raw materials costs in table 10.
- labour utilities and overhead in Table 11.
- investment costs (Table 1.2 in text) and Working Capital (Table 2 in text)

This rate is very sensitive to the capacity use rate, but also to sales prices and raw materials especially.

Sensitivity analysis has been carried out and results are presented in (Table 12-2).

Regarding production capacity, a three year learning curve (with only 23% use the first year) increases the rate of return by 1,5%. This is quite a realistic situation leading to a 9.6% return before any grant or financial help.

Sensitivity on investment costs shows that a 10% reduction of costs will increase return about 1.5% which shows that the most sensitive item on return is the investment cost.

Finally an increase in the cost of raw material by 10% will lower the return by half a point. Other costs elements are less sensitive on return due to their magnitude.

In conclusion, the project profitability is primarily related to the investment cost given its burden. A great deal of attention should be given to this cost in order to ensure success for the project.

4.3 Financial Evaluation of Programme 2
Financing Scheme 1 (Grants and Commercial Loans)

Projected income statement (Table 13), sources and uses funds (Table 14) and balance sheet (Table 15) are carried out at constant price up to 15 years.

Results of analysis in terms of return to AEICO, return on equity, break-even and ratios are presented in Table 16. Finally sensitivity analysis on return to AEICO (After tax and grants) and on equity are presented in (Table 17).

Due to the grant, the rate of return on investment (Return to AEICO) increases from 9.2% to 11.6% (after tax) which seems an acceptable figure since forecasts are made in constant prices which implies that return based on them should be compared to the real opportunity of money invested elsewhere which is in most countries lower than 10% taking into accounts risks, (the safest return in real terms yield today is around 6% if inflation is taken into account).

Return on equity for this financing scheme is the same as the after-tax return (11.6%) since the interest rate charged on borrowed funds is 12% leaving no room for the leverage effect to work. Break even analysis shows that production level of year 2 is almost a break even point and that in the full production year, 70% of production would be enough to break even on profit basis.

Ratio analysis shows that a debt serving problem is expected in Year 1 and 2, this requires a cash build up while taking into account in the financing scheme as mentioned before.

Furthermore, debt to equity ratio was set at a maximum of 50%-50%. Liquidity ratios show a tight liquidity in Year 2 and profit ratios are negative up to Year 3, but go up quickly to reach very acceptable levels.

Liquidity is high in late years because no hypotheses has been taken on dividends distribution sensitivity.

Sensitivity analysis presented in Table 17 shows that a decrease of the cost of investment by 10% will increase return to AEICO by almost 2 points which is a quite remarkable result justifying thorough negotiations with bidders.

Sales prices are also important since a 5% increase will put the return to AEICO at 13%.

4.4 Financial evaluation of other financing schemes and comparison between schemes:

(a) Financial scheme 2 is not really different from scheme 1 since it requires the same amount of grants (11.5 MJD) and equity (25MJD) but reduces the commercial loan from (23MJD) to (12MJD) and replaces the difference by a development bank loan of (7.9 MJD) with softer conditions in terms of grace period and charge (8% instead of 12%).

As a result, return on equity is increased from 11.5% in scheme 1 to 12% in Scheme 2 giving financial leverage for equity. This scheme is definitely better than the previous one since it combines the grant with softer terms on part of the loans.

(b) Financial schemes 3 and 4 do not include grants. They both benefit from a very soft loan of (20MJD) to which:
- Commercial credit of (9MJD) has to be contracted in the case of scheme 3 (at 12%).
- Development Bank lease of (7.9MJD) is obtained in the case of scheme 4. Therefore scheme 4 has softer conditions than scheme 3. The financing schemes offer enough liquidity to meet applications of funds.

The after-tax rate of return on investment for these schemes 3 & 4 is about 8.3% and is slightly lower than the before-tax rate of 9.1%.

However, the after-tax rate of these schemes (8.3%) can not be compared with the one computed after tax and grants in schemes 1 and 2 (11.6%) since the latter takes grants as benefits while former does not take soft loan conditions into account. In order to compare the four schemes, we have therefore to rely on the rate of Return on Equity (ROE) which is shown below.

PROGRAMME 2

Financing Scheme	Scheme 1	Scheme 2	Scheme 3	Scheme 4
Return on Equity (ROE)	11.5%	12.0%	11.4%	11.7%

In spite of the relatively small difference between the results (half a point or less), it is still obvious than the Development Bank lease has to be taken if offered since it gives a small leverage to return unless there are other considerations (expectation about exchange rate or conditionality).

On the other hand scheme 2 yields the higher return on equity and might be favoured over the three others.

Whether a 12% return on equity is acceptable depends on the investor's attitude toward risk taking or aversion but this rate is surely much higher than the real return on a safe long term deposit if we take into account today's inflation and interest rates.

(E) SOCIO-ECONOMIC APPRAISAL

The project's contribution to the national economy of Jordan is first investigated by applying cost benefits techniques which requires computing economic prices for inputs and outputs which represent the opportunity costs to the national economy of using imports in this project and producing these outputs.

Conversion factors (C.F.) are then computed and are equal to the ratio between economic prices and financial prices (used in the financial appraisal). The factors (C.F.) are applied to revenues, operating costs and investment costs accordingly (item by item) in order to compute the net national benefits of the project and finally the economic rate of return (E.R.R.).

Most emphasis in this report is put on the cost benefit techniques to carry our economic appraisal, but the effects of the project on the national value added and effective protection rate are also presented at the end.

(1) Foreign and local components of revenues and costs

Economic appraisal requires first sharing all revenues and costs between foreign and local. The estimates are presented for a full production year and for Programme 2 only, for reasons presented in the financial appraisal (3.2 page 38).

CURRENT REVENUES AND COSTS

Full Production Year (4-15) (1000 JD's)	Programme 2 Foreign	Local	Total
Sales	4840.3	10705.6	15545.9
Raw materials	2083.2	1171.9	3255.1
Labour		1244.3	1244.3
Utilities		1106.6	1106.6
Overhead	147.9	1284.2	1432.1
Total Costs	2231.1	4807.0	7038.1
	32%	68%	

In the case of overheads, there will be additional foreign costs for technical services before the full production year, which are estimated at 1000 in year 1, 670 in year 2 and 310 in year 3 (in 1000 JD's).

Utilities are obtained locally by AEICO but conversion factors computed in the November 1989 report take into account the foreign components at the mentioned level (oil and depreciation of equipment for power).

Ivestment Costs

	Programme 2		
In 1000 JD's	Foreign	Local	Total
Land		241	241
Building & Services	5400	4019	9149
Plant & Equipment	33300	3700	37000
Motor Vehicle,Furniture	185	50	235
Project Engineering	2275		2275
Pre-Operating expenses	110	2078	2188
Total	41270	10088	51358
(%)	80%	20%	100%

The foreign component of pre-operating expenses includes only raw material for commissioning because technical services have been included in the cost of plant and equipment.

80% of the investment is foreign and 32% of direct costs of production are also foreign (in full production). Finally 31% of revenues are foreign for Programme 2.

(2) Conversion Factors for outputs and inputs:

These factors were computed and presented in the November 1989 report, some changes have been made due to new information on prices.

Moreover, the duties on raw materials have changed recently putting the minimum rate at 5% instead of 2% previously.

The new standard conversion factor (SCF) taking into account this rate is therefore 0.95.

This factor will be applied to items not bearing special taxes or duties.

Equipment is still however free of tax. The new conversion factors for output prices are presented in Table 30 and those for raw materials are presented in Table 31.

Concerning labour and utilities, analyses and results were presented in the previous report (November 1989) and again in Table 32.

Finally, in case of investment, foreign components do not bear taxes and have not been corrected while local components have been corrected taking into account taxes and indirect labour estimated for each component.

The resulting conversion factors are presented in Table 32.

(3) Results of Economic Cost - Benefit evaluation

By applying the conversion factors to financial flows, the benefits and costs of the project from the national stand point are obtained.

- Table 33 shows Benefits
- Table 34 shows Economic Costs (For operation and investment) and the (Economic rate of return which is computed at 9.5%).

Benefits are 8% lower than revenues because of tax deduction on sales, operating costs are 10% lower than their financial values because on their labour components.

Investment costs are valued at 50.0 MJD on the basis of economic prices compared with 53.9 MJD i.e. 93%.

The reduction of costs have therefore offset the reduction of benefits leading to a slightly higher economic rate of return (9.5%) than the financial rate before financing which was (9.1%).

Sensitivity analysis on conversion

A first sensitivity was carried out on the exchange rate by taking a hypothesis of 0.80 JD to the $ instead of 0.68 used in the financial analysis.

If this hypothesis was applied starting Year 1 of production the new economic rate of return would be 12.5% instead of 9.5%. This shows how much this project will be favoured by a depreciation of the JD.

	Economic Rate Of Return	
JD/$	Starting Year 1 Of Production	Starting Year 2* Of Production
0.68	9.5%	9.5%
0.75	11.3%	10.0%
0.80	12.5%	10.3%
0.85	13.7%	10.5%
0.90	14.8%	10.8%
1.00	16.8%	11.1%

* Total Investment will also be affected.

If depreciation of the JD starts Year 1 and not Year 2, the IRR will be 11% for a rate of 0.8 JD/$ and 12.8% for a rate of 1 JD/$. Another sensitivity analysis has been carried out on the conversion factor and especially labour.

If we do not consider labour as a cost since it is also a revenue, the economic rate of return would be 11.8% and even more (around 13%) if we also do not take into account the cost of indirect labour.

IRR would be 10.1% if conversion factors for labour are 0.4 for non-qualified, 0.5 semi-qualified and 0.8 for qualified. This rate is the most probable, given the future situation of the labour market.

Finally, if power and fuel prices increase due to international trends in the oil market the ERR would not be much affected, it would be:

9.3% in case of 12% increase.
9.2% in case of 15% increase.

Economic appraisal shows that the project yields around 10% return to the economy of Jordan in real terms. This rate is acceptable since other external affects have not been evaluated such as the positive affects on small industries and the saving on working capital requirements for customers due to the availability of products.

(4) Effects of the project on national value added and on the balance of payments of Jordan

The project gross value added is computed as the difference between sales revenues and goods and services consumed (excluding labour). It is estimated to be 11 MJD in a full production year taking into account indirect labour included in current local costs. AEICO's future value added represents 4.5% of the gross value added in the industrial sector (mining and quarrying) in 1988 in Jordan. Total Net Value Added is the sum of future Discounted Values which would be 40 MJD if discounted at 9%.

The distribution of AEICO's value added between all parties involved in the project (year 6) is as follows for financing scheme 1:

Foreign Investor (Banks):	3.8 MJD	(35%)
Local investor (equity owner):	4.8 MJD	(43%)
Labour (direct & indirect):	2.4 MJD	(22%)

This distribution is quite different in the long run since income tax replaces debt service payment as shown:

Foreign Investor	:	0	(0%)
Local Investor	:	5.5 MJD	(50%)
Labour	:	2.4 MJD	(22%)
Government	:	3.1 MJD	(28%)

Clearly the project has a large impact on the industrial sector in Jordan because of its size and absolute measures of worth (in MJD), such as value added, are therefore very favorable. relative (%) measures of worth such as financial and economic rate of return are less favourable but still acceptable.

Regarding the effective protection allowed to the project the rate of effective protection is defined as the difference between value added calculated at domestic prices and value added at international prices (in % of the latter).

This rate is estimated for the project as approximately at 22% indicating a low protection if we compare it with their developing countries' tariff structures and even with other industries in Jordan (A study made by the world Bank in 1988 shows an average effective protection rate of 75% for the manufacturing sector and 38% for the economy over-all).

Appendix 1

Davy Mckee Proposal To Reduce The Cost Of The Project

... 1/3

Package	Pregramme1 Item Description	Programme 2	Explanation	AEICO's Comments
1	3.6 Charge drying	3.6 Charge drying	Charge materials will be stored under cover and allowed to dry. Fumes from residual cutting oils on swarf will be directed away by fume extraction .	O.K
	3.11.4 3.2 t teapot ladles	--	Pouring on DISA line will be by monorail casting track and both 3.2 t ladles and bail arm will not be required. Movement of ladles in the melting shop will be by overhead crane .	O.K
	3.12 Small bail arm	--	See 3.11.4 explanation above .	O.K
	3.21 R and D Furnaces	3.21 R and D Furnaces	Because technology is provided .	(1) A new technology can not be supplied, it has to be generated . (2) It provides extra flexibility in the foundry for markets needs .
	3.24 Wet Scrubber	3.24 Wet Scrubber	Fume from furnace plant will all be extracted to the outside and not wet arrested .	O.K
3	2.3.6 Synchronized Belt Conveyor	--	DISA moulding line will be slowed down for those items requiring extra cooling to that provided by the standard ANC (18 m).	O.K
	2.8 A-D A. Twin click synchro -coil vibratory Conv. B. Drum vibratory Feeder Conv. C. Drum by-pass casting cooling conv D. Transfer Vib. Conv.		Replaced by vibratory conveyor 2.8 in programme 2	O.K

Appendix 1

Davy Mckee Proposal To Reduce The Cost Of The Project

Package	Programm 1 Item Description	Programme 2	Explanation	AEICO's Comments
	2.66 A Autopour Unit	--	Since a manual pouring system is included for a considerable volume of castings other than malleable. This equipment can be deleted and the malleable fittings poured by ladle. The benefits of autopour control do not justify this expensive equuipment for the low volume of production .	O.K
4	4.16 Pouring and cooling extraction	4.16 Pouring and cooling extraction	Small quantity of fume arising in this area will be removed through the natural ventilation of the building .	More discussion is required to insure no environment hazards . [In the offer 4 cooling tracks,of extraction cap. 4x82500 m^3/hr,one pouring track of 41250 m^3/hr].
5	5.3.1.2 Coremaking machines	5.3.1.2 Coremaking machines	Only one machine in programme 1 and two machines in programme 2 to be provided with loose piece facility . None of the cores produced for programmes 1 and 2 schedules have loose with drawal pieces .	O.K
7	7.3 Melting shop crane 7.7 + 7.8 Cranes	7.3 Melting shop crane	(1) Modified configuration of production building . (2) Ladle monorail system and moulding shop cranes 7.7 and 7.8 with reduction in width to 20m will cater for this service .	O.K
10	Production building No. 1 modified	Production building No. 1 modified	No apparant savings in area .	O.K
11	11.2.8 Universal miller	11.2.8 Universal miller	Not essential to production and standard control .	To be discussed .
	11.2.2 Planer and Thicknesser	11.2.2 Planer and Thicknesser	Replaced by combined planer thicknesser .	O.K
	11.3.15 Specialised Fabrication	11.3.15 Specialised Fabrication	Requirement to be subcontracted .	O.K
	11.4.1.7 Metascope	11.4.1.7 Metascope	No explanation	O.K
	11.4.1.8 Leco C/S apparatus	11.4.1.8 Leco C/S apparatus	" "	To be discussed .
	11.4.2.2 Strohlein appartus	11.4.2.2 Strohlein appartus	" "	Not accepted,samples to be tested not necessarily

Appendix 1

Package	Programme 1 Item Description	Programme 2	Explanation	AEICO's Comments
	11.4.2.12 Spectrophotometer	11.4.2.12 Spectrophotometer	No explanation	0.%
	11.4.7 Scleroscope	11.4.7 Scaleroscope	" " (hardness test)	0.%
	11.4.9.2 CE meter reduced to 2 instead of 3	11.9.2 CE meter reduced to 2 instead of 3	" " "	0.%
	11.4.8 Tube conveyor system	11.4.8 Tube Conveyor system	" "	Justification is required .
	11.5.3 Bogie tow truck	11.5.3 Bogie tow truck	" "	Accepted but discuss
	Malleable Fittings Patterns	GTS Fittings Patterns	56 patterns(prog.1) and 34 patterns(prog.2) out of 86 patterns are in operation for less than 24 hrs per year,therefore considerable savings can be made by using half plates instead of full patterns for small volume production .	-Accepted Discuss possibility of increasing range of fittings in the production programme and using half plates to minimise cost .

