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JORDAN

Technical report: Evaluation of foundry project for
the Ministry of Planning*

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 Daniel Mellor - foundry consultant
with the collaboration of members of the Marketing and
Industrial Management and Engineering Section of the
Private Services Development Project

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United Nations Industrial Development Organization
Vienna

* This document has not been edited.

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TABLE OF CONTENTS

CHAPTER		Page No.
	<u>INTRODUCTION</u>	3
1	<u>METHOD OF APPROACH</u>	4
	A Study Team	4
	B Data Collection and Analysis	4
	C Field Research	5
II	<u>SUMMARY OF THE REPORT</u>	6
	A Malleable Iron Pipe Fittings (local)	6
	B Engineering Castings	6
	C Steel Castings	6
	D Summary of Local Demand	6
	E Export Potential for Pipe Fittings	7
	F Other Opportunities	7
	G Import Duties	8
	H Prices	8
	I Substitute Materials	8
III	<u>SURVEY IN DETAIL</u>	9
	A Malleable Pipe Fittings	9
	B Engineering Castings	15
	C Steel Castings	17
	D Other Products	18
	<u>APPENDICES</u>	
1	Visit Reports	23
2	Construction Activity	61

INTRODUCTION

The Arab Engineering Industries Co. (AEICO) has been, for many years, pursuing a project to establish a foundry in Jordan based principally on the production of Malleable Iron Pipe Fittings. Bids were requested and received but there was some doubt as to the validity of the market estimates, upon which the project was based.

The last bids, received in February 89, were based on an annual product mix of 2654 tonnes of Steel castings and approximately 6.000 tonnes of Malleable Iron Pipe Fittings, of which, not less than 3,000 tonnes of fittings were to be exported.

In January 89 the Government of Jordan requested UNIDO to provide a foundry expert to evaluate the project and Mr. Rudolf Paulicek carried out this work in Amman from 7-12th January, for the Ministry of Planning, on behalf of UNIDO, Vienna. His work is covered by a report dated January 10, 1989.

Following receipt of this report, the Minister of Planning in Jordan, requested further assistance for a more detailed evaluation of the project which was to comprise three aspects.

- a) Re-evaluation of the existing market survey and the compilation of additional data, in order to prepare a rational production schedule.
- b) Preparation and analysis of several possible programmes, specification of equipment and technology and preparation of a tender document.
- c) Preparation of an approximate financial analysis of the most reasonable alternatives.

The work was scheduled to cover a period of 2 months starting on 12th March 89.

At the same time the Minister of Planning had requested assistance from the Private Services Development Project in Amman to start preliminary work to assist with the Market Study and their terms of reference were to validate the proposed production programme based on 2654 tonnes of Steel Castings per year and Approx 6000 tonnes of Malleable Fittings per year.

Their work was to cover both local and export possibilities for

Malleable Fittings.

Items b) and c) above, are the subjects of separate reports. item a) is the subject of this report.

I - METHOD OF APPROACH

A - Study Team

Joint effort consisting of the UNIDO foundry consultant and members of the Marketing and Industrial Management and Engineering Sections of the Private Services Development Project. (P.S.D.P.).

P.S.D.P. concentrated on desk research while the UNIDO foundry consultant carried out field studies in addition to reviewing official statistics relating to the importation of fittings and previous market surveys.

B - Data Collection and Analysis

- Received and reviewed reports of market studies, financial studies and project evaluations of 1982, 1984, 1988 and 1989.
- Collected historical data relative to Jordan's economic and demographic trends.
- Analysed the data collected and developed projections of local demand and export potential.
- Explored related issues which could have an impact on the demand for the Foundry's products, such as:-
 - Substitute materials
 - Customs duties
 - Arab Cooperative Council agreement (ACC)*
 - Competition from existing foundries.

* The ACC countries are:- Jordan, Egypt, Iraq and North Yemen.

C - Field Research

A total of 45 interviews were conducted with pipe fittings importers, merchants and potential users of the products of the foundry. Most of these interviews were carried out in the company of the Chief Engineer of AEICO, Dr. A. ABU SAFIAH.

Detailed reports of these interviews can be found in APPENDIX 1.

I - SUMMARY OF THE REPORTA - Summary of Local Demand

It is recommended that the revised production programmes be based on the following:-

Malleable Pipe Fittings	2000 Tonnes / year
Engineering Castings	2000 Tonnes / year
Steel Castings	<u>2654 Tonnes / year</u>
TOTAL	<u>6654 Tonnes / year</u>

B - Malleable Pipe Fittings (Local)

Importation of Malleable Fittings into Jordan has fallen from a peak figure of over 3000 tonnes per year in 1983/4 to approximately 1500 tonnes in 1988. Allowing only a 3.8% per annum increase (in line with the forecast population growth) a demand for 2000 tonnes is forecast for the mid 90's when the foundry would reach full production.

C - Engineering Castings

The sales potential for Engineering Castings which can be made on the same moulding line as the Malleable Pipe Fittings, is 2000 tonnes per year. This includes Malleable, Ductile and Gray Iron castings.

D - Steel Castings

The previously established production programme for 2654 tonnes per year of Steel castings is considered realistic. The demand could be higher if Special Irons and Ductile and Grey Iron was made on the same moulding line but many of these additional castings would require finishing operations (e.g. machining and assembly) not within the scope of the present project.

E - Export Potential for Pipe Fittings

There exists within the ACC countries and others in the Middle East, a total consumption of Malleable Fittings far an excess of the proposed capacity of the AEICO foundry, probably more than 8,000 tonnes per year.

There is only one existing Malleable Fitting's foundry in the area, this being at Helwan in Egypt. It is said to produce poor quality fittings and cannot satisfy the Egyptian demand.

If the AEICO foundry is able to make high quality Pipe Fittings at competitive prices it should be able to export, particularly within the ACC where it will have tariff advantages. This is also true of other regional countries with which Jordan has favorable trading agreements. Export of Pipe Fittings outside these areas should not feature in any considerations for the feasibility of the AEICO project, as it is an oversupplied market.

It is therefore recommended that an alternative programme should be evaluated consisting of the Steel Castings plus the DISA line dedicated to Malleable Fittings i.e. approximately 5000 tonnes.

N.B. Efforts were made, through the Ministry of Planning, to obtain details of the duties applied to imports of Malleable Iron Pipe Fittings into: Egypt, Iraq, North Yemen and Syria. This information is not yet available

F - Other Opportunities

There are many other potential sources of orders for the foundry including the following:

- Pipe Wrenches
- Engineer's Vices
- Bearing Blocks
- Boiler Castings
- Railway Castings etc.

These are examined in greater detail in Chapter III - D of this report. The production of many of the above would not only provide additional orders for AEICO but could be the basis for establishing small engineering enterprises in Jordan.

G - Import Duties

It was established that current rates of duty and taxes on imported Malleable Pipe Fittings are:-

10% Duty + 18% Government Taxes.

Details of duties applied to other cast products were obtained during the survey.

H - Prices

Purchase prices for pipe fittings and other castings to be used in the new production programme have been obtained or will be available in time for the Financial Analysis.

I - Substitute Materials

Candidate substitute materials (PVC, UPVC, Polypropolene, Cross Linked Polyethelene) are not expected to have a significant impact on Malleable Fitting's demand.

