Declassified E.O. 12356 Section 3.3/NND No. 785015

ACC

10000/136/357

EME
NOV.

Declassified E.O. 12356 Section 3.3/NND No. 785015

00/136/357

EMERGENCY INDUSTRIAL REHABILITATION PROGRAM
NOV. 1944 - OCT. 1945

0038

Declassified E.O. 12356 Section 3.3/NND No. 785015

OCT 20

19 October 45.

MEMORANDUM

TO : VP, Economic Section.

At the Chief Commissioner's Political meeting this morning the British Ambassador raised the matter of removal of Italian Industrial Plant to Germany. This subject was discussed at Executive Commissioner's meeting on 17 October 45 (see minute 7).

The Chief Commissioner desires information as to whether:

(1) The German archives give information as to the quantity and description of the Italian plant removed from Italy to Austria and Germany and the location thereof in these countries.

(2) Whether the Italian Government has already had access to these archives.

(3) If the information can now be given to the Italian Government.

M S. BUSH

Brigadier,
Executive Commissioner.

[redacted]

Copy to: Poland(A)
Poland(B)

0039

Declassified E.O. 12356 Section 3.3/NND No. 785015

OCT 20 1945

19 October 45.

MEMORANDUM

TO : VP, Economic Section.

At the Chief Commissioner's Political meeting this morning the British Ambassador raised the matter of removal of Italian Industrial Plant to Germany. This subject was discussed at Executive Commissioner's meeting on 17 October 45 (see minute 7).

The Chief Commissioner desires information as to whether:

(1) The German archives give information as to the quantity and description of the Italian plant moved from Italy to Austria and Germany and the location thereof in these countries.

(2) Whether the Italian Government has already had access to these archives.

(3) If the information can now be given to the Italian Government.

M. S. LUSH

Brigadier,
Executive Commissioner.

[redacted] Copy for Poland(A)

Poland(B)

0040

Acc 853
9/1/44.

HEADQUARTERS ALLIED COMMISSION
APO 394
ECONOMIC SECTION

Tel. 345 WSV/rj

Ref. AC/5587/IND 6 November, 1944.

SUBJECT: Study of Emergency Industrial Rehabilitation for Italy.

TO : Distribution Below.

1. Herewith please find copies of the "Emergency Industrial Programme for the Rehabilitation of Italian Industry - Jan. 1 - Dec. 31, 1945" prepared by Industry Sub-Commission, A.C.

2. This study is intended as a guide in the preparation of a detailed program of emergency first-aid to essential Italian industries. It is not itself a programme which it is suggested be implemented in this form. Such a programme is being prepared by the Italian Government with the assistance of the Allied Commission, and will of course be considered a basis for supply action only after it is formally presented to the Allied Commission by the Italian Government.

3. Meanwhile, the attached study constitutes a summary of the thinking on the Industrial Sub-Commission, Economic Section, on the emergency rehabilitation of the industries covered.

G. G. Antolini

G. ANTOLINI,
Acting Deputy Chief of Staff
Economic Section.

Distribution:

~~Min. of Industry, Commerce & Labour~~	20 copies
~~A.F.H.Q., G-5 Section~~	20 "
Acting Chief Commissioner	1 "
Economic Section	8 "
Industry Sub-Commission	25 "
Commerce " "	3 "
Finance " "	1 "
	1 "

Declassified E.O. 12356 Section 3.3/NND No. 785015

A/ C. ANTOLINI,
Acting Deputy Chief of Staff
Economic Section.

Distribution:

Min. of Industry, Commerce & Labour	20 copies
A.F.H.Q., G-5 Section	20 "
Acting Chief Commissioner	1 "
Economic Section	8 "
Industry Sub-Commission	25 "
Commerce " "	3 "
Finance " "	1 "
Agriculture "	1 "
Public Wks. & Util. Sub-Commission	1 "
Requisitions Division	3 "
RC Sicilia Region (Attn: E & S Div)	1 "
RC Southern " " " " "	1 "
RC Lazio-Umbria " " " " "	1 "
RC Abruzzo Region " " " "	1 "
RC Sardegna " " " "	1 "
RC Toscana " " " "	1 "
RC Emilia " " " "	1 "
RC Liguria " " " "	1 "
RC Piemonte " " " "	1 "
RC Lombardia " " " "	1 "
RC Venezia " " " "	1 "
Allied Forces Local Resources Section, HAAC, CMF.	10 "
Deputy Chief Civil Affairs Officer, HQ AAI, --(for LRS, CE, PRS, DW, etc..)	8 "
PRC, HQ AC	1 "
Information Division	1 "

8231

Seen by EWS

A

Q

Declassified E.O. 12356 Section 3.3/NND No. 759015

EMERGENCY INDUSTRIAL

PROGRAMME

FOR THE REHABILITATION

OF ITALIAN INDUSTRY

JANUARY 1 - DECEMBER 31

1945

PART - I

SECTIONS 1 - 5

0 0 4 2

Declassified E.O. 12356 Section 3.3/NND No. 785015

JANUARY 1 – DECEMBER 31

1945

PART · I

SECTIONS 1 - 5

2931

PREPARED BY ALLIED CONTROL COMMISSION

ECONOMIC SECTION

INDUSTRY SUB - COMMISSION

AUGUST 1944

ROME

0043

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 0 4 4

EMERGENCY INDUSTRIAL PROGRAMME FOR THE REHABILITATION OF ITALIAN INDUSTRY

JANUARY 1ST TO DECEMBER 31ST, 1945.

PART. I

C O N T E N T S

FOREWORD

SECTION 1. COAL

SECTION 2. PAPER

SECTION 3. TEXTILES

SECTION 4. TOBACCO AND MATCHES

SECTION 5. FERTILISERS

MEMORANDUM ON THE REHABILITATION OF THE ITALIAN STEEL INDUSTRY

Declassified E.O. 12356 Section 3.3/NND No. 735015

SECTION 4. TOBACCO AND MATCHES

SECTION 5. FERTILISERS

MEMORANDUM ON THE REHABILITATION OF THE ITALIAN STEEL INDUSTRY

PREPARED BY ALLIED CONTROL COMMISSION, ECONOMIC SECTION.

INDUSTRY SUB-COMMISSION

AUGUST, 1944

ROME

0 0 4 5

Declassified E.O. 12356 Section 3.3/NND No. 758015

0046

SECTION 1 .

S O A P

C O N T E N T S .

		Page
I.	Introduction	3
II.	Requirements and justification	3
III.	Production potential of end product	4
IV.	Production potential of required raw materials	4
V.	Supporting Data	4
VI.	Requisitions	8
VII.	Effect on shipping situation	6
VIII.	Increase of production through implementation of programme	8
Appendix A .	Report on Solvay Soda Works, Rosignano	9
Appendix B .	Carbon Bisulphide Production	14
Appendix C .	Società Umbra Prodotti Chimici, Collestatte	16

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 0 4 7

PROGRAMME FOR THE REHABILITATION OF ITALIAN INDUSTRY

I N T R O D U C T I O N

This first instalment of the programme covers only the following essential industries of Italy:

Soap production
Paper production
Textiles
Tobacco and Matches
Fertilizers

and contains a memorandum on the present productive possibilities of the Italian Steel Industry.

These industries have been selected as representative of industries contributing to the basic essential needs of any civilised community. Soap has been selected as being of prime importance to the community's standard of health, paper as representative of an essential product whose local manufacture can seriously contribute to an alleviation of the strain on shipping space, textiles have been included with a view to reflecting the extent of the rehabilitation problem as a result of war damage, and of Italy's present unbalanced economy without her industrial northern regions, tobacco and matches for the important part they play - as monopoly commodities - in the Governmental financial structure, fertilisers as a reflection of the amount of work already accomplished in the field of rehabilitation, and as illustrative of one of the major basic industries, the products of which will play such a fundamental part in increasing the volume of locally produced food.

It will be found that each industrial section is sub-divided into 8 parts.

Part I is introductory and gives on the broadest lines the general problems involved in the rehabilitation of the industry in question and the production possibilities.

Part II which was prepared by the Commerce Sub-Commission gives the necessary statistical data enumerating the minimum essential civilian needs of the product for a population of 25,000,000 and a justification for the inclusion of the end products of the particular industry in the category "essential".

Part III indicates the production potential in detail of the

Declassified E.O. 12356 Section 3.3/NND No. 759015

economy without her industrial northern regions, tobacco and matches for the important part they play - as monopoly commodities - in the Governmental financial structure, fertilizers as a reflection of the amount of work already accomplished in the field of rehabilitation, and as illustrative of one of the major basic industries, the products of which will play such a fundamental part in increasing the volume of locally produced food.

It will be found that each industrial section is sub-divided into 3 parts.

Part I is introductory and gives on the broadest lines the general problems involved in the rehabilitation of the industry in question and the production possibilities.

Part II which was prepared by the Commerce Sub-Commission gives the necessary statistical data enumerating the minimum essential civilian needs of the product for a population of 25,000,000 and a justification for the inclusion of the end products of the particular industry in the category "essential".

Part III indicates the production potential in detail of the industry in the territory covered by the programme, i.e. all the mainland of Italy lying south of the Pisa-Rimini line and the islands of Sicily and Sardinia.

Part IV indicates the production potential of the necessary raw materials and subsidiary industries which contribute to the production of the end product covered by the particular section.

Part V embraces supporting factual data for the production estimates in parts III and IV. In most instances it also includes full details concerning the major production unit of the industry involved, and the facts enumerated in this part are to be read as conclusive evidence that the estimated production is capable of actual achievement if the programme is implemented in its entirety.

0048

Declassified E.O. 12356 Section 3.3/NND No. 778015

0049

Part VI is devoted to qualifying the position with regard to past requisitions and the requisitions that are in process of preparation in order that, through their fulfillment, the entire programme may be implemented.

Part VII is intended to show the effect of the substitution of raw material imports for imports of consumer goods on the shipping situation.

Part VIII enumerates clearly the resultant increase in Italy of production of end products which will result from the implementation of the proposed programme.

In reading the report it must be borne in mind that the assumption is made that the present acute shortage of transport facilities will have been alloviated. At the time of drafting of this programme it appears possible that by January 1st, 1945, Italy may no longer be a scene of active military operations, with the result that the burden of supplying and feeding the armies in the field may no longer impose such a strain on Italian transportation facilities. It must, however, be emphasized that the complete implementation of the proposed programme will be dependent on adequate facilities to move the imported raw materials from the ports of entry to the centers of production, and thereafter when converted finally into end products it is essential that there shall be adequate means for the distribution of the end products to the consumer.

In view of the great dimunition of availability of electric motive power, great care has been given to obtaining accurate estimates of the amount of electric power necessary to implement the proposed programme, and it is anticipated that in no case will it be impossible for the necessary amount of electric power to be made available. Accurate details are embodied in each section of the amount of electric power required in order that the programme may be implemented.

In conclusion it should be pointed out that this first instalment of the Emergency Programme has been prepared by the Industry Sub-Commission with the assistance and approval of the Italian Government.

It is the intention of the Italian Government to prepare similar programmes covering the other key industries which cater for the essential needs of the community. Such programmes are already in course of preparation and after

Declassified E.O. 12356 Section 3.3/NND No. 785015

shall be adequate means for the distribution of the end products to the consumer.

In view of the great dimunition of availability of electric motive power, great care has been given to obtaining accurate estimates of the amount of electric power necessary to implement the proposed programme, and it is anticipated that in no case will it be impossible for the necessary amount of electric power to be made available. Accurate details are embodied in each section of the amount of electric power required in order that the programme may be implemented.

In conclusion it should be pointed out that this first instalment of the Emergency Programme has been prepared by the Industry Sub-Commission with the assistance and approval of the Italian Government.

It is the intention of the Italian Government to prepare similar programmes covering the other key industries which cater for the essential needs of the community. Such programmes are already in course of preparation and after scrutiny by and approval of the Economic Section of the Allied Control Commission will be forwarded as subsequent parts of the overall coordinated programme for the rehabilitation of the Italian industrial economy in so far as it covers the supply to the community of essential civilian needs.

0050

Declassified E.O. 12356 Section 3.3/NND No. 765015

0 0 5 1 1

Declassified E.O. 12356 Section 3.3/NND No. 785015

S E C T I O N 1

EMERGENCY PROGRAMME FOR THE PRODUCTION OF SOAP

PART I INTRODUCTION

There are adequate production facilities for soap making in liberated Italy, but the industry consists of a large number of relatively small units, there being no outstanding factory of special importance.

The industry as a whole is in production at the present time, and the Sub-Commission has gathered [illegible]table statistics on some 234 factories, out of which 18 have been select[illegible] for active production after detailed survey.

The production of soap in Italy is dependent on the provision of adequate supplies of the following raw materials:

a) caustic soda
b) sulphur oil

In order to obtain the sulphur oil it is necessary that the requisite amounts of Carbon bisulphide be available to extract from the "sansa" (or olive husks) which remains after the olives have been crushed, the actual sulphur oil.

The production programme prepared by the Industry Sub-Commission will provide for the Soap needs of the entire population on the scale laid down by Higher Authority and in addition will provide the Armed Forces with some 300 tons per month for so long as they may require it.

It has been decided to produce a standard type of Soap, in this way obtaining maximum possible production from the raw materials and manufacturing possibilities available. This standard Soap is of a sufficiently good quality as to be suitable both for laundry and toilet purposes.

The fuel problem in the soap industry is relatively unimportant some 65% of requirements being provided by the use of "sansa esausta", a by-product resulting from the treatment of "sansa" by carbon bisulphide. The coal requirements are relatively small and can be almost completely met by the use of Sardinian coal. The electric power involved is very small, on an average only 100,000 kwh being required per 1,000 tons soap produced.

However, the whole programme is dependent for its implementation on the provision of adequate land and coastal transport facilities [illegible]

c) caustic soda
b) sulphur oil

In order to obtain the sulphur oil it is necessary that the requisite amounts of Carbon bisulphide be available to extract from the "sansa" (or olive husks) which remains after the olives have been crushed, the actual sulphur oil.

The production programme prepared by the Industry Sub-Commission will provide for the Soap needs of the entire population on the scale laid down by higher Authority and in addition will provide the Armed Forces with some 300 tons per month for so long as they may require it.

It has been decided to produce a standard type of Soap, in this way obtaining maximum possible production from the raw materials and manufacturing possibilities available. This standard Soap is of a sufficiently good quality as to be suitable both for laundry and toilet purposes.

The fuel problem in the soap industry is relatively unimportant some 65% of requirements being provided by the use of "sansa esausta", a by-product resulting from the treatment of "sansa" by carbon bisulphide. The coal requirements are relatively small and can be almost completely met by the use of Sardinian coal. The electric power involved is very small, on an average only 100,000 kwh being required per 1,000 tons soap produced.

However, the whole programme is dependent for its implementation on the provision of adequate land and coastal transport facilities. The "sansa esausta" and sulphur oil have to be moved from the local sources of supply to the main production centres of Naples and Bari, caustic soda has to be distributed from the ports of entry or from the source of production (Soda Solvey Factory at Rossignano) to the factories and should also be moved to the olive crop areas so that the low acidity sulphur oil may be further treated and the edible content obtained and used for human consumption.

PART II - REQUIREMENTS AND JUSTIFICATION

A. Bases and justification.

(1) Prewar consumption about 200,000 tons of all types of soap per year for a population of 45,000,000; that means 377 grams per person per month.

(2) Present ration of 100 grams per person per month, as applied in Rome, is considered below minimum civilian requirements.

(3) Ration prescribed by AFHQ/G-5 in their memo G-5A dated 22 June 44 is 150 grams per month per person. This forms the basis for computations of total requirements given below.

(4) AFHQ/G-5 memo G-5A dated 3 June refers to program favored by ACC for ration of 300 grams per person per month which was rejected by AFHQ in favor of the 150 gram ration. Laundry and other essential household needs indicate that at least a 250 gram ration should be used as the basis of requirements.

Declassified E.O. 12356 Section 3.3/NND No. 785015

A. Bases and justification (contd).

(f

(5) The Italian armed forces receive an allotment of 300 grams per man per month; total forces estimated to average 470,000 personnel drawing rations through Army stores.

B - Total requirement for 12 months.

(1)	Allied Forces	3,600 tons
(2)	Civilian minimum needs	45,000 "
(3)	Italian armed forces	1,692 "
	Total:	50,292 tons

C - No toilet or baby soap is included in the above estimates. If possible to produce a soap of finer quality than the above coarse type, assuming an average family of 4 persons and the limitation of such soap to baby use by a low percentage ration, 10% of the above civilian needs would be the requirement for toilet soap or 4,500 tons per year.

PART III - PRODUCTION POTENTIAL OF END PRODUCT.

The capacity of the scheduled plants (Sicily, Sardinia and mainland) is approximately

55,000 m. tons per year.

This capacity is large enough for producing the total civilian requirements including 3,600 tons for the Armed Forces, as set forth above.

PART IV - PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS.

Soap is a chemical combination of "fatty acid" and alkali. It is usually obtained by boiling a fatty material - be it oil or grease - with caustic soda. The materials required for soap manufacture are:

a) "sansa" (olive husks) recovered as residue after pressing the edible oil from the olives.
b) carbon bisulphide (a solvent used for extracting oil from the "sansa"). The extracted oil is called "sulphur oil" and is subdivided into two qualities:
   1. "high acidity sulphur oil" suitable for industrial purposes only, and
   2. "low acidity sulphur oil" suitable for edible use after refining it by means of caustic soda.
c) "high acidity sulphur oil" as per para b).

Declassified E.O. 12356 Section 3.3/NND No. 759015

PART III - PRODUCTION POTENTIAL OF END PRODUCT.

The capacity of the scheduled plants (Sicily, Sardinia and mainland) is approximately

55,000 m. tons per year.

This capacity is large enough for producing the total civilian requirements including 3,600 tons for the Armed Forces, as set forth above.

PART IV - PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS.

Soap is a chemical combination of "fatty acid" and alkali. It is usually obtained by boiling a fatty material - be it oil or grease - with caustic soda. The materials required for soap manufacture are:

a) "sansa" (olive husks) recovered as residue after pressing the edible oil from the olives.
b) carbon bisulphide (a solvent used for extracting oil from the "sansa"). The extracted oil is called "sulphur oil" and is subdivided into two qualities:
   1. "high acidity sulphur oil" suitable for industrial purposes only, and
   2. "low acidity sulphur oil" suitable for edible use after refining it by means of caustic soda.
c) "high acidity sulphur oil" as per para b).
d) Soapstock (I) - residues arising from the refining of "low acidity sulphur oil" as per para b).
e) Soapstock (II) - residues arising from the refining of "lampante oil". (This is a quality of pressed olive oil which must be refined by means of caustic soda before being suitable for edible use).
f) bone grease and tallow.