GRADE		Manning Requirement Programme1 SHIFT				Monthly Rate J.D	Monthly Costs J.D	Annual Costs J.D
AEICO	FIDO	1st.	2nd.	3rd.	Total	AEICO	AEICO	
7	A	13	13	2	28	285	7980	
8	B	51	45	3	99	235	23265	
8	C	74	63	2	139	235	32665	
9	D	4	4	-	6	195	1170	
9	E	4	4	-	8	195	1560	
10	F	12	12	-	24	175	4200	
11	G	31	27	-	58	145	8410	
11	H	3	3	-	6	145	870	
6	K	5	1	-	6	335	2010	
		197	172	7	376		82130	985560

GRADE		Manning Requirement Programme 2. SHIFT				Monthly rate J.D	Monthly costs J.D	Annual costs J.D
A E I C O	FMD	1st.	2nd.	3rd.	Total	A E I C O	A E I C O	A E I C O
7	A	14	14	3	31	285	8835	
8	B	56	49	14	119	235	27965	
8	C	73	63	25	161	235	37835	
9	D	5	5	4	14	195	2730	
9	E	5	5	-	10	195	1950	
10	F	12	12	9	33	175	5775	
11	G	30	26	5	61	145	8845	
11	H	2	2	1	5	145	725	
6	K	5	1	-	6	335	2010	
		202	177	61	440		96670	1,160,040

Additional Man-Power (To be added in all cases)

	No.	Grade	Salary JD	Annual Salary JD
Security	7	G / 11 + 5y	140.00	11760.00
Site Services				
- Canteen	9	H / 11 + 5y	140.00	15120.00
- Ablutions	4	H / 11 + 5y	140.00	6720.00
- First Aid	5	C	231.00	13860.00
- Office G. Cleaner	6	I / 11	120.00	8640.00
- Drivers	5	10 + 5y	165.00	9900.00
- Drivers	2	8 + 5y	226.00	5424.00
- Other	5			12828.00
T O T A L	34			84252.00

Programme 1 COST OF SERVICES Appendix 3 1/2

Package	ELECTRICITY		COMPRESSED AIR		WATER		GAS		OIL	
	kWH	JD	m3	JD	m3	JD	m3	JD	litres	JD
1	13,210,395	256,482	35,579		1,224				345,000	26,220
2	117,562	2,351	4,421,493						170,400	12,950
3	4,975,273	97,441	4,680,759		66,698					
4	2,286,105	44,864	3,312,576		1,500					
5	1,751,439	34,392	534,203		4,090					
6	1,220,009	23,628	115,854		364		12,182		370,548	28,162
7	537,101	10,541								
8	681,600	13,337	545,280							
10	1,968,120	30,774								
11	443,607	8,706	9,815		227		2,272			
Max Demand	(82,296)	(251,300)								
TOTAL	27,191,211	522,516	13,655,559	25,765	74,103	31,864	14,454	2,313	885,948	67,332
	(82,296)	251,300								

Grand Total (1) 901,090 JD Shifts 0600-1400 and 1400-2200

Grand Total (2) 715,963 JD Shifts 2300-0700 and 0700-1500

N.B. for (2) There is a reduction of 185,127 JD

Programme 2 COST OF SERVICES Appendix 3 2/2

Package	ELECTRICITY		COMPRESSED AIR		WATER		GAS		OIL	
	kWH	JD	m3	JD	m3	JD	m3	JD	litres	JD
1	15,783,803	306,145	35,579		1,224				3,000,000	22,800
2	132,710	2,654	4,421,493						170,400	12,950
3	8,908,249	173,867	5,961,146		80,600				18,176	1,381
4	2,286,105	44,864	3,312,576		1,500					
5	2,297,446	45,087	791,263		4,090					
6	1,072,301	20,998	115,854		364		12,182	1,949	370,548	28,162
7	537,101	10,541								
8	681,600	13,377	545,280							
10	1,968,120	30,774								
11	443,607	8,706	9,815		227		2,272	364		
Max Demand	(109104)									
TOTAL	32,142,922	626,239	15,193,006	28,666	88,205	37,928	14,454	2,313	859,124	65,293
	(109,104)	332,767								

Grand Total (1) 1,093,206 JD Shifts 0600-1400 and 1400-2200
Grand Total (2) 866,725 JD Shifts 2300-0700 and 0700-1500
N.B. for (2) there is a reduction of 226,481 JD

This is the table of costs established in Nov 89. AEICO have since added 13394JD to Electricity making a total of 1,106,600 JD instead of 1,0393,206 JD .

TABLE 1.1 : INVESTMENT COSTS PROGRAMME 1 (IN 1000 JD)

YEARS	-2	-1	0	1	2	3
Land	241.0					
Buildings & Services	4059.0	4040.0	1440.0	480.0		
Plant Equipment	10710.0	14280.0	7140.0	3570.0		
Motor vehic. Furniture	35.0	50.0	150.0			
Project engineering	394.4	1562.6	318.2			
Pre-operating exp.	422.2	576.5	1189.5			
W C requirements			121.1	1073.8	458.7	463.7
Subtotal investment	15861.6	20509.1	10358.9	5123.8	458.7	463.7

TABLE 1.2 PROGRAMME 2 INVESTMENT COSTS
(1000 JD)

INVESTMENT SCHEDULE	-2	-1	0	1	2	3	4	5	6
APPLICATIONS :									
Land	241.0								
Buildings & Services	3819.0	3800.0	1350.0	450.0					
Plant Equipment	11100.0	14800.0	7400.0	3700.0					
Motor vehic. furniture	35.0	50.0	150.0						
Project engineering	394.4	1562.6	318.2						
Pre-operating exp.	422.2	576.5	1189.5						
W C requirements			137.5	1204.6	526.7	531.8	458.1		
Subtotal investment	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0

TABLE 2 : WORKING CAPITAL REQUIREMENTS

PROGRAMME 2 ACCUMULATED AMOUNT (1000 JD)

	-2	-1	0	1	2	3	4	5	6
INVENTORIES R.M.			137.5	206.3	275.1	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS				59.2	88.8	118.4	148.0	148.0	148.0
INVENT. FINISHED GOODS				189.5	284.2	379.0	473.7	473.7	473.7
RECEIVABLES				656.9	985.3	1313.7	1642.2	1642.2	1642.2
CASH FOR OPERATIONS				367.8	441.7	520.7	594.8	594.8	594.8
RESIDUAL CASH	38.4	199.3	1474.0	460.2	216.2	1186.9	4809.1	9234.5	14004.9
TOTAL WORKING CAPITAL	38.4	199.3	1611.5	1939.9	2291.4	3862.6	8011.7	12437.1	17207.4

TABLE 2 : WORKING CAPITAL REQUIREMENTS

PROGRAMME 2 ACCUMULATED AMOUNT (1000 JD)

	7	8	9	10	11	12	13	14	15
INVENTORIES R.M.	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7
RECEIVABLES	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2
CASH FOR OPERATIONS	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8
RESIDUAL CASH	19120.2	24580.6	31651.0	40158.8	47414.5	54670.2	60047.5	65424.9	70802.3
TOTAL WORKING CAPITAL	22322.8	27783.2	34853.5	43361.4	50617.1	57872.7	63250.1	68627.5	74004.9

TABLE 3 : Programme 1 Sales Revenues

ITEM	UNIT PRICE $	QUANTITY FULL PROD. (TONS)	YEAR 1 40% 1000 JD	YEAR 2 60% 1000 JD	YEAR 3 80% 1000 JD	YEAR 4 100% 1000 JD	YEARS(5-15) 100% 1000 JD
SALES REVENUES $ EXC.RATE	0.68 JD/$						
MALLEABLE PIPE FITTINGS :							
-LOCAL	3214.0	1948.5	1703.4	2555.1	3406.8	4258.5	4259.5
-EXPORTS	2472.0	216.5	145.6	218.4	291.1	363.9	363.9
STEEL CASTINGS							
-TRACK PADS	4567.6	760.0	944.2	1416.3	1888.4	2360.5	2360.5
-CEMENT PARTS	3625.0	205.0	202.1	303.2	404.3	505.3	505.3
-CRUSHER PARTS	2667.0	1448.0	1050.4	1575.6	2100.8	2626.0	2626.0
-EARTHMOVING PARTS	3968.1	354.0	382.1	573.1	764.2	955.2	955.2
OTHER MALLEABLE	2665.0	155.0	112.4	168.5	224.7	280.9	280.9
DUCTILE FITTINS	2397.0	482.0	314.3	471.4	628.5	785.6	785.6
OTHER DUCTILE	2397.0	150.0	97.8	146.7	195.6	244.5	244.5
GREY IRON :			0.0	0.0	0.0		
-PIPE FITTINGS	1696.0	199.0	91.8	137.7	183.6	229.5	229.5
-BRAKE BLOCKS	1086.0	220.0	65.0	97.5	130.0	162.5	162.5
-STOVE PARTS LOCAL	3540.0	127.0	122.3	183.4	244.6	305.7	305.7
-STOVE PARTS EXPORTS	2584.0	298.0	209.4	314.2	418.9	523.6	523.6
- ROOF/FLOOR DRAINS	2693.0	91.0	66.7	100.0	133.3	166.6	166.6
TOTAL SALES REVENUES		6654.0	5507.4	8261.1	11014.8	13768.5	13768.5

... 1/2

TABLE 4 : (1000 JD)

INCOME STATEMENT : PROGRAMME 1

YEARS	1	2	3	4	5	6	7	8
SALES REVENUES	5507.4	8261.1	11014.8	13768.5	13768.5	13768.5	13768.5	13768.5
RAW MATERIAL	1146.6	1719.9	2293.2	2866.5	2866.5	2866.5	2866.5	2866.5
LABOUR	427.9	641.9	855.8	1069.8	1069.8	1069.8	1069.8	1069.8
UTILITIES	360.4	540.6	720.9	901.1	901.1	901.1	901.1	901.1
OVERHEAD COSTS	2064.1	1812.5	1620.6	1370.4	1370.4	1370.4	1370.4	1370.4
DEPRECIATION&AMORT.	5438.2	5438.2	5438.2	5438.2	5438.2	3989.3	3977.5	3954.0
TOTAL OPERATIONG COSTS	9437.3	10153.2	10928.7	11646.0	11646.0	10197.0	10185.3	10161.8
E.B.I.T.	-3929.9	-1892.1	86.1	2122.5	2122.5	3571.5	3583.2	3606.7
INTEREST	2475.0	2257.0	2039.0	1667.0	1155.0	825.0	495.0	165.0
TAXES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-6404.9	-4149.1	-1952.9	455.5	967.5	2746.5	3088.2	3441.7

TABLE 4 : (1000 JD)

INCOME STATEMENT : PROGRAMME 1

YEARS	9	10	11	12	13	14	15
SALES REVENUES	13768.5	13768.5	13768.5	13768.5	13768.5	13768.5	13768.5
RAW MATERIAL	2866.5	2866.5	2866.5	2866.5	2866.5	2866.5	2866.5
LABOUR	1069.8	1069.8	1069.8	1069.8	1069.8	1069.8	1069.8
UTILITIES	901.1	901.1	901.1	901.1	901.1	901.1	901.1
OVERHEAD COSTS	1370.4	1370.4	1370.4	1370.4	1370.4	1370.4	1370.4
DEPRECIATION&AMORT.	3954.0	3954.0	384.0	384.0	384.0	384.0	384.0
TOTAL OPERATIONG COSTS	10161.8	10161.8	6591.8	6591.8	6591.8	6591.8	6591.8
E.B.I.T.	3606.7	3606.7	7176.7	7176.7	7176.7	7176.7	7176.7
INTEREST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TAXES	0.0	0.0	1105.2	1105.2	2763.0	2763.0	2763.0
NET PROFIT	3606.7	3606.7	6071.5	6071.5	4413.7	4413.7	4413.7

... 1/2

TABLE 5 : FLOWS OF FUNDS STATEMENT PROGRAMME 1 (IN 1000 JD)