III - SURVEY IN DETAIL

A - Malleable Pipe Fittings

Statistical

- Code 73/20/B of the Import Statistics covers "Tube and Pipe Fittings (for example, joints, elbows, unions and flanges) of Iron and Steel". For each year they are listed by country of origin with tonnage and value. Malleable Fittings are included in this category but, despite the readily given assistance of the Ministry of Planning and the Departments of both Customs and Statistics, it proved impossible to separate them from other fittings. The values per tonne and countries of origin for many of the entries confirmed conclusively that not all the fittings were Malleable.

- A large proportion of the demand for Malleable Fittings is related to building construction, particularly house building. The Central Bank statistics for construction activity and those of the Jordan Engineers Association were examined and these are shown in Appendix 2. They show a peak of activity in 1983 with a decline from about 3,000,000 square metres at that time to an estimated 1,700,000 square metres in 1988. This follows closely the figures for imports of pipe fittings based on field studies (discussed later) which show a peak of about 3200 tonnes in 1984 falling to around 1500 tonnes in 1988.

Imports into Arab Countries

Statistics were not available for all of these countries but the following are the figures for Malleable Fittings for those which were on record.

<u>Country</u>	<u>Year</u>	<u>Tonnes</u>
Saudi Arabia	1986	5.983
Qatar	1987	556
Libya	1984	3.227
Oman	1987	22
Bahrain	1983	88
Syria	1985	530
Morocco	1984	2156

However, being aware of the problems experienced with the local statistics, the accuracy of the above figures cannot be guaranteed.

Field Research

Information on imports of Malleable Pipe Fittings was obtained by visits to the following:-

a) Sole Agents for Overseas Pipe Fitting Manufacturers

<u>Company</u>	<u>Agency</u>	
Mitri Mushahwar & Sons	Crane Co.	UK
Joseph N. Abdo Co.	Falc	Italy
M. Musharbash	E.E.	Poland
Salim Khalil & Sons Co.	G.F.	Swiss

b) Local Merchants

Kayyali Stores Co
 Palestine Building Materials
 Lababeedi Co
 23 Other Merchants

Detailed reports on visits to these companies are to be found in Appendix 1. A summary of the main findings is shown below.

It should be noted that Pipe Fittings are imported in Containers, each with approximately 18 tonnes net.

Two qualities are imported - Black and Galvanised.

Prices are based on an International Price List against which discounts are offered. These discounts vary depending on the currency in which the prices are quoted. They also vary for cheaper or more expensive sources.

The brands imported by the 4 sole agents are recognized as the "quality" brands. Other, cheaper sources are:- China, Brazil, Taiwan and Yugoslavia. Not all of those cheaper fittings are being currently imported.

i) Mitri Mushahwar & Sons

Their estimate of total Jordanian imports of the 4 quality brands

1984	170-190 Containers	3060-3420	tonnes
1985	140-150 Containers	2520-2700	tonnes
1986	90-100 Containers	1620-1800	tonnes
1987	70-80 Containers	1260-1440	tonnes
1988	50-60 Containers	900-1080	tonnes

Their own 1988 imports 198 tonnes
 % of fittings Galvanised 50%
 Price of fittings :- Black - List less 88% in Sterling
 Price of fittings :- Galv - List less 88% + 33% in Sterling

ii) Joseph N Abdo Co.

Their own imports in 1983/4 - 800 - 900 tonnes per year
 Their own imports in 1988 - 450 - 470 tonnes
 % of fittings Galvanised - 25% maximum
 Price of fittings:- Black - List less 75% in US \$
 Price of fittings:- Galv - List less 75% + 25% in US \$
 Their forecast for total Jordan imports in 1989 - 1500 tonnes

iii) N. Mushabash

Their figures for their own imports:-

1982	16 Containers	288 tonnes
1983	23 Containers	414 tonnes
1984	22 Containers	396 tonnes
1985	18 Containers	324 tonnes
1986	20 Containers	360 tonnes
1987	16 Containers	288 tonnes
1988	12 Containers	216 tonnes
1989 est.	16 Containers	288 tonnes

N.B. In a 1987 market survey conducted by Dr. A. Abu Safiah of AEICO another official of this company stated their own imports to be 600 tonnes per year.

% of fittings Galvanised:- Not more than 2% (N.B. Most of theirs are used for central heating)

Price of fittings:- Black - List less 81.5% in US \$

Price of fittings:- Galv - List less 81.5% + 25% in US \$

Salim Khalil & Sons Co.

Their own imports:-

1986	6 Containers	198 tonnes
1987	3 Containers	54 tonnes
1988	2 Containers	36 tonnes

They say their share of the 4 quality brands is "not more than 5%"

% of Fittings Galvanised :- 50%

Summary of the 4 Sole Agents

a) Their figures for their own imports:- 1988

	Tonnes	% Galv.	% Share
Mushahwar	198	50	21
Abdo	468	25	51
Musharbash	216	2	24
Khalil	36	50	4
Total	918	26	100%

b) Their estimates of total for 4 "quality" brands:- 1988

Mushahwar	1100 Tonnes
Abdo (Assuming 77% Quality Brands)	1155 Tonnes

Merchants

Kayyali Stores Co (The biggest merchants)

Their own imports:- 1988 - 400 tonnes

Their estimates for total Jordan:- 1988

4 Quality brands	-	1136 tonnes
Other brands	-	<u>364 tonnes</u>
Total	-	1500 tonnes

Summary of 23 merchants (including Kayyali)

Source of Supply	Tonnes	%
Falc - Italy	558	37
EE - Poland	396	26
Crane - UK	180	12
GF - Swiss	36	2
Chinese	252	17
Jugoslav	90	6
TOTAL	1512	100

Overall Summary of 1988 Pipe Fitting Imports

Source of Information	Tonnes
Sum of 4 Sole Agents Own Imports	918
<u>Estimate 4 "Quality" Brands</u>	
by Mushahwar a)	990
by Abdo b)	1155
by Kayyali c)	1136
by 23 Merchants d)	<u>1170</u>
Average a) b) c) d)	<u>1113</u>
<u>Estimate For Other Brands</u>	
by Kayyali e)	364
by 23 Merchants f)	<u>342</u>
Average e) f)	<u>353</u>
Average for all Brands (a to f)	1466

It is felt that if there was any tendency for figures to be understated, the 4 sole agents would have the greatest reason to do so. The local production of Pipe Fittings would make them redundant.

It is therefore proposed that 1500 tonnes be accepted as the best estimate for 1988 imports. At present not more than 26% are Galvanised

but this is a very low % by international standards. Many Black fittings are used for water lines which more correctly, should use Galvanised.

Having arrived at a 1988 import total of 1500 tonnes, it still left the question as to whether or not it represented a "normal" demand. Was this figure still carrying the influence of the boom years or was a truer norm a higher figure than 1500 tonnes; perhaps somewhere between the 1983/4 peak of 3200 tonnes and the 1500 of 1988?

Based on the views obtained during the interviews with agents and merchants it was felt that 1988 could be regarded as normal. None expressed the view that 1989 might be lower than 1988, with the exception of the Crane agent (see Appendix 1-1.1). Some forecast a higher import level for 1989 but the majority opinion was that the low point had already been reached. It was therefore decided to accept 1500 tonnes as the base figure.

Discussions had been held with the Minister of Planning as it was felt that his Ministry was in the best position to advise on anticipated trends over the next decade. Based on the comments received it was recommended that an annual growth rate of not more than the projected population growth of 3.8% per annum should be used.