The total production of fatty material is approximately

27,000 tons

g) Caustic soda - See Appendix "A" - 6,000 tons.
h) Carbon bisulphide - See Appendix "B" - 3,500 tons.

PART V - SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PART III AND IV.

A - Production capacity

The following soap factories have been reactivated for soap manufacture, according to the rationalised soap programme.

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART IV - SUPPORTING DATA (contd)

Locality	Name	Maximum production capacity in M. tons per Month
Sicily		
Province Messina	Vaccarino Giovanni	100
" "	Vaccarino Giovanni	100
" Palermo	Micale Francesco	300
" Catania	Anfuso	200
		600 M. tons
Sardinia		
Province Cagliari	La Fantola	50
" Nuoro	Deriu Sortigoli	50
" Sassari	Museddu	100
		200 M. tons
Mainland (West Coast)		
Province Naples	De Salvi Romeo	200
" Naples	Ing. Giulliana A.	200
" Naples	Cannavelo	100
		500 M. tons
Province Roma	Mira Lanza	800
" Roma	Zarelli	700
		1,500 M. tons
(East Coast)		
Province Bari	Cleirici It. Meridion	600

Declassified E.O. 12356 Section 3.3/NND No. 735015

"	Sassari	Masudda	200
			200 M. tons
Mainland (West Coast)			
Province	Naples	De Selvi Romeo	200
"	Naples	Ing. Giuliano A.	200
"	Naples	Cannavale	100
			500 M. tons
Province	Roma	Mira Lanza	800
"	Roma	Zarelli	700
			1,500 M. tons
(East Coast)			
Province	Bari	Oleifici It. Meridion	600
"	Bari	Lardolfo	400
"	Bari	Lonigro	200
"	Bari	Bonolli	150
"	Brindisi	L'Abate	100
"	Lecce	Magli, Supersano	250
			1,700 M. tons

Total yearly capacity: 54,000 M. tons.

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART V - SUPPORTING DATA

In this total, figures concerning Florence and Ancona are not included. In these two localities important plants exist about which nothing has been reported: Ancona has been freed only recently, and Florence is still in the fighting zone but in view of the already known excess of possible production, it is not considered necessary to the emergency programme that these factories in the forward area need be immediately reactivated.

B - Raw Materials.

a) Sansa

The quantity of the "sansa" depends upon the new olive crop and is estimated for this year at about

500,000 M. tons

The "sansa" contains as an average 6% oil and therefore the total oil output is:

40,000 M. tons

Part of this quantity - 16,000 M. tons - consists of "high acidity sulphur oil" which is used directly in the soap industry.

The remaining 24,000 M. tons, consisting of "low acidity sulphur oil", are refined by means of caustic soda.

The resulting refined oil is used for edible purposes, while the residues, called soap-stock ("paste di raffinazione") are passed to the soap industry.

This soap-stock corresponds to:

3,000 M. tons "high acidity oil".

In addition from the refining of "olio lampante" a quantity of soap-stock corresponding to:

1,500 M. tons "high acidity oil".

is obtained.

The total amount of "fatty acids" available for soap manufacture therefore, is:

Declassified E.O. 12356 Section 3.3/NND No. 785015

500,000 M. tons

The "sansa" contains on an average 8% oil and therefore the total oil output is:

40,000 M. tons

Part of this quantity - 16,000 M. tons - consists of "high acidity sulphur oil" which is used directly in the soap industry.

The remaining 24,000 M. tons, consisting of "low acidity sulphur oil", are refined by means of caustic soda.

The resulting refined oil is used for edible purposes, while the residues, called soap-stock ("pasta di raffinazione") are passed to the soap industry.

This soap-stock corresponds to:

3,000 M. tons "high acidity oil".

In addition from the refining of "olio lampante" a quantity of soap-stock corresponding to:

4,500 M. tons "high acidity oil",

is obtained.

The total amount of "fatty acids" available for soap manufacture therefore, is:

23,500 M. tons.

In addition to the fatty materials recovered, during the refining process of the different qualities of olive oil, as stated above, the following quantities of fats were produced yearly south of the Pisa-Rimini line:

a) bone-grease	1,600 M. tons
b) tallow	1,900 M. tons
Total	3,500 M. Tons

Therefore, the total amount of fatty materials will be 27,000 M. tons.

According to the specification of the "standard" soap (average fatty acid content of 60%), the above mentioned quantity of fatty materials will be sufficient for producing approximately 45,000 M. tons of soap per year. In addition, it should be pointed out that in the country the peasants traditionally manufacture soap themselves, using fatty residues (oils or grease), easily to be found even on a poor farm, and caustic soda, which is bought. These fatty materials are not comprised in the above calculations, because there are no practical means of controlling and collecting them.

Declassified E.O. 12356 Section 3.3/NND No. 735015

B - Raw Materials (contd)

Therefore it is estimated that if the Rossignano plant could be put into operation on a basis of 100 to 150 M. tons caustic soda per day (about 10 to 15% of the prewar production), thus making available for the peasants sufficient quantities of alkali, great quantities of additional fatty materials, which at present go to waste, could be utilized, producing at least another 5,000 M. tons of soap.

THEREFORE, THE TOTAL ESTIMATED PRODUCTION WILL BE APPROXIMATELY

50,000 M. tons

b) Carbon bisulphide

The quantity of carbon bisulphide needed for processing the "sansa" is estimated at

3,500 M. tons

Plants to produce carbon bisulphide are being reactivated. 3,500 M. tons can be produced in the year 1945. Provided this programme is realised in time it can be considered that the "sansa" will yield the estimated quantity of oil.

A study on the carbon bisulphide industry is attached as Appendix "B".

C - CAUSTIC SODA

The yearly caustic soda requirements are

6,000 M. tons

corresponding to a monthly requirement of 500 M. tons. This quantity can be produced by the Rossignano-Solvay plant, provided this can be reactivated.

A report on the proposed programme for the manufacture of caustic soda at the above plant is attached as Appendix "A".

D - FUEL

The fuel chiefly used is "exhausted sansa" (the residue of the olive husks after the extraction of the "sulphur oil" by means of carbon bisulphide).

Declassified E.O. 12356 Section 3.3/NND No. 785015

Plants to produce carbon bisulphide are being reactivated. 3,500 M. tons can be produced in the year 1945. Provided this programme is realised in time it can be considered that the "sansa" will yield the estimated quantity of oil.

A study on the carbon bisulphide industry is attached as Appendix "B".

C - CAUSTIC SODA

The yearly caustic soda requirements are

6,000 M. tons

corresponding to a monthly requirement of 500 M. tons. This quantity can be produced by the Rossignano-Solvay plant, provided this can be reactivated.

A report on the proposed programme for the manufacture of caustic soda at the above plant is attached as Appendix "A".

D - FUEL

The fuel chiefly used is "exhausted sansa" (the residue of the olive husks after the extraction of the "sulphur oil" by means of carbon bisulphide).

For the entire yearly production of soap, in addition to the "exhausted sansa" a quantity of

3,000 M. tons

of Sardinian coal is needed.

E - ELECTRIC POWER

Electric power requirements are almost negligible. The electric power absorbed is from 30 to 50 KW., corresponding to an average consumption of 100 KWH per 1 M. ton of soap.

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART VI - REQUISITIONS

a) As the figures set forth in Part V show and assuming that carbon bisulphide and caustic soda production be realised according to estimates, 50,000 M. tons of soap can be scheduled for production. Therefore no further requisitions need be lodged for outside supplies of soap.

PART VII - EFFECT ON SHIPPING SITUATION

The realisation of local soap production as outlined in Part V will avoid imports of soap and save

50,000 M. tons

of shipping tonnage.

PART VIII - INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAMME

Assuming that the planned programs be considered initiated by 1st January 1945 the increase of production in comparison with July '44 is estimated at 50%.

CONCLUSIONS:

1) Soap production of 50,000 M. tons corresponding to the yearly requirements of the Armed Forces plus the entire civilian population south of the Pisa-Rimini line plus the Italian Army, can be covered from local resources and existing plant capacity, provided that the carbon bisulphide plants and the caustic soda Rosignano-Solvay plant be reactivated by January 1945.

2) The success of the above programme depends chiefly on the transportation of the "sansa" to the extraction centres and the extracted oil to the soap factories; as well as on the transportation of the "soap-stocks" from the oil refineries to the soap factories.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Assuming that the planned programs be considered initiated by 1st January 1945 the increase of production in comparison with July '44 is estimated at 50%.

CONCLUSIONS:

1) Soap production of 50,000 M. tons corresponding to the yearly requirements of the Armed Forces plus the entire civilian population south of the Pisa-Rimini line plus the Italian army, can be covered from local resources and existing plant capacity, provided that the carbon bisulphide plants and the caustic soda Rosignano-Solvay plant be reactivated by January 1945.

2) The success of the above programs depends chiefly on the transportation of the "sansa" to the extraction centres and the extracted oil to the soap factories; as well as on the transportation of the "soap-stocks" from the oil refineries to the soap factories.

0 0 6 2

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION I. SOAP

APPENDIX A

SUBJECT: REPORT ON SOLVAY SODA WORKS, ROSIGNANO (LIVORNO)

1. This plant is the largest and most fully integrated works for the production of caustic soda, soda ash and sodium bicarbonate in all of Italy. The plant is wholly owned by the Belgian Solvay Co. and its director is a Belgian national, Mon. C. Van Caubergh. He is an engineer and administrator of high quality and attends all Solvay interests in Italy, e.g., Societa Chimica dell'Ariene and also the Solvay plant at Monfalcone.

It is possible to derive an impression of the importance of the Solvay works in Italian economy by noting that this plant, together with a much smaller one at Monfalcone (Trieste) accounted for 80% of all caustic soda production and almost all soda ash and sodium bicarbonate produced in Italy.

The products of this plant are essential to any plan for the re-activation of Italian industry. The synthetic textile industry (e.g. rayon and fiocco) alone consumed 80% of all the caustic soda produced in Italy, and the paper, chemical, glass, aluminum, soap and food processing industries may also be listed as vitally dependent upon large and continuous supplies of caustic soda and soda ash for their operations.

This plant at present is under guard by the 338 U.S. Engineer Regiment, Company B. under Captain Moorehead.

2. The works at Rosignano suffered no German demolitions and only minor damage from Allied aerial bombing. Given essential raw materials, the plant itself is ready to resume production at relatively short notice. However, several collateral difficulties exist which make production improbable for at least four months.

a. Several railroad bridges connecting Rosignano with S. Vincenzo, the source of limestone, have been destroyed. An estimate of three to four months for the reconstruction of these bridges had been advanced, but the rapidity with which this essential railway service can be restored will depend largely upon the aid and co-operation afforded by the military.

Normally, the quarries at S. Vincenzo supplied plant requirements of 2000 m. tons of limestone per day. Present

Declassified E.O. 12356 Section 3.3/NND No. 785015

activation of Italian industry. The synthetic textile industry (e.g. rayon and ficcco) alone consumed 80% of all the caustic soda produced in Italy, and the paper, chemical, glass, aluminium, soap and food processing industries may also be listed as vitally dependent upon large and continuous supplies of caustic soda and soda ash for their operations.

This plant at present is under guard by the 338 U.S. Engineer Regiment, Company B. under Captain Moorehead.

2. The works at Rosignano suffered no German demolitions and only minor damage from Allied aerial bombing. Given essential raw materials, the plant itself is ready to resume production at relatively short notice. However, several collateral difficulties exist which make production improbable for at least four months.

a. Several railroad bridges connecting Rosignano with S. Vincenzo, the source of limestone, have been destroyed. An estimate of three to four months for the reconstruction of these bridges has been advanced, but the rapidity with which this essential railway service can be restored will depend largely upon the aid and cooperation afforded by the military.

Normally, the quarries at S. Vincenzo supplied plant requirements of 2000 m. tons of limestone per day. Present plans for restoration of production require a daily minimum, continuous supply of 500 m. tons of limestone. 36 good 40 ton rail cars for limestone transportation are available, but there appears to be a shortage of locomotives for hauling them. Explosives for the mines at S. Vincenzo are adequate for several months of operation. About 200 KW of electric power, needed at the quarries, came formerly from Lardarello.

b. Two cast iron pipe lines, respectively 25 and 39 km. in length and 350 and 400 mm. in diameter, connect Rosignano and Ponte Ginori, where some 80 salt wells supply the brine needed for the process. About 1.6 km. of these pipe lines have been badly damaged or destroyed, especially at points where the pipes cross rivers and ravines on 10 to 12 demolished highway bridges. Further, there is extensive damage to the electrically-driven pumping units

Declassified E.O. 12356 Section 3.3/NND No. 785015

which move the brine to Rosignano. Normally, about 116,000 cu.m. of saturated brine solution was sent to Rosignano per month. The life expectancy of these salt beds is stated to be many years.

Stocks of cast iron pipe adequate to effect at least temporary repairs are available and sufficient pumping units can be re-assembled by a cannibalization program to ensure a continuous flow of brine to Rosignano in amount required by the reduced program set forth below. About three to four months are deemed necessary for this repair program.

c. Electric power: Sufficient electric power can be generated in modern equipment at Rosignano from Sardinian coal to meet all needs of that plant. However, 200 KW of electric power must be made available at Ponte Ginori for brine pumping (and 200 KW at the S. Vincenzo quarries). The provision of that power, formerly derived from Larderello, had been studied and it is expected that it will become available when the plant is ready to resume operations.

d. One ton of ammonia per day must be provided for continuous production of caustic soda and soda ash. This material is critically short and only enough exists in stock at the plant to ensure operation one minimum program for 35 days. Ammonia was formerly procured from the Terni group works at Nera Montoro, and it is hoped that a resumption of production at that plant in some five to six months when electric power again becomes available will ensure a continuous supply of ammonia. In the meantime, it is proposed to meet this deficiency by supplying 4 tons of ammonium sulfate per day.

e. Coal requirements for a minimum program are given at 210 tons Sardinian (or 150 tons imported steam coal) and 40 tons of good coke per day. Requisitions for coal and coke are in the course of preparation. The coke is an essential in producing the necessary burnt lime and carbon dioxide, and no other material may serve as a substitute.

3. Average prewar monthly production for the three products of this works was:

Soda Ash	10,000 m. tons
Caustic Soda	3,000 m. tons
Sodium Bicarbonate	900 m. tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

d. [illegible] production of caustic soda and soda ash. This material is critically short and only enough exists in stock at the plant to ensure operation one minimum program for 35 days. Ammonia was formerly procured from the Terni group works at Nera Montoro, and it is hoped that a resumption of production at that plant in some five to six months when electric power again becomes available will ensure a continuous supply of ammonia. In the meantime, it is proposed to meet this deficiency by supplying 4 tons of ammonium sulfate per day.

e. Coal requirements for a minimum program are given at 210 tons Sardinian (or 150 tons imported steam coal) and 40 tons of good coke per day. Requisitions for coal and coke are in the course of preparation. The coke is an essential in producing the necessary burnt lime and carbon dioxide, and no other material may serve as a substitute.

3. Average prewar monthly production for the three products of this works was:

Soda Ash	10,000 m. tons
Caustic Soda	8,000 m. tons
Sodium Bicarbonate	900 m. tons

During the year 1943, production was reduced considerably, wherein the able Belgian manager on the scene employed many devices to achieve a general plant slowdown with a view to minimizing the production that might become available to the Germans. In January 1944, the plant finally suspended all operations and has remained idle ever since. War damage is estimated by the management at about 10-15% of the value of the plant and is confined largely to the pipe lines, power lines, steam boilers, chimney and the like and all repairable without importations from abroad.

4. Management and labor: The management of this works is of the highest quality and may be depended upon to carry forward needed repairs and return the plant to operation with the minimum of outside assistance and delay.

Normally the plant employed 2500/3000 workmen and about 250 office and administrative personnel. A modern village, replete with schools for workers' children and vocational schools for present and potential workers, churches, hospital, shops for community needs, etc., has been built by

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION I. SCAP

APPENDIX A

SUBJECT: REPORT ON SOLVAY SODA WORKS, ROSIGNANO (LIVORNO)

1. This plant is the largest and most fully integrated works for the production of caustic soda, soda ash and sodium bicarbonate in all of Italy. The plant is wholly owned by the Belgian Solvay Co. and its director is a Belgian national, Mon. C. Van Cemborgh. He is an engineer and administrator of high quality and attends all Solvay interests in Italy, e.g., Societa Chimica dell'Aniene and also the Solvay plant at Monfalcone.

It is possible to derive an impression of the importance of the Solvay works in Italian economy by noting that this plant, together with a much smaller one at Monfalcone (Trieste) accounted for 80% of all caustic soda production and almost all soda ash and sodium bicarbonate produced in Italy.

The products of this plant are essential to any plan for the reactivation of Italian industry. The synthetic textile industry (e.g. rayon and ficcce) alone consumed 80% of all the caustic soda produced in Italy, and the paper, chemical, glass, aluminum, soap and food processing industries may also be listed as vitally dependent upon large and continuous supplies of caustic soda and soda ash for their operations.

This plant at present is under guard by the 338 U.S. Engineer Regiment, Company B, under Captain Moorehead.

2. The works at Rosignano suffered no German demolitions and only minor damage from Allied aerial bombing. Given essential raw materials, the plant itself is ready to resume production at relatively short notice. However, several collateral difficulties exist which make production improbable for at least four months.

a. Several rail road bridges connecting Rosignano with S. Vincenzo, the source of limestone, have been destroyed. An estimate of three to four months for the reconstruction of these bridges has been advanced, but the rapidity with which this essential railway service can be restored will depend largely upon the aid and cooperation afforded by the military.

Normally, the quarries at S. Vincenzo supplied plant requirements of 2000 m. tons of limestone per day. Present

Declassified E.O. 12356 Section 3.3/NND No. 785015

activation of Italian industry. The synthetic textile industry (e.g. rayon and fiocco) alone consumed 80% of all the caustic soda produced in Italy, and the paper, chemical, glass, aluminum, soap and food processing industries may also be listed as vitally dependent upon large and continuous supplies of caustic soda and soda ash for their operations.

This plant at present is under guard by the 338 U.S. Engineer Regiment, Company B, under Captain Moorehead.

2. The works at Rosignano suffered no German demolitions and only minor damage from Allied aerial bombing. Given essential raw materials, the plant itself is ready to resume production at relatively short notice. However, several collateral difficulties exist which make production improbable for at least four months.

a. Several rail road bridges connecting Rosignano with S. Vincenzo, the source of limestone, have been destroyed. An estimate of three to four months for the reconstruction of those bridges has been advanced, but the rapidity with which this essential railway service can be restored will depend largely upon the aid and cooperation afforded by the military.