YEARS	-2	-1	0	1	2	3	4	5	6	7
Land	241.0									
Buildings & Services	4059.0	4040.0	1440.0	480.0						
Plant Equipment	10710.0	14280.0	7140.0	3570.0						
Motor vehic. Furniture	35.0	50.0	150.0							
Project engineering	394.4	1562.6	318.2							
Pre-operating exp.	422.2	576.5	1189.5							
W C requirements			121.1	1073.8	458.7	463.7	398.2			
Subtotal investment	15861.6	20509.1	10358.9	5123.8	458.7	463.7	398.2	0.0	0.0	0.0
Interest during const.		750.0	2070.0							
Principal repayment				1375.0	2750.0	2750.0	2750.0	2750.0	2750.0	2750.0
Dividends										
Total Applications	15861.6	21259.1	12428.9	6498.8	3208.7	3213.7	3148.2	2750.0	2750.0	2750.0
SOURCES :										
Equity	12750.0	4600.0	0.0	7200.0	450.0					
L.T. Bank Loans										
COMMERCIAL CREDIT		12500.0	9500.0							
Grants	3150.0	4200.0	3150.0							
S.T. bank Loans					1600.0	-300.0	-1300.0			
Net profit	0.0	0.0	0.0	-6404.9	-4149.1	-1952.9	455.5	967.5	2746.5	3088.2
Depreciation & Amort.				5438.2	5438.2	5438.2	5438.2	5438.2	3989.3	3977.5
Total Sources	15900.0	21300.0	12650.0	6233.3	3339.2	3185.3	4593.7	6405.7	6735.7	7065.7
CASH SURPLUS (DEFICIT)	38.4	40.9	221.1	-265.4	130.5	-28.4	1445.5	3655.7	3985.7	4315.7
ACCUMULATED CASH	38.4	79.3	300.4	35.0	165.4	137.0	1582.4	5238.2	9223.9	13539.6

TABLE 5 : FLOWS OF FUNDS STATEMENT PROGRAMME 1 (IN 1000 JD)

YEARS	8	9	10	11	12	13	14	15 *
Land								-241.0
Buildings & Services								-3840.0
Plant Equipment								
Motor vehic. Furniture								
Project engineering								
Pre-operating exp.								
W C requirements								-2515.6
Subtotal investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6596.6
Interest during const.								
Principal repayment	2750.0	1375.0						
Dividends								
Total Applications	2750.0	1375.0	0.0	0.0	0.0	0.0	0.0	-6596.6
SOURCES :								
Equity								-6596.6
L.T. Bank Loans								
COMMERCIAL CREDIT								
Grants								
S.T. bank Loans								
Net profit	3441.7	3606.7	3606.7	6071.5	6071.5	4413.7	4413.7	4413.7
Depreciation & Amort.	3954.0	3954.0	3954.0	384.0	384.0	384.0	384.0	384.0
Total Sources	7395.7	7560.7	7560.7	6455.5	6455.5	4797.7	4797.7	-1798.9
CASH SURPLUS (DEFICIT)	4645.7	6185.7	7560.7	6455.5	6455.5	4797.7	4797.7	4797.7
ACCUMULATED CASH	18185.3	24371.0	31931.7	38387.2	44842.7	49640.4	54438.1	59235.7

* Residual values are shown with a negative sign for the purpose of rate return calculation(Recuperation)

TABLE 6 : BALANCE SHEETS PROGRAMME 1 (IN 1000 JD)

... 1/2

YEARS	-2	-1	0	1	2	3	4	5	6	7
ASSETS										
FIXED ASSETS	15045.0	33415.0	42145.0	46195.0	46195.0	46195.0	46195.0	46195.0	46195.0	46195.0
-ACCUM. DEPREC				-3989.3	-7978.5	-11967.8	-15957.0	-19946.3	-23935.5	-27913.0
OTHER FIXED ASSETS	816.6	3705.7	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5
-ACCUM. AMORTIZATION				-1449.0	-2897.9	-4346.9	-5795.9	-7244.9	-7244.9	-7244.9
INVENTORIES R.M.			121.1	181.7	242.2	302.8	302.8	302.8	302.8	302.8
INVENT. GOODS UNDER PROCESS				51.1	76.6	102.2	127.7	127.7	127.7	127.7
INVENT. FINISHED GOODS				163.5	245.3	327.0	408.8	408.8	408.8	408.8
RECEIVABLES				581.8	872.7	1163.5	1454.4	1454.4	1454.4	1454.4
CASH FOR OPERATIONS				337.9	398.4	464.0	524.6	524.6	524.6	524.6
RESIDUAL CASH	38.4	79.3	300.4	35.0	165.4	137.0	1582.4	5238.2	9223.9	13539.6
TOTAL ASSETS	15900.0	37200.0	49850.0	49391.2	44602.7	39660.3	36126.4	34343.9	34340.3	34678.6
LIABILITIES										
EQUITY	12750.0	17350.0	17350.0	24550.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS					-6404.9	-10554.0	-12506.9	-12096.9	-11226.2	-8754.4
LEGAL RESERVES							45.5	142.3	416.9	725.8
GRANTS	3150.0	7350.0	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0
LT LOANS SUPPLIERS CREDIT	0.0	12500.0	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0
LT BANK LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-REPAYMENTS			0.0	-1375.0	-4125.0	-6875.0	-9625.0	-12375.0	-15125.0	-17875.0
S.T. DEBT				0.0	1600.0	1300.0	0.0	0.0	0.0	0.0
PAYABLE				121.1	181.7	242.2	302.8	302.8	302.8	302.8
NET PROFIT(distributable)				-6404.9	-4149.1	-1952.9	409.9	870.7	2471.8	2779.4
TOTAL LIABILITIES	15900.0	37200.0	49850.0	49391.2	44602.7	39660.3	36126.4	34343.9	34340.3	34678.6

TABLE 6 : BALANCE SHEETS PROGRAMME 1 (IN 1000 JD)

YEARS	8	9	10	11	12	13	14	15
ASSETS								
FIXED ASSETS	46195.0	46195.0	46195.0	46195.0	46195.0	46195.0	46195.0	46195.0
-ACCUM. DEPREC	-31867.0	-35821.0	-39775.0	-40159.0	-40543.0	-40927.0	-41311.0	-41695.0
OTHER FIXED ASSETS	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5	7283.5
-ACCUM. AMORTIZATION	-7244.9	-7244.9	-7244.9	-7244.9	-7244.9	-7244.9	-7244.9	-7244.9
INVENTORIES R.M.	302.8	302.8	302.8	302.8	302.8	302.8	302.8	302.8
INVENT. GOODS UNDER PROCE	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7
INVENT. FINISHED GOODS	408.8	408.8	408.8	408.8	408.8	408.8	408.8	408.8
RECEIVABLES	1454.4	1454.4	1454.4	1454.4	1454.4	1454.4	1454.4	1454.4
CASH FOR OPERATIONS	524.6	524.6	524.6	524.6	524.6	524.6	524.6	524.6
RESIDUAL CASH	18185.3	24371.0	31931.7	38387.2	44842.7	49640.4	54438.1	59235.7
TOTAL ASSETS	35370.3	37602.0	41208.7	47280.2	53351.7	57765.4	62179.0	66592.7
LIABILITIES								
EQUITY	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS	-5975.0	-2877.5	368.6	3614.6	9079.0	14543.3	18515.6	22487.9
LEGAL RESERVES	1069.9	1430.6	1791.3	2398.4	3005.6	3446.9	3888.3	4329.7
GRANTS	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0	10500.0
LT LOANS SUPPLIERS CREDIT	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0	22000.0
LT BANK LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-REPAYMENTS	-20625.0	-22000.0	-22000.0	-22000.0	-22000.0	-22000.0	-22000.0	-22000.0
S.T. DEBT	0.0	0.0	0.0	0.0				
PAYABLE	302.8	302.8	302.8	302.8	302.8	302.8	302.8	302.8
NET PROFIT(distributable)	3097.5	3246.0	3246.0	5464.3	5464.3	3972.3	3972.3	3972.3
TOTAL LIABILITIES	35370.3	37602.0	41208.7	47280.2	53351.7	57765.4	62179.0	66592.7

TABLE 7 : RESULTS OF FINANCIAL APPRAISAL PROGRAMME 1

... 1/2

RETURN ON INVESTMENT (BEFORE TAX & GRANTS) AND INDEPENDENT OF FINANCING

YEARS	-2	-1	0	1	2	3	4	5	6	7
REVENUES				5507.4	8261.1	11014.8	13768.5	13768.5	13768.5	13768.5
OPERATING COSTS(WITHOUT DEPREC.)				3999.1	4714.9	5490.5	6207.8	6207.8	6207.8	6207.8
INVESTMENT COSTS	15861.6	20509.1	10358.9	5123.8	458.7	463.7	398.2	0.0	0.0	0.0
NET FLOWS	-15861.6	-20509.1	-10358.9	-3615.4	3087.5	5060.6	7162.5	7560.7	7560.7	7560.7
I.R.R.(BEFORE TAX&GRANTS)	0.079									

RETURN TO AIECO (AFTER TAX AND GRANTS)

NET FLOWS	-12711.6	-16309.1	-7208.9	-3615.4	3087.5	5060.6	7162.5	7560.7	7560.7	7560.7
I.R.R. NET	0.099									

RETURN ON EQUITY

NET FLOWS TO EQUITY	-12711.6	-4559.1	221.1	-7465.4	-319.5	-28.4	1445.5	3655.7	3985.7	4315.7
R.O.E	0.092									

TABLE 7 : RESULTS OF FINANCIAL APPRAISAL PROGRAMME 1 ... 2/2

RETURN ON INVESTMENT (BEFORE TAX & GRANTS) AND INDEPENDENT OF FINANCING

YEARS	8	9	10	11	12	13	14	15
REVENUES	13768.5	13768.5	13768.5	13768.5	13768.5	13768.5	13768.5	13768.5
OPERATING COSTS(WITHOUT D	6207.8	6207.8	6207.8	6207.8	6207.8	6207.8	6207.8	6207.8
INVESTMENT COSTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6596.6
NET FLOWS	7560.7	7560.7	7560.7	7560.7	7560.7	7560.7	7560.7	14157.3

RETURN TO AIECO (AFTER TAX AND GRANTS)

NET FLOWS	7560.7	7560.7	7560.7	6455.5	6455.5	4797.7	4797.7	11394.2
I.R.R. NET								

RETURN ON EQUITY

NET FLOWS TO EQUITY	4645.7	6185.7	7560.7	6455.5	6455.5	4797.7	4797.7	11394.2

TABLE 8-1 Programme 1 Sensitivity Analysis On IRR before financing and taxes

	-20%	-15%	-10%	-5%	Base Solution	5%	10%	20%	30%
Sales Prices	3.6%		7.0%	8.5%	7.9%	9.0%	10.0%	12.0%	
Sales & total Costs	6.9%		8.4%	9.2%	7.9%	8.4%	9.0%	10.1%	
Cost Only	11.7%		11.1%	10.5%	7.9%	7.3%	6.8%	5.6%	
Raw Material	11 %		3.0%	8.1%	7.9%	7.6%	7.4%	6.9%	
Labour	8.2%		8.0%	7.9%	7.9%	7.8%	7.7%	7.5%	
Utility	8.1%		8.0%	7.9%	7.9%	7.8%	7.7%	7.6%	
Overhead	8.4%		8.1%	8.0%	7.9%	7.7%	7.6%	7.3%	
Investment Cost	10.6%		9.1%	8.5%	7.9%	7.2%	6.7%	5.8%	

Sales Volume (Capacity use year 1/ year 2/ year 3/ year 4)

H1(23/88/100/100)	8.3%	10.5%
H2(32/70/87/100)	8.0%	10.0%
H3(23/60/80/100)	7.6%	9.5%

TABLE 8-2 Programme 1

Sensitivity Analysis On IRR
after taxes and grants

	-20%	-15%	-10%	-5%	Base Solution	5%	10%	20%	30%
Sales Prices	9.2%		9.2%	9.2%	9.9%	11.2%	12.4%	14.7%	
Sales & Total Costs	9.2%		9.2%	9.2%	9.9%	10.6%	11.2%	12.5%	
Cost Only	9.2%		9.2%	9.2%	9.9%	9.2%	8.6%	7.2%	
Raw Material	8.8%		9.2%	10.2%	9.9%	9.6%	9.3%	8.7%	
Labour	10.3%		10.1%	10.0%	9.9%	9.8%	9.7%	9.5%	
Utility	10.2%		10.1%	10.0%	9.9%	9.8%	9.7%	9.5%	
Overhead	10.6%		10.2%	10.1%	9.9%	9.7%	9.5%	9.2%	
Investment Cost	13.9%		11.7%	10.8%	9.9%		8.4%	7.1%	

Sales Volume (Capacity use year 1/ year 2/ year 3/ year 4)

H1(23/88/100/100)	8.3%	10.5%
H2(32/70/97/100)	8.0%	10.0%
H3(23/60/80/100)	7.6%	9.5%

TABLE 9 : SALES REVENUES PROGRAMME 2

AEICO : PROGRAMME 2 BASE SOLUTION

ITEM	UNIT PRICE $	QUANTITY FULL PROD. (TONS)	YEAR 1 40% 1000 JD	YEAR 2 60% 1000 JD	YEAR 3 80% 1000 JD	YEAR 4 100% 1000 JD	5 100% 1000 JD	6 100% 1000 JD	7-15 100% 1000 JD
SALES REVENUES $ EXC.RATE	0.68 JD/$								
MALLEABLE PIPE FITTINGS :									
-LOCAL	3214.0	1948.5	1703.4	2555.1	3406.8	4258.5	4258.5	4258.5	4258.5
-EXPORTS	2472.0	2879.5	1936.1	2904.2	3872.3	4840.3	4840.3	4840.3	4840.3
STEEL CASTINGS									
-TRACK PADS	4567.6	760.0	944.2	1416.3	1888.4	2360.5	2360.5	2360.5	2360.5
-CEMENT PARTS	3625.0	205.0	202.1	303.2	404.3	505.3	505.3	505.3	505.3
-CRUSHER PARTS	2667.0	1448.0	1050.4	1575.6	2100.8	2626.0	2626.0	2626.0	2626.0
-EARTHMOVING PARTS	3968.1	354.0	382.1	573.1	764.2	955.2	955.2	955.2	955.2
SALES REVENUES		7595.0	6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9

TABLE 10 : PROGRAMME 2 ... 1/2

RAW MATERIAL COSTS (IN 1000 JD)