Since it is anticipated that it will take 3 years from contract signature to the start of production and a further 4 years for the foundry to reach 100% output, a compound increase of 3.8% per year was used on the base figure of 1500 tonnes, resulting in a projected annual local demand of approximately 2000 tonnes of Malleable Pipe Fittings.

This is considerably lower than the 2600 tonnes used for the local demand when the project was reviewed in May 1988, but is considered to be a more realistic figure.

Other Issues Effecting Pipe Fitting Demand

As stated above, the growth in local demand for Malleable Pipe Fittings has been forecast at only 3.8% per year.

There are however other factors which could have an influence on demand but which cannot be quantified. The major positive factors which could arise are:-

- The formation of the Arab Co-operation Council. This is the proposed free trade area consisting of Jordan, Egypt, Iraq and North Yemen. This envisages close co-operation of the participants in economic affairs with duty free inter-trading.
- Oil prices have been rising over the past year and although Jordan is not an oil producer, it usually benefits from the prosperity of neighbouring oil rich countries.
- A settlement of the West Bank problem could lead to massive reconstruction in that area which would increase the demand for the AEICO products.

B - Engineering Castings

The sales potential for Engineering castings, which might be made on the same automatic moulding line as Pipe Fittings, was surveyed by visiting potential users. Reports on these visits can be found in Appendix 1.

These included potential users who had been identified in previous studies and the demand was checked in the light of present conditions. Where necessary previous estimates have been amended. In many cases they have been reduced.

Some new potential customers were identified including a second major manufacturer of domestic cookers, a range of ho. couplings sold by many merchants and castings for Telecommunications and Electric Power Transmission Authorities.

The overall range of these castings includes Malleable, Ductile and Grey irons and a local demand of 2000 tonnes per year was determined.

The main categories are summarized below:

Pipe Sockets		165 tonnes
Cooker (stove) castings		425 tonnes
Railway Castings	*	371 tonnes
Scaffold Fittings		46 tonnes
Drainage Castings	*	291 tonnes
Auto Wheel Rims		100 tonnes
Electrical Transmission Fittings*		16 tonnes

Wire Clamps	*	29 tonnes
Hose Couplings	*	65 tonnes
Ductile Iron Fittings	*	<u>482</u> tonnes
		<u>1990</u> tonnes

For some of these castings (marked *) there could be future export potential to neighbouring and regional countries.

There are many other small castings which are not required in sufficient quantities to justify production on an automated moulding line. There are still others which could provide suitable loading but which form part of assemblies with other components (e.g. forgings) or require extensive machining operations for which the foundry is not equipped. These are discussed in more detail in Chapter III - D.

C - Steel Castings

Visits made to potential customers such as Phosphate, Carbonate, Fertilizer and Potash Industries together with a close examination of earlier studies, confirmed that the previously proposed annual programme of 2,654 tonnes is realistic. This programme is summarized below.

Stone Crushing Industry	1577	Tonnes
Excavators etc...	313	Tonnes
Track Pads etc...	<u>764</u>	Tonnes
Total	<u>2654</u>	Tonnes

There is some competition for the simpler castings from small local foundries but they are not able to guarantee metal analysis or dimensional tolerances for important items. 29% of the 2654 tonnes is made up of Manganese Steel Track Pads and no local foundry has the competence to produce these.

Virtually all of the other castings are for spare parts required in relatively small quantities. Within the industries mentioned above, there is a predictable demand and since, in most cases, they will be substitutions for imports, they should command good prices.

There is a demand for many other castings for "spares" in organizations such as Jordan Railways. Many castings were seen in their stores at Maan and are referred to in the visit report in Appendix 1, 1.15. However, in most cases they require machining and the Railways would only be prepared to purchase them in a finished condition. It should be possible for this work to be sub-contracted to a local machine-shop if AEICO found it profitable to include these castings in the programme.

Another alternative choice of loading for the Pattern-Flow moulding line (i.e. Steel Castings Line) could be Manhole Covers and Frames. Small local foundries are already making some of these in Grey Iron but the trend in Europe in recent years has been to produce them in Ductile Iron. These are stronger but only about half of the weight of the Grey Iron types and command a much higher price per tonne. Some Ductile covers and frames can be seen in the streets of Amman using castings imported from France.

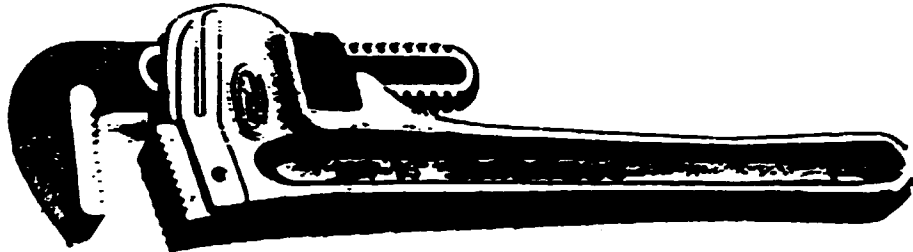
AEICO should be in a position to select those castings which best suit their production facilities and give the best return.

D - Other Products

The following is a list of other products which might provide additional loading for the AEICO foundry. Although they have not been the subject of a detailed survey, visits have been made to merchants who import these items and an approximate annual consumption has been established wherever possible. Most of this field survey work has been carried out by Dr. A. Abu Safiah of AEICO.

Illustrations of the products are provided in most cases.

1) Pipe Wrenches



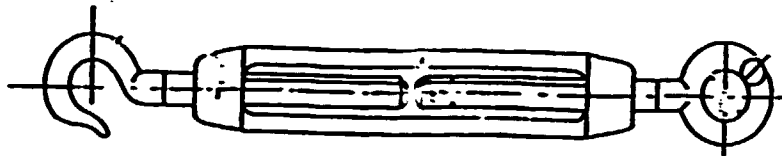
They are imported from the U.K., USA, Spain and China and consist essentially of a cast Ductile or Malleable handle and a moving jaw which is a steel forging. There is also a steel nut which is usually made from bar. The estimated annual demand is shown below.

<u>Size</u>	<u>Annual Quantity</u>
8"	53.000
10"	43.000
12"	33.000
14"	16.500
18"	11.500
24"	2.600
36"	1.100
48"	250

This type of wrench is in universal use and there would therefore be export potential.

The cast handle is suitable for production in the AEICO foundry but a source of steel forgings would be required.

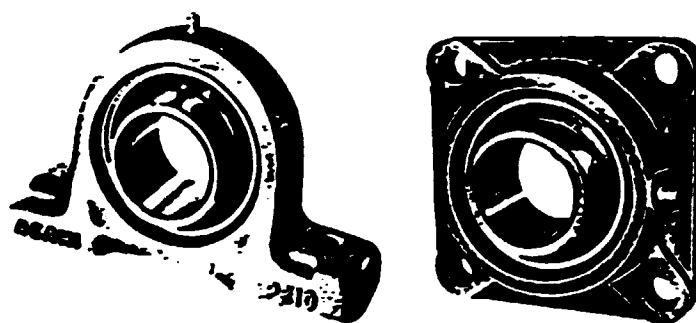
This type of product could form the basis of a small local Engineering factory making hand tools and purchasing castings from AEICO.

2) Turnbuckles

These are also a combination of castings and forgings. Estimated annual demand is 22,000 units.