Normally, the quarries at S. Vincenzo supplied plant requirements of 2000 m. tons of limestone per day. Present plans for restoration of production require a daily minimum, continuous supply of 500 m. tons of limestone. 36 good 40 ton rail cars for limestone transportation are available, but there appears to be a shortage of locomotives for hauling them. Explosives for the mines at S. Vincenzo are adequate for several months of operation. About 200 KW of electric power, needed at the quarries, came formerly from Larderello.

b. Two cast iron pipe lines, respectively 25 and 39 km. in length and 350 and 400 mm. in diameter, connect Rosignano and Fonte Cinceri, where some 80 salt wells supply the brine needed for the process. About 1.6 km. of these pipe lines have been badly damaged or destroyed, especially at points where the pipes cross rivers and ravines on 10 to 12 demolished highway bridges. Further, there is extensive damage to the electrically-driven pumping units

Declassified E.O. 12356 Section 3.3/NND No. 785015

the company near the works, and though now considerably damaged, stands as a model of cleanliness and order in sharp contrast to workers' villages so common elsewhere.

5. Initial Program of Production: As soon as repairs to the brine pipe line and the railway for limestone can be completed, an initial reduced program of production will be started. Subsequently, the production will be expanded as fast as coal, coke and ammonia can be made available. This program will result in a daily production of

a. 100 m. tons of soda ash and
100 m. tons of fused 98/99% caustic soda.

or

b. alternatively, if the caustic soda need is more urgent than that for soda ash, 175 m. tons of caustic soda.

For program (a) there is required:

(1) 35/40 tons of high grade metallurgical coke per day. On hand there is enough to permit about 80 days of continuous operation.
(2) Also required is 1 m. ton of ammonia per day. On hand is enough to permit operation for 35 days. Ammonia for further operations will be supplied through 4 tons daily of Ammonium sulfate.
(3) Coal 250/300 tons daily with some 3000 tons on hand.
(4) Limestone 510 tons daily.
(5) Sheet steel (black plate) for caustic soda drums.

6. Stocks on Hand:

A. Raw Materials:

(1) Coal	3000 m. tons	
(2) Metallurgical Coke	3000 m. tons	
(3) Brine	10000 cu. meters	
(4) Limestone	30000 m. tons	
(5) Ammonia	35 m. tons	
(6) Paper bags for soda ash		1500 tons
(7) Black plate for caustic soda drums		200 tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

For program (a) there is required:

(1) 35/40 tons of high grade metallurgical coke per day. On hand there is enough to permit about 30 days of continuous operation.

(2) Also required is 1 m. ton of ammonia per day. On hand is enough to permit operation for 35 days. Ammonia for further operations will be supplied through 4 tons daily of ammonium sulfate.

(3) Coal 250/300 tons daily with some 8000 tons on hand.

(4) Limestone 510 tons daily.

(5) Sheet steel (black plate) for caustic soda drums.

6. Stocks on Hand:

A. Raw Materials:

(1) Coal	8000 m. tons	
(2) Metallurgical Coke	3000 m. tons	
(3) Brine	10000 cu. meters	
(4) Limestone	30000 m. tons	
(5) Ammonia	35 m. tons	
(6) Paper bags for soda ash		1500 tons
(7) Black plate for caustic soda drums		200 tons

B. Finished Products:

(1) Soda Ash (in silos) approx.	1500 tons
(2) Caustic Soda	2000 tons
(3) Sodium Bicarbonate	90 tons

N.B. It is important to note that 100 tons of soda ash must remain at the works to permit the plant to be restarted.

C. The 8000 m. tons of coal listed in A (1) above are now being consumed to produce emergency power for Livorno and that general area. At the present rate of consumption, it will be exhausted early in October.

7. Essential Plant Components:

(1) Excellent coal, coke and limestone handling equipment and all in good condition.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(2) 12 lime kilns, each processing 250/300 m. tons of limestone per day and yielding 150/180 tons of burnt lime. Two of these kilns will be required for initial program set forth in 5a. above.

(3) Power Plant

a. 6 prods boilers at 38 atmos. and 20 tons steam per hour designed for Sardinian coal.

b. 2 B&W boilers at 18/20 atmos. and 15 tons steam per hour for Sardinian coal. One of these is damaged by a bomb hit.

c. 8 boilers 9/12 atmos. and 5/7 tons steam per hour. One is completely destroyed by a bomb hit and 2 are damaged but repairable.

d. A 100 m. chimney was destroyed by a bomb and is being rebuilt.

e. 3 high pressure Zacher Tyss-Brown Boveri (Swiss) turbo alternators, one of which is badly damaged.

2000 KW, 200 V, 50 cycle - damaged
3000 KW, 6000 V, " " - good
3000 KW, 6000 V, " " - good

These turbines receive steam at 36/38 atmospheres and discharge steam at 9 atmospheres for plant heat processing. Also, there are two smaller low pressure type turbo generators, both in operable condition and rated each at

1000 KW, 220 V, 50 cycles.

f. 3 steam reciprocating generator sets, all in operable condition and rated at

300 KW, 220 and 440 V, continuous current

g. Transformer units -

(1) 2000 KW, 6000 v/220 V
(2) 2000 KW, 6000 v/220 v
(3) 1000 KW, 6000 v/500 v
(4) 1000 KW, 6000 v/500 V

[illegible] steam capacity

Declassified E.O. 12356 Section 3.3/NND No. 785015

2000 KW, 200 V, 50 cycle - damaged
3000 KW, 6000 V, " " - good
3000 KW, 6000 V, " " - good

These turbines receive steam at 36/38 atmospheres and discharge steam at 9 atmospheres for plant heat processing. Also, there are two smaller low pressure type turbo generators, both in operable condition and rated each at

1000 KW, 220 V, 50 cycles.

f. 3 steam reciprocating generator sets, all in operable condition and rated at

300 KW, 220 and 440 V, continuous current

g. Transformer units -

(1) 2000 KW, 6000 V/220 V
(2) 2000 KW, 6000 V/220 V
(3) 1000 KW, 6000 V/500 V
(4) 1000 KW, 6000 V/500 V

(4) Brine storage tanks and system - brine storage capacity is about 30,000 cu.m. Treating and settling tanks for purification of the brine are all in good order.
(5) Seven enormous "distillation" columns which produce sodium bicarbonate equivalent to about 250 m. tons of soda ash per day.
(6) Five giant steel lime slakers - all in good condition.
(7) 16 triple effect preporators.
(8) 10 caustic soda fusion systems with a capacity for about 500 m. tons of fused caustic per day.
(9) A sodium bicarbonate plant of 40 tons per day capacity in operable condition.
(10) A barrel making plant for steel drums.
(11) Enormous steel silos for storage of soda ash.
(12) Large, well equipped machine and maintenance shops.
(13) Large magazine for the storage of spare equipment and replacement parts. The character of this dept spoke well for the progressive and energetic management.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(2) 12 lime kilns, each processing 250/300 m. tons of limestone per day and yielding 150/180 tons of burnt lime. Two of these kilns will be required for initial program set forth in 5a. above.

(3) Power Plant

a. 6 Breda boilers at 30 atmos. and 30 tons steam per hour designed for Sardinian coal.

b. 2 B&W boilers at 18/20 atmos. and 15 tons steam per hour for Sardinian coal. One of these is damaged by a bomb hit.

c. 8 boilers 9/12 atmos. and 5/7 tons steam per hour. One is completely destroyed by a bombhit and 2 are damaged but repairable.

d. A 100 m. chimney was destroyed by a bomb and is being rebuilt.

e. 3 high pressure Escher Wyss-Brown Boveri (Swiss) turbo alternators, one of which is badly damaged.

2000 KW, 200 V, 50 cycle - damaged
3000 KW, 6000 V, " " - good
3000 KW, 6000 V, " " - good

These turbines receive steam at 36/38 atmospheres and discharge steam at 9 atmospheres for plant heat processing. Also, there are two smaller low pressure type turbo generators, both in operable condition and rated each at

1000 KW, 230 V, 50 cycles.

f. 3 steam reciprocating generator sets, all in operable condition and rated at

300 KW, 220 and 440 V, continuous current

g. Transformer units -

(1) 2000 KW, 6000 V/220 V
(2) 2000 KW, 6000 V/220 V
(3) 1000 KW, 6000 V/500 V
(4) 1000 KW, 6000 V/500 V

(4) Brine storage tank and system - brine storage capacity

Declassified E.O. 12356 Section 3.3/NND No. 735015

3000 KW, 6000 V, " " - good

These turbines receive steam at 36/38 atmospheres and discharge steam at 3 atmospheres for plant heat processing. Also, there are two smaller low pressure type turbo generators, both in operable condition and rated each at

1000 KW, 220 V, 50 cycles.

f. 3 steam reciprocating generator sets, all in operable condition and rated at

300 KW, 220 and 440 V, continuous current

g. Transformer units -

(1) 2000 KW, 6000 V/220 V
(2) 2000 KW, 6000 V/220 V
(3) 1000 KW, 6000 V/500 V
(4) 1000 KW, 6000 V/500 V

(4) Brine storage tanks and system - brine storage capacity is about 30,000 cu.m. Treating and settling tanks for purification of the brine are all in good order.

(5) Seven enormous "distillation" columns which produce sodium bicarbonate equivalent to about 250 m. tons of soda ash per day.

(6) Five giant steel lime slakers - all in good condition.

(7) 16 triple effect evaporators.

(8) 10 caustic soda fusion systems with a capacity for about 500 m. tons of fused caustic per day.

(9) A sodium bicarbonate plant of 40 tons per day capacity in operable condition.

(10) A barrel making plant for steel drums.

(11) Enormous steel silos for storage of soda ash.

(12) Large, well equipped machine and maintenance shops.

(13) Large magazine for the storage of spare equipment and replacement parts. The character of this depot spoke well for the progressive and energetic management.

Declassified E.O. 12356 Section 3.3/NND No. 785015

8. Conclusions: The reactivation of this works is essential to re-starting Italian industry and supply elemental wants of the Italian people, especially for soap and edible oils. It is the decided policy of the Industry Sub-Commission to do all possible to facilitate the reactivation of this plant with the following steps:

a. Restoration of railway service between Rosignano and S. Vincenzo for movement of limestone to the works.
b. Restoration of two pipelines and pumping equipment for salt brine from Ponte Ginori to Rosignano.
c. Supply of 200 KW electric power each to Ponte Ginori and S. V Incense.
d. Supply of 1 ton of ammonia or 4 tons ammonium sulfate per day.
e. Supply of about 300 m. tons of Sardinian coal per day.
f. Supply of about 40 m. tons of metallurgical coke per day.
g. Supply of steel black plate from Terni for caustic soda drums.
h. Preserve the plant, equipment and raw materials against dispersal by requisition and military occupation with attendent plant disruption as far as possible. Particularly, the cast iron pipe for pipeline repair must be preserved.
i. It is estimated that the initial program of production can make available about 55,000 m. tons of caustic soda during 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785015

perusal by requisition and military occupation with attendant plant disruption as far as possible. Particularly, the cast iron pipe for pipeline repair must be preserved.

i. It is estimated that the initial program of production can make available about 55,000 m. tons of caustic soda during 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION I SCAF

APPENDIX F

CARBON BISULFIDE PRODUCTION

Part 1 Introduction: Carbon bisulfide is an exceedingly important commodity in Italy, being required especially for fumigation of grain, extraction of olive oil and production of synthetic fibers, such as rayon and fiocco. The oliver oil extracted by means of carbon bisulfide is known as "sulfur oil" and, depending upon its quality and acidity, finds employment both as food and as a soap raw material .

Part 2: The average annual consumption of carbon bisulfide in that area of Italy under consideration in this study and that for 1945 is estimated in m. tons at

	Average Annual Consumption	Estimated 1945 Consumption
Grain Fumigation	1,500	1,000
Olive Oil Extraction	3,500	3,500
Synthetic Fibers	13,500	3,500
Total	18,500	8,000

Part 3 Production Potential: Three plants for the production of carbon bisulfide exist in liberated Italy and steps have been taken to reactivate all three with a view to meeting requirement stated in Part 2. It is expected that all three plants will be in operation throughout 1945.

	m. tons
a. Soc. Umbra Prodotti Chimici, Collestatte, Terni	2,600
b. Ulisse Crocchi & Sons, Torrenieri, Siena	2,400
c. L'Insulare, S.P.E.R.C. Catania	3,000
Total	8,000

The planned production will, therefore, just meet the anticipated requirements as stated in Part 2.

Part 4 Required Raw Material: All required raw materials including beechwood

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 0 7 0

Grain Fumigation	1,500	1,000
Olive Oil Extraction	3,500	3,500
Synthetic Fibers	13,500	3,500
Total	18,500	8,000

Part 3 Production Potential: Three plants for the production of carbon bisulfide exist in liberated Italy and steps have been taken to reactivate all three with a view to meeting requirement stated in Part 2. It is expected that all three plants will be in operation throughout 1945.

	m. tons
a. Soc. Umbra Prodotti Chimici, Collestatte, Terni	2,600
b. Ulisse Crocchi & Sons, Torrenieri, Siena	2,400
c. L'Insulare, S.P.E.R.C. Catania	3,000
Total	8,000

The planned production will, therefore, just meet the anticipated requirements as stated in Part 2.

Part 4 Required Raw Material: All required raw materials including beechwood charcoal and sulfur are in Italy in adequate supply.

Part 5

A. A report on the Soc. Umbra Prodotti Chimici works is attached as Appendix C. The works is in condition to start operation with a maximum of four retorts as soon as electric power of about 800 KT per retort can be made available. Power for one retort is to be available by mid-December.

B. Ulisse Crocchi & Sons Works at Siena is entirely in order, possesses large stocks of locally available charcoal, requires a very small allocation of electric power and will commence operations as soon as transportation for large stocks of sulfur some 100 kilometers distant can be secured to bring the sulfur to the works.

C. L'Insulare Works at Catania is old and inefficient, but since it can produce 3000/3500 tons of carbon bisulfide in one year's operation, it will be operated to the maximum. For 3000 tons of product the raw

Declassified E.O. 12356 Section 3.3/NND No. 785015

material requirements are:

1. 5000 tons of sulfur
2. 2500 tons beechwood charcoal
3. 3500 tons coal (Sardinian)

The sulfur is to be made available from Sicily, the charcoal from Calabria, and the coal from Sardinia, the chief obstacle in all cases being transportation to the works. This plant should be in operation by mid-December.

Part 6 Requisitions: No requisitions have been lodged for importation of outside materials, as none are deemed necessary.

Part 7: Effect on shipping situation. Since no imports are sought, the 8000 tons of product to be made available from this program is entirely a saving of that weight of shipping. Further, be it noted that it saves shipping carbon bisulfide, a liquid far more inflammable than aviation gasoline.

Part 8: Implementation of this program will result in the production of 8000 m. tons of carbon bisulfide, as against a present production of nil.

Declassified E.O. 12356 Section 3.3/NND No. 785015

saves shipping [illegible]
aviation gasoline.

Part 8: Implementation of this program will result in the production of 3000 m. tons of carbon bisulfide, as against a present production of nil.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0081

SECTION I SCAF

APPENDIX C

Societa Umbra Prodotti Chimici, Collestatto (Terni)

Manufacture of Carbon Bisulphide. Plant Manager and Director Dott. Guido Senti.

A. This is a modern works with eight electrically heated retorts. Its normal production was about 8000 M. tons per year of carbon bisulphide and drew about 4500 KW of electric power from the Terni Power Group. The plant was started in 1936 and completed in August of 1937. It is wholly owned by CISA VISCOSA. Production stopped last February.

The entire plant is in excellent condition, except that transformers, switch gear and busbars for four of the eight retorts have been carried away by the Germans. The management hopes that this essential electrical equipment is still in the Rome area on railway wagons and may still be recovered. The remaining four retorts are complete and operable. Each retort can produce about 135/140 m. tons of carbon bisulfide per month.

Normally each retort was operated on a cycle; 4 months continuous operation, 1½ months cooling, cleaning, repairing firebrick lining, etc. then return to operation. Retort operations were staggered so that six were normally operating while two were under repair.

The entire output of carbon bisulphide went to CISAVISCOSA for artificial fibre manufacture.

B. Plant Components.

(1) Retorts. used vertical, concentric carbon electrodes each, and each retort drew 550 KVA at Cos ϕ of 0.89. Transformers dropped incoming power from 10,000 volts to 60 volts.

The furnaces operate at 900°C. Carbon electrodes are 450 mm. diameter and should be highly graphitized carbon for long wear and uniform heating. Each furnace normally produces about 5000

Declassified E.O. 12356 Section 3.3/NND No. 718015

away by the Germans. The management hopes that this [illegible] equipment is still in the Rome area on railway wagons and may still be recovered. The remaining four retorts are complete and operable. Each retort can produce about 135/140 m. tons of carbon bisulfide per month.

Normally each retort was operated on a cycle: 4 months continuous operation, 1½ months cooling, cleaning, repairing firebrick lining, etc. then return to operation. Retort operations were staggered so that six were normally operating while two were under repair.

The entire output of carbon bisulphide went to CISAVISCOSA for artificial fibre manufacture.

B. Plant Components.

(1) Retorts. Used vertical, concentric carbon electrodes each, and each retort drew 550 KVA at Cos ϕ of 0.89. Transformers dropped incoming power from 10.000 volts to 60 volts.

The furnaces operate at 900°C. Carbon electrodes are 450 mm. diameter and should be highly graphitized carbon for long wear and uniform heating. Each furnace normally produces about 5000 Kg. Carbon Bisulphide per day.

(2) Charcoal driers are six in number and each heated with 3 carbon electrodes and draw 120 KVA.

(3) Oil scrubber tower to remove hydrogen sulphide.

(4) Condensers, cooling water pumps, crude product storage (3 open concrete basins with 1.200.000 liter capacity for carbon bisulphide - stored under water).

(5) Two electrically heated steam boilers for distillation of product.

(a) 550 KW at 220 Volts 16 Kg./cm. sq.
(b) 250 " " " " " " "

(6) Seven steam heated distillation and condenser units for carbon bisulphide.

(7) Purified product storage for 100.000 litres.

C. Raw Material Requirements.

(1) 800 KW electrical power overall need per retort - or 4500 KW for entire works.

(2) Charcoal obtained locally, about 0.5 Kg. per Kg. of product.

(3) 98-99% sulphur, about 1.1 Kg. per Kg. product.

(4) Carbon electrodes, 1 Kg. per 100 Kg. product normally obtained from America (Acheson) or from Italian Acheson Company.

0 0 8 2

Declassified E.O. 12356 Section 3.3/NND No. 785015

D. Stocks on Hand:

(1) Carbon Bisulphide crude 350 - 380 m. tons.
(2) All other materiels in negligible quantities.