YEARS	PRICE($) UNIT	QUANT.100% (TONS)	1	2	3	4	5	6	7-15
STEEL SCRAP									
Imported	204.3	2485.0	138.1	207.1	276.1	345.1	345.1	345.1	345.1
Local	64.0	5066.0	88.2	132.3	176.4	220.5	220.5	220.5	220.5
Carburizer S 0.8	548.7	117.5	17.5	26.3	35.1	43.9	43.9	43.9	43.9
Fe Si 75%	900.0	138.3	33.8	50.8	67.7	84.6	84.6	84.6	84.6
Fe Mn 75%	850.0	38.2	8.8	13.2	17.7	22.1	22.1	22.1	22.1
Fe Boron 80%	9997.7	0.1	0.4	0.6	0.8	1.0	1.0	1.0	1.0
Fe Mn 80%	900.0	303.8	74.4	111.6	148.7	185.9	185.9	185.9	185.9
Si Mn 75% + 45%	970.8	171.6	45.3	68.0	90.6	113.3	113.3	113.3	113.3
Ca Si Mn Ladle Add	2450.5	9.6	6.4	9.6	12.8	16.0	16.0	16.0	16.0
Alum Ladle Add	2485.9	9.5	6.5	9.7	12.9	16.1	16.1	16.1	16.1
Fe Cr 65%	2577.3	74.3	52.1	78.1	104.1	130.2	130.2	130.2	130.2
Ni 99%	15045.0	6.7	27.3	40.9	54.6	68.2	68.2	68.2	68.2
Fe Mo	9800.0	0.6	1.7	2.5	3.3	4.1	4.1	4.1	4.1
New Silica Sand	8.1	14128.1	31.1	46.6	62.2	77.7	77.7	77.7	77.7
Bentonite	241.0	445.8	29.2	43.8	58.4	73.1	73.1	73.1	73.1
Coal Dust	358.9	300.9	29.4	44.1	58.7	73.4	73.4	73.4	73.4
Resin	2613.4	364.0	258.7	388.1	517.5	646.9	646.9	646.9	646.9
Catalyst	414.3	182.0	20.5	30.8	41.0	51.3	51.3	51.3	51.3
Zircon Sand	550.0	95.0	14.2	21.3	28.4	35.5	35.5	35.5	35.5
Mould Wash	1377.2	32.0	12.0	18.0	24.0	30.0	30.0	30.0	30.0
Chromite Sand	250.0	825.0	56.1	84.2	112.2	140.3	140.3	140.3	140.3
Resin Binder	2613.4	152.0	108.0	162.1	216.1	270.1	270.1	270.1	270.1
Hexamine	954.2	11.5	3.0	4.5	6.0	7.5	7.5	7.5	7.5

TABLE 10 : PROGRAMME 2 ... 2/2

RAW MATERIAL COSTS (IN 1000 JD)

	PRICE(3) UNIT	QUANT.100% (TONS)	1	2	3	4	5	6	7-15
Sterate	2092.5	3.8	2.2	3.2	4.3	5.4	5.4	5.4	5.4
Iron Oxide	218.4	0.5	.0	.0	0.1	0.1	0.1	0.1	0.1
Zinc	1947.3	155.0	82.1	123.1	164.2	205.2	205.2	205.2	205.2
Aluminum	2485.9	0.6	0.4	0.6	0.8	1.0	1.0	1.0	1.0
Acid	257.3	77.8	5.4	8.2	10.9	13.6	13.6	13.6	13.6
Flux	808.6	15.6	3.4	5.1	6.8	8.6	8.6	8.6	8.6
Varnish Concentrate	2205.0	4.9	2.9	4.4	5.9	7.4	7.4	7.4	7.4
Turps Substitute	1470.0	37.7	15.1	22.6	30.1	37.7	37.7	37.7	37.7
Varnish Remover	833.5	0.4	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Refractory Induction (Malleable)	432.1	24.0	2.8	4.2	5.6	7.1	7.1		
Refractory Ladle (Malleable)	1114.5	19.7	6.0	8.9	11.9	14.9	14.9		
Refractory Pouring Furnace(Malleable)	1563.6	9.8	4.2	6.3	8.4	10.5	10.5		
Refractory Induction (Steel)	432.1	32.5	3.8	5.7	7.7	9.6	9.6		
Refractory Ladle (Steel)	1114.5	38.0	11.5	17.3	23.0	28.8	28.8		
Slag	535.0	10.0	1.5	2.2	2.9	3.6	3.6		
Fluorspar	335.0	4.0	0.4	0.5	0.7	0.9	0.9		
Cutting Fluid	1550.1	23.8	10.0	15.0	20.0	25.0	25.0		
Coating Powder	976.0	2.4	0.6	1.0	1.3	1.6	1.6		
Release Agent - Oil	2119.0	4.3	2.5	3.7	5.0	6.2	6.2		
Release Agent - Silicon	4227.5	0.2	0.2	0.3	0.4	0.5	0.5		
Abrasive Shot	938.1	80.0	20.4	30.6	40.8	51.0	51.0		
Abrasive Wheel	161.0	151.0	6.6	9.9	13.2	16.5	16.5		
Abrasive Wheel C-Alo	3.1	787.0	0.7	1.0	1.3	1.7	1.7		
Abrasive Wheel (N)	161.0	30.0	1.3	2.0	2.6	3.3	3.3		
Cutting Disc	34.6	286.0	2.7	4.0	5.4	6.7	6.7		
Abrasive Tips	0.8	6380.0	1.5	2.2	2.9	3.6	3.6		
Electrodes	10800.3	1.0	2.9	4.4	5.9	7.3	7.3		
Ferro Phosphorus 25%	538.2	17.0	2.5	3.7	5.0	6.2	6.2		
Ferro-Sulphur	1320.0	22.7	8.2	12.2	16.3	20.4	20.4		
Cutting Tools	137808.8	1.0	37.5	56.2	75.0	93.7	93.7		
RAW MATERIAL (1000 JD)			1302.0	1953.1	2604.1	3255.1	3255.1		

TABLE 11 : LABOR, UTILITIES, OVERHEAD — Programme 2 — ... 1/2

	PRICES	QUANTITY	1	2	3	4	5	6	7
Labor Cost									
-non qualified	1955.4	166.0	129.8	194.8	259.7	324.6	324.6	324.6	324.6
-semi qualified	2820.0	280.0	315.8	473.7	631.7	789.6	789.6	789.6	789.6
-qualified	3517.3	37.0	52.1	78.1	104.1	130.1	130.1	130.1	130.1
TOTAL LABOR	1244.3		497.7	746.6	995.4	1244.3	1244.3	1244.3	1244.3
POWER	0.030	32142.9	389.0	583.4	777.9	972.4	972.4	972.4	972.4
COMPRESSED AIR	0.002	15193.0	1.5	17.2	22.9	28.7	28.7	28.7	28.7
FUEL	0.076	859.1	26.1	39.2	52.2	65.3	65.3	65.3	65.3
WATER	0.430	88.2	15.2	22.8	30.3	37.9	37.9	37.9	37.9
GAS	0.160	14.5	0.9	1.4	1.9	2.3	2.3	2.3	2.3
TOTAL UTILITIES		1106.6	442.6	663.9	885.2	1106.6	1106.6	1106.6	1106.6
STAFF SALARIES			331.0	331.0	425.0	425.0	425.0	425.0	425.0
SOCIAL BENEFITS			124.3	161.6	213.1	250.4	250.4	250.4	250.4
MAINTENANCE MATERIAL			115.5	143.0	166.1	184.8	184.8	184.8	184.8
TECHNICAL SERVICES			1000.0	670.0	310.0				
MARKETING EXPENSES			310.9	310.9	310.9	310.9	310.9	310.9	310.9
OTHER EXPENSES			228.4	247.2	252.0	261.0	261.0	261.0	261.0
TOTAL OVERHEAD			2110.1	1863.8	1677.1	1432.1	1432.1	1432.1	1432.1

TABLE 11 : LABOR, UTILITIES, OVERHEAD Programme 2

... 2/2

	8	9	10	11	12	13	14	15
Labor Cost								
-non qualified	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6
-semi qualified	789.6	789.6	789.6	789.6	789.6	789.6	789.6	789.6
-qualified	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
TOTAL LABOR	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3
POWER	972.4	972.4	972.4	972.4	972.4	972.4	972.4	972.4
COMPRESSED AIR	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
FUEL	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3
WATER	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9
GAS	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
TOTAL UTILITIES	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6
STAFF SALARIES	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0
SOCIAL BENEFITS	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4
MAINTENANCE MATERIAL	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8
TECHNICAL SERVICES								
MARKETING EXPENSES	310.9	310.9	310.9	310.9	310.9	310.9	310.9	310.9
OTHER EXPENSES	261.0	261.0	261.0	261.0	261.0	261.0	261.0	261.0
TOTAL OVERHEAD	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1

Table 12-1 Programme 2

Return on investment for Programme 2

independent of financing sources .

YEARS	-2	-1	0	1	2	3	4	5	6	7
RETURN TO INVESTMENT (BEFORE TAX&GRANTS) AND INDEPENDENT OF FINANCING										
REVENUES				6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9
OPERATING COSTS(WITHOUT DEP.)				4352.5	5227.3	6161.8	7038.0	7038.0	7038.0	7038.0
INVESTMENT COSTS	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R.(BEFORE TAX&GRANTS)	0.091									

8	9	10	11	12	13	14	15
15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
7038.0	7038.0	7038.0	7038.0	7038.0	7038.0	7038.0	7038.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	15375.2

TABLE 12-2 Programme 2 Sensitivity Analysis On IRR before financing and taxes

	-20%	-15%	-10%	-5%	Base Solution	5%	10%	20%	30%
Fixed Investment	11.8%	11%	10.4%	9.7%	9.1%	-	8.7%	7.1%	6.2%
Sales Price	-3.8	-5.3	6.7%	8%	9.1%	10.3%	11.3%	11.3%	
Operating Cost :-									
- Raw Material	10.1	9.9	9.6	9.4	9.1%	8.9%	8.6%	8.1%	
- Labour	9.5	9.4	9.3	9.2	9.1%	9.0%	8.9%	8.6%	
- Utilitis	9.5	9.4	9.3	9.2	9.1%	9.0%	8.9%	8.6%	
- Overhead	9.7	9.5	9.4	9.3	9.1%	9.0%	8.9%	8.6%	
Sales Price & RM Price	5.0%	6.1	7.2	8.2	9.1%	10.1%	10.9%	12.6%	

Sales Volume* (Capacity use year 1/ year 2/ year 3/ year 4)		
H1(23/88/100/100)	9.6%	9.1 %
H2(32/70/87/100)	9.3%	9.1 %
H3(23/60/80/100)	8.8%	9.1 %

* If local sales of pipe fittings is increased by 3.8% per annum from year 5 and a corresponding reduction is made in export sales (i.e total tonnage is constant at 4828 tonnes), the IRR becomes 9.4% (net IRR would be 11.8%) .

TABLE 13 : P2 -FS1 INCOME STATEMENT (1000 JD) ... 1/2

PROGRAMME 2 - FINANCIAL SCHEME 1 (GRANT+COMMERCIAL CREDIT)

YEARS	1	2	3	4	5	6	7
SALES REVENUES	6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	1302.0	1953.1	2604.1	3255.1	3255.1	3255.1	3255.1
LABOUR	497.7	746.6	995.4	1244.3	1244.3	1244.3	1244.3
UTILITIES	442.6	663.9	885.2	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	2110.1	1863.8	1677.1	1432.1	1432.1	1432.1	1432.1
DEPRECIATION&AMORT.	5578.9	5578.9	5578.9	5578.9	5578.9	4112.0	4100.3
TOTAL OPERATING COSTS	9931.4	10806.2	11740.8	12617.0	12617.0	11150.1	11138.3
E.B.I.T.	-3713.1	-1478.7	696.0	2928.9	2928.9	4395.9	4407.6
INTEREST	2587.5	2242.5	1897.5	1552.5	1207.5	862.5	517.5
TAXES	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-6300.6	-3721.2	-1201.5	1376.4	1721.4	3533.4	3890.1

TABLE 13 : P2 -FS1 INCOME STATEMENT ... 2/2

PROGRAMME 2 - FINANCIAL SCHEME 1 (GRANT+COMMERCIAL CREDIT)

YEARS	8	9	10	11	12	13	14	15
SALES REVENUES	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1
LABOUR	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3
UTILITIES	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1
DEPRECIATION&AMORT.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
TOTAL OPERATING COSTS	11114.8	11114.8	11114.8	7414.8	7414.8	7414.8	7414.8	7414.8
E.B.I.T.	4431.1	4431.1	4431.1	8131.1	8131.1	8131.1	8131.1	8131.1
INTEREST	172.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TAXES	0.0	0.0	0.0	1252.2	1252.2	3130.5	3130.5	3130.5
NET PROFIT	4258.6	4431.1	4431.1	6878.9	6878.9	5000.6	5000.6	5000.6

TABLE 14 : P2-FS1 (1000 JD)

... 1/2

SOURCES & USES OF FUNDS	-2	-1	0	1	2	3	4	5	6	7
APPLICATIONS :										
Land	241.0									
Buildings & Services	3819.0	3800.0	1350.0	450.0						
Plant Equipment	11100.0	14800.0	7400.0	3700.0						
Motor vehic. Furniture	35.0	50.0	150.0							
Project engineering	394.4	1562.6	318.2							
Pre-operating exp.	422.2	576.5	1189.5							
W C requirements			137.5	1204.6	526.7	531.8	458.1			
Subtotal investment	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
Interest during const.		750.0	2130.0							
Principal repayment				1437.5	2875.0	2875.0	2875.0	2875.0	2875.0	2875.0
Dividends										
Total Applications	16011.6	21539.1	12675.3	6792.1	3401.7	3406.8	3333.1	2875.0	2875.0	2875.0
SOURCES :										
Equity	12600.0	4600.0	0.0	6500.0	1300.0					
L.T. Bank Loans										
Suppliers'Credit		12500.0	10500.0							
Grants	3450.0	4600.0	3450.0							
S.T. bank Loans										
Net profit	0.0	0.0	0.0	-6300.6	-3721.2	-1201.5	1376.4	1721.4	3533.4	3890.1
Depreciation & Amort.				5578.9	5578.9	5578.9	5578.9	5578.9	4112.0	4100.3
Total Sources	16050.0	21700.0	13950.0	5778.4	3157.7	4377.4	6955.4	7300.4	7645.4	7990.4
CASH SURPLUS (DEFICIT)	38.4	160.9	1274.7	-1013.8	-244.0	970.6	3622.3	4425.4	4770.4	5115.4
ACCUMULATED CASH	38.4	199.3	1474.0	460.2	216.2	1186.9	4809.1	9234.5	14004.9	19120.2

TABLE 14 : P2-FS1

SOURCES & USES OF FUNDS	8	9	10	11	12	13	14	15
APPLICATIONS :								
Land								-241.0 *
Buildings & Services								-3767.6
Plant Equipment								
Motor vehic. Furniture								
Project engineering								
Pre-operating exp.								
W C requirements								-2858.7
Subtotat investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
Interest during const.								
Principal repayment	2875.0	1437.5						
Dividends								
Total Applications	2875.0	1437.5	0.0	0.0	0.0	0.0	0.0	-6867.3
SOURCES :								
Equity								-6867.3
L.T. Bank Loans								
Suppliers?Credit								
Grants								
S.T. bank Loans								
Net profit	4258.6	4431.1	4431.1	6878.9	6878.9	5000.6	5000.6	5000.6
Depreciation & Amort.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
Total Sources	8335.4	8507.9	8507.9	7255.7	7255.7	5377.4	5377.4	-1489.9
CASH SURPLUS (DEFICIT)	5460.4	7070.4	8507.9	7255.7	7255.7	5377.4	5377.4	5377.4
ACCUMULATED CASH	24580.6	31651.0	40158.8	47414.5	54670.2	60047.5	65424.9	70802.3

* Salvage value are shown with negative sign .