3) Bearing Blocks (Pillow Blocks)

The housings are castings but they require a considerable amount of machining. The bearings could be purchased from any one of many overseas sources. The estimated annual sales in Jordan are 30,000 units. It is quite possible that these are too low to justify local production but it is a subject worthy of further investigation.



4) Engineer's Vices

These consist mainly of two castings; a fixed housing and a sliding member, made in Malleable, Ductile or Grey Iron. The estimated local demand is.

<u>Size</u>	<u>Annual Quantity</u>
3"	3300
4"	3300
5"	2300
6"	3300

There is however a considerable amount of machining required in finishing and assembling vices and this sometimes involves a complex broaching operation. A more detailed study would be required to determine whether or not they could be made economically in Jordan.

5) Radiators and Boilers

Radiator segments were identified in the original 1982 Market Survey as a probable product for AEICO and were included in the production programme. Subsequently, they were dropped from the programme when it was decided to reduce the number of moulding lines from 3 to 2. There is however a demand for Cast Iron radiators and it is a demand which should continue for the foreseeable future. It is recommended that a further study should be carried out to re-assess the feasibility of making them in Jordan.

Of more immediate interest is the manufacture of boiler segment castings. An item in the Jordan Times of 13th April 1989 reported a project to establish a boiler manufacturing plant in Irbid. Subsequent investigations by AEICO suggest that the initial product target will be 600 per year, rising to 1200 and possibly higher. A total Jordanian annual demand for 6000 boilers has been assessed.

The castings are too big for the automatic (DISA) moulding line, but might be considered as alternative loading for the pattern-flow line or, eventually, together with radiator segments, for the introduction of a third line.

For the initial target of 600 boilers about 3000 castings would be required and this would represent only 11 additional moulds per day:- less than one hours moulding per day on the Pattern-Flow line.

It is therefore recommended that consideration be given to the production of these castings.

6) Railway Castings

A small tonnage of Brake Blocks and Railway Track castings has been proposed for inclusion in the production programme. The possible need for additional large numbers of Track castings is referred to in the Maan visit in Appendix 1-1.15. The following report appeared in the 20th April issue of the Jordan Times

Baghdad-Amman rail link considered

KUWAIT (J.T.) — Iraq has prepared an initial study to lay a railway line linking Baghdad with Amman and Aqaba, and it hopes to work out plans for similar projects to connect Iraq with Saudi Arabia, Kuwait and Turkey. Iraqi Minister of Transport and Communications Mohamad Hamzeh announced here Tuesday.

The announcement was made in an interview with the Kuwaiti daily Al Siyassah which said that

the Iraq-Jordan railway study had been prepared over the past years and there will be a meeting shortly between officials from both countries to agree on final details of the project.

Hamzeh announced also that a new direct land transport route will be opened between Cairo and Baghdad shortly and that vehicles will be passing through Jordanian territory and the port city of Aqaba to Nwcih in Sinai and then Egypt.

Hamzeh said that a railway network which would later be linked to European railways is bound to save a great deal of time, money and effort for the Arab World.

Iraq depends a great deal on the port city of Aqaba for its imports, and there is a fleet of 500 trucks owned and operated by the Iraq-Jordan Land Transport Company which transports the goods to Iraq.

If this new rail link is built, it would create a demand for about 6000 tonnes of Pandrol Shoulders and Inserts all of which are ideal loading for the AEICO, DISA line.

In addition there would be a substantial additional requirement for Brake Blocks.

APPENDIX 1

1.1

VISIT TO MR. G. MUSHAHWAR

Date of Visit: 20.3.89

Visit made by	D. Mellor	UNIDO
	Ousama Ghannoum	PSDP
Person Interviewed	George M. Mushahwar	

His company is the sole agent in Jordan for the import of Malleable Iron Pipe Fittings into Jordan for the Crane Co of U.K.

The main purpose of the visit was to obtain from him information on the items covered by Jordanian custom's tariff code 73/20/B. It had been suggested that almost all of the items in this category are malleable Iron Pipe Fitting but a number of factors, such as country of origin and price per tonne cast doubt upon this view.

Mr. Mushahwar was able to confirm that Malleable Iron Pipe Fittings, are imported under this code but was unable to say with certainty what the other items were. He suggested that they might include steel sockets for Jordanian pipe making companies and acknowledged that these would have a lower value per ton than Malleable Pipe Fittings. He agreed that none of the items imported from the USA would be Malleable Pipe Fittings, nor those from Holland, Canada, Kuwait, United Arab Emirates and several other countries. He was of the opinion that the value per ton of several items on the 1987 customs report were too low for them to be Malleable Iron Fitting (e.g. 595 tonnes from Turkey at JD 201 per ton).

His present import costs of Malleable Pipe Fittings are about JD 1150 per ton (C&F Aqaba) and at 1987 JD values this would have been about JD 720.

He says that the overall tonnage of Malleable Pipe Fittings imported into Jordan was approximately 170 containers each of about 18 tonnes of fittings giving a total annual import figure of 3060 Tonnes.

In 1988 this dropped to about 60 containers or 1080 tonnes and 1989 may be less.

He confirmed that the present import duty on Malleable Iron Fittings is 10% + 18% Government taxes and not 33% + 18% taxes as had been suggested in earlier reports.

It is his opinion that the proposed foundry should include cast iron radiator segments in its programme.

The visit was informative but did not resolve the question of what items other than Malleable Iron Pipe Fittings are covered by Code 73/20/B.

On 22.3.89 George Mushahwar provided the following figures for his estimate of the approximate total imports from 1984,

1984	170-190	Containers	=	3060-3420 Tonnes
1985	140-150	Containers	=	2520-2700 Tonnes
1986	90-100	Containers	=	1620-1800 Tonnes
1987	70-80	Containers	=	1260-1440 Tonnes
1988	50-60	Containers	=	900-1080 Tonnes

Average 1980 Tonnes

His share is around 18 -20%.

APPENDIX 1

1.2

REPORT ON VISIT TO JOSEPH N. ABDO

Date of Visit	28.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Persons Interviewed	B. J. Abboud	Manager

They are the sole agent for the import of FALC (Italian) Malleable Iron Pipe Fittings. Mr. Abboud claimed they have 50-60% of the fittings market but it should be noted that in the survey conducted by Dr. Safiah in 1987, Mr. Abdo stated that they had 12-15% of the market.

Mr. Abboud gave a figure of 450-600 tonnes for Falc imports in 1986 and again in 1987 and said he did not expect Falc to drop below 400 tonnes this year. In 1989, 6 containers (108 tonnes) have been shipped to date and a further 4 (72 tonnes) are due for delivery in April. He confirmed that import duty and taxes are 28% and said transport from Aqaba etc added a further 7%.

He imported 25-26 containers in 1988 (450 to 468 tonnes) and in the "boom" years the figure was 45-50 (810 to 900 tonnes). He does not expect total pipe fitting imports for 1989 to drop below 1500 tonnes.

He confirmed that Falc US\$ prices are international list less 75% for Black with an addition of 25% for Galvanized. Most of his imports were for Black quality as most Falc fittings are used for central heating systems in Jordan but he stated that more recently, 25% of the demand has been for Galvanized.

He stated also that the corresponding US\$ prices for EE (Polish) fittings are list less 81 and a half % with 25% added for Galvanized.

A new international list was issued by Falc in 1988 but with the exception of small increases for a very small number of types, it is substantially unchanged.