E. Recommendations.

Carbon bisulphide is urgently needed for olive oil production and wheat preservation. Therefore operate the plant as soon as electric power permits.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0084

Declassified E.O. 12356 Section 3.3/NND No. 785015

0085

SECTION 2 .

P A P E R .

C O N T E N T S .

		Page
I.	Introduction	18
II.	Requirements and justification	19
III.	Production potential of end product	21
IV.	Production potential of required raw materials	21
V.	Supporting Data	22
VI.	Requisitions	24
VII.	Effect on shipping situation	24
VIII.	Increase of production through implementation of programs	24

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 0 8 6

SECTION 2

PAPER

PART I INTRODUCTION

The program for the production of paper is scheduled for two types:

1. Newsprint
2. Writing or printing paper (of a "standard" type determined by Industry Sub-Commission)

South of the Pisa-Rimini line production of paper is distributed as follows:

1. Tuscany paper mills (provinces of Florence and Pistoia)
2. Miliani-Fabriano mills (provinces of Macerata and Ancona)
3. Tivoli and Rome (province of Rome)
4. Liri Valley (province of Frosinone)
5. "Istituto Poligrafico dello Stato" mill, Foggia (province of Foggia)

In other localities (i.e. Amalfi, Naples) there are some small mills almost all producing wrapping paper (using waste paper as raw material). No account will be taken in the present survey of their production.

1. Plants in Tuscany

These mills are still in the fighting zone and no reports are available.

2. Miliani-Fabriano

The provinces of Macerata and Ancona have been freed only recently (about one month ago) and are still near to the fighting zone (within a range of 20 to 25 miles).

Detailed reports on these plants are not yet available and it is premature as yet to give a picture of their production possibilities as regards the year 1945. Preliminary reliable information with regard thereto will be set forth in Part V.

3. Rome Province

Two plants are in operative condition. They are scheduled for the production of newsprint only. Information with regard thereto will be set forth in Part V.

Declassified E.O. 12356 Section 3.3/NND No. 785016

In other localities (i.e. Amalfi, Naples) there are some small mills almost all producing wrapping paper (using waste paper as raw material). No account will be taken in the present survey of their production.

1. Plants in Tuscany

These mills are still in the fighting zone and no reports are available.

2. Miliani-Fabriano

The provinces of Macerata and Ancona have been freed only recently (about one month ago) and are still near to the fighting zone (within a range of 20 to 25 miles).

Detailed reports on these plants are not yet available and it is premature as yet to give a picture of their production possibilities as regards the year 1945. Preliminary reliable information with regard thereto will be set forth in Part V.

3. Rome Province

Two plants are in operative condition. They are scheduled for the production of newsprint only. Information with regard thereto will be set forth in Part V.

4. Liri Valley

Owing to the existence of adequate hydro-electric power, before the war a flourishing paper industry existed in the Liri Valley. The 10 principal plants and the corresponding electric power stations were distributed chiefly between Isola del Liri, Ceprano and Atina (all of them in the Frosinone province). All the plants have been damaged owing to war action in the Liri Valley, where fighting has been very heavy.

Taking account of the condition of the various plants a reactivation plan has been prepared for three of them, namely:

Cartiera Meridionali, Isola del Liri
Cartiera Boimond, Isola del Liri
Cartiera di Ceprano, Ceprano

For these three plants a production estimate for 1945 is set forth in Part V. The other mills are so badly damaged and still so covered by debris that at present no estimate can be given as regards their production possibilities in 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785015

5. Foggia - "Istituto Poligrafico dello Stato"

The Foggia plant has been reactivated and is producing now "etcnicard" type paper at the approximate rate of 250 tons a month. Information with regard thereto is set forth in Part V.

As a result of the preliminary work already accomplished, it is possible to produce locally 50% of the requirements of writing and printing paper and 90% of the requirements of newsprint, which are set forth in Part II hereof.

The requirements of other qualities of paper set forth in Part II should be imparted.

PART II REQUIREMENTS AND JUSTIFICATION

A. Basis and Justification

Owing to fluctuations in recent years, present estimates are based on consumption for a pre-war normal year in the whole of Italy. For the purpose of estimating requirements of all types of paper in liberated Italy, up to the Gothic line, the population in that territory has been taken as 25,000,000, representing approximately 55% of the total population of 45,000,000. However, in view of the fact that paper consumption is far greater in northern Italy, i.e. in enemy occupied territory, present estimates represent 35% of normal consumption for the whole of Italy in 1941.

The first column of figures represents requirements solely for the Italian Government, and the second column requirements for the civilian population.

Since the statistics belonging to the "Poligrafico dello Stato" were taken away by the Germans, the requirements for the Government were calculated from the purchase price of their stocks. The estimated quantity was not reduced as for the civilian supplies because the State bodies are mainly in Rome. However, it is estimated that the real need of the Government can be reduced to about 70% of the consumption figures provided by Istituto Poligrafico.

Figures represent normal requirements and do not take into consideration wartime abnormalities.

Requirements:

1. In Detail	Type	Quantity Tons (Government)	Tons (Civilian)
Newsprint			18,000

0088

Declassified E.O. 12356 Section 3.3/NND No. 785015

greater in Northern Italy, i.e. in enemy occupied territory, present estimates represent 35% of normal consumption for the whole of Italy in 1941.

The first column of figures represents requirements solely for the Italian Government, and the second column requirements for the civilian population.

Since the statistics belonging to the "Poligrafico dello State" were taken away by the Germans, the requirements for the Government were calculated from the purchase price of their stocks. The estimated quantity was not reduced as for the civilian supplies because the State bodies are mainly in Rome. However, it is estimated that the real need of the Government can be reduced to about 70% of the consumption figures provided by Istituto Poligrafico.

Figures represent normal requirements and do not take into consideration wartime abnormalities.

Requirements:

1. In Detail — Type	Quantity: Tons (Government)	Tons (Civilian)
Newsprint		18,000
Printing Paper:		
a. for periodicals in rolls		5,000
b. " " flat bed		500
c. " books and magazines		8,500
d. " school books		2,500
e. " illustrations		1,000
f. roofing paper		3,000
g. miscellaneous	6,300	5,500
Writing Paper:		
a. letter paper		3,000
b. envelope paper		2,000
c. miscellaneous		5,000
Office Supplies:		
a. registers, etc.		2,300
b. letters copy books		150
c. block notes, etc.		300
d. steno books		3,000
e. mimeograph		900
f. manifold		700
g. blotting paper		300
h. miscellaneous	900	7,000

Declassified E.O. 12356 Section 3.3/NND No. 785015

Type	Quantity Tons (Government)	Tons (Civilian)
Wrapping and Packing:		
a. waxing paper		700
b. corrugated raw paper		8,700
c. straw paper		10,800
d. miscellaneous		28,800
Cigarettes and Cartons: (Govt. Monopoly)		
a. cigarette paper	1,200	
b. packages for tobacco, salt & quinine	4,000	
Filter Paper		200
Sacks and Bags:		
a. kraft, for making cement sacks, etc.		9,600
b. paper for bill bags		4,000
c. straw paper		50
Safety Paper	420	400
Cardboard		24,000
Ration Cards		3,000
Total	12,820	158,900

2. Collated

Newsprint		18,000
Printing Paper	6,300	26,000
Writing Paper		10,000
Office Supplies	900	14,650
Wrapping and Packing		49,000
Cigarettes and Cartons	5,200	
Filter Paper		200
Sacks and Bags		13,650
Safety Paper	420	400
Cardboard		24,000
Ration Cards		3,000
Total	12,820	158,900

B. Observations

1. The above mentioned quantities represent 35% of total sales by all paper mills in Italy during 1941. These were checked with figures representing civilian consumption for the same period and were found

Declassified E.O. 12356 Section 3.3/NND No. 785015

Ration Cards		
Total	12,820	158,900

2. Collated

Newsprint		18,000
Printing Paper	6,300	26,000
Writing Paper		10,000
Office Supplies	900	14,650
Wrapping and Packing		49,000
Cigarettes and Cartons	5,200	
Filter Paper		200
Sacks and Bags		13,650
Safety Paper	420	400
Cardboard		24,000
Ration Cards		3,000
Total	12,820	158,900

B. Observations

1. The above mentioned quantities represent 35% of total sales by all paper mills in Italy during 1941. These were checked with figures representing civilian consumption for the same period and were found to be correct.

2. No data are available for the 1941 consumption of safety paper. Present requirements are based on government estimates for 1943.

3. Bank paper is not found in Italian statistics under such a name. It is probably included partly in writing paper and partly in safety paper.

4. Paper for ration cards is calculated on the basis that:

   a. Each ration card weighs about 20 gms.
   b. Each person needs 6 cards per annum.
   c. The population of Free Italy is estimated at 25,000,000 inhabitants.

5. Figures for the consumption of paper in State departments in Communes, and in the Provinces, are not available as supplies were obtained locally from a financial grant. For the purpose of this estimate, therefore, the necessary figures can be taken to be included in those shown for civilian consumption.

Declassified E.O. 12356 Section 3.3/NND No. 735015

0 0 6 2

PART III PRODUCTION POTENTIAL OF END PRODUCT

The production potential during 1945 will be as follows:

"Standard" paper ... . 21,000 M. tons
Newsprint .... 16,000 M. tons

The writing and printing paper production will therefore correspond to 50% of the estimated requirements of 42,300 M. tons

The newsprint production will correspond to 90% of the estimated requirements of ..... 18,000 M. tons

PART IV PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

The raw materials required for producing newsprint are as follows:

1. Wood pulp (produced mechanically) 4,000 M. tons
2. Waste paper (white)..... 13,000 M. tons
Total ..... 17,000 M. tons, which will produce, after processing, an amount of newsprint equal to:

16,000 M. tons

For producing the "standard" writing and printing paper the following raw materials are needed:

a. Wood pulp (produced mechanically) 8,000 M. tons
b. Wood cellulose (produced chemically from Calabrian pine - "Pino silano") ..... 4,500 M. tons
c. Wood cellulose (imported) ..... 5,700 M. tons
d. Straw cellulose ..... 3,600 M. tons
e. Bentonite ..... 400 M. tons
f. Aluminium sulphate ..... 200 M. tons
g. Colofony .... 200 M. tons
Total ..... 22,600 M. tons, which will produce, after processing, an amount of "standard" writing or printing paper equal to:

21,000 M. tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

Total ..... 17,000 M. tons, which will produce, after processing, an amount of newsprint equal to:

16,000 M. tons

For producing the "standard" writing and printing paper the following raw materials are needed:

a. Wood pulp (produced mechanically)	8,000 M. tons
b. Wood cellulose (produced chemically from Calabrian pine - "Pino silano")	4,500 M. tons
c. Wood cellulose (imported)	5,700 M. tons
d. Straw cellulose	3,600 M. tons
e. Bentonite	400 M. tons
f. Aluminium sulphate	200 M. tons
g. Colofony	200 M. tons
Total	22,600 M. tons, which will produce,

after processing, an amount of "standard" writing or printing paper equal to:

21,000 M. tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART V SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV

The wood pulp, wood cellulose and straw cellulose will be produced in the following plants:

Locality and Name of Plant	Wood Pulp in M. tons		Wood Cellulose in M. tons		Straw Cellulose in M. tons	
	Daily Capacity	Yearly Capacity	Daily Capacity	Yearly Capacity	Daily Capacity	Yearly Capacity
Prov. Frosinone						
Cartiere Meridionali, Isola del Liri	20	6,000	-	-	5	1,500
Cartiera Boimond, Isola del Liri	6	1,800	-	-	-	-
Cartiera Viscoglicosi, Isola del Liri	6	1,800	-	-	-	-
Cartiera Visocchi & Arata, Cepranc	8	2,400	15	4,500	-	-
Prov. Foggia						
Cartiera dell"Ist. Poligrafico dello Stato", Foggia	-	-	-	-	7	2,100
Total		12,000		4,500		3,600

The end products, namely "Standard" writing or printing paper and newsprint will be produced in the following plants:

Locality and Name of Plant	"Standard" Writing or Printing Paper in M. tons		Newsprint	
	Daily Capacity	Yearly Capacity	Daily Capacity	Yearly Capacity
Prov. Frosinone				
Cartiere Meridionali, Isola del Liri	30	9,000	-	-
Cartiera Boimond, Isola del Liri	-	-	13	3,900
Cartiera Visocchi & Arata, Cepranc	15	4,500	-	-

Declassified E.O. 12356 Section 3.3/NND No. 785015

Arata, Cepranc	8	2,400	15	4,500	-	-
Prov. Foggia						
Cartiera dell"Ist. Poligrafico dello Stato", Foggia	-	-	-	-	7	2,100
Total		12,000		4,500		3,600

The end products, namely "Standard" writing or printing paper and newsprint will be produced in the following plants:

Locality and Name of Plant	"Standard" Writing or Printing Paper in M. tons		Newsprint	
	Daily Capacity	Yearly Capacity	Daily Capacity	Yearly Capacity
Prov. Frosinone				
Cartiera Meridionali, Isola del Liri	30	9,000	-	-
Cartiera Boimond, Isola del Liri	-	-	13	3,900
Cartiera Visocchi & Arata, Ceprano	15	4,500	-	-
Prov. Rome				
Cartiera Tiburtina, Tivoli	-	-	30	9,000
Cartiera Nomentana, Rome	-	-	10	3,000
Prov. Macerata				
Cartiera Miliani, Fiorano	10	3,000	-	-
Prov. Foggia				
Cartiera dell'Ist. Poligrafico dello Stato, Foggia	15	4,500	-	-
Total		21,000		15,900

Declassified E.O. 12356 Section 3.3/NND No. 785015

BENTONITE

The yearly requirements of bentonite are:

400 M. tons

This quantity will be supplied from local resources - mine of S. Severo (prov. Foggia).

ALUMINIUM SULPHATE

The yearly requirements of aluminium sulphate are:

200 M. tons

This quantity will be supplied from local resources - mines Tolfa, Civitavecchia (prov. Rome).

COLOFONY

The yearly requirements of colofony are:

200 M. tons

This quantity will be supplied from local resources - Campagnia Resiniera Italiana, Bari.

COAL

For producing one ton of paper the average coal requirement is:

0.6 M. tons (7,000 Cal.)

If Sardinian coal is used, for producing one ton of paper

1 M. ton

is required.

Therefore, the total yearly requirements for producing 39,000 M. tons of paper (newsprint plus "standard" type) are approximately:

40,000 M. Tons of Sardinian coal

ELECTRIC POWER

Declassified E.O. 12356 Section 3.3/NND No. 785015

The yearly requirements of celofony are:

200 M. tons

This quantity will be supplied from local resources - Campagnia Resinicra Italiana, Bari.

COAL

For producing one ton of paper the average coal requirement is:

0.6 M. tons (7,000 Cal.)

If Sardinian coal is used, for producing one ton of paper

1 M. ton

is required.

Therefore, the total yearly requirements for producing 39,000 M. tons of paper (newsprint plus "standard" type) are approximately:

40,000 M. Tons of Sardinian coal

ELECTRIC POWER

The average electric power requirements for producing "standard" paper are:

1,700 KWh per 1 M. ton of paper

which corresponds to the absorption of

70 KW for producing 1 M. ton of paper

daily.

The production of newsprint in the Rome region - chiefly based on the use of waste paper as raw material - requires less electric power. In this case the average consumption is:

700 KWh per 1 M. ton newsprint

which corresponds to the absorption of

30 KW per 1 M. ton newsprint daily

Declassified E.O. 12356 Section 3.3/NND No. 785015

The paper plants are usually supplied by their own hydroelectric power. The power stations have partly been damaged by enemy mines but a number of small generators has been saved.

The position of the scheduled plants as regards electric power will be by 1 January 1945 as follows:

Own hydroelectric power:

Cartiera Meridionali, Isola del Liri	2,200 KW
Cartiera Boimond, Isola del Liri	900 "
Cartiera Visconticini, Isola del Liri	400 "
Cartiera Vincocchi & Arata, Cepranno	1,300 "
Cartiera Milani, Pieraco	700 "

Cartiera dell'Istituto Poligrafico dello Stato, Foggia 600 "

This plant has not its own hydroelectric power but thanks to the improved electric power situation on the southeastern coast the required 600 KW have already been allocated.

Cartiera Tiburtina, Tivoli 300 "

From the required 300 KW, 300 KW are produced by means of their own coal power station and 300 KW have been already allocated for 6 hours daily.

Cartiera Romentana, Rome 300 "

200 KW are produced by means of their own coal power station and the remaining 100 KW are already allocated.

PART VI Requirements

For implementing the production program as given in part III (namely 37,000 m. tons of paper) for the year 1945,

5,700 m. tons of wood cellulose

should be imported.

PART VII Effect of Existing Situation

Declassified E.O. 12356 Section 3.3/NND No. 785015

electric power situation on the southeastern coast the required 600 KW have already been allocated.

Cartiera Tiburtina, Tivoli 400 "

means of
From the required 400 KW, 300 KW are produced by/means of their own coal power station and 300 KW have been already allocated for 6 hours daily.

Cartiera Cecchina, Roma 300 "

200 KW are produced by means of their own coal power station and the remaining 100 KW are already allocated.

PART VI REQUIREMENTS

For implementing the production program as given in part III (namely 37,000 m. tons of paper) for the year 1945,

5,700 m. tons of wood cellulose

should be imported.

PART VII EFFECT OF SAVING SUGGESTION

If Scandinavian coal is used for the desired production of 37,000 m. tons of paper, 40,000 m. tons of coal in addition to 5,700 m. tons of wood cellulose must be imported. 31,300 tons of shipping space will therefore be saved.

PART VIII A CHANGE OF ... PRODUCTION ... IMPLEMENTATION OF PROGRAMS

If the above program is implemented in its entirety the production of "standard" paper and newsprint will be increased by 500%.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Section 3.

T E X T I L E S .

Contents.

		Page
I.	Introduction	25
II.	Requirements and justification	26
III.	Potential production of end product	27
IV.	Production potential of required raw materials	32
V.	Supporting Data	34
VI.	Requisitions	41
VII.	Effect on shipping situation	43
VIII.	Increase of production by implementation of programme	44
Appendix A.	Synthetic Fibres	46
Appendix A 1.	Cisa Viscosa	50
Appendix B	Textile requirements for Civilians	55
Appendix C	Textile requirements for Italian Armed Forces	57
Appendix D	The Manifatture Cotoniere Meridionali, Survey	60
Appendix E	M.C.M. Requisition for raw materials	70 (3)
Appendix F	M.C.M. Requisition for spare parts and maintenance materials	70 (1)

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 2

TEXTILES

PART I - INTRODUCTION

1. The discussion of the textile industries of Central and Southern Italy which follows is confined to the Woollen, Cotton and Artificial Fibre and Rayon industries. Hemp and similar products and Silk have been excluded, as they are at present subject to special arrangements, and are largely producing for export and making no direct contribution to the civilian economy.