TABLE 15 : P2-FS1 PROGRAMME 2 FINANCING SCHEME 1 (1000 JD) ... 1/2

BALANCE SHEET	-2	-1	0	1	2	3	4	5	6	7
ASSETS										
FIXED ASSETS	15195.0	33845.0	42745.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC				-4112.0	-8224.0	-12336.0	-16448.0	-20560.1	-24672.1	-28772.3
OTHER FIXED ASSETS	816.6	3705.7	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5
-ACCUM. AMORTIZATION				-1466.9	-2933.8	-4400.7	-5867.6	-7334.6	-7334.6	-7334.6
INVENTORIES R.M.			137.5	206.3	275.1	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS				59.2	88.8	118.4	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS				189.5	284.2	379.0	473.7	473.7	473.7	473.7
RECEIVABLES				656.9	985.3	1313.7	1642.2	1642.2	1642.2	1642.2
CASH FOR OPERATIONS				367.8	441.7	520.7	594.8	594.8	594.8	594.8
RESIDUAL CASH	38.4	199.3	1474.0	460.2	216.2	1186.9	4809.1	9234.5	14004.9	19120.2
TOTAL ASSETS	16050.0	37750.0	51700.0	50599.5	45372.1	41364.3	39934.5	38780.9	39439.3	40454.4
LIABILITIES										
EQUITY	12600.0	17200.0	17200.0	23700.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS					-6300.6	-10021.8	-11223.3	-9984.5	-8435.2	-5255.2
LEGAL RESERVES							137.6	309.8	663.1	1052.1
GRANTS	3450.0	8050.0	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0
LT LOANS SUPPLIERS CREDIT	0.0	12500.0	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0
LT BANK LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-REPAYMENTS			0.0	-1437.5	-4312.5	-7187.5	-10062.5	-12937.5	-15812.5	-18687.5
PAYABLE				137.5	206.3	275.1	343.8	343.8	343.8	343.8
NET PROFIT(distributable)				-6300.6	-3721.2	-1201.5	1238.8	1549.3	3180.0	3501.1
TOTAL LIABILITIES	16050.0	37750.0	51700.0	50599.5	45372.1	41364.3	39934.5	38780.9	39439.3	40454.4

TABLE 15 : P2-FS1

BALANCE SHEET	8	9	10	11	12	13	14	15
ASSETS								
FIXED ASSETS	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC	-32849.1	-36925.8	-41002.6	-41379.4	-41756.1	-42132.9	-42509.6	-42886.4
OTHER FIXED ASSETS	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5	7343.5
-ACCUM. AMORTIZATION	-7334.6	-7334.6	-7334.6	-7334.6	-7334.6	-7334.6	-7334.6	-7334.6
INVENTORIES R.M.	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCE	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7
RECEIVABLES	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2
CASH FOR OPERATIONS	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8
RESIDUAL CASH	24580.6	31651.0	40158.8	47414.5	54670.2	60047.5	65424.9	70802.3
TOTAL ASSETS	41838.0	44831.6	49262.7	56141.6	63020.5	68021.2	73021.8	78022.4
LIABILITIES								
EQUITY	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS	-1754.1	2078.7	6066.7	10054.6	16245.7	22436.7	26937.2	31437.8
LEGAL RESERVES	1478.0	1921.1	2364.2	3052.1	3740.0	4240.1	4740.1	5240.2
GRANTS	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0	11500.0
LT LOANS SUPPLIERS CREDIT	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0	23000.0
LT BANK LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-REPAYMENTS	-21562.5	-23000.0	-23000.0	-23000.0	-23000.0	-23000.0	-23000.0	-23000.0
PAYABLE	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
NET PROFIT(distributable)	3832.7	3988.0	3988.0	6191.0	6191.0	4500.6	4500.6	4500.6
TOTAL LIABILITIES	41838.0	44831.6	49262.7	56141.6	63020.5	68021.2	73021.8	78022.4

TABLE 16 : P2-FS1 PROGRAMME 2 FINANCING SCHEME 1 ... 1/2

RESULTS OF FINANCIAL APPRAISAL

YEARS	-2	-1	0	1	2	3	4	5	6	7
RETURN TO INVESTMENT (BEFORE TAX&GRANTS) AND INDEPENDENT OF FINANCING										
REVENUES				6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9
OPERATING COSTS(WITHOUT DEP.)				4352.5	5227.3	6161.8	7038.0	7038.0	7038.0	7038.0
INVESTMENT COSTS	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R.(BEFORE TAX&GRANTS)	0.091									
RETURN TO INVESTMENT (AFTER TAX&GRANTS)										
NET FLOWS	-12561.6	-16189.1	-7095.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R. NET	0.116									
RETURN ON EQUITY										
NET FLOWS TO EQUITY	-12561.6	-4439.1	1274.7	-7513.8	-1544.0	970.6	3622.3	4425.4	4770.4	5115.4
R.O.E	0.115									

BREAK EVEN ANALYSIS	1	2	3	4	5	6	7
BREAK EVEN QUANTITY	4389.7	4640.1	4982.2	5357.0	5357.0	4236.2	4227.2
% OF PRODUCTION	1.44	1.02	0.82	0.71	0.71	0.56	0.56

RATIO ANALYSIS :	1	2	3	4	5	6	7
CURRENT RATIO	1.23	0.74	1.23	2.49	3.86	5.35	6.94
QUICK RATIO	0.94	0.53	0.96	2.19	3.56	5.05	6.64
DEBT TO EQUITY	0.48	0.50	0.51	0.48	0.40	0.29	0.17
DEBT SERVICE COVERAGE.	0.46	0.80	1.31	1.92	2.08	2.28	2.51
RETURN TO SALES	-1.01	-0.40	-0.10	0.09	0.11	0.23	0.25
RETURN ON INVESTMENT	-0.07	-0.03	0.02	0.07	0.08	0.11	0.11
RETURN ON EQUITY	-0.27	-0.20	-0.08	0.10	0.11	0.21	0.19
RETURN ON CAPITALIZATION	-0.08	-0.04	0.02	0.11	0.12	0.18	0.18
OPERATIONG RATIO	0.70	0.56	0.50	0.45	0.45	0.45	0.45

TABLE 16 : P2-FS1 ... 2/2

RESULTS OF FINANCIAL APPRAISAL

YEARS	8	9	10	11	12	13	14	15
RETURN TO INVESTMENT (BEFORE TAX&GRANTS) AND INDEPENDENT OF FINANCING								
REVENUES	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
OPERATING COSTS(WITHOUT D	7038.0	7038.0	7038.0	7038.0	7038.0	7038.0	7038.0	7038.0
INVESTMENT COSTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
NET FLOWS	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	15375.2
I.R.R.(BEFORE TAX&GRANTS)								
RETURN TO INVESTMENT (AFTER TAX&GRANTS)								
NET FLOWS	8507.9	8507.9	8507.9	7255.7	7255.7	5377.4	5377.4	12244.7
I.R.R. NET								
RETURN ON EQUITY								
NET FLOWS TO EQUITY	5460.4	7070.4	8507.9	7255.7	7255.7	5377.4	5377.4	12244.7
R.O.E								

BREAK EVEN ANALYSIS	8	9	10	11	12	13	14	15
BREAK EVEN QUANTITY	4209.3	4209.3	4209.3	1382.1	1382.1	1382.1	1382.1	1382.1
% OF PRODUCTION	0.55	0.55	0.55	0.18	0.18	0.18	0.18	0.18

RATIO ANALYSIS :	8	9	10	11	12	13	14	15
CURRENT RATIO	8.63	19.57	126.11	147.21	168.31	183.95	199.59	215.23
QUICK RATIO	8.33	19.02	123.30	144.40	165.50	181.14	196.78	212.42
DEBT TO EQUITY	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEBT SERVICE COVERAGE.	2.79	5.92						
RETURN TO SALES	0.27	0.29	0.29	0.44	0.44	0.32	0.32	0.32
RETURN ON INVESTMENT	0.11	0.10	0.09	0.14	0.13	0.12	0.11	0.10
RETURN ON EQUITY	0.17	0.15	0.13	0.18	0.15	0.10	0.09	0.08
RETURN ON CAPITALIZATION	0.17	0.15	0.13	0.18	0.15	0.10	0.09	0.08
OPERATIONG RATIO	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45

TABLE 17 Programme 2 - FS 1 (Financing Scheme 1)

Sensitivity Analysis On IRR to AEICO (After Tax And Grant)

Items	-20%	-15%	-10%	-5%	Base solution	5%	+10%	+20%	+30%
Fixed investment	15.6	14.4	13.4%	12.5	11.6%	11.3%	11%	8.8%	7.6%
Sales Price	5%	6.9	8.9	10.3%	11.6%	12.9%	14.4	16.3%	
Operating Cost :-									
RM	12.8	12.5	12.2	11.9	11.6%	11.3%	11.%	10.4%	
Labour	12%	11.9%	11.8	11.7	11.6	11.5%	11.4%	11.1%	
Utility	12%	11.9	11.8	11.7	11.6	11.5%	11.2%	11.2%	
Overhead	12.3	12.1	11.9	11.8	11.6	11.4%	11.3%	10.9	
Sales price & RM	6.6	7.9	9.2	10.4	11.6	12.7%	13.7%	15.7%	

Sales Volume (Capacity use year1/year2/year3/year4)

H1 (23%/88%/100%)	12.2%	11.6%
H2 (32%/70%/87%/100%)	11.8%	11.6%
H3 (23%/60%/80%/100%)	11.2%	11.6%

TABLE 18 : PROGRAMME 2 FINANCING SCHEME 2 P2-FS2

INCOME STATEMENT

YEARS	1	2	3	4	5	6	7
SALES REVENUES	6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	1302.0	1953.1	2604.1	3255.1	3255.1	3255.1	3255.1
LABOUR	497.7	746.6	995.4	1244.3	1244.3	1244.3	1244.3
UTILITIES	442.6	663.9	885.2	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	2110.1	1863.8	1677.4	1432.1	1432.1	1432.1	1432.1
DEPRECIATION&AMORT.	5242.9	5242.9	5242.9	5242.9	5242.9	4112.0	4100.3
OPERATING COSTS	9595.4	10470.2	11404.8	12281.0	12281.0	11150.1	11138.3
E.B.I.T.	-3377.1	-1142.7	1032.0	3264.9	3264.9	4395.9	4407.6
INTEREST	1975.0	1865.0	1510.0	1330.0	1150.0	970.0	790.0
TAXES	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-5352.1	-3007.7	-478.0	1934.9	2114.9	3425.9	3617.6

TABLE 18 : PROGRAMME 2 FINANCING SCHEME 2

INCOME STATEMENT

YEARS	8	9	10	11	12	13	14	15
SALES REVENUES	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1
LABOUR	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3
UTILITIES	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1
DEPRECIATION&AMORT.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
OPERATING COSTS	11114.8	11114.8	11114.8	7414.8	7414.8	7414.8	7414.8	7414.8
E.B.I.T.	4431.1	4431.1	4431.1	8131.1	8131.1	8131.1	8131.1	8131.1
INTEREST	610.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TAXES	0.0	0.0	0.0	1252.2	1252.2	3130.5	3130.5	3130.5
NET PROFIT	3821.1	4431.1	4431.1	6878.9	6878.9	5000.6	5000.6	5000.6

TABLE 19 : PROGRAMME 2 FINANCING SCHEME 2 P2-FS2 ...1/2

SOURCES & USES OF FUNDS	-2	-1	0	1	2	3	4	5	6	7
APPLICATIONS : (1000 JD)										
Land	241.0									
Buildings & Services	3819.0	3800.0	1350.0	450.0						
Plant Equipment	11100.0	14800.0	7400.0	3700.0						
Motor vehic. Furniture	35.0	50.0	150.0							
Project engineering	394.4	1562.6	318.2							
Pre-operating exp.	422.2	576.5	1189.5							
W C requirements			137.5	1204.6	526.7	531.8	458.1			
Subtotat investment	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
Interest during const.		240.0	960.0							
Principal repayment				750.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0
Lease payment (principal)				986.0	986.0	986.0	986.0	986.0	986.0	986.0
Dividends										
Total Applications	16011.6	21029.1	11505.3	7090.6	3012.7	3017.8	2944.1	2486.0	2486.0	2486.0
SOURCES :										
Equity	12600.0	4600.0	0.0	6500.0	1300.0					
Islamic Bank		7888.0								
Commercial Credit		4000.0	8000.0							
Grants	3450.0	4600.0	3450.0							
S.T. local Loans				750.0	-500.0	-250.0				
Net profit	0.0	0.0	0.0	-5352.1	-3007.7	-478.0	1934.9	2114.9	3425.9	3617.6
Depreciation & Amort.				5242.9	5242.9	5242.9	5242.9	5242.9	4112.0	4100.3
Total Sources	16050.0	21088.0	11450.0	7140.9	3035.2	4514.9	7177.9	7357.9	7537.9	7717.9
CASH SURPLUS (DEFICIT)	38.4	58.9	-55.3	50.2	22.5	1497.1	4233.8	4871.9	5051.9	5231.9
ACCUMULATED CASH	38.4	97.3	42.0	92.2	114.7	1611.9	5845.6	10717.5	15769.4	21001.2