N.B. On the basis of "Falc not dropping below 400 tonnes this year" and with a forecast of 1500 tonnes for the total Jordanian merchant imports, this would give them 27% of the market.

APPENDIX 1

1.3

REPORT ON VISIT TO N. MUSHARBASH

Date of Visit	29.3.89	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed	N. Musharbash	

They are sole agents for EE brand (Polish) Malleable Iron Pipe Fittings. They claim to have 50% of the sales of the 4 main brands (EE, Falc. Crane and GF). They also reported recent imports of Yugoslav fittings by merchants.

Mr. Musharbash called for his record cards for each of the last 8 years and gave the following figures for his imports of EE.

1982	16 Containers	=	288 Tonnes
1983	23 Containers	=	414 Tonnes
1984	22 Containers	=	396 Tonnes
1985	18 Containers	=	324 Tonnes
1986	20 Containers	=	360 Tonnes
1987	16 Containers	=	288 Tonnes
1988	12 Containers	=	216 Tonnes
1988	4 (in 3 months)	=	288 Tonnes

Fittings are always imported in container batches and no more than 2% are Galvanized.

Mr. Musharbash takes the view that 1988/89 conditions are "normal". He says many apartments are built and empty and he believes that present import curbs are not the reason for reduced sales.

Customs duties are 10% + 18% + 6% other costs.

APPENDIX 1

1.4

REPORT ON VISIT TO SALIM KHALIL AND SONS CO

Date of Visit	30.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed	Tony S. Khalil	Managing Director

This company is the sole agent for the GF brand of pipe fittings which are imported from the GF plants in Germany and the U.K.

He confirmed that his share has never exceeded 5% of the market for the main brands and gave the following figures for his recent imports.

1986	6 Containers	=	108 tonnes
1987	3 Containers	=	54 tonnes
1988	2 Containers	=	36 tonnes

He has not yet placed any orders for 1989.

APPENDIX 1

1.5

REPORT ON VISIT TO KAYALI STORES CO

Date of Visit	27/3/89	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person interviewed	Isam Kayyali	Director

The following information was obtained on items which might be made in the foundry.

BOILER CASTINGS

Total Jordanian consumption said to be 5000 - 7000 boilers per year. Each boiler has between 4 and 6 cast iron segments with the biggest demand being for the small sizes. All of these castings are too big for the DISA moulding machine but could be made on the pattern flow line if capacity was available.

Import duty and taxes are 51% and freight from Aqaba and other charges add a further 6%. The small size (25.000 k Cal) consists of 4 x 47.5 kg segments and cost 1700 French Francs F.O.B. which is about JD 800 per tonne before duty and taxes.

RADIATOR CASTINGS

These are imported in sets of 10 segments; already assembled. Kayyali import three sizes 42 cm, 58 cm and 68 cm and purchase mainly from Spain. The sizes purchased by other merchants vary slightly from these dimensions depending on the source of supply. Kayyali's estimate of the annual Jordanian demand is:-

1986 - 500 Containers = 1,500,000 segments = approx 9.000 tonnes.
80% are large size; 15% medium size and 5% small size. Kayyali say they have 10% of the market.

In 1988 the imports dropped by 40%, i.e. to 300 containers. Duty and taxes are 51% plus 6%. Only the smallest segments could be made on the Disa moulding line. Kayyalis share of the market is said to be 10%.

The following prices of radiator segments were obtained. Prices are per segment.

42 cm	from Spain	30 French Francs	F.O.B.
58 cm	from Spain	33 French Francs	F.O.B.
68 cm	from Spain	35 French Francs	F.O.B.
72 cm	from France	35 French Francs	F.O.B.

N.B.: If all radiators are imported into Jordan pre-assembled there will be no market for Radiator Nipples and Plugs.

MALLEABLE IRON PIPE FITTINGS

They claim to be the biggest Jordanian dealer in fittings. A tour of their warehouse showed very big stocks of fittings (said to be about 90 tonnes) with the main brands being EE (Polish) and FALC (Italian) with a small quantity of Chinese. Their own imports for 1988 were:-

FALC	6	Containers	=	108 tonnes
EE	10-12	"	=	180-216 tonnes
Jugoslavia	5	"	=	90 tonnes

Falc's price was quoted as; International List less 75% and EE being list less 82 and a half%. In both cases the addition for galvanized quality is 25%. The resulting prices are in US\$. The Chinese prices were stated to be 60% lower than Falc but the quality is poor.

Their estimate of Jordanian merchants annual purchase in 1988 is:-

Italian	360 Tonnes
Polish	540 Tonnes
Chinese	300 Tonnes
British	200 Tonnes
Other	100 Tonnes

TOTAL	1500 Tonnes
-------	-------------

Mr. Kayyali then said he thought this total should be 1500-2000 tonnes.

In 1986 the corresponding figure was 1900 to 2400 tonnes. In earlier years the tonnage had been higher.

The duty on fittings in all sizes except 4" is 10% + 18% = 28%. In addition freight from Aqaba, bank charges and insurance costs 6%.

APPENDIX 1

1.6

REPORT ON VISITS TO PALESTINE BUILDING MATERIAL CO

Date of Visits	23rd and 27th March 1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed	Moufeed Albashiti	

This company trade as Builder's Merchants and sell the following items which could be made in the foundry.

Cast iron gas distributor castings	40.000 pieces/year = 3 Tonnes
Ornamental gate fitting	Demand too small
Cast Iron Pulleys (3 Sizes)	Total market 10 Tonnes/year
Engineer's Vices - 3" -	1000/year ; Total market
4" -	1000/year ; based on his
5" -	660/year ; share being
6" -	1000/year ; 30%

Wrenches (Total Market figures in separate report)

Turnbuckles (Total Market figures in separate report)

He also deals in malleable Iron Fittings and many brands were seen in his stores including

Chinese

Polish (EE)

British (Crane)

Taiwanese

Japanese

U.S.A. (Grinnel) left over from a Contract

Italian (FALC)

He stated that he sold 200 tonnes of fittings in 1986 and 1987 and estimated that he had a 10% share of the market. This would make a total merchant market of 2000 tonnes.

Mr. Albashiti quoted all his figures from memory and they should be treated with suspicion.

APPENDIX 1

1.7

REPORT ON VISIT TO LAPABEEDI

Date of Visit	28.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed		Manager

They are builders merchants and claim to be the biggest single importer of Falc fittings but say they imported only 3 containers (54 tonnes) in 1988. This is at variance with the information provided by the Falc agent Mr. Abboud (see separate report 1.2 dated 28.3.89).

BOILERS AND RADIATORS

They say 8 firms in Jordan import the French, Chappee boiler and that it has 60-70% of the market.

In 1988, 50 Chappee containers were imported (approx 900 tonnes), half being boilers and half radiators. This is only 50% of the "normal" demand in previous years.

Ideal Standard Boilers are said to have to 10% of this market and Roca (Spain) a similar share.

APPENDIX 1

1.8

REPORT ON VISIT TO JEBARCO CO

Date of Visit

29.3.1989

Visit made by

D. Mellor

UNIDO

Dr. Abu Safiah

Arab Eng. Co. Ltd.

They are builders merchants and purchase FALC fittings but the manager said he did not have time to give any information on his purchases.