2. The proportion of the primary textile industries which lies South of the Pisa-Rimini line is small compared with the total, and comprises only approximately 5% of potential Italian production. It is scattered throughout the length of Liberated Italy and is mainly made up of small units with limited capacity. There are in fact only two major producers, the Manifatture Cotoniere Meridionali in the Naples area, and the C.I.S.A. Viscosa at Rome and Naples; the former has been the object of an exhaustive survey, and the latter, which has only recently been liberated, is at present being studied in detail.

3. The following is a summary of the textile industry in Central and Southern Italy:

(a) Woollen Industries.

Negligible in size and production, there being few firms large enough to be called industrial units, and the majority being small family concerns with a few hundred spindles and two or three looms. There is however a considerable home production of hand loom woven fabrics and knitted goods, which consumes locally grown wool in some quantity, and for which the yarn is spun on commission by small spinning plants.

Preliminary estimates indicate that the woollen industry is the best placed of all the main textile producers for early production, in that, in the area under review, its demands for raw materials are reasonable and can be furnished from local resources.

(b) Cotton Industries.

The Manifatture Cotoniere Meridionali, besides being the largest unit in the cotton industry in Liberated Italy, is the only one at present able to produce cotton yarn, and upon it therefore will depend the other cotton fabric weavers for their supplies, until such time as the other two chief producers of yarn are reactivated, namely the Cotonificio di Spoleto and C.I.S.A. Viscosa.

(c) Artificial Fibre and Rayon production is confined to the output of C.I.S.A.

Declassified E.O. 12356 Section 3.3/NND No. 785015

[illegible], studied in detail.

3. The following is a summary of the textile industry in Central and Southern Italy:

(a) Woollen Industries.

Negligible in size and production, there being few firms large enough to be called industrial units, and the majority being small family concerns with a few hundred spindles and two or three looms. There is however a considerable home production of hand loom woven fabrics and knitted goods, which consumes locally grown wool in some quantity, and for which the yarn is spun on contission by small spinning plants.

Preliminary estimates indicate that the woollen industry is the best placed of all the main textile producers for early production, in that, in the area under review, its demands for raw materials are reasonable and can be furnished from local resources.

(b) Cotton Industries.

The Manifatture Cotoniere Meridionali, besides being the largest unit in the cotton industry in Liberated Italy, is the only one at present able to produce cotton yarn, and upon it therefore will depend the other cotton fabric weavers for their supplies, until such time as the other two chief producers of yarn are reactivated, namely the Cotonificio di Spoleto and C.I.S.A. Viscosa.

(c) Artificial Fibre and Rayon production is confined to the output of C.I.S.A. Viscosa, with one plant in Naples and two in the Rome area. The production of this firm is capable of making a very substantial contribution towards the requirements of cotton spinners and weavers, in substitution of raw cotton or cotton yarn. It has however suffered major damage, and although some immediate production is possible, cannibalisation on a considerable scale will be necessary before maximum potential production is reached, and reactivation must therefore be phased.

Having regard however to the fact that the production of these commodities is a chemical process, only becoming textile when it is used in subsequent manufacturing, it has been treated in this survey separately from the cotton and woollen industries, and is attached as an appendix. The incidence of this industry upon the availability of raw materials, yarn or fabric, is however referred to, where applicable in the main report.

4. The major problem in the rehabilitation of all textile industries (exclusive of damage due to military action) is the supply of raw materials. Italian textile production is essentially dependent upon importations, whether of cotton, wool, or pulp, indigenous supplies being small in quantity and largely indifferent in quality.

5. Damage due to military action by both Allies and Axis has been sporadic. Small firms, being widely scattered, have generally escaped; the larger units have suffered to the extent of about 40% on the average, usually, although not entirely, due to demolitions by the retreating enemy.

Declassified E.O. 12356 Section 3.3/NND No. 765015

PART II - REQUIREMENTS AND JUSTIFICATION

1. The estimates of quantities of textiles necessary to sustain annual manufacture of essential civilian clothing requirements, together with justification therefor, have been compiled by Commerce Sub-Commission. An appendix has been attached to cover the requirements of the Italian Armed Forces also.

2. The population South of the Pisa-Rimini line has been taken as being 25,000,000 and the list which follows is calculated on this basis.

3. Civilian Requirements.

Item		
(a)	36" wide flannel, napped on both sides	1,125,000 yds.
(b)	36" wide cotton fabric or cotton and rayon, e.g. poplin, muslin, calico, etc., knitted and woven, whits, plain, fancies and prints: for bedclothing, blouses, dresses, pyjams, infants' garments, etc.	281,400,000 "
(c)	54" manipulated wool fabric, 12/13 oz. weight, i.e. "Suiter" cloth. To be used in manufacture of two piece men's suits, shirts for women and girls, boys' short trousers and knickers.	14,915,000 "
(d)	54" wide manipulated wool, 20/24 oz. for overcoats.	27,000,000 "
(e)	36" wide rayon or acetate Lining fabric	23,800,000 "
(f)	54" wide Utility fabrics cotton Denim or Drills, etc., for overalls and work clothing, chemically treated (water repellent) or rubberized for rain wear.	14,900,000 "
(g)	36" wide Utility fabrics, Cotton Corduroys. Men and boys' coats, jackets and trousers to be worn in the country.	23,700,000 "
(h)	22/25 oz. Blanket fabric woven or knitted (napped).	12,500,000 "

Declassified E.O. 12356 Section 3.3/NND No. 785015

(c) 54" manipulated wool fabric, 12/13 oz. weight, i.e. "Suder" cloth. To be used in manufacture of two piece men's suits, skirts for women and girls, boys' short trousers and knickers. 14,915,000 "

(d) 54" wide manipulated wool, 20/24 oz. for overcoats. 27,000,000 "

(e) 36" wide rayon or acetate Lining fabric 23,800,000 "

(f) 54" wide Utility fabrics cotton Denim or Drills, etc., for overalls and work clothing, chemically treated (water repellent) or rubberized for rain wear. 14,000,000 "

(g) 36" wide Utility fabrics, Cotton Corduroys. Men and boys' coats, jackets and trousers to be worn in the country. 23,100,000 "

(h) 22/25 oz. Blanket fabric woven or knitted (napped). 12,500,000 "

(i) Yarn (moderately heavy and light weight wool or wool and cotton). For stockings and/or socks and sweaters. 39,650,000 lbs.

These estimates concern only the civil population, justification attached as Appendix B. Requirements for the Armed Forces are listed in Appendix C.

/. The following estimated age and sex breakdown are compiled by MAGS, and clothing requirements for same are based on the European Civilian population of North Africa and on available data regarding the economic and social condition of the civilian population of Sardinia, Sicily and Southern Italy. The data on the population distribution are derived from statistics in the Annual Italian Statistical Year Book for 1938 (Compendio Statistico Italiano 1938, page 312):

Infants	under	1	year	of	age	2%
Children	"	5	years	"	"	8%
Boys	5	to	15	"	"	"	10%
Girls	"	"	"	"	"	"	10%
Boys	15	"	20	"	"	"	3%
Girls	"	"	"	"	"	"	3%
Men	20	years	of	age	or	older	31%
Women	"	"	"	"	"	"	31%
						Total	100 %

Declassified E.O. 12356 Section 3.3/NND No. 785015

5. For the purpose of textile distribution the population may be broken down as follows:

Men	8,500,000
Women	9,000,000
Children	7,500,000
	25,000,000

6. As far as possible only textiles for the manufacture of clothing believed to be absolutely essential for the maintenance of minimum health standards have been included. In the choice of textiles and yarn and in the specifications (detailed in Appendix "B") textile types of a cheap and durable variety have been selected.

PART III - POTENTIAL [illegible] OF THE PROJECT.

1. The information set forth herewith is the estimated maximum potential output during the year Jan. 1 - Dec. 31, 1945 (300 working days). It has been assumed that all necessary facilities, services and materials will be available, and that essential repairs and maintenance have, where necessary, been carried out. No consideration has been given to the possible effects upon production of major rehabilitation measures requiring the importation of complete plant or machinery units.

2. As the rate at which overseas supplies will arrive is incalculable, it has been assumed, for the purpose of this survey, that this rate is constant throughout the year under review, that is, that adequate supplies of all kinds will be available at the commencement of the period and will be maintained without substantial fluctuations. Otherwise, of course, estimates of potential production will be adversely affected. This assumption has been adopted because the cotton and woollen industries do not in general require extensive rehabilitation. Where they do, it is a question of [illegible] and such cases have been ignored in this account.

Declassified E.O. 12356 Section 3.3/NND No. 785015

be absolutely essential for the maintenance of minimum health standards have been included. In the choice of textiles and yarn and in the specifications (detailed in Appendix "B") textile types of a cheap and durable variety have been selected.

PART III - POTENTIAL PRODUCTION OF END PRODUCT.

1. The information set forth herewith is the estimated maximum potential output during the year Jan. 1 - Dec. 31, 1945 (300 working days). It has been assumed that all necessary facilities, services and materials will be available, and that essential repairs and maintenance have, where necessary, been carried out. No consideration has been given to the possible effects upon production of major rehabilitation measures requiring the importation of complete plant or machinery units.

2. As the rate at which overseas supplies will arrive is incalculable, it has been assumed, for the purpose of this survey, that this rate is constant throughout the year under review, that is, that adequate supplies of all kinds will be available at the commencement of the period and will be maintained without substantial fluctuations. Otherwise, of course, estimates of potential production will be adversely affected. This assumption has been adopted because the cotton and woollen industries do not in general require extensive rehabilitation. Where they do, it is a question of long term policy, and such cases have been ignored in this account.

3. Woollen Industry.

(a) As has been stated elsewhere, in Central and Southern Italy this industry is negligible in size and productive capacity, and is to a large extent on an artisan basis, chiefly spinners and hand loom weavers of whom no accurate data are known, and who have therefore been consolidated. Machinery in this case is primitive, and is operated seasonally or sporadically.

(b) The following tabulation of power-operated spinning and weaving plants is believed to be comprehensive, but is exclusive of factories South of the Pisa-Rimini line, which are still in the battle area, and of which reports have not yet been received.

Declassified E.O. 12356 Section 3.3/NND No. 785015

01071

Declassified E.O. 12356 Section 3.3/NND No. 785015

PROVINCE	FIRM	ADDRESS	SPINDLES (3)	LOOMS (3)	POT
Sardinia	A.L.A.I. Weaving Mill	Macomer	-	37	
Salerno	Michele Napoli	Maroniani	430	10	
Salerno	Enrico Perone	Polla	200	3	
Salerno	Angelo Perone	Polla	260	4	
Salerno	Biagio Liguori	Polla	250	7	
Potenza	Vincenzo Guida	Lagonegro	400	9	
Potenza	Pietro Guida	Lagonegro	260	15	
Palermo	Gaetano Migliori	Vietri sul Mari	900	19	
Salerno	Angelo Liguori	Pelazzano	300	4	
Campobasso	Lorato Marina	Trivento	300	1	
Frosinone	S. Domenico	Isola Liri	1,250	16	
Catanzaro	Fratelli Lo	Marinelli	200	1	
Bari	Lanificio Latterulo	Gioia del Colle	1,000	5	
Frosinone	Ippolito & Nigeri	Isola del Liri	1,600	15	20
Perugia	Lanificio Ponte Felcino (2)	Ponte Felcino	550	3	
Rieti	Luca Grillo	Rieti	360	1	
Rieti	A. Marinoni	Rieti	400	4	
Roma	Laziale	Tivoli	300	4	
Roma	S. Bonaventura	Frascati	300	4	
				TOTAL	167
Miscellaneous for which data are not available					100
					267

Note: (1) Felt production expressed in lbs.
(2) Estimated only, the relatively small loom output is due to the fact that these firms are usually occupied and work only sporadically.
(3) No account taken of damaged machinery whose repair is problematical.
(4) Yarn spinning not estimated - assumed all consumed in loom production.

0108

Declassified E.O. 12356 Section 3.3/NND No. 785015

	ADDRESS	SPINDLES (3)	LOOMS (3)	ANNUAL VALUE POTENTIAL IN LIRE.	ANNUAL FINISHED GOODS POTENTIAL IN YARDS
[illegible]	Tiacciai	-	37	NIL	300,000
	Marcianisi	480	10	- (1)	10,000
	Folla	200	3	- (1)	12,000
	Folla	260	4	- (1)	20,000
	Folla	350	7	- (1)	30,000
	Lapugnano	400	9	- (1)	40,000
	Lapugnano	860	15	- (1)	50,000
	Vichi sul Mari	900	12	- (1)	90,000
	Palazzuolo	300	4	- (1)	20,000
	Privento	300	1	- (1)	5,000
	Isola Liri	1,280	16	20,000 (1)	90,000
	Marinelli	200	1	- (1)	7,000
	Gioia del Colle	1,000	5	- (1)	30,000
	Isola del Liri	1,680	15	208,000 (1)	-
	Ponte Felcino	550	8	- (1)	60,000
	Ricci	360	1	- (1)	6,000
	Ricci	400	4	- (1)	38,000
	Tivoli	300	4	- (1)	35,000
	Franceti	300	4	- (1)	25,000
	TOTAL	167 108	228,000 (1) -		65,000 194,000 (2)
		275			1,000,000

not available

processed in Lon.
relatively small loom output is due to the fact
usually antiquated and operated manually or semi-mechanically.
damaged machinery not repaired is problematical.
established - assumed all assumed in full production.

4. The following observations are made on the above table:-

(a) Generally speaking the small spinning and weaving mills are self-contained, that is, yarn capacity balances loom output. Where this exists the case surplus yarn production usually goes either to other small weavers whose spindleage is insufficient or to local handloom weaving or knitting. For this reason no accurate figures of yarn production can be given and it has been arbitrarily assumed that one yard of cloth consumes one lb. of yarn, except in the case of felt manufacturers, whose cloth output is not comparable with normal practice.

(b) The majority of the firms not listed are small spinners who cater for the wool producer's unpassed allowance of 2 kg., per head.

(c) The discrepancy between number of looms and operatives and output between different firms is explained by differences between types of cloth, and by relative mechanical efficiency.

(d) Production figures have been supplied by or on behalf of the manufacturers themselves and it has been found that they tend to be exaggerated. They have therefore in some cases been equated to probability. In other cases, where available data were not complete, estimates based on plant particulars have been inserted.

(e) In addition to the firms listed above there are a number of others bulked in the table as "Miscellaneous", mostly very small, of whose particulars have been received. They do not in the aggregate, however, substantially affect production prospects.

5. Summary of Woollen Industry.

	Yds.	Lbs.
Potential Industrial Cloth Production	1,000,000	1,000,000
" Felt "	-	225,000
	1,000,000	1,225,000
Potential Industrial Yarn Production	-	1,225,000
Balance	Nil	Nil

Declassified E.O. 12356 Section 3.3/NND No. 785015

(d) Production figures have been supplied by or on behalf of the manufacturers themselves and it has been found that they tend to be exaggerated. They have therefore in some cases been equated to probability. In other cases, where available data were not complete, estimates based on plant particulars have been inserted.

(e) In addition to the plants listed above there are a number of others but of in the table as "Miscellaneous", mostly very small, of which no particulars have been received. They do not in the aggregate, however, substantially affect production prospects.

5. Summary of Woollen Industry.

	Yds.	lbs.
Potential Industrial Cloth Production	1,000,000	1,000,000
" Felt "	-	225,000
	1,000,000	1,225,000
Potential Industrial Yarn Production	-	1,225,000
Balance	Nil	Nil

6. Cotton Industry

(a) The production of cotton piece goods necessarily depends upon the supply of yarn, of which at the present moment (30pt 1944) there is only one native source in production. One other can be added as soon as structural repairs have been carried out and electrical power restored, and the reactivation of the Rayon industry (See Appendix "A") will also eventually provide supplies.

(b) In the list of yarn and fabric producers given below, only those for whom data are available are shown. All the chief plants are however included and the remainder represents an insignificant proportion of the whole.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(i) Cotton Spinning.

PROVINCE	FIRM	ADDRESS	OPERATIVES	SPINDLES	LOOMS	ANNUAL YARN PRODUCTION (in lbs.)	ANNUAL PIECE GOODS PRODUCT. (in yds.)
Salerno	Man. Cotoniere Meridionali	Nocera	600	72,916	-	7,250,000	-
Perugia	Cotonificio di Spoleto	Spoleto	800	46,000	-	2,970,000	-
Salerno	Tessili Mottioli	Vietri s. Mare	86	1,560		70,000	
				120,476		10,290,000	

(ii) Cotton Weaving.