TABLE 19 : PROGRAMME 2 FINANCING SCHEME 2 P2-FS2 ... 2/2

SOURCES & USES OF FUNDS	8	9	10	11	12	13	14	15
APPLICATIONS :								
Land								-241.0 •
Buildings & Services								-3767.6
Plant Equipment								
Motor vehic. Furniture								
Project engineering								
Pre-operating exp.								-2858.7
W C requirements								
Subtotal investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
Interest during const.								
Principal repayment	1500.0	750.0						
Lease payment (principal)	986.0							
Dividends								
Total Applications	2486.0	750.0	0.0	0.0	0.0	0.0	0.0	-6867.3
SOURCES :								
Equity								-6867.3
Islamic Bank								
Commercial Credit								
Grants								
S.T. local Loans								
Net profit	3821.1	4431.1	4431.1	6878.9	6878.9	5000.6	5000.6	5000.6
Depreciation & Amort.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
Total Sources	7897.9	8507.9	8507.9	7255.7	7255.7	5377.4	5377.4	-1489.9
CASH SURPLUS (DEFICIT)	5411.9	7757.9	8507.9	7255.7	7255.7	5377.4	5377.4	5377.4
ACCUMULATED CASH	26413.1	34171.0	42678.8	49934.5	57190.2	62567.5	67944.9	73322.3

• Residual Values

TABLE 20 : PROGRAMME 2 FINANCING SCHEME 2 P2-FS2 ...1/2

BALANCE SHEET NET : ASSETS NET OF GRANTS (1000 JD)

YEARS	-2	-1	0	1	2	3	4	5	6	7
ASSETS										
FIXED ASSETS	15195.0	33845.0	42745.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC				-4112.0	-8224.0	-12336.0	-16448.0	-20560.1	-24672.1	-28772.3
-GRANTS	-3450.0	-8050.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0
OTHER FIXED ASSETS	816.6	3195.7	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5
-ACCUM. AMORTIZATION				-1130.9	-2261.8	-3392.7	-4523.6	-5654.6	-5654.6	-5654.6
INVENTORIES R.M.			137.5	206.3	275.1	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS				59.2	88.8	118.4	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS				189.5	284.2	379.0	473.7	473.7	473.7	473.7
RECEIVABLES				656.9	985.3	1313.7	1642.2	1642.2	1642.2	1642.2
CASH FOR OPERATIONS				367.8	441.7	520.7	594.8	594.8	594.8	594.8
RESIDUAL CASH	38.4	97.3	42.0	92.2	114.7	1611.9	5845.6	10717.5	15769.4	21001.2
TOTAL ASSETS	12600.0	29088.0	37088.0	37387.5	32762.6	29617.3	29135.0	28763.9	29703.8	30835.4
LIABILITIES										
EQUITY	12600.0	17200.0	17200.0	23700.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS					-5352.1	-8359.8	-8837.8	-7096.3	-5192.9	-2109.6
LEGAL RESERVES							193.5	405.0	747.6	1109.3
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT COMMERCIALL CREDIT	0.0	4000.0	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0
LT BANK LOANS	0.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0
-REPAYMENTS			0.0	-1736.0	-4222.0	-6708.0	-9194.0	-11680.0	-14166.0	-16652.0
ST BANK LOANS			0.0	750.0	250.0	0.0	0.0	0.0	0.0	0.0
PAYABLE				137.5	206.3	275.1	343.8	343.8	343.8	343.8
NET PROFIT(distributable)				-5352.1	-3007.7	-478.0	1741.4	1903.4	3083.3	3255.8
TOTAL LIABILITIES	12600.0	29088.0	37088.0	37387.5	32762.6	29617.3	29135.0	28763.9	29703.8	30835.4

TABLE 20 : PROGRAMME 2 FINANCING SCHEME 2 P2-FS2 ... 2/2

BALANCE SHEET NET : ASSETS NET OF GRANTS (1000 JD)

YEARS	8	9	10	11	12	13	14	15
ASSETS								
FIXED ASSETS	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC	-32849.1	-36925.8	-41002.6	-41379.4	-41756.1	-42132.9	-42509.6	-42886.4
-GRANTS	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0	-11500.0
OTHER FIXED ASSETS	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5	5663.5
-ACCUM. AMORTIZATION	-5654.6	-5654.6	-5654.6	-5654.6	-5654.6	-5654.6	-5654.6	-5654.6
INVENTORIES R.M.	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCE	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7
RECEIVABLES	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2
CASH FOR OPERATIONS	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8
RESIDUAL CASH	26413.1	34171.0	42678.8	49934.5	57190.2	62567.5	67944.9	73322.3
TOTAL ASSETS	32170.5	35851.6	40282.7	47161.6	54040.5	59041.2	64041.8	69042.4
LIABILITIES								
EQUITY	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS	1146.2	4585.2	8573.2	12561.2	18752.2	24943.2	29443.8	33944.4
LEGAL RESERVES	1491.4	1934.6	2377.7	3065.6	3753.4	4253.5	4753.6	5253.6
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT COMMERCIALL CREDIT	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0	12000.0
LT BANK LOANS	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0
-REPAYMENTS	-19138.0	-19888.0	-19888.0	-19888.0	-19888.0	-19888.0	-19888.0	-19888.0
ST BANK LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAYABLE	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
NET PROFIT(distributable)	3439.0	3988.0	3988.0	6191.0	6191.0	4500.6	4500.6	4500.6
TOTAL LIABILITIES	32170.5	35851.6	40282.7	47161.6	54040.5	59041.2	64041.8	69042.4

TABLE 21 : RESULTS OF FINANCIAL APPRAISAL P2-FS2 ... 1/2

PROGRAMME 2 FINANCING SCHEME 2

YEARS	-2	-1	0	1	2	3	4	5	6	7
RETURN OF THE PROJECT										
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R.(BEFORE TAX&GRANTS)	0.091									
RETURN TO AIECO										
NET FLOWS	-12561.6	-16189.1	-7095.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R. NET	0.116									
RETURN ON EQUITY										
NET FLOWS TO EQUITY	-12561.6	-4541.1	-55.3	-6449.8	-1277.5	1497.1	4233.8	4871.9	5051.9	5231.9
R.O.E	0.120									

TABLE 21 : RESULTS OF FINANCIAL APPRAISAL P2-FS2 ... 2/2

PROGRAMME 2 FINANCING SCHEME 2

YEARS	8	9	10	11	12	13	14	15
RETURN OF THE PROJECT								
NET FLOWS	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	15375.2
I.R.R.(BEFORE TAX&GRANTS)								
RETURN TO AIECO								
NET FLOWS	8507.9	8507.9	8507.9	7255.7	7255.7	5377.4	5377.4	12244.7
I.R.R. NET								
RETURN ON EQUITY								
NET FLOWS TO EQUITY	5411.9	7757.9	8507.9	7255.7	7255.7	5377.4	5377.4	12244.7
R.O.E								

TABLE 22 : PROGRAMME 2 FINANCING SCHEME 3

... 1/2

INCOME STATEMENT

YEARS	1	2	3	4	5	6	7
REVENUES	6218.4	9327.5	12436.7	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	1302.0	1953.1	2604.1	3255.1	3255.1	3255.1	3255.1
LABOUR	497.7	746.6	995.4	1244.3	1244.3	1244.3	1244.3
UTILITIES	442.6	663.9	885.2	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	2110.1	1863.8	1677.1	1432.1	1432.1	1432.1	1432.1
DEPREC. AMORT.	5244.9	5244.9	5244.9	5244.9	5244.9	4112.0	4100.3
OPERATING COSTS	9597.4	10472.2	11406.8	12283.0	12283.0	11150.1	11138.3
E.B.I.T.	-3379.1	-1144.7	1030.0	3262.9	3262.9	4395.9	4407.6
INTEREST	1430.7	1277.5	1115.8	954.2	792.5	630.8	469.2
TAXES	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-4809.8	-2422.2	-85.9	2308.8	2470.4	3765.0	3938.4

TABLE 22 : PROGRAMME 2 FINANCING SCHEME 3

INCOME STATEMENT (1000 JD)

YEARS	8	9	10	11	12	13	14	15
REVENUES	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1
LABOUR	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3
UTILITIES	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1
DEPREC. AMORT.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
OPERATING COSTS	11114.8	11114.8	11114.8	7414.8	7414.8	7414.8	7414.8	7414.8
E.B.I.T.	4431.1	4431.1	4431.1	8131.1	8131.1	8131.1	8131.1	8131.1
INTEREST	307.5	213.3	186.7	160.0	133.3	106.7	80.0	0.0
TAXES	0.0	0.0	0.0	1227.5	1231.7	3089.4	3099.7	3130.5
NET PROFIT	4123.6	4217.8	4244.4	6743.6	6766.1	4935.0	4951.4	5000.6

TABLE 23: PROGRAMME 2 FINANCING SCHEME 3 P2-FS3 ... 1/2

SOURCES & USES OF FUNDS	-2	-1	0	1	2	3	4	5	6	7
APPLICATIONS :										
Land	241.0									
Buildings & Services	3819.0	3800.0	1350.0	450.0						
Plant Equipment	11100.0	14800.0	7400.0	3700.0						
Motor vehic. Furniture	35.0	50.0	150.0							
Project engineering	394.4	1562.6	318.2							
Pre-operating exp.	422.2	576.5	1189.5							
W C requirements			137.5	1204.6	526.7	531.8	458.1			
Subtotal investment	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
Interest during const.	35.0	235.0	940.0							
Principal repayment soft				0.0	0.0	1333.3	1333.3	1333.3	1333.3	1333.3
Principal repay. commerc.				562.5	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
Dividends										
Total Applications	16046.6	21024.1	11485.3	5917.1	1651.7	2990.1	2916.4	2458.3	2458.3	2458.3
SOURCES :										
Equity	12600.0	4600.0	2500.0	5300.0	0.0					
L.T. Bank Loans	3500.0	16500.0								
Commercial loan		0.0	9000.0							
Grants	0.0	0.0	0.0							
S.T. bank Loans				130.0	-130.0					
Net profit	0.0	0.0	0.0	-4809.8	-2422.2	-85.9	2308.8	2470.4	3765.0	3938.4
Depreciation & Amort.				5244.9	5244.9	5244.9	5244.9	5244.9	4112.0	4100.3
Total Sources	16100.0	21100.0	11500.0	5865.2	2692.7	5159.1	7553.7	7715.4	7877.0	8038.7
CASH SURPLUS (DEFICIT)	53.4	75.9	14.7	-52.0	1041.0	2169.0	4637.3	5257.0	5418.7	5580.4
ACCUMULATED CASH	53.4	129.3	144.0	92.0	1133.0	3302.0	7939.3	13196.3	18615.0	24195.4

TABLE 23 : PROGRAMME 2 FINANCING SCHEME 3 P2-FS3 ... 2/2

SOURCES & USES OF FUNDS	8	9	10	11	12	13	14	15
APPLICATIONS :								
Land								-241.0
Buildings & Services								-3767.6
Plant Equipment								
Motor vehic. Furniture								
Project engineering								
Pre-operating exp.								
W C requirements								-2858.7
Subtotat investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
Interest during const.								
Principal repayment soft	1333.3	1333.3	1333.3	1333.3	1333.3	1333.3	1333.3	4000.0
Principal repay. commerc.	1125.0	562.5						
Dividends								
Total Applications	2458.3	1895.8	1333.3	1333.3	1333.3	1333.3	1333.3	-2867.3
SOURCES :								
Equity								-6867.3
L.T. Bank Loans								
Commercial loan								
Grants								
S.T. bank Loans								
Net profit	4123.6	4217.9	4244.4	6743.6	6766.1	4935.0	4951.4	5000.6
Depreciation & Amort.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
Total Sources	8200.4	8294.5	8321.2	7120.3	7142.9	5311.8	5328.2	-1489.9
CASH SURPLUS (DEFICIT)	5742.0	6398.7	6987.9	5787.0	5809.5	3978.5	3994.9	1377.4
ACCUMULATED CASH	29937.4	36336.1	43323.9	49110.9	54920.5	58898.9	62893.8	64271.2

... 1/2

TABLE 24 : PROGRAMME 2 FINANCING SCHEME 3 P2-FS3

BALANCE SHEET	8	9	10	11	12	13	14	15
ASSETS								
FIXED ASSETS	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC	-32849.1	-36925.9	-41002.6	-41379.4	-41756.1	-42132.9	-42509.6	-42886.4
OTHER FIXED ASSETS	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5
-ACCUM. AMORTIZATION	-5664.6	-5664.6	-5664.6	-5664.6	-5664.6	-5664.6	-5664.6	-5664.6
INVENTORIES R.M.	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCE	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7
RECEIVABLES	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2
PETTY CASH	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8
RESIDUAL CASH	29937.4	36336.1	43323.9	49110.9	54920.5	58898.9	62893.8	64271.2
TOTAL ASSETS	47194.8	49516.7	52427.8	57838.1	63270.8	66872.5	70490.6	71491.2
LIABILITIES								
EQUITY	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS	3916.6	7627.8	11423.8	15243.8	21313.0	27402.5	31844.0	36300.3
LEGAL RESERVES	1660.6	2082.4	2506.8	3181.2	3857.8	4351.3	4846.5	5346.5
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT COMMERCIAL CREDIT	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0
LT BANK LOANS	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0
-REPAYMENTS	-8000.0	-9333.3	-10666.7	-12000.0	-13333.3	-14666.7	-16000.0	-20000.0
-REPAYMENT COMMERC. LOA	-8437.5	-9000.0	-9000.0	-9000.0	-9000.0	-9000.0	-9000.0	-9000.0
ST BANK CREDIT	0.0	0.0						
PAYABLE	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
NET PROFIT(distributable)	3711.2	3796.0	3820.0	6069.2	6089.5	4441.5	4456.3	4500.6
TOTAL LIABILITIES	47194.8	49516.7	52427.8	57838.1	63270.8	66872.5	70490.6	71491.2