APPENDIX 1

1.9

SUMMARY OF VISITS TO 23 MALLEABLE FITTINGS MERCHANT

VISITS MADE 3 - 6TH APRIL 1989

NO.	Name of Firm	YEAR OF Import	NO. OF CONTAINERS					Total 1988	
			"FAIC"	EE	"CHINA	"CRANE	"GF" JUG		
1	Al-Jooharii	1988	1/3					1/3	
2	Al-Labaabeedii	1988	4					4	
3	Harbi-Abu-Harb	1988	3					3	
4	Abu-Harb	1988	1-2					1.5	
5	Flaefel	1988	1					1	
6	Al-Kayyalii	1988	6	10-12			5	22	
7	National	1988	1		3		1	5	
8	Palestine	1988			4			4	
9	Ibarko	1988	2-3					2.5	
10	Kharma	1988	2		2			4	
11	Cattaan	1988	2				1	3	
12	Hanna Saaba	1988	1-2					1.5	
13	Alwehdaat								
	Satitary	1988						-	
14	Construction								
	Materials	1987	2(2Years)					1	
15	Gharaaybeh								
	(Irbid)	1987	3(2Years)					1.5	
16	Said Nasir								
	(Irbid)	1988		5				5	
17	As-Shattrair	1988			4			4	
18	Abu-Ghalous	1987			2(2Years)			1	
19	Yuni Saan	1988				4-5		4.5	
20	Beetaar	1988	2					2	
21	Fawzii Tamiin	1988	2					2	
22	G. Mushahwar	1988				5		5	
23	Assaa.F	1988		5-8				6.5	
=====									
	Average		31	22	14	10	2	5	84
=====									

84 Containers = 1512 Tonnes

APPENDIX 1

1.10

VISIT TO JORDAN PRECAST CEMENT INDUSTRY

Date of Visit	21.3.1989
Visit made by	D. Mellor UNIDO Dr. Ali Obeidat Arab Eng. Co.
Person Interviewed	Hisham Y. Izziddin General Manager

Jordan Precast Cement Industry is located approximately 20 Km South of the center of Amman and has been making precast concrete sleepers for the Jordan Railways. This product uses 4 Malleable or Ductile iron Pandrol Shoulder castings per sleeper and earlier studies had identified a market for 500 tonnes of these castings per year. They are at present imported from the U.K.

The company had an order for 200,000 sleepers utilizing 800,000 castings which represents about 920 tonnes. However, the order is virtually complete and they have no further firm orders in prospect. Future demand depends on plans for railway developments and those under consideration are as follows.

- When the development of the new Phosphates mine at Shideyeh is complete, a new railway spur of 35 Km would be required to link with existing Amman to Aqaba line. If this is a single track line it would require 58,300 sleepers = 233,200 castings = 268 tonnes.

An alternative might be a completely new line from Shidiyeh to Aqaba which would have a length of 110 Km requiring 183,300 sleepers = 733,200 castings = 843 tonnes.

- There is a scheme under consideration to replace the sleepers on the existing Amman to Aqaba line with concrete sleepers. This would involve 80 km of rail requiring 133,300 sleepers = 533,200 castings = 513 tonnes.

- The building of the much discussed Baghdad-Amman-Cairo railway would involve between 1000 km to 2000 km of new lines requiring between 1,666,600 and 3,333,200 sleepers = 6,666,400 to 13,332,800 castings = between 7,566 and 15,333 tonnes.

Without the implementation of these or other railway schemes there is no immediate market for pandrol castings other than possible export sales to adjacent countries.

It is therefore intended to arrange meetings with the Jordanian railway authorities to obtain the latest information on these possible developments. A separate meeting will be held, if necessary, with the Phosphate mining company.

During the visit to Jordan Precast Concrete Industries, the weight of the Pandrol castings was checked at 1.15 kg each and it was learned that the price of the castings imported from the UK in 1985 was Sterling 1-15 each. Mr. Izziddin suggested however that lower prices of about Sterling 1-00 each had more recently been offered to contractors.

APPENDIX 1

1.11

REPORT ON VISIT TO JORDAN UNIVERSAL GAS COOKERS AND WASHING MACHINES**Date of Visit 22.3.89****Visit made by D. Mellor UNIDO****Persons Interviewed Dr. Abu Safiah Arab Eng. Co. Ltd****R. Khallouf General Manager****Abdul Aziz A. Abu Failat (Position Unknown)**

The purpose of the visit was to determine the cast products which they import which might be included in the Programme of the New Foundry.

A previous survey by Dr. Safiah had identified a demand for some castings and this demand was confirmed. In addition some new items were found which would be suitable for the programme. These are detailed in the following table:

The following is a summary of the suitable parts:-

ITEM	ANNUAL QUANTITY	IMPORTED FROM 1988	WT PER PIECE	ANNUAL TONNES	IMPORTED PRICE EACH
				KG	LIT.
Burner Base 1	25000	Italy	0.3	7.5	1422
Burner Base 2	25000	Italy	0.3	7.5	1611
Burner Base 3	25000	Italy	0.4	10.0	1896
Burner Base 4	25000	Italy	0.5	12.5	1990
Burner Base 5	25000	Italy	0.8	20.0	3033
					US \$
Burner Head 1	70000	Taipeh	0.73	51.1	1.45
Burner Head 2	35000	Taipeh	0.73	25.6	1.38
Flame Distributor	70000	Italy	0.18	12.6	
Flame Distributor-2	35000	Italy	0.18	6.3	
Grid (2 Types)	75000	Italy		1.03\1.16	3850

The above are 1988 consumption figures and those for 1989 are expected to be 25% higher. 65%-80% of the cookers are exported and the company forecasts an expanding output. There is no import duty on the components which are subsequently reexported.

* LIT = Italian Lire.

APPENDIX 1

1.12

REPORT ON VISIT TO ALADDIN STOVE CO

Date of visit	22.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person interviewed	General Manager	

The purpose of the visit was to confirm the previously identified demand for castings for cookers.

However there is now no demand for iron castings. The burner heads are made in Amman and are fabricated from a Die Cast Aluminum Elbow (the burner end) attached to a steel tube pressing. It is of very light construction but is cheap and an alternative in cast iron would not be competitive.

APPENDIX 1

1.13

REPORT ON VISIT TO WATER AUTHORITY STORES IN AMMAN

Date of Visit	22.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.

The purpose of visit was to view the cast products in the store to determine which items might be produced by the new foundry.

The previous survey by Dr. Safiah had suggested a total annual demand for about 75 tonnes of ductile pipe fittings and this is unchanged. There are however other users and the biggest consumption is for use on water development projects. Demand in previous years for ductile fittings on these projects, has accounted several hundred tonnes.

They hold considerable stocks of malleable iron water pipe fittings but these have already been taken into account in the M.I. Pipe Fitting Survey.

There was however a new type of fitting not previously noted and this is for use with plastic pipe, mainly in schemes in the Jordan Valley. The castings are iron (grade as yet unknown) and the brand name is Hawke. They are of Austrian origin and, if required in sufficient quantities would be suitable for production on line 2 (Disa). A visit will be made to the stores of the Jordan Valley Water Authority to determine the total demand. It will also be necessary for AEICO to check the patent position.

N.B. A subsequent visit to the Jordan Valley Water Authority revealed no current demand for the Hawke fittings.

APPENDIX 1

1.14

REPORT ON VISIT TO JORDAN PHOSPHATE MINES CO LTD

Date of Visit	23.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Ali Obeidat	Arab Eng. Co. Ltd.
Person Interviewed	Wasef Azar	Managing Director

The visit was mainly a follow-up to the visit made to the Jordan Precast Concrete Industries to determine the potential demand for Pandrol Shoulder Castings.