Salerno	Man. Cotoniere Meridionali	Angri	900	-	1,650	-	25,000,000
Salerno	" "	Fratte di Salerno	500	Finishing Dyeing and Printing only	-	-	-
Salerno	" "	Fratte Maggiore	250	-	350	-	2,500,000
Bari	Stoplicchio Vincenzo	Andria	12	-	8	-	65,000
Bari	Scoppio Michele	Bari	50	-	73	-	500,000
Bari	Lanificio Lattarulo	Gioia del Colle	25		42		250,000
Ancona	Mondarini Leonilde	Falconara.	14	-	12	-	80,000
Ancona	Latini	Jesi	55	-	52	-	300,000

Declassified E.O. 12356 Section 3.3/NND No. 785015

	iere Meridionali							
Salerno	" "	Fratte di Salerno	500	Finishing Dyeing and Printing only	-	-	-	
Salerno	" "	Fratte, Angellara	250	-	350	-	2,500,000	
Bari	Stoelichio Vincenzo	Andria	12	-	8	-	65,000	
Bari	Scoppio Michele	Bari	50	-	73	-	500,000	
Bari	Lanificio Latterulo	Gioia del Colle	25		42		250,000	
Ancona	Mondarini Leonildo	Fabriano.	14	-	12	-	80,000	
Ancona	Latini Cincinbo	Jesi	55	-	52	-	300,000	
Ascoli	Tess.Mecc. Ieroni uni	Fiano	38	-	22	-	130,000	
Ascoli	Buglia Aurelio	S. Benedetto	34	-	35	-	220,000	
Chieti	Ind. Tessile Abruzzese	Luciano	30	-	64	-	400,000	
Arezzo	Colazzi & Cappelletti	S. Giovanni Valdarno	45	-	88	-	600,000	
Benevento	Perlinghieri SA	-	15	-	48	-	300,000	
Perugia	Ceccarri Vincenzo	Foligno	15	-	53	-	350,000	

Declassified E.O. 12356 Section 3.3/NND No. 785015

PROVINCE	FIRM	ADDRESS	OPERATIVES	SPINDLES	LOOMS	ANNUAL VALUE PRODUCTION. (in lbs.)	ANNUAL PIECE GOODS PRODUCT. (in yds.)
Teramo	Migliorati Alfonso	-	48	-	70	-	500,000
Napoli	Lovani Pietro	Napoli	16	-	32	-	200,000
Napoli	Buono Saverio	Napoli	14	-	24	-	150,000
Napoli	Lanan Umberto	Otta-viano	25	-	75	-	550,000
"	Nappo	"	18	-	9	-	65,000
"	Soc.Coop. Vesuviana	S. Giuseppe Vesuviano	25	-	48	-	300,000
"	Loppo Salvatore	"	18	-	33	-	190,000
"	Galdi Francesco	Torzigno	18	-	33	-	190,000
"	F.lli Monticelli	Portici	20	-	36	-	225,000
Salerno	Siscino Vincenzo	Cava de' Tirreni	39	-	83	-	40,000
"	D'Apuzzo Michele	"	20	-	48	-	300,000
"	Siani Leopoldo	"	150	-	205	-	1,200,000
"	Pisapia Francesco	"	20	-	12	-	96,000
"	Farina Domenico	Corbara	8	-	11	-	80,000

Declassified E.O. 12356 Section 3.3/NND No. 785015

	"	Lappo Salvatore	"	18	-	33	-	190,000
	"	Galdi Francesco	Terzigno	18	-	33	-	190,000
	"	F.lli Monticelli	Portici	20	-	36	-	225,000
	Salerno	Miselmo Vincenzo	Cava de' Tirreni	39	-	63	-	40,000
	"	D'Aquzzo Michele	"	20	-	48	-	300,000
	"	Sinni Leopoldo	"	150	-	205	-	1,200,000
	"	Pisapia Francesco	"	20	-	12	-	96,000
	"	Fania Domenico	Copercha	8	-	11	-	80,000
	"	Cavalieri Giovanni	Salerno	30	-	36	-	225,000
	"	Man.Fass. di Scafati	Scafati	59	-	115	-	750,000
	"	Landi Paolo	Vietri sul Mare	13	-	38	-	260,000
	Palermo	Gulì	Palermo	133	-	150	-	950,000
			Total	4,143		8,555		37,566,000
			Miscellaneous (est.)	217		131		434,000
				4,360		8,686		38,000,000

Declassified E.O. 12356 Section 3.3/NND No. 785015

7. There is also a considerable hosiery trade. This trade is largely composed of small concerns, located chiefly in Rome, with about half a dozen in Naples and one or two units elsewhere. Detailed particulars of plant and requirements are not known, but the estimated yearly potential consumption of hosiery spun yarns, by areas, is as follows:

Bari	18,000 lbs.
Lecce	28,000 "
Naples	125,000 "
Rome	1,000,000 "
Total	1,171,000 "

8. Sewing thread twisting and winding is small. Three firms in the Naples area are the only producers, and on account of heavy damage to plant, their production is unlikely to exceed 90,000 lbs. in 1945. Fishing net and similar twines are made in larger quantities, chiefly in Sicily, Salerno and the Naples area, and the estimated potential annual production amounts to 300,000 lbs. All firms engaged in these processes are however only doublers and binders, and necessarily draw their yarn supplies from spinners.

9. No account has been taken of the group of tapestry and silk weavers in the Caserta area. These could be adapted in part for the production of essential consumer goods, but detailed particulars of plant and production are not known. It is estimated however that the normal production was of the order of 500,000 meters a year, and the surplus of yarn disclosed in para. 10 below would meet their probable requirements.

10. Summary of Cotton Industry.

		lbs.	lbs.
(a)	Potential Cotton Yarn production		10,290,000
(b)	Potential Piece Goods consumption (5 oz. per yd) of yarn	11,875,000	
"	Hosiery "	1,171,000	
"	Thread "	90,000	
"	Twine "	300,000	
			13,436,000
	Balance of Cotton Yarn deficient		3,146,000
(c)	Potential Rayon production (Appendix "A").		4,750,000

Declassified E.O. 12356 Section 3.3/NND No. 735015

area their yarn supplies from spinners.

9. No account has been taken of the group of tapestry and silk weavers in the Caserta area. These could be adapted in part for the production of essential consumer goods, but detailed particulars of plant and production are not known. It is estimated however that the normal production one of the order of 500,000 meters a year, and the surplus of yarn disclosed in para. 10 below would meet their probable requirements.

10. Summary of Cotton Industry.		lbs.	lbs.
(a) Potential Cotton Yarn production			10,290,000
(b) Potential Piece Goods consumption (5 oz. per yd) of yarn		11,375,000	
" Hosiery	"	1,171,000	
" Thread	"	90,000	
" Trims	"	300,000	
			13,436,000
Balance of Cotton Yarn deficient			3,146,000
(c) Potential Rayon production (Appendix "A").			4,750,000
(d) Leaving a surplus of yarn for stock-piling or other purposes of:-			1,604,000

PART IV - PRODUCTION POTENTIAL OF NEEDED RAW MATERIALS.

1. The raw materials of one manufacturing process may be the finished goods of another; e.g. yarn is the weaver's raw material but the spinner's finished article. It is therefore necessary to make a distinction between:-

(a) Primary Raw Materials, e.g. wool, cotton, staple fibre.

(b) Secondary Raw Materials, e.g. woollen and cotton yarn, rayon.

2. Primary Raw Materials.

(a) Wool

(i) Although indigenous production of wool in Italy is normally quite inadequate for overall capacity requirements, and very large importations were made in prewar years, now, as the bulk of the woollen industry lies north of the Pisa-Rimini line, the very small manufacturing capacity in the

Declassified E.O. 12356 Section 3.3/NND No. 778501

area under review is amply catered for by local availability. Therefore, until the main consuming centres are liberated, the industry can be regarded as being self-sufficient in its primary raw material, and no importations will be necessary, except perhaps for felt-making (see V. 5(b) below) or for other special cloths.

(ii) Wool production in 1943 in Liberated Italy has been estimated at 10,976,000 kg. or approximately 22,000,000 lbs. The larger part of this wool, however, is unsuitable for spinning and weaving and is used for filling mattresses.

(iii) It is considered that, working partly single and partly double shifts, the annual production of yarn of all counts amount to approximately 2,500,000 lbs. of average counts 10 cottons, consuming nearly twice this weight of greasy wool, about half of which will go to the producer under the armament allowance to be woven on hand-looms or used in home knitting. The balance will be taken up by felt manufacturers (if they are unable to obtain imported wools), to the extent of 4/500,000 lbs. greasy, and by the self-contained spinners and weavers for the manufacture of cotton and heavy suitings, overcoatings and blankets of a total length of about 1,000,000 yards. (2,000,000 lbs., greasy wool).

(iv) The estimated number of sheep involved is 3,659,000 and the average size of flock 35. As approximately five persons are entitled to the allowance of 2 kg. per head for each flock, the total amount which producers will draw in 1945 is calculated at:-

$$\frac{3,659,000 \times 5 \times 2}{35} \text{ kgs. or } 2,300,000 \text{ lbs.}$$

(v) The weight of wool (greasy weight) consumed by hand and industrial manufacture can therefore be summarised:

Felt Makers	500,000 lbs.
Industry	2,000,000 "
Artisan	2,300,000 "
	4,800,000 "

which is adequately covered by the anticipated production shown in sub-para. (ii) above, and from information received most of the industrial manufacturers are already well provided with wool, especially pulled wool, and the results of this year's (1944) shearing will also be delivered to them, largely on behalf of the Italian Ministry of War for the manufacture of military cloths.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(iv) The estimated number of sheep involved is 3,659,000 and the average size of flock 35. As approximately five persons are entitled to the allowance of 2 kg. per head for each flock, the total amount which producers will draw in 1945 is calculated at:-

$$\frac{3,659,000 \times 5 \times 2}{35} \text{ kgs. or } 2,300,000 \text{ lbs.}$$

(v) The weight of wool (greasy weight) consumed by hand and industrial manufacture can therefore be ascertained:

Felt Makers	500,000 lbs.
Industry	2,000,000 "
Artisans	2,300,000 "
	4,800,000 "

which is adequately covered by the estimated production shown in sub-para. (ii) above, and from information received most of the industrial manufacturers are already well provided with wool, especially pulled wool, as the result of this year's (1944) assignments which also to be delivered to them, largely on behalf of the Italian Ministry of War for the manufacture of military cloths.

(b) Cotton

(i) The Italian cotton crop could, in normal times, an insignificant contribution to the requirements of the industry as a whole. During recent years the situation has further deteriorated and the 1943 production to reach industrial consumers was only a few hundred tons, the balance having gone into the hands of speculators or having been destroyed as a result of military operations.

(ii) The forecast of the 1944 crop, made in May 1944 and based on acreage, showed a theoretical expectation of about 2,400 tons. To what extent this will be fulfilled cannot be determined, but it is considered that this estimate is over-optimistic, and is unlikely to be reached, especially as the Sicilian crop has been seriously affected by the drought. The arbitrary figure of 1,600 tons has therefore been adopted, equivalent in weight to about 7,250 American bales, or 3,564,000 lbs.

(iii) A preliminary forecast of the 1945 crop indicates a production of 1,920 tons. This however will not become available for manufacture until the end of the year and therefore no account has been taken of it for the year under review.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(c) Fiocco (Staple Fibre). The estimated potential production of this substitute for cotton is calculated at 7,740,000 kgs. or 17,000,000 lbs by the end of 1945 (see Appendix "A", Part III).

3. Secondary Raw Materials.

(a) Woollen Yarn.

It has been observed above (III, 4,(a),) that in general the few small plants constituting the woollen industry in Central and Meridional Italy are self-contained, either as individual firms or regarded as small local groups. No questions of importations or diversions of yarn production need therefore be considered, except in the case of the A...A.S. Woollen Mills, Sardinia, which has been the subject of special treatment (see V, 5 (a) below).

(b) Cotton Yarn and Rayon.

A deficiency of production over requirements has been shown in Part III, para. 10 above, of 3,146,000 lbs., of cotton yarn. This deficiency will easily be covered by the potential rayon production program of CISA Viscosa, which, if put into effect, would produce an estimated 4,750,000 lbs. by the end of the year.

PART V - SUPPORTING DATA FOR THE ESTIMATED PRODUCTION IN PARTS III AND IV.

1. In Part III, paras. 3 and 6 above are listed spinners and manufacturers upon whose capacity the maximum production potential is based.

2. Below are given particulars in support of these estimates of production, together with such other details as are necessary to provide justification and to indicate probable requirements. As however to produce individual studies for each separate firm would involve duplication, one comprehensive survey illustrative of the method adopted has been attached as Appendix "D". This is the survey of the Manifattura Cotoniere Meridionali issued under reference ACC/5157/IC dated 29 May 1944, amended to date. It should be noted that the particular importance and relatively large size of this group of mills has involved an attention to detail which it has not been necessary to expend upon smaller firms. The principles used in calculation, however, are broadly the same, and the more important elements are included below. In cases where accurate data are deficient, reasonable estimates have been made.

3. It is proposed therefore to give a brief general survey of each primary textile industry in Liberated Italy, exclusive of the present battle areas, (Firenze, Pisa, Casentino), and to add particulars of a few of the more important units in greater detail.

Declassified E.O. 12356 Section 3.3/NND No. 760015

which, if put into effect, would produce an estimated 4,750,000 lbs. by the end of the year.

PART V - SUPPORTING DATA FOR THE ESTIMATED PRODUCTION IN PARTS III AND IV.

1. In Part III, paras. 3 and 6 above are listed spinners and manufacturers upon whose capacity the maximum production potential is based.

2. Below are given particulars in support of those estimates of production, together with such other details as are necessary to provide justification and to indicate probable requirements. As however to produce individual studies for each separate firm would involve duplication, one comprehensive survey illustrative of the method adopted has been attached as Appendix "D". This is the survey of the Manifatture Cotoniere Meridionali issued under reference ACC/5157/IC dated 29 May 1944, amended to date. It should be noted that the particular importance and relatively large size of this group of mills has involved an attention to detail which it has not been necessary to expend upon smaller firms. The principles used in calculation, however, are broadly the same, and the more important elements are included below. In cases where accurate data are deficient, reasonable estimates have been made.

3. It is proposed therefore to give a brief general survey of each primary textile industry in Liberated Italy, exclusive of the Foggia battle area, (Firenze, Pisa, Casentino), and to add particulars of a few of the more important units in greater detail.

4. The Woollen Spinning and Manufacturing Industries.

(a) Plants. There are approximately 100 firms widely scattered in the area under review which can be classified as follows:-

(i) Numerous small yarn spinners, without weaving to follow, who spin materials brought by farmers and peasants and deliver the spun yarn back to them.

(ii) A few felt makers whose products are used by the paper making industry, located in the vicinity of Isola del Liri (Frosinone). The machinery of this group is almost all of modern type and construction.

(iii) A number of small and medium sized self-contained units, that is, with both spinning, weaving and finishing machinery, some of which produce cloth not only for local consumption but also for military purposes (Pontefelcino, Vietri sul Mare, Sarmenadi, Folla Longobro, Gioia del Colle).

(iv) It should be noted that there is no woollen spinning or weaving in Sicily, nor any production of worsted (combed) yarns anywhere in

Declassified E.O. 12356 Section 3.3/NND No. 785015

Liberated Italy.

(b) Machinery Particulars.

(i) 3 Scouring Plants (Rome, Leccoer (Sardinia), and Castellammare di Stabia).
Primarily for scouring natural wool, but can be adapted for fibre brass. Wool scouring is however done by hand.

(ii) 200 sets of Carding Machines.
Mostly less than 60" wide, and many less than 40". Of German (Hartmann) or Belgian (Houget) make, and of antiquated type, especially in the smallest plants.

(iii) 40,000 Spindles.
Self-acting mules, frequently with less than 300 spindles each, the majority without looms to follow.

(iv) 225 Power Looms.
Reed space usually under than 70"; most common type Schonherr. Usually supplied from spindles in the same plant.

(c) Number of operatives - approximately 1,000, including the proprietors and their families, who in many cases provide manual workers in their own plants. It should be noted however that this number is variable according to the season of the year; there is no true pool of specialist textile operatives.

(d) War Damage has been insignificant except in a few places, namely at Fontefelcino, where there is the most important woollen manufacturing plant in Central Italy, and which has been damaged to the extent of 85-90%, at Vietri sul Mare and at Isola del Liri. Information has also not been received of the condition of factories in the areas of Siena, the Marche and the Abruzzo.

It is calculated that the overall damage is less than 20%, much of it repairable out of local resources.

(e) Present Activity.

(i) Of the three scouring plants, only that at Leccoer is operating. The Rome plant is deficient of its electric motors, which were removed by the Germans, and that at

Declassified E.O. 12356 Section 3.3/NND No. 785015

(iv) 27% Fowler Looms,
Reed space usually wider than 70"; most common type Schonherr. Usually supplied from spindles in the same plant.

(c) Number of operatives - approximately 1,000, including the proprietors and their families, who in many cases are also manual workers in their own plants. It should be noted however that this number is variable according to the season of the year; there is no true pool of specialist textile operatives.

(d) War Damage has been insignificant except in a few places, namely at Pontefelcino, where there is the most important woollen manufacturing plant in Central Italy, and which has been occupied to the extent of 85-90%, at Vietri sul Mare and at Isola del Liri. Information has not yet been received of the condition of factories in the areas of Siena, the Marche and the Abruzzo.

It is calculated that the overall damage is less than 20%, much of it repairable out of local resources.

(e) Present Activity.

(i) Of the three weaving plants, only that at Lecco is operating. The Rome plant is deficient of its electric motors, which were removed by the Germans, and that at Castellammare di Stabia is at present occupied by Allied Forces, though its de-requisition has been recommended.

(ii) The small spinning plants are working part-time, due chiefly to deficiencies of accessories and spares, and lack of maintenance arising therefrom.

(f) Power

In general electricity is supplied by public utilities. Some small plants are run by water wheels or turbines, others have their own small hydro-electric installations. A detailed breakdown by firms of consumption of electric power has not been possible, but the average in normal years was of the order of:-

500,000 KWH per month, a figure which may be taken as closely approximating the requirements of the industry during 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785015

5. Woollen, Spinning and Manufacturing Firms.

(a) A.L.A.S., Serrenti, Province Cagliari (Campo Lemorie Serie).

Condition. Buildings and Plant undamaged.

Potential Annual Production. 300,000 lbs.

Types of Cloth. Heavy woollens, overcoats and suitings.

Plant. (i) Wool Scouring Set, capable of scouring 10,000 lbs. daily. Nov 1940.

(ii) 37 hosiery mills looms independently driven, total capacity 1000 metres per day, single shift.

(iii) Finishing and Dyeing Frames) adequate to
(iv) Finishing Machinery) loom
) capacity

Fuel. Sardinian Coal. Available locally.

Power. Will not have. Negligible not available.

Remarks. (i) On account of the deficiency of spinning machinery, this firm relies upon (a) local hand spun yarn, and (b) imported yarns.

(ii) (a) Local hand spun yarn produces approximately 400 lbs. of yarn per day leaving a deficiency of approximately 600 lbs. (in all) in order to produce the type of cloth manufactured. Sardinian wool is available in ample supply, hand spinning is to be increased to meet the deficiency.

(b) Preliminary requisitions have already been submitted for 110,000 lbs. yarn to bridge the gap between local production and potential output for six months (to end of Sept. 1945).

(iii) No transport difficulties anticipated. Port Cagliari.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Fuel. Sardinian Coal. Available locally.

Power. Will not be in. Negligible and available.

Remarks. (i) On account of the deficiency of spinning machinery, this firm relies upon (a) local hand spun yarn, and (b) imported yarns.

(ii) (a) Local hand spun yarn produces approximately 400 lbs. of yarn per day leaving a deficiency of approximately 800 lbs. (in all) in order to produce the type of cloth manufactured. Sardinian wool is available in ample supply, hand spinning is to be increased to meet the deficiency.

(b) Preliminary requisitions have already been submitted for 110,000 lbs. yarn to bridge the gap between local production and potential output for six months (to end of March 1945).

(iii) No transport difficulties anticipated. Port Cagliari.

(iv) This is the only textile manufactory in Sardinia, and can make a substantial contribution to the basic needs of the island.

(v) It is recommended, to obtain economical production, that spinning machinery, which has been destroyed in course of delivery, shall be provided and the plant thus made an independent unit.

(vi) Requisitions for spinning machinery, and also for ancillary materials and replacements are in course of preparation and will be submitted on completion.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 1 2 5

Materials and other Imports required in 1945.