TABLE 24 : PROGRAMME 2 FINANCING SCHEME 3 P2-FS3

BALANCE SHEET	-2	-1	0	1	2	3	4	5	6	7
ASSETS										
FIXED ASSETS	15195.0	33845.0	42745.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC				-4112.0	-8224.0	-12336.0	-16448.0	-20560.1	-24672.1	-28772.3
OTHER FIXED ASSETS	851.6	3225.7	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5	5673.5
-ACCUM. AMORTIZATION				-1132.9	-2265.8	-3398.7	-4531.6	-5664.6	-5664.6	-5664.6
INVENTORIES R.M.			137.5	206.3	275.1	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS				59.2	88.8	118.4	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS				189.5	284.2	379.0	473.7	473.7	473.7	473.7
RECEIVABLES				656.9	985.3	1313.7	1642.2	1642.2	1642.2	1642.2
PETTY CASH				367.8	441.7	520.7	594.8	594.8	594.8	594.8
RESIDUAL CASH	53.4	129.3	144.0	92.0	1133.0	3302.0	7939.3	13196.3	18615.0	24195.4
TOTAL ASSETS	16100.0	37200.0	48700.0	48895.3	45286.9	42811.4	42730.6	42742.7	44049.4	45529.5
LIABILITIES										
EQUITY	12600.0	17200.0	19700.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS					-4809.8	-7232.0	-7317.8	-5239.9	-3016.5	372.0
LEGAL RESERVES							230.9	477.9	854.4	1248.3
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT COMMERCIAL CREDIT	0.0	0.0	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0	9000.0
LT BANK LOANS	3500.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0
-REPAYMENTS			0.0	0.0	0.0	-1333.3	-2666.7	-4000.0	-5333.3	-6666.7
-REPAYMENT COMMERC. LOAN			0.0	-562.5	-1687.5	-2812.5	-3937.5	-5062.5	-6187.5	-7312.5
ST BANK CREDIT			0.0	130.0	0.0	0.0	0.0	0.0	0.0	0.0
PAYABLE				137.5	206.3	275.1	343.8	343.8	343.8	343.8
NET PROFIT(distributable)				-4809.8	-2422.2	-85.9	2077.9	2223.4	3388.5	3544.6
TOTAL LIABILITIES	16100.0	37200.0	48700.0	48895.3	45286.9	42811.4	42730.6	42742.7	44049.4	45529.5

TABLE 25 : P2 -FS 3 PROGRAMME 2 FINANCING 3

RESULTS OF FINANCIAL APPRAISAL

YEARS	-2	-1	0	1	2	3	4	5	6	7
RETURN OF THE PROJECT										
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R.(BEFORE TAX&GRANTS)	0.091									
RETURN TO AIECO										
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R. NET	0.083									
RETURN ON EQUITY										
NET FLOWS TO EQUITY	-12546.6	-4024.1	-2485.3	-5352.0	1041.0	2169.0	4637.3	5257.0	5418.7	5580.4
R.O.E	0.114									

TABLE 25 : P2 -FS 3

RESULTS OF FINANCIAL APPRAISAL

YEARS	8	9	10	11	12	13	14	15
RETURN OF THE PROJECT								
NET FLOWS	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	15375.2
RETURN TO AIECO								
NET FLOWS	8507.9	8507.9	8507.9	7280.3	7276.2	5418.5	5408.2	12244.7
RETURN ON EQUITY								
NET FLOWS TO EQUITY	5742.0	6398.7	6937.9	5787.0	5809.[illegible]	3978.5	3994.9	8244.7

TABLE 26 : PROGRAMME 2 FINANCING SCHEME 4

INCOME STATEMENT

YEARS	1	2	3	4	5	6
REVENUES	6218.4	9327.5	12436.7	15545.9	15545.9	15545.9
RAW MATERIAL	1302.0	1953.1	2604.1	3255.1	3255.1	3255.1
LABOUR	497.7	746.6	995.4	1244.3	1244.3	1244.3
UTILITIES	442.6	663.9	885.2	1106.6	1106.6	1106.6
OVERHEAD COSTS	2110.1	1863.8	1677.1	1432.1	1432.1	1432.1
DEPREC. AMORT.	5244.9	5244.9	5244.9	5244.9	5244.9	4112.0
OPERATING COSTS	9597.4	10472.2	11406.8	12283.0	12283.0	11150.1
E.B.I.T.	-3379.1	-1144.7	1030.0	3262.9	3262.9	4395.9
INTEREST	845.0	775.0	748.3	721.7	695.0	813.3
TAXES	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-4224.1	-1919.7	281.7	2541.2	2567 9	3582.6

TABLE 26 : PROGRAMME 2 FINANCING SCHEME 4

INCOME STATEMENT YEARS	7	8	9	10	11	12	13	14	15
REVENUES	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9	15545.9
RAW MATERIAL	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1	3255.1
LABOUR	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3	1244.3
UTILITIES	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6
OVERHEAD COSTS	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1	1432.1
DEPREC. AMORT.	4100.3	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
OPERATING COSTS	11138.3	11114.8	11114.8	11114.8	7414.8	7414.8	7414.8	7414.8	7414.8
E.B.I.T.	4407.6	4431.1	4431.1	4431.1	8131.1	8131.1	8131.1	8131.1	8131.1
INTEREST	786.7	760.0	213.3	186.7	160.0	133.3	106.7	80.0	0.0
TAXES	0.0	0.0	0.0	0.0	1227.5	1231.7	3089.4	3099.7	3130.5
NET PROFIT	3620.9	3671.1	4217.8	4244.4	6743.6	6766.1	4935.0	4951.4	5000.6

TABLE 27

... 1/2

PROGRAMME 2 FINANCING SCHEME 4

	YEARS									
SOURCES & USES OF FUNDS	-2	-1	0	1	2	3	4	5	6	7
APPLICATIONS :										
Land	241.0									
Buildings & Services	3819.0	3800.0	1350.0	450.0						
Plant Equipment	11100.0	14800.0	7400.0	3700.0						
Motor vehic. Furniture	35.0	50.0	150.0							
Project engineering	394.4	1562.6	318.2							
Pre-operating exp.	422.2	576.5	1189.5							
W C requirements			137.5	1204.6	526.7	531.8	458.1			
Subtotal investment	16011.6	20789.1	10545.3	5354.6	526.7	531.8	458.1	0.0	0.0	0.0
Interest during const.		160.0	325.0							
Principal repayment				0.0	0.0	1333.3	1333.3	1333.3	1333.3	1333.3
Lease payment (principal)				986.0	986.0	986.0	986.0	986.0	986.0	986.0
Dividends										
Total Applications	16011.6	20949.1	10870.3	6340.6	1512.7	2851.1	2777.4	2319.3	2319.3	2319.3
SOURCES :										
Equity	12600.0	4400.0	3000.0	5000.0	0.0					
Islamic Bank		7888.0								
Soft Loan	3500.0	9000.0	7500.0							
Grants	0.0	0.0	0.0							
S.T. local Loans				500.0	-500.0	0.0				
Net profit	0.0	0.0	0.0	-4224.1	-1919.7	281.6	2541.3	2567.9	3582.5	3620.9
Depreciation & Amort.				5099.9	5099.9	5099.9	5099.9	5099.9	4112.0	4100.3
Total Sources	16100.0	21288.0	10500.0	6375.9	2680.2	5381.6	7641.2	7667.9	7694.5	7721.2
CASH SURPLUS (DEFICIT)	88.4	338.9	-370.3	35.2	1167.5	2530.5	4863.8	5348.5	5375.2	5401.9
ACCUMULATED CASH	88.4	427.3	57.0	92.2	1259.7	3790.2	8654.0	14002.5	19377.7	24779.6

TABLE 27

PROGRAMME 2 FINANCING SCHEME 4

SOURCES & USES OF FUNDS	8	9	10	11	12	13	14	15
APPLICATIONS :								-241.0
Land								-3767.6
Buildings & Services								
Plant Equipment								
Motor vehic. Furniture								
Project engineering								
Pre-operating exp.								-2858.7
W C requirements								
Subtotat investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6867.3
Interest during const.								
Principal repayment	1333.3	1333.3	1333.3	1333.3	1333.3	1333.3	1333.3	4000.0
Lease payment (principal)	986.0							
Dividends								
Total Applications	2319.3	1333.3	1333.3	1333.3	1333.3	1333.3	1333.3	-2867.3
SOURCES :								-6867.3
Equity								
Islamic Bank								
Soft Loan								
Grants								
S.T. local Loans								
Net profit	3671.1	4217.8	4244.4	6743.6	6766.1	4935.0	4951.4	5000.6
Depreciation & Amort.	4076.8	4076.8	4076.8	376.8	376.8	376.8	376.8	376.8
Total Sources	7747.9	8294.5	8321.2	7120.3	7142.9	5311.8	5328.2	-1489.9
CASH SURPLUS (DEFICIT)	5428.5	6961.2	6987.9	5787.0	5809.5	3978.5	3994.9	1377.4
ACCUMULATED CASH	30208.1	37169.3	44157.1	49944.1	55753.7	59732.1	63727.0	65104.4

... 1/2

TABLE 28: BALANCE SHEET P2-FS4

PROGRAMME 2 FINANCING SCHEME 4

BALANCE SHEET	-2	-1	0	1	2	3	4	5	6
ASSETS									
FIXED ASSETS	15195.0	33845.0	42745.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC				-4112.0	-8224.0	-12336.0	-16448.0	-20560.1	-24672.1
OTHER FIXED ASSETS	816.6	3115.7	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5
-ACCUM. AMORTIZATION				-987.9	-1975.8	-2963.7	-3951.6	-4939.6	-4939.6
INVENTORIES R.M.			137.5	206.3	275.1	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCESS				59.2	88.8	118.4	148.0	148.0	148.0
INVENT. FINISHED GOODS				189.5	284.2	379.0	473.7	473.7	473.7
RECEIVABLES				656.9	985.3	1313.7	1642.2	1642.2	1642.2
PETTY CASH				367.8	441.7	520.7	594.8	594.8	594.8
RESIDUAL CASH	88.4	427.3	57.0	92.2	1259.7	3790.2	8654.0	14002.5	19377.7
TOTAL ASSETS	16100.0	37388.0	47888.0	48315.5	44978.6	43009.6	43300.3	43548.9	44812.1
LIABILITIES									
EQUITY	12600.0	17000.0	20000	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS					-4224.1	-6143.8	-5862.1	-3575.0	-1263.8
LEGAL RESERVES							254.1	510.9	869.2
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT LOANS SUPPLIERS CREDIT	3500.0	12500.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0
LT BANK LOANS	0.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0
-REPAYMENTS			0.0	0.0	0.0	-1333.3	-2666.7	-4000.0	-5333.3
-REPAYMENT DEV BANK			0.0	-986.0	-1972.0	-2958.0	-3944.0	-4930.0	-5916.0
ST DEBT		0.0	0.0	500.0	-500.0	0.0	0.0	0.0	0.0
PAYABLE				137.5	206.3	275.1	343.8	343.8	343.8
NET PROFIT(distributable)				-4224.1	-1919.7	281.6	2287.1	2311.1	3224.3
TOTAL LIABILITIES	16100.0	37388.0	47888.0	48315.5	44478.6	43009.6	43300.3	43548.9	44812.1

TABLE 28 ... 2/2

BALANCE SHEET	7	8	9	10	11	12	13	14	15
ASSETS									
FIXED ASSETS	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0	46895.0
-ACCUM. DEPREC	-28772.3	-32849.1	-36925.8	-41002.6	-41379.4	-41756.1	-42132.9	-42509.6	-42886.4
OTHER FIXED ASSETS	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5	4948.5
-ACCUM. AMORTIZATION	-4939.6	-4939.6	-4939.6	-4939.6	-4939.6	-4939.6	-4939.6	-4939.6	-4939.6
INVENTORIES R.M.	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
INVENT. GOODS UNDER PROCE	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
INVENT. FINISHED GOODS	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7	473.7
RECEIVABLES	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2	1642.2
PETTY CASH	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8	594.8
RESIDUAL CASH	24779.6	30208.1	37169.3	44157.1	49944.1	55753.7	59732.1	63727.0	65104.4
TOTAL ASSETS	46113.7	47465.5	50349.9	53261.0	58671.3	64104.0	67705.7	71323.8	72324.4
LIABILITIES									
EQUITY	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0	25000.0
RETAINED EARNINGS	1960.4	5219.3	8523.3	12319.3	16139.3	22208.5	28298.0	32739.5	37195.8
LEGAL RESERVES	1231.3	1598.4	2020.2	2444.6	3119.0	3795.6	4289.1	4784.2	5284.3
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT LOANS SUPPLIERS CREDIT	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0	20000.0
LT BANK LOANS	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0	7888.0
-REPAYMENTS	-6666.7	-8000.0	-9333.3	-10666.7	-12000.0	-13333.3	-14666.7	-16000.0	-20000.0
-REPAYMENT DEV BANK	-6902.0	-7888.0	-7888.0	-7888.0	-7888.0	-7888.0	-7888.0	-7888.0	-7888.0
ST DEBT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAYABLE	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
NET PROFIT(distributable)	3258.8	3304.0	3796.0	3820.0	6069.2	6089.5	4441.5	4456.3	4500.6
TOTAL LIABILITIES	46113.7	47465.5	50349.9	53261.0	58671.3	64104.0	67705.7	71323.8	72324.4