Wasef Azar confirmed that his company would be taking over the operation of the railway and that a 39 km line would be built linking the new Shediya Phosphate Mine to the existing line to Aqaba. There would also be an additional 5 km of line for other phosphate mining activities.

It was pointed out to Wasef Azar that the foundry would not be in production for 2 1/2 years and that might be too late for the foundry to supply castings for these projects, but he dismissed this suggestion.

With regard to the possible replacement of sleepers (ties) on 80 km of existing track, he said that since the mine which this line serves only has a further 10-12 years life, this work will almost certainly not be carried out.

His company has a small financial investment in the proposed foundry and he firmly believes it should be built even if the economic viability is not very attractive.

APPENDIX 1

1.15

REPORT ON VISIT TO JORDAN RAILWAY AT MAAN AND AQABA

Date of Visit: 25.3.1989 and 26.3.1989

Visit made by: D. Mellor UNIDO
Dr. Abu Safiah Arab Eng. Co. Ltd.

Persons Interviewed: Mr. Mardheal Qataameen
Mr. Mohamed Zamakhsharee
and Other Engineers

The purpose of the visit was to see which cast products used by the Jordan Railway could be considered for the foundry programme.

Mr. Mardhee Al Qataameen confirmed that a new 39 km line will be constructed for the new Shediya mine. There will be one year's work by consultants before contractors are asked to bid for the project and he is of the opinion that if the foundry is in production in 30 months time, it could participate in the production of the Pandrol Shoulder castings. In addition there are two types of Pandrol Insert castings that will be required for use with the Shoulders and samples were obtained.

The 39 km of new track will require approximately 390 tonnes of Malleable or Ductile Iron castings.

The project for the Baghdad-Amman-Kuwait line was discussed with Mohamed Zamakhsharee. He is a member of the technical committee for this project and stated that they submitted a technical report on the project the previous week. He is not very optimistic about the project going ahead in the near future in view of high capital cost. The present estimate for the permanent way (without rolling stock) is in the order of 1.2 Billion US\$. Engineer Hasan Abdullah later said that much of the line within Iraq already exists but about 750 km would be required from Aqaba to the Iraq border.

In view of the uncertainty surrounding this project it cannot be included in the foundry's future loading for planning purposes but it should be noted that if the project does go ahead it would require 7,500 tonnes of Malleable or Ductile castings which can be made on the automatic (DISA) moulding line.

Visits were then made to the stores of the Permanent Way and the Running Section (Wagons) to see which castings were suitable for the foundry:-

- **BRAKE BLOCKS** Present consumption is 17,000 per year for 347 wagons. An additional 40 wagons will be purchased for the Shediya traffic raising demand to about 19000 per year which represents 210 tonnes. Last price quoted in 1988 was 4.22 Pounds Sterling each F.O.B. These can be made on the DISA moulding line.

- Coupler Friction Plate 600 per year
- Bogie Friction Plate 30 per year
- Bearing Pedestal 100 per year
- Coupler Guide 20 per year
- Top Bogie Pivot 10 per year
- Brake Disc 30 per year
- Rail Trolley Wheel 150 per year
- Tamping Machine Tyne 200 per year

Samples were obtained for all of these components and drawings and prices will follow. They could all provide loading for the pattern flow section.

The workshops of the Locomotive section at Aqaba were visited on 26.3.89 but very little is used in sufficient volume to justify local manufacture with the exception of 1080 per year of locomotive brake blocks. These are at present purchased from General Electric (U.S.A.) at a very high price of US\$ 26.4 each F.O.B., and represent a further 12 tonnes.

It was learned that prior to February 87 imports of Railway components were zero rated but since then a duty of 48% has been applied.

APPENDIX

1.16

REPORT ON VISIT TO FERTILIZER COMPANY IN AQABA

(A division of Jordan Phosphate Mines Co.)

Date of Visit	26.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Persons Interviewed	Technical Manager	
	Stores Manager	

An extensive tour of their stores was made and many cast parts suitable for the foundries pattern flow line were seen. However, later examination of their records revealed little that was used in sufficient volume to justify local manufacture unless very high prices can be obtained. Most of the items were part of assemblies and extensively machined.

The exception was a range of large grid casting for their Sulphuric Acid plant. There is a consumption of 229 per year comprising 9 different sizes and it may be possible to make these in the pattern flow area.

The company is in its 9th year of operation and is due to start paying customs duties on its imports from next year.

APPENDIX 1

1.17

REPORT ON VISIT TO JORDAN ELECTRICITY AUTHORITY

Date of Visit	27.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Safiah	Arab Eng. Co. Ltd.

The purpose of the visit was to obtain information on the plans for extensions to the electric power transmission grid which would create a demand for Galvanized Malleable line hardware. With the exception a few urgent schemes all projects have been stopped for 1989.

There was a project for a further 200 KM of 132 KV transmission line but this too has been stopped.

It was confirmed that the Electricity Authority would be prepared to purchase line hardware from the foundry when projects are re-started. Dr. Safiah already has drawings of the components and details of the consumption per km of line.

APPENDIX 1

1.18

REPORT ON VISIT TO JORDAN PIPE MANUFACTURING CO

Date of Visit	28.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed	Eng. A. Abu Safiah	

The purpose of the visit was to confirm that they would be prepared to purchase their supplies of pipe sockets from the new foundry. At present they are purchasing steel sockets from France. It was pointed out to them that Malleable Iron stocks are generally more expensive than the steel ones. They did not appear to be unduly concerned by this as they have about JD 50,000 tied up in stocks of the steel fittings and pay duty and taxes of 28% plus about 6% for freight etc. They are imported under the same customs code as Malleable Iron Pipe Fittings i.e. 73/20/B.

It was confirmed that the annual demand figures are the same as those given to Dr. Safiah (of AEICO) in February 1989 but the price of the French sockets has increased by approximately 44% since that time. Two examples were obtained:

Size	New Price	February Price
1/2" Galv	JD 6.557 per 100	JD 4.544 per 100
1" Galv	JD 13.454 per 100	JD 9.332 per 100

The total annual demand is 200 to 245 tonnes.

85% of their purchases are of Galvanised sockets and 15% Black.

APPENDIX 1

1.19

REPORT ON VISIT TO MECHANICAL ENGINEERS AND CONTRACTORS (MEC)

Date of Visit	29.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr Abu Safiah	Arab Eng; Co. Ltd.
Persons Interviewed	Yasin Takrouri	Manager

The purpose of the visit was to validate the predicted sales potential for:

- Scaffold Clamps
- Soil Pipe Fittings
- Roof Drainage Fittings

MEC are users of all the above items and would in addition, sell to the local market if these items were made in Jordan. However, due to the present economic situation they have no projects for 1989.

In earlier years they have imported supplies of the three categories shown above from European suppliers. They are still confident that the consumption figures which they had previously given to AEICO are realistic "when business returns to normal".

It was learned from Mr. Takrouri that Soil Pipe Fittings and Ductile Iron Fittings are imported under the same customs code as Malleable Iron Pipe Fittings i.e. Code 73/20/B. This applies to all sizes except 4" for which the code is 73/20/A. The reason for the exception of 4" is that these are subject to a higher rate of duty to give protection to an existing manufacturer in Jordan who makes 4" diameter cast iron pipe fittings.