(i) Wool - Nil.

(ii) Yarn - Nil. (Awaiting satisfactory arrangements to be made for local spinning).

(iii) Other commodities and sources) to be requisitioned.

(b) Lucchi & Pisani, Isola del Liri, Frosinone.

Condition. (Buildings - Damaged but on scale of early restoration, provided cement and reinforcing iron can be provided, and reduction will commence in 2-3 months.
(Plant - 30-35% unharmed.

Potential Production: 130,000 to 200,000 lbs. per annum.

Type of Cloth: Papermakers felt.

Plant: (i) Two turbines totalling 128 HP.

(ii) 4 web carding machines.

(iii) 1600 spindles.

(iv) 15 automatic looms from 72" to 600" wide.

(v) Wading and finishing machinery.

Operatives: 250

Fuel: Negligible consumption.

Power: Own Hydro-electric generator.

Remarks: (i) This is one of the most important paper-makers felt manufacturers in Italy, with production representing 20-25% of the total output for the whole country. In view of the importance of the paper industry, and as this is the only source of supply of felt south of the Pisa-Rimini Line, its reactivation is important, and preliminary steps to this end have been

Declassified E.O. 12356 Section 3.3/NND No. 785015

Type of Plant: Paper-makers felt.

Plant: (i) Two turbines totalling 128 HP.

(ii) 4 sets carding machines.

(iii) 1630 x inches.

(iv) 15 automatic looms from 72" to 500" wide.

(v) Milling and finishing machinery.

Operatives: 250

Fuel: Negligible consumption.

Power: Own Hydro-electric generator.

Remarks: (i) This is one of the most important paper-makers felt manufacturers in Italy, its production approximating 20%-25% of the total output for the whole country. In view of the importance of the paper industry, and as this is the only source of supply of felt south of the Piave-Rimini line, its reactivation is important, and preliminary steps to this end have already been taken.

(ii) Normally this plant consumed 225,000 to 250,000 lbs. of 48 /56s imported wool annually, but although an inferior cloth is produced, locally grown wool of similar fineness and staple can be used. Information is not yet available as to what quantity of such indigenous wool will be forthcoming, but supplies are expected to be adequate.

(iii) Transportation: Imports:- Naples to Isola del Liri Sta.
Distribution: Ippolito & Fiorini supplied felt to paper makers throughout Italy, but there is a centre of this industry in the neighbourhood, and

Declassified E.O. 12356 Section 3.3/NND No. 785015

therefore transportation difficulties will be considerably reduced.

(iv) Requisitions will be submitted for ancillary and maintenance requirements, and for wool if found necessary.

(c) Survey of all firms engaged in woollen & lining and weaving. (See V / above).

Number: 100, located throughout Central and Southern Italy.

Condition: Buildings and plant 95% undamaged.

Total clothing production: 1,000,000 mks; plus artisan manufacture and mending, amounting to rather more than [illegible], say, 1,150,000 mks.

Types of cloth: Medium and heavy suitings and overcoatings, blankets and the finer cloths.

Plants: (i) 3 wool scouring plants.
(ii) 200 carding sets.
(iii) 40,000 spindles.
(iv) 375 looms (power operated).
(v) winding and finishing machinery.

Operatives: 1,000.

Fuel: Coal and lignite.

Power: 500,000 KWH per month.

Labour: (i) The group whose characteristics are outlined above can be regarded as being self-sufficient and inter-balanced both as to primary and secondary raw materials.

(ii) Ancillary commodities of spares and replacements, especially card clothing, are however needed and will be the subject of requisition.

(iii) As transportation will be almost entirely local no difficulties are anticipated in this respect.

Declassified E.O. 12356 Section 3.3/NND No. 785615

(v) 275 looms (under operated).
(vi) Winding and finishing machinery.

Operatives: 1,000.

Fuel: Coal and lignite.

Power: 500,000 KWH per month.

Remarks: (i) The group whose characteristics are outlined above can be regarded as being self-sufficient and inter-balanced both as to primary and secondary raw materials.

(ii) Ancillary commodities and spares and replacements, especially card clothing, are however covered and will be the subject of negotiations.

(iii) Arrangements will be sought with local authorities for facilities and collaboration in this respect.

Imported Requirements:

(i) Wool - Nil.
(ii) Yarn - Nil.
(iii) Other commodities and spares) To be negotiated.

6. The Cotton Spinning and Weaving Industries.

(a) Distribution of plant and machinery: In the area under review, there are a total of 120,476 spindles and 2,686 looms, of which more than half of the spindles and approximately half of the looms are operated by the Manifatture Cotoniere Meridionali and almost all the remaining facilities by the Cotonificio di Spoleto. The breakdown by regions is roughly as follows:-

Declassified E.O. 12356 Section 3.3/NND No. 785016

	Looms	Spindles	Overatives
Sicily	152	-	212
Apulia	131	-	155
Campania	2,982	74,476	3,778
Liguria	93	46,000	851
Abruzzi	158	-	148
Marche	122	-	141
Tuscany (Prov. of Arezzo only).	83	-	75
	3,686	120,476	4,360

(b) Spinning: As stated above, this is confined to the major units, with the addition of one very small plant in Salerno province, and potentially amounts to 10,290,000 lbs.

(c) Weaving: With the exception of the weaving plants of the M.C.M. at Angri, and Fratteamaggiore, there are only about a dozen firms with more than 50 looms, and brief details of these have been given previously (in Part III, 6, (b)). On account of the wide diversity of machinery and mechanical efficiency in different plants, exact computation of production is not possible. Assuming, however an average weight of 5 oz. per yard, annual production from 10,290,000 lbs. of yarn will be approximately 33,000,000 yards.

(d) Power: 1. Spinning. The electrical energy consumed is of the order of .63 kw per lb. of mule yarn, or 6,500,000 KW per annum.

2. Weaving: Consumption is at the rate of 4.7 kw per loom per single shift, or 9.7 kw per double shift, or 10,700,000 kw per annum.

(e) Fuel: In normal years the consumption of coal by the cotton industry, in the area under review, was approximately 16,000 tons. In view of the damage done, especially to the largest users, the M.C.M., it is not possible to give an accurate estimate. A rounded figure however of 6,000 tons of Sardinian coal is considered to be a reasonable approximation, plus 5,000 tons of imported hard coal.

(f) Cotton Requirements - Spinning: In order to calculate the requirements of raw cotton for the spinning process, it is necessary to take account of:

(1)

Declassified E.O. 12356 Section 3.3/NND No. 785015

with more than 50 looms, [illegible] given previously (in Part III, 6, (b)). On account of the wide diversity of machinery and mechanical efficiency in different plants, exact computation of production is not possible. Assuming however an average weight of 5 oz. per yard, annual production from 10,290,000 lbs. of yarn will be approximately 33,000,000 yards.

(d) Power: 1. Spinning. The electrical energy consumed is of the order of .63 kw per lb. of spun yarn, or 6,500,000 KW per annum.

2. Weaving: Consumption is at the rate of 4.7 kw per loom per single shift, or 9.7 kw per double shift, or 10,700,000 kw per annum.

(e) Fuel: In normal years the consumption of coal by the cotton industry, in the area under review, was approximately 16,000 tons. In view of the damage done, especially to the largest users, the L.C.C., it is not possible to give an accurate estimate. A rounded figure however of 6,000 tons of Sardinian coal is considered to be a reasonable approximation, plus 5,000 tons of imported hard coal.

(f) Cotton Requirements - Spinning: In order to calculate the requirements of raw cotton for the spinning process, it is necessary to take account of:

(i) Average counts.
(ii) Average daily hours of work.
(iii) Average yield of raw materials.

These have been taken as being the following:

(i) 24s (English counts).
(ii) 15 hours per day (double shift) for 300 working days per year.
(iii) 89% (Middling or Strict Middling cotton).

Hence with an hourly production of 12 gr. per spindle, the yearly requirements of cotton for the 120,476 spindles listed above is theoretically

$$\frac{120,476 \times 12 \times 15 \times 300 \times 100}{1000 \times 89} \text{ kg equals } 7,310,000 \text{ kg. or } 16,000,000 \text{ lbs. approx.}$$

which will give an annual production of yarn of approximately:-

14,250,000 lbs.

Declassified E.O. 12356 Section 3.3/NND No. 785015

For technical and practical reasons however, this production, which is the theoretical output, cannot be reached, and it is estimated that, with a 25% loss in efficiency for these reasons, the true figure would be in the neighbourhood of

10,600,000 lbs.,

which corresponds closely to the estimates given in III, 6, (b), above. To produce this amount of yarn, approximately 12,000,000 lbs., cotton would be required annually, or roughly 25,000 bales (of which about 8% of M.C.M's requirements should be Egyptian) - (see VI, 5(b) below) - less indigenous production of say 7,250 bales, or 17,750 bales of imported cotton.

7. Cotton Spinning and Manufacturing Firms:

(a) Manifatture Cotoniere Meridionali (see Appendix "D")

(Mills at: Nocera - spinning) in full running order.
(Angri - weaving)
(Fratte di Salerno)
(dyeing, printing)
(finishing.
Condition (Frattamaggiore - weaving - in course of rehabilitation.
(Naples - spinning and weaving -
(rehabilitation a long term policy.
(Piedimonte - spinning - destroyed.

Potential Production: 27,500,000 yds.

Types of Products: cotton; artificial fibre and rayon fabrics; light, medium and heavy. Whites, colours, and prints. Cotton yarn for threads, twines, etc.

Plant:
(i) Preparatory machinery
(ii) 130 cards.
(iii) 24 combs.
(iv) 72,000 spindles.
(v) 1,650 looms (plus 300 to 400 at Frattamaggiore in course of rehabilitation by cannibalisation).
(vi) Dyeing, finishing and printing machinery.

Operatives: 3,250

Fuel Requirements: Coal, hard, 4,800 tons) Per
Coal, Sardinian 2,400 tons) annum.
Naptha, 2,000 tons.

Declassified E.O. 12356 Section 3.3/NND No. 785015

	(	Pratte di Salerno)
	(	dyeing, printing)
	(	finishing.
Condition	(	Frattamaggiore - weaving - in course of rehabilitation.
	(	Naples - spinning and weaving -
	(	rehabilitation a long term policy.
	(	Piedimonte - spinning - destroyed.

Potential Production: 27,500,000 yds.

Types of Products: cotton; artificial fibre and rayon fabrics; light, medium and heavy. Whites, colours, and prints. Cotton warp for threads, twines, etc.

Plant:

(i)	Preparatory machinery
(ii)	130 cards.
(iii)	24 combs.
(iv)	72,000 spindles.
(v)	1,690 looms (plus 300 to 400 at Frattamaggiore in process of rehabilitation by cannibalisation).
(vi)	Dyeing, finishing and printing machinery.

Operatives: 2,250

Fuel Requirements: Coal, hard, 4,800 tons) Per
Coal, Sardinian 2,400 tons) annum.
Naptha, 2,000 tons.

Power Requirements: 905,000 KWH per month.

Remarks: See Appendix "D".

Imported Requirements: 15,600 bales American cotton) see copy regulations
(less Italian crop of 7,250) attached hereto
bales) 1,330 bales Egyptian) as Appendices
cotton.) "E" and "F"

Various spares and ancillary materials.

Surplus Production: 1,650,000 lbs., yarn for subsequent processing elsewhere.

Declassified E.O. 12356 Section 3.3/NND No. 735015

(b) Cotonificio di Spoleto, Spoleto:

Condition: Structural damage to buildings, but machinery intact.

Potential Production: 2,970,000 lbs. cotton yarn.

Type of Product: Cotton and fiocco weaving or hosiery yarns.

Plant: (i) Preparatory machinery.
(ii) 46,000 spindles.
(iii) Winding machinery.

Operatives: 300

Fuel Requirements: Negligible.

Power Requirements: Dependent upon public utility service which has been completely wrecked. Estimated consumption - 100,000 KWH per month.

Remarks: (i) Apart from the M.C.I. this is the only cotton spinning unit located in Liberated Italy. Normally it spun fiocco on account of Garli type of Cusano, but it can easily be adapted to spin cotton.

(ii) Restoration of the buildings out of local resources will not be difficult; meanwhile it has been recommended that until power can again be provided, measures shall be taken to proceed with this work, especially with a view to preserving machinery from the weather.

(iii) The factory is situated near the railway station of Spoleto, and therefor transportation problems will be entirely those of railway communications. Most suitable port - Civitavecchia.

Imported Requirements: 7000 bales of American cotton.

Accessories, spares and consumables used in spinning.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Remarks; (i) Apart from the F.C.I. this is the only cotton spinning unit located in liberated Italy. Normally it spun flocco on account of Curli type of Cuneno, but it can easily be adapted to spin cotton.

(ii) Restoration of the buildings out of local resources will not be difficult; meanwhile it has been recommended that until power can again be provided, measures shall be taken to proceed with this work, especially with a view to preserving machinery from the weather.

(iii) The factory is situated near the railway station of Spoleto, and therefore transportation problems will be entirely those of railway communications. Best suitable port - Civitavecchia.

Imported requirements: 7000 bales of American cotton.

Accessories, spares and conditions used in spinning.

PART VI. - CONCLUSIONS.

1. The crop records of the textile industries are complex. Normally dependent to a very great extent upon importations of raw materials, the situation has been aggravated during the last few years by the dislocation which industry has suffered on account of the ill-founded drive towards autarchy.

2. Fortunately the situation is partially simplified by the limitations of the crops cultivated in this country, in that it is considered that native production of wool will meet most of the requirements of the woollen industry, and that therefore this raw material need not be the subject of regulation. A very different state of affairs will however be the case if the main producing centres in the north are liberated relatively undamaged.

3. Failing autarchic methods the Italian cotton fabric production, including in this term not only cotton, but staple fibre and rayon fabrics, which receive subsequent processing similar to cotton, is based almost entirely upon

Declassified E.O. 12356 Section 3.3/NND No. 785015

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 | 38

imported raw materials. Sicilian and Italian mainland cotton is, as has been previously stated, incapable of making any substantial contribution; synthetic fibres can however do much to mitigate inefficiencies in the vegetable crop.

4. CONDITIONS FOR ESSENTIAL MATERIALS would therefore be limited to:-

(a) cotton up to the spinning capacity of the industry, less any substitution made in staple fibre and home produced cotton.

(b) Cellulose for staple fibre to the extent envisaged in Appendix "A" hereto.

(c) Cellulose for rayon to an extent to which cotton spinning capacity is unable to supply complete needs of weavers, plus a small surplus.

5. (a) Cotton requisitions have already been submitted for:-

11 May	180 bales	American and/or Egyptian	(for 12 months production for Am. Cotton for Ministry)
29 July	7,453,000 lbs.	"	
29 July	359,040 "	Egyptian	

See Appendix "B".

(b) Allocations for the above, and on the assumption that timely control of these supplies will ensure maximum production up to the end of Dec. 1945, annual requirements for the balance of the year will be:-

Am. Cotoniere Meridionali	3,900	bales	(American) Oct.to
	330	"	(Egyptian) Dec.
Cotonificio di Spalato	7,000	"	(American) Jan-Dec.

Less 7,230 bales Italian cotton.

less such amount of staple fibre as is considered advisable on technical or economic grounds. It may be noted that the potential production of this material can amount to the equivalent of 35,000 bales of American cotton.

6. Requisitions for ancillary materials and consumables used in manufacture and their interference can only be outlined in a survey of this kind. But as an example of the detail this is necessary, the requisitions submitted on behalf of a staple fibre are attached as Appendices "E" and "F". Similar requisitions for other fibres are in course of compilation, and will be submitted as soon as completed, but the following estimates are given as a -

785015

29 July 259,040 " [illegible] to [illegible] Appendix "B".

(b) Allowing for the above, and on the assumption that timely arrival of these supplies will ensure maximum production up to the end of Sept. 1945, approximate requirements for the balance of the year will be:-

Cotonificio Cristoforo Colombo	3,000	bales	(American)	Oct.to
	330	"	(Egyptian)	Dec.
Cotonificio Bisaldo	7,000	"	(American)	Jan-Dec.

Less 7,330 bales Indian cotton.

Less such amount of staple fibre as is considered advisable to substitute for cotton. It may be noted that the estimated production of this material will amount to the equivalent of 37,000 bales of American cotton.

6. Requisitions for ancillary materials and essentials used in manufacture and transport can only be outlined in a survey of this kind, but as an example of the detail this is necessary, the requisitions submitted on behalf of a single firm are attached as Appendices "A" and "B". Similar requisitions for other firms and industries are in course of compilation, and will be submitted as soon as completed, but the following estimates are given so as to provide a basis on which will be required for this heading:-

7. Machinery for Cotton Mills, Cotton Textile and Rayon Factories

(a) As there is almost limitless demand and variety, and there is subject of consideration, arising out of requisitions on the lines of the requisitions submitted on behalf of C.C.C. (Appendices "A" and "B"), it is proposed here to give a summary by classes and quantities of the most important items, only for the purpose, and exclusive of repeat orders already made.

(b) Woollen Industry machinery. All firms are deficient of necessary and spare parts, and stuffs and fibrelands, which are virtually obtained in Northern Italy. The most urgent needs are for:

Card clothing	1,000 pieces fillet, length each,105 meters, 60 /o; spinning steel wire, gauge 2//31
Pickers	5,000 knees, size 120 x x 115 m/m, for power looms.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Shuttles	3,000 various
Looms	1,000 various widths.
Ring Frame	10,000 lbs. 22 n/m
Ring Frame	10,000 lbs. 19 n/m.
Ring Frame	10,000 lbs. 14 n/m.
Mule Yarn	4,500 lbs.
Gear Oil	10 tons.
Spindle Oil	2 tons.
Dyestuffs	62 tons.
Leather Belting	3,000 feet, various widths.

(c) Cotton Industry Requirements.

Similar deficiencies exist in the cotton industry as in the woollen, with some additions due to differences in machinery. The chief needs are for:-

Card Clothing	- 30 pieces - For cylinders, various lengths, 51 ins. wide BWG 100.
Card Clothing	- 30 pieces - For doffers, various lengths, 51 ins. wide BWA 110.
Card Clothing	- 2,000 pieces for flats, various lengths, 23 ins. wide.
Pickers	- 6,000 pieces, various.
Picker Straps	- 7 cwts.
Shuttles	- 7,500 pieces, various.
Travellers	- 2,000 boxes (av. 10,000 pieces) various gauges.
Gear Oil	- 14 tons.
Spindle Oil	- 3 tons.
Dyestuffs	- 100 tons.
Leather Belting	- 15,000 feet, various widths.