...1/2

TABLE 29

PROGR 2 FINANCING SC. 4

RESULTS OF FINANCIAL APPRAISAL

	-2	-1	0	1	2	3	4	5	6	7
RETURN OF THE PROJECT										
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R.(BEFORE TAX&GRANTS)	0.091									
RETURN TO AIECO										
NET FLOWS	-16011.6	-20789.1	-10545.3	-3488.8	3573.5	5743.1	8049.8	8507.9	8507.9	8507.9
I.R.R. NET	0.083									
RETURN ON EQUITY										
NET FLOWS TO EQUITY	-12511.6	-4061.1	-3370.3	-4964.8	1167.5	2530.5	4863.8	5348.5	5375.2	5401.9
R.O.E	0.117									

TABLE 29 ... 2/2

PROGR 2 FINANCING SC. 4

RESULTS OF FINANCIAL APPRAISAL

	8	9	10	11	12	13	14	15
RETURN OF THE PROJECT								
NET FLOWS	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	8507.9	15375.2
RETURN TO AIECO								
NET FLOWS	8507.9	8507.9	8507.9	7280.3	7276.2	5418.5	5408.2	12244.7
RETURN ON EQUITY								
NET FLOWS TO EQUITY	5428.5	6961.2	6987.9	5787.0	5809.5	3978.5	3994.9	8244.7

TABLE 30 : Conversion Factors For Outputs

I T E M	FULL LOCAL PRODUCTION (in tonnes)	EXPORTS (in tonnes)	$ PRICE Per Tonne CIF	TAX RATE	$ LOCAL PRODUCER PRICE	LOCAL COSTS	CONVERSION FACTOR*
Malleable Pipe Fitting							
Home	2165	-	2472	30%	3214	5%	0.81
Export		2663	2472	-			1.00
Other Malleable	155	-	2665	-		5%	1.05
Ductile fitting	482	-	2397	-		5%	1.05
Other Ductile	150	-	1620	48%	2397	5%	0.71
Grey Iron							
Pipe Fittings	199	-	1696	-		5%	1.05
Brake Blocks	220	-	734	48%	1086	5%	0.71
Stove Parts(local)	127	-	2584	37%	3540	5%	0.77
Stove Parts(Export)		298	2584	-			1.00
Root/Floor Drains	91	-	2693	-			1.05
Steel Castings							
Track Pads	760	-	4568	-	4568	5%	1.05
Cement Parts	205	-	3825	-		5%	1.05
Crusher Parts	1448	-	2241	19%	2667	5%	0.88
Earthmoving Parts	354	-	2755	44%	3968	5%	0.73

* Conversion Factor = Economic Price/Financial Price.

EXCHANGE RATE

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1.57	£ /$
0.54	DM/$
1.47	JD/$

TABLE 31 : Conversion Factors For raw Material ... 1/3

RAW MATERIAL - PRICES

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ITEM	CUR.	ORIGINAL PRICE	PRICE INCREASE	FREIGHT $	LOCAL COST $	PRICE AT SITE WITHOU CUST. $	CUSTOMS RATE	SITE PRICE WITH CUST. $	EQUIV. JD	CONVERSION FACTOR
LOCAL SCRAP	$	64.00				64.00		64.00	43.52	1.00
IMPORTED SCRAP	$	185.00			10.00	195.00	0.05	204.25	138.89	0.95
PIG IRON	$	240.00			10.00	250.00	0.05	262.00	178.16	0.95
CARBURIZER S.8	$	513.00			10.00	523.00	0.05	548.65	373.08	0.95
CARBURIZER S.02	$	850.00			10.00	860.00	0.05	902.50	613.70	0.95
FE-SI 75%	$	805.00			10.00	815.00	0.05	900.00	612.00	0.91
FE-SI 45%	$	805.00			10.00	815.00	0.05	900.00	612.00	0.91
FE-MN 75%	$	800.00			10.00	810.00	0.05	850.00	578.00	0.95
FE-BORON 60%	L	4850.00	1212.50		10.00	9522.06	0.05	9997.67	6798.41	0.95
FE-MN 80%	$	800.00			10.00	810.00	0.05	900.00	612.00	0.90
SI-MN 75&45%	$	825.00		90.00	10.00	925.00	0.05	970.75	660.11	0.95
CA-SI-MN	L	1378.00	103.35		10.00	2334.24	0.05	2450.45	1666.31	0.95
ALUM.(LADLE ADD	DM	4200.00		90.00	10.00	2368.00	0.05	2485.90	1690.41	0.95
FER. CR 65%	L	1501.00		90.00	10.00	2455.07	0.05	2577.32	1752.58	0.95
NI 99%	$	14229.00		90.00	10.00	14329.00	0.05	15044.95	10230.57	0.95
SILICA SAND	JD	5.50				8.09		8.09	5.50	1.00
BENTONITE	$	220.00			10.00	230.00	0.05	241.00	163.88	0.95
COAL DUST	DM	535.00	80.25		10.00	342.24	0.05	358.85	244.02	0.95
RESIN	L	1470.00	110.25		10.00	2489.41	0.05	2613.38	1777.10	0.95
CATALYST	JD	275.00			10.00	414.25		414.25	281.69	1.00
ZIRCON SAND	$							550.00	374.00	0.95
MOULD WASH	L	772.00	57.90		10.00	1312.11	0.05	1377.22	936.51	0.95

EXCHANGE RATE

1.57 £ /$
0.54 DM/$
1.47 JD/$

TABLE 31 : Conversion Factors For raw Material ... 2/3

RAW MATERIAL - PRICES

ITEM	CUR.	ORIGINAL PRICE	PRICE INCREASE	FREIGHT $	LOCAL COST $	PRICE AT SITE WITHOU CUST. $	CUSTOMS RATE	SITE PRICE WITH CUST. $	EQUIV. JD	CONVERSION FACTOR
CHROMITE SAND	$							250.00	170.00	0.95
RESIN BINDER	L	1470.00	110.25		10.00	2489.41	0.05	2613.38	1777.10	0.95
HEXAMINE	DM	1448.00	217.20		10.00	909.21	0.05	954.17	648.83	0.95
STERATE	DM	2484.00	372.60		10.00	1552.56	0.35	2092.46	1422.87	0.74
IRON OXIDE	L	126.50			10.00	208.48	0.05	218.40	148.51	0.95
ZINC	DM	3250.00		90.00	10.00	1855.00	0.05	1947.25	1324.13	0.95
ALUMINIUM	DM	4200.00		90.00	10.00	2368.00	0.05	2485.90	1690.41	0.95
ACID HYDC.	JD	175.00				257.25		257.25	174.93	1.00
FLUX	$	660.00			10.00	670:00	0.21	808.60	549.85	0.83
VARNISH CONCENT	JD	1500.00				2205.00		2205.00	1499.40	1.00
TURPS-SUBST.	JD	1000.00				1470.00		1470.00	999.60	0.51
VARNISH REMOVER	JD	567.00				833.49		833.49	566.77	1.00
REF.FURNACE IRO	$	402.00			10.00	412.00	0.05	432.10	293.83	0.95
REF.LADLE	DM	1948.00			10.00	1061.92	0.05	1114.52	757.87	0.95
REF.POURING FUR	DM	2740.00			10.00	1489.60	0.05	1563.58	1063.23	0.95
REF. FURNACE ST	$	1480.00			10.00	1490.00	0.05	1564.00	1063.52	0.95
SLAG BINDER	$	500.00			10.00	510.00	0.05	535.00	363.80	0.95
FLOURSPAR	$	260.00			10.00	270.00	0.25	335.00	227.80	0.81

EXCHANGE RATE

1.57 £ /$
0.54 DM/$
1.47 JD/$

TABLE 31 : Conversion Factors For Raw Material ... 3/3

RAW MATERIAL - PRICES

ITEM	CUR.	ORIGINAL PRICE	PRICE INCREASE	FREIGHT $	LOCAL COST $	PRICE AT SITE WITHOU CUST. $	CUSTOMS RATE	SITE PRICE WITH CUST. $	EQUIV. JD	CONVERSION FACTOR
CUTTING FLUID	L	869.60	65.22		10.00	1476.73	0.05	1550.07	1054.05	0.95
CUTING POWDER	$	800.00	120.00		10.00	930.00	0.05	976.00	663.68	0.95
REL. AGENT OIL	L	1029.00	257.25			2018.13	0.05	2119.03	1440.94	0.95
REL. AGENT SILI	L	2048.00	512.00		10.00	4026.64	0.05	4227.47	2874.68	0.95
ABRASIVE SHOT	L	364.00	91.00		10.00	723.90	0.30	938.06	637.88	0.77
ABRASIVE WHEEL	DM	284.00				153.36	0.05	161.03	109.50	0.95
ABRASIVE WHEEL	DM	5.50				2.97	0.05	3.12	2.12	0.95
ABRASIVE WHEEL	DM	284.00				153.36	0.05	161.03	109.50	0.95
CUTTING DISC	DM	61.00				32.94	0.05	34.59	23.52	0.95
ABRASIVE TIPS	$	0.80				0.80	0.05	0.84	0.57	0.95
ELECTRODES	L	4412.00	330.90		10.00	7451.61	0.45	10800.33	7344.23	0.69
FER. PHOSPHORUS	DM	810.00	121.50		10.00	513.01	0.05	538.16	365.95	0.95
CERIUM MISHMETA	$	8000.00			10.00	8010.00	0.05	8410.00	5718.80	0.95
CALCIUM CARBIDE	DM	1105.00	165.75		10.00	696.21	0.05	730.52	496.75	0.95
FE SI MG	$	1660.00			10.00	1670.00	0.05	1753.00	1192.04	0.95
FERRO Mo	$							9800.00	6664.00	0.95
Fe Sulphur	$							1320.00		0.95
Cutting Tools										0.95

TABLE 32 : CONVERSION FACTORS FOR OTHER INPUTS

Labor Cost	
-non qualified	0.60
-semi qualified	0.70
-qualified	0.90
TOTAL LABOR	
POWER	1.07
COMPRESSED AIR	1.07
FUEL	1.00
WATER	1.40
GAS	1.00
TOTAL UTILITIES	
STAFF SALARIES	0.90
SOCIAL BENEFITS	0.70
MAINTENANCE MATERIAL	0.98
TECHNICAL SERVICES	1.00
MARKETING EXPENSES	0.80
OTHER EXPENSES	0.80
TOTAL OVERHEAD	

INVESTMENT COST	
Land	0.00
Buildings & Services	0.87
Plant Equipment	0.98
Motor vehic. Furniture	0.55
Project engineering	1.00
Pre-operating exp.	0.85
W C requirements	0.48

TABLE 33

ECONOMIC VALUES : (1000 JD)

		-2	-1	0	1	2	3	4	5	6-15
GROSS BENEFITS *										
MALLEABLE PIPE FITTINGS :										
-LOCAL	0.81				1379.7	2069.6	2759.5	3449.4	3449.4	3449.4
-EXPORTS	1.05				2032.9	3049.4	4065.9	5082.3	5082.3	5082.3
STEEL CASTINGS										
-TRACK PADS	1.05				991.4	1487.1	1982.8	2478.6	2478.6	2478.6
-CEMENT PARTS	1.05				212.2	318.4	424.5	530.6	530.6	530.6
-CRUSHER PARTS	0.88				924.4	1386.5	1848.7	2310.9	2310.9	2310.9
-EARTHMOVING PARTS	0.73				278.9	418.4	557.8	697.3	697.3	697.3
TOTAL SALES REVENUES				0.0	5819.6	8729.4	11639.3	14549.1	14549.1	14549.1

* Gros Benefits are sales revenues valued at economic prices .

TABLE 34 ECONOMIC COSTS

CURRENT COSTS (1000 JD)	YEARS 1	2	3	4	5	6-15
RAW MATERIAL	1227.5	1841.2	2455.0	3068.7	3068.7	3068.7
LABOUR	345.8	518.7	691.7	864.6	864.6	864.6
UTILITIES	478.4	717.6	956.8	1196.0	1196.0	1196.0
OVERHEADS	1929.6	1667.7	1454.8	1195.4	1196.4	1196.4
TOTAL CURRENT COSTS	3981.3	4745.2	5558.2	6325.7	6325.7	6325.7

	YEARS -2	-1	0	1	2	3	4	5	6
INVESTMENT COST									
Land	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 •
Buildings & Services	3326.3	3309.8	1175.9	391.9	0.0	0.0	0.0	0.0	0.0
Plant Equipment	10878.0	14504.0	7252.0	3626.0	0.0	0.0	0.0	0.0	0.0
Motor vehic. Furniture	19.3	27.5	82.5	0.0	0.0	0.0	0.0	0.0	0.0
Project engineering	394.4	1562.6	318.2	0.0	0.0	0.0	0.0	0.0	0.0
Pre-operating exp.	358.8	490.0	1011.1	0.0	0.0	0.0	0.0	0.0	0.0
W C requirements	0.0	0.0	65.3	572.2	250.2	252.6	217.6	0.0	0.0
Subtotat investment	14976.8	19894.0	9905.0	4590.1	250.2	252.6	217.6	0.0	0.0
						0.0	0.0	0.0	0.0
NET BENEFITS	-14976.8	-19894.0	-9905.0	-2751.8	3734.0	5828.5	8005.8	8223.4	8223.4
E.R.R	0.095								

• Salvage value of has been added to year 15

TABLE 35 FOREIGN EXCHANGE SAVING(IN 1000 JD)

	YEARS										
	-2	-1	0	1	2	3	4	5	6	7-15	TOTAL
1 Foreign exchange gains											
- Exports				1940	2900	3870	4840	4840	4840		
- Savings on imports				3650	5480	7310	9135	9135	9135		
Subtotal				5590	8380	11180	13975	13975	13975		
2 Foreign exchange losses											
- Direct investment	12850	16700	8350	3870	200	300					
- Indirect investment	1500	3000	1500								
- Raw material				1200	1800	2400	3000	3000	3000		
- Others				1690	1590	1380	1300	1300	1300		
Subtotal	14350	19700	9850	6760	3590	4080	4300	4300	4300		
Net Foreign Exchange	-14350	-19700	-9850	-1170	4790	7100	9675	9675	9675	87075	82920

Total Foreign Exchange Discounted(§9.5%)= 21MJD