APPENDIX 1

1.20

REPORT ON VISIT TO JORDAN TELECOMMUNICATIONS

Date of Visit	29.3.1989 and 30.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.
Person Interviewed	Eng. Sohair Amireh Badran	Chief of networks planning and other engineers.

The purpose of the visit was to find out if they used any cast components and, in particular to ascertain their consumption of telegraph pole stay rods.

Only a small part of their line construction comes out of their own budget with the major part being financed through overseas projects.

Their last purchase of stayrods was in January 1986 when they bought 4000 sets from the U.K. to the British Standard specification BSS 16 pattern No.1. The price for this consignment was 5.42 Pounds Sterling per set. The annual demand has been about 1500 sets per year but at the present time their projects have been stopped.

On the 30.3.89 a visit was made to the Telecommunications Co. store and the following items were seen which might be made by the foundry.

Cable Clamps (2 types)	6000 sets per year = 4 tonnes
Stayrod Bows and Nuts (B5.16 Type 1)	1500 sets per year = 2 Tonnes
Stayrods (Swivel type)	1000 sets per year = 1 Tonne
Manhole Covers and Frames-Variou types	
Manhole cable brackets and bearers.	

Some of these items are galvanized steel fabrications but are suitable for manufacture as malleable castings.

Some of the manhole covers and frames were supplied from a Jordanian foundry but it is not clear if this foundry still operates. This point will be checked.

It was later confirmed that local foundries can still supply manhole covers and frames. However, the trend in Europe is towards the use of Ductile Iron instead of Grey Cast Iron. This provides a stronger but much lighter product. Some such units are already installed in Amman and they will be within the scope of AEICO foundry but beyond the capabilities of the existing Jordan foundries.

It is considered that some loading might be obtained for the pattern flow line if the selling prices are attractive and the smaller items could provide about 4 tonnes per year for the automatic (Disa) line.

48% customs duty is applied to their imports.

APPENDIX 1

1.21

REPORT ON VISIT TO JORDAN ELECTRICITY CO

Date of visit	30.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.

Visit was made to collect data on their consumption of Overhead Transmission Line Hardware which had been requested by Dr. Abu Safiah.

The documents were however not available and were promised for 1st April.

N.B. The relevant drawings and consumption figures were obtained by AEICO in mid-April and strain clamps, suspension clamps and connectors in Galvenised Malleable Iron are required.

APPENDIX 1

1.22

REPORT ON VISIT TO JORDAN VALLEY WATER CO (IN AMMAN)

Date of Visit	30.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.

Visit was made to collect data on their consumption of cast pipe couplings. During a recent visit to the Jordan Valley Water Co maintenance workshops, Dr. Abu Safiah has arranged for this information to be collected in Amman, but nothing was available.

Dr. Abu Safiah made a further visit in mid-April but they have no current demand for the special (Hawke) pipe couplings which had been seen in the stores of the Amman Water Authority (Report No.13).

APPENDIX 1

1.23

REPORT ON VISIT TO JORDAN CARBONATE CO LTD

Date of Visit	1.4.89	
Visit made By	D. Mellor	UNIDO
	Dr. Mazen Obeidat	Ministry of Planning
Person Interviewed	Masen Abu Hijleh	Technical Manager

Jordan Carbonate's casting requirements are similar to those of the cement industry. They use castings for jaw crushers and hammer mills.

They purchase their spares from an Amman foundry L'EJL (Modern Workshop Co.) and are satisfied with the price, service and quality. In those cases where the castings require machining operations, this work is done by the foundry. He judges the quality by the working life which he obtains from the spares and says that it compares favourably with that of imported parts.

APPENDIX 1

1.24

REPORT ON VISIT TO AGRICULTURAL RESEARCH CENTRE

Date of Visit	26.3.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Abu Safiah	Arab Eng. Co. Ltd.

The centre hires-out agricultural implements to Jordanian farmers and maintains and repairs the equipment. Although, there are many cast parts on these implements there is very little spares business that would provide work for the foundry.

One possible exception is the replacement of mower fingers which are usually made as malleable iron castings or as forgings. Dr. Abu Safiah has figures for the expected annual consumption in his earlier reports.

APPENDIX 1

1.25

REPORT ON VISIT TO LEJL FOUNDRY (MODERN WORKSHOP CO)

Date of Visit	1.4.1989	
Visit made by	D. Mellor	UNIDO
	Dr. Maxen Obeidat	Ministry of Planning
Person Interviewed	Abid Al Ejel	

They operate a small foundry and machine shop producing castings in steel (carbon, manganese, stainless etc), iron, brass and aluminium. Their present casting's output is about 1 tonne per day but they have built a new plant about 4 km away which is five times as big as the old facility. It occupies 5000 square meters and has both foundry and machining equipment. The figure they gave for the cost of the new factory was JD 400,000 including the buildings.

They are at present installing a second-hand Junkers 6 tonne capacity induction melting furnace which will enable them to produce approximately 6 tonnes of castings' per 8 hour day.

The original foundry has two small electric melting furnaces (600 kg and 300 kg) and they use both green sand and Sodium Silicate /CO² moulding. They have a continuous screw-type mixer for CO² sand.

Much of their work is spare parts for the Phosphate, Cement, Potash and Truck industries and typical castings seen included:-

Manganese steel hammers

Crusher bars

Crusher jaws

Truck wheel centres.

They are make vibrating mould machines for concrete building blocks but report that there is competition from Syria. Mr. Lejel also says that cheap steel castings are imported from Turkey and cited the case of one local foundry who found it cheaper to import bucket teeth (steel castings) from Turkey, rather than making them in their own plant.

He acknowledges that he is unable to obtain orders for some of the spares for industries such as Cement and Phosphate as he cannot guarantee specifications. He has no laboratory facilities.

APPENDIX 1

1.26

REPORT ON VISIT TO JORDAN INDUSTRIAL INVESTMENT CORPORATION

Date of Visit	3.4.1989	
Visit made by	D. Mellor	UNIDO
	O. Daoud	P.S.D.P.
Person Interviewed	Dr. Zarif Baradi	Ass General Manager

The company employs 600 and makes a wide range of products including: cookers, solar heaters, bathroom fittings, water meters, cooking utensils etc. They require the following cooker (stove) castings.

Burner Heads (2 types)	Galvanized Iron	75,000 pcs	=	55	tonnes
Grills (2 types)	Cast Iron	90,000 pcs	=	99	tonnes
Flame distributors	Cast Iron	125,000 pcs	=	12.5	tonnes

At present the grills are imported and are fabricated but they will buy iron castings if quality and price are right. The grill has an enamel finish but the company can do this work themselves.

Their components are at present imported from Italy and the Burner Heads are said to cost about 3900 lire F.O.B. Samples of all items and prices will be provided within 3 days.

Dr. Baradi said duty is about 20% plus 10% for freight.

They also manufacture steel die blocks for use within their own industries and also for sale to outside customers. They use imported steel plate from which to machine these dies but have bought some cast steel blocks from a local foundry which require much less machining. The local foundry cannot however guarantee the chemical composition and quality of their product. Their present annual consumption of steel for die blocks is 500 tonnes but if purchased as pre-formed castings or forgings the tonnage would probably be nearer 300 tonnes.

They would also be interested in cast iron cooking utensils.

Much of their present production of cookers (stoves) is exported.

Construction Activity by Year and Pipe Fitting Imports (1983/1988)