(d) Artificial Fibre and Rayon Industry Requirements - See

Declassified E.O. 12356 Section 3.3/NND No. 785015

Shuttles	3,000 various
Reeds	1,000 various widths.
[illegible]	10,000 lbs. 32 s/s
[illegible]	10,000 lbs. 19 s/s.
[illegible]	10,000 lbs. 1/ s/s.
3-fold bond	4,500 lbs.
Gear Oil	10 tons.
Spindle Oil	2 tons.
Dye stuffs	62 tons.
Leather belting	5,000 feet, various widths.

(c) Cotton Industry Requirements.

Similar deficiencies exist in the cotton industry as in the woollen, with some additions due to differences in machinery. The chief needs are for:-

Card Clothing - 30 pieces - For grinders, various lengths, 31 m/m wide BWG 100.

Card Clothing - 30 pieces - for flats, various lengths, 23 m/m wide BWA 110.

Card Clothing - 2,000 pieces for flats, various lengths, 23 m/m wide.

Pickers - 6,000 pieces, various.

Picker Straps - 7 cwts.

Shuttles - 7,500 pieces, various.

Travellers - 2,000 boxes (avg. 10,000 pieces) various counts.

Gear Oil - 14 tons.

Spindle Oil - 3 tons.

Dyestuffs - 100 tons.

Leather Belting - 15,000 feet, various widths.

(d) Artificial Fibre and Rayon Industry Requirements - See

Declassified E.O. 12356 Section 3.3/NND No. 785015

...spollen, ...ditions due to differences in machinery. The C.I.F. needs are for:-

Card Clothing - 30 pieces - For spinners, various lengths, 51 mm wide B&G 100.

Card Clothing - 30 pieces - For doffers, various lengths, 38 mm wide B&A 110.

Card Clothing - 2,000 pieces for flats, various lengths, 23 mm wide.

Pickers - 6,000 pieces, various.

Picker Straps - 7 cwts.

Shuttles - 7,500 pieces, various.

Travellers - 2,000 boxes (avg. 10,000 pieces) various grades.

Gear Oil - 1/4 tons.

Spindle Oil - 3 tons.

Dyestuffs - 100 tons.

Leather Belting - 15,000 feet, various widths.

(3) Artificial Fibers and Rayon Industry Requirements - See Appendix "A"

3. (a) The quantities and specifications quoted above are approximate only, and are subject to revision and quantitative screening when all the data are available.

(b) In any case requisitions fall account is taken, in screening, of all stocks and supplies from local resources, including those set free by cannibalization or absorption.

PART VII - EFFECT ON SHIPPING SITUATION

1. By virtue of the fact that the Italian textile industries are essentially importers of primary raw materials, the reactivation of these industries cannot materially affect the shipping situation because such importations do not to any substantial extent consume commodities indigenously produced. The converse is rather the case. Finished piece goods, with which

Declassified E.O. 12356 Section 3.3/NND No. 785015

Declassified E.O. 12356 Section 3.3/NND No. 785015

this industry is largely concerned, usually bulk loads and weight loads than the raw materials out of which they are made; losses in manufacturing processes have likewise to be taken; and with raw materials must also be shipped the ingredients, the spare parts and items for maintenance of machinery, which would be unnecessary in the case of the shipment of finished goods.

2. But the adverse effect upon the shipping situation would at most be slight; an overall estimate is that it would not exceed 20% in extra voyages or tons. Other factors of equal or greater value to global post war economy are enumerated by:-

(a) Amount of capital given and the effect upon the Italian economic and political life, and

(b) Restricted manufacturing capacity in the primary producing centers of the world.

3. The case in support of these factors may be summarized briefly as follows:

(a) There can be little doubt that the post war reorientation of Italian industry will lay great emphasis upon the production of consumer goods. In normal times the textile group was one of the most important, if not the most important, element in Italian economy, not only because of its place in the financial structure of the country, particularly in the export trade, in which in the last normal year, 1938, the proportion of textiles exported represented approximately one third of total exports, but also because of the large number of operatives employed, particularly women, amounting to almost 10% of the entire population. This figure is exclusive of all trades allied to textile production, which accounts for another 16% of the population capable of industrial work.

It is not contended that these facts have any paramount importance in the area under review. As has been noted above, this area is industrially negligible in the textile field, and the number of workers engaged is relatively small. But this fact has a compounding importance from two points of view. First, the reactivation of the industry in this area will impose no great burden on the sources of supply, and will have useful political repercussions of value to national stability; and secondly, the dispersion of industry, even though on a small scale, into non-industrial areas, eases the incidence of employment problems long acute by introducing a stabilizing element.

(b) Although the end of the war in Europe will enable the primary manufacturing centres of the world to redirect some of their war effort to non-military requirements, this will for a long time only be partial, and the plant so set free will necessarily be devoted first to production

industry will lay most emphasis upon the reduction of consumer goods. In normal times the textile group has not the most important, if not the most important, element in Italian economy, not only because of its place in the financial structure of the country, particularly in the export trade, in which in the last normal year, 1938, the proportion of textiles exports represented approximately one third of total exports, but also because of the large number of operatives employed, particularly women, amounting to almost 10% of the working population. This figure is exclusive of all trades allied to textile production, which accounts for another 16% of the population capable of industrial work.

It is in this context that these facts have any consequential importance in the area under review. As has been noted above, this area is industrially negligible in the textile field, and the number of workers engaged is relatively small. But this fact has a compensating importance from two points of view. First, the reactivation of the industry in this area will impose no great burden on the sources of supply, and will have only political repercussions of value to national stability; and secondly, the dispersion of industry, even though it is on a small scale, into non-industrial areas, relies the incidence of unemployment problems long acute by introducing a stabilising element.

(b) Although the end of the war in Europe will enable the primary manufacturing centres of the world to redirect some of their energies to non-military requirements, this will for a long time only be partial, and the plant so set free will necessarily be devoted first to production for home and United Nations needs, and the availability for export country is therefore likely to rank low in priority. In addition, primary raw materials, cotton and wool, are stockpiling in the producing centres, and shipment can be made without the delays attendant upon manufacture.

4. It is therefore strongly recommended that, despite the lack of advantage to the shipping situation by the importation of raw materials as against finished articles, such raw materials and ancillary commodities as are necessary to the reactivation of the textile industries should be imported, and providing outweighing compensations in the political and economic field.

PART VIII - INCREASE OF PRODUCTION BY IMPLEMENTATION OF PROGRAMME.

1. The particulars under this sub-heading are reached by calculating the difference between present productive capacity, using indigenous resources only, and maximum potential production as shown in Part III above.

Declassified E.O. 12356 Section 3.3/NND No. 785015

2. (a) Wool:

The implementation of this program in this case does not depend upon the importation of raw material, but of spares, maintenance items, replacement and accessories used in manufacture. The extent to which the present deficiency in these effects production cannot be calculated, as its incidence falls upon machinery efficiency, which varies, according to condition, in each case. An estimate only therefore can be made, and 50% of potential efficiency is regarded as being reasonable. This will give the following figures:-

	Potential Production (Part III, 5)	Present Productive Capacity	Increases
Cloth	1,000,000 yds.	500,000 yds.	500,000 yds.
Felt	225,000 lbs.	112,500 lbs.	112,500 lbs.

(b) Cotton:

In addition to the absence of ancillary commodities, this industry inevitably depends upon raw materials either in the form of cotton, or cellulose from which fibres or rayon can be made. The Italian cotton crop may produce in 1945 the equivalent of 7,250 American bales or 3,534,000 lbs. This will lose in processing an average of approximately 15%, that is it will yield about 3,000,000 lbs., yarn, sufficient to produce, on the same basis of calculation as previously used, viz: average 5 oz. per yd., 9,375,000 yds. As this is less than one fifth of potential, it is assumed that the deficiency in ancillary commodities will not be seriously felt, except in the case of a few items. This calculation gives therefore the following relative data:-

Potential Production (Part III, 8)	Present Productive Capacity	Increases
38,000,000 yds., or 13,436,000 lbs.	9,375,000 yds., or 3,000,000 lbs.	29,625,000 yds., or 10,436,000 lbs.

(c) Rayon:

Declassified E.O. 12356 Section 3.3/NND No. 785015

(b) Cotton:

In addition to the absence of ancillary commodities, this industry inevitably depends upon raw materials either in the form of cotton, or cellulose from which fibres or rayon can be made. The Italian cotton crop may produce in 1945 the equivalent of 7,250 American bales or 3,584,000 lbs. This will lose in processing an average of approximately 15%, that is it will yield about 3,000,000 lbs., yarn, sufficient to produce, on the same basis of calculation as previously used, viz: average 5 oz. per yd., 9,375,000 yds. As this is less than one fifth of potential, it is assumed that the deficiency in ancillary commodities will not be seriously felt, except in the case of a few items. This calculation gives therefore the following relative data:-

Potential Production (Part III, M)	Present Productive Capacity	Increase
38,000,000 yds.,	9,375,000 yds.,	29,625,000 yds.,
or	or	or
13,436,000 lbs.	3,000,000 lbs.	10,436,000 lbs.

(c) Rayon:

The calculation here is simple. Unless the reactivation programme envisaged in Appendix "A" hereto is implemented in whole or in part, production will be nil. The comparative figures in this case are therefore (Appendix "A", Part III):-

	Potential Production	Present Productive Capacity	Increase
Fibcco	17,000,000 lbs.	Nil	17,000,000 lbs.
Rayon	4,750,000 lbs.	Nil.	4,750,000 lbs.

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

APPENDIX "A"

SYNTHETIC FIBRES

PART I. INTRODUCTION.

The manufacture of synthetic fibre has been one of Italy's most important industries, both for internal consumption and for export. In recent years it was developed intensively as a substitute for imported cotton and wool in Italian schemes for autarchy. In 1942 Italian production of synthetic fibres by the viscose process amounted to some 60,000,000 kgs. of rayon (continuous filament) and 145,000,000 kgs. of fiocco (staple fibre). For this production some 225,000 m. tons of high grade cellulose were imported, chiefly from Sweden, Finland, and Canada. All other essential raw materials for this production, excepting coal, were produced within Italy. This industry, therefore, presents a very desirable one for a country poor in natural resources, for, with relatively small dollar imports, a large increment of labour and technical processing yields a product of relatively high value.

In view of the urgent need for clothing in Italy and further, in view of the importance of this industry to the Italian economy, it has been decided to do all possible to reactivate it.

The CISA Viscosa Company is a major unit in this field. It is in turn controlled by the SNIA Viscosa Company, and together they produce the lion's share of Italian artificial fibres. These two companies further own machine tools works in the north where much of their own machines were made. The CISA Viscosa Company has three important works in the liberated area of Italy now under consideration, and their normal pre-invasion production in kilograms per day was:-

	Rayon	Fiocco
(a) Rome	10,000	10,000
(b) Rieti	10,000	25,000
(c) Naples	-	55,000

PART II. REQUIREMENTS AND JUSTIFICATION.

See Part II of main report, items (b) and (e) and Appendix "B".

Declassified E.O. 12356 Section 3.3/NND No. 785015

high value.

In view of the urgent need for clothing in Italy and further, in view of the importance of this industry to the Italian economy, it has been decided to do all possible to reactivate it.

The CISA Viscosa Company is a major unit in this field. It is in turn controlled by the SNIA Viscosa Company, and together they produce the lion's share of Italian artificial fibres. These two companies further own machine tools works in the north where much of their own machines were made. The CISA Viscosa Company has three important works in the liberated area of Italy now under consideration, and their normal pre-invasion production in kilograms per day was:-

	Rayon	Ficcco
(a) Rome	10,000	10,000
(b) Rieti	10,000	25,000
(c) Naples	-	55,000

PART II. REQUIREMENTS AND JUSTIFICATION.

See Part II of main report, items (b) and (c) and Appendix "g".

PART III. PRODUCTION POTENTIAL OF END PRODUCT.

For (a) Ficcco (staple fibre)
(b) Rayon (continuous filament)

The only important units for the production of these commodities in the territories under consideration are the group of factories belonging to the CISA Viscosa Company. Enumerated hereunder is the plan of production programme for the three units of this group, divided into two sections, namely (a) for the production of staple fibre, and (b) for the production of continuous filament.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(a) Fiocco: Planned production rate in kilograms per day in 3 monthly periods:-

1945	Rome	Rieti	Naples	Daily Totals	Quarterly Totals
Jan. - March	3,000	3,000	Nil	6,000	540,000
Apr. - June	6,000	6,000	Nil	12,000	1,080,000
July - Sept.	9,000	12,000	8,000	29,000	2,610,000
Oct. - Dec.	12,000	15,000	12,000	39,000	3,510,000
				ANNUAL TOTAL	7,740,000

(b) Raven: Planned production rate in kilograms per day in 3 monthly periods:

1945	Rome	Rieti	Naples	Daily Totals	Quarterly Totals
Jan. - March	Nil	Nil	Nil	Nil	-
Apr. - June	2,000	2,000	Nil	4,000	360,000
July - Sept.	4,000	4,000	Nil	8,000	720,000
Oct. - Dec.	6,000	6,000	Nil	12,000	1,080,000
				ANNUAL TOTAL	2,160,000

NOTE: A working month has been taken as being 30 days, on the assumption that production maintained without interruption.

PART IV. PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

A. FIOCCO:

Raw material requirements per m. ton of fiocco are:

cellulose	1.1 tons
caustic soda	0.7 tons
carbon bisulphide	0.55 tons
sulphuric acid 50°Be.	1.6 tons
coal (Sardinian)	2.6 tons
Electric power (KWH)	1450

Of the above only the cellulose need be imported. Therefore the requirements of raw materials in m. tons for the total fiocco production for the three monthly perios given in III (a) above are:-

Declassified E.O. 12356 Section 3.3/NND No. 785015

ANNUAL TOTAL 2,100,000

NOTE: A working month has been taken as being 30 days, on the assumption that production maintained without interruption.

PART IV. PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

A. FIOCCO:

Raw material requirements per m. ton of fiocco are:

cellulose	1.1 tons
caustic soda	0.7 tons
carbon bisulphide	0.35 tons
sulphuric acid 50°Be.	1.6 tons
coal (Sardinian)	2.6 tons
Electric power (KWH)	1450

Of the above only the cellulose need be imported. Therefore the requirements of raw materials in m. tons for the total fiocco production for the three monthly peries given in III (a) above are:-

1945	Jan/Mar.	Apr/June	July/Sept.	Oct/Dec.	Total for one year
cellulose	594	1,188	2,871	3,861	8,514
caustic soda	378	756	1,827	2,457	5,418
carbon bisulphide	189	378	912	1,230	2,709
sulphuric acid 50° Be	864	1,728	4,176	5,586	12,354
coal - Sardinian	1,410	2,820	6,900	9,120	20,250
Electric power (KWH)	783,000	1,566,000	3,900,000	5,089,500	11,340,000

B. Rayon:

Raw material requirements per m. ton of rayon are:

cellulose	1.3 tons
caustic soda	1.0 tons
carbon bisulphide	0.35 tons
sulphuric acid 50° Be	2.4 tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

6. NAYON (Cont'd)

salt (NACL)	0.3 tons
coal (Sardinian)	6.1 tons
Electric power (K.W)	4000

Of the above only the cellulose need be imported. Therefore the requirements of raw materials in m. tons for the total rayon production for the three possible periods given in III (b) above are:-

1945		Jan/Mar	Apr./June	July/Sept.	Oct./Dec.	Total for one year
cellulose	m/t	481	963	1,444	1,926	4,814
caustic soda	"	360	720	1,080	1,440	3,600
carbon bisulphide	"	126	252	378	504	1260
sulphuric acid	"					
50° Be	"	864	1,728	2,592	3,456	8,640
salt	"	108	216	324	432	1,080
coal - Sardinian	"	2,200	4,400	6,600	8,800	22,000
Electric power K.W.	"	1,440,000	2,880,000	4,320,000	5,760,000	14,400,000

With regard to the basic raw materials required for the programme the 11,322 tons of cellulose will have to be imported from abroad.

The 7,578 tons of caustic soda can be locally produced if the programme for the rehabilitation of the soda solvay works at Rosignano is implemented in its entirety. This programme is to be found in Section I., SOAP.

The 3,465 tons of carbon disulphide will be covered by the rehabilitation programme for the three major units of carbon bisulphide production, which is again to be found in the Soap Programme.

The 17,533 tons of sulphuric acid 50° Be presents no problem as adequate amounts of this commodity will be available from the various plants of the Montecatini combine.

It will be noted that little or no imported coal is wanted to implement this programme, but it calls for the use of 33,450 tons of Sardinian coal, which it is anticipated will be readily available.

The provision of 675 tons of salt presents no difficulties.

PART V. SUPPORTING DATA OF PRODUCTION INDICATED IN PARTS III and IV.

(a) Soda:

Declassified E.O. 12356 Section 3.3/NND No. 785015

Electric power KWH 1,470,000 2,[illegible]0,000 4,320,000 [illegible],[illegible]0,000

With regard to the basic raw materials required for the programme the 11,322 tons of cellulose will have to be imported from abroad.

The 7,578 tons of caustic soda can be locally produced if the programme for the rehabilitation of the soda solvay works at Rosignano is implemented in its entirety. This programme is to be found in Section I., SOAP.

The 3,465 tons of carbon disulphide will be covered by the rehabilitation programme for the three major units of carbon disulphide production, which is again to be found in the Soap Programme.

The 17,535 tons of sulphuric acid 50° Be presents no problem as adequate amounts of this commodity will be available from the various plants of the Montecatini combine.

It will be noted that little or no imported coal is wanted to implement this programme, but it calls for the use of 33,450 tons of Sardinian coal, which it is anticipated will be readily available.

The provision of 6[illegible] tons of salt presents no difficulties.

PART V. SUPPORTING DATA TO PRODUCTION ESTIMATES IN PARTS III AND IV.

(a) Noce:

This plant suffered only mildly from aerial bombing, and that exclusively to rayon & engine equipment. Piecco equipment is undamaged. The major difficulty at this works, however, resides in the fact that the Germans carried away all electric motors, power belting, essential parts of hydraulic pumps, and governors from the steam turbo-generators. These deficiencies are being met in great measure by the cannibalization of the much more damaged Naples plant, where sufficient equipment can be secured for the reduced programme set forth, and also leave enough plant equipment at Naples to permit that works to return to a limited production execution during the second half of the year. A staff study of the factories at Naples and Rome is annexed as Appendix A1.

(b) Rieti:

This plant is undamaged by bombing or demolition, but suffered, as did the Rome plant, by the removal of the same types of equipment by the Germans. In a similar fashion the deficiencies will be made up by cannibalising the Naples works.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(c) NAPLES.

This plant suffered both extensive and intensive damage by German demolitions, but the destruction is of an uneven or sporadic character, so that a planned programme of cannibalization of damaged equipment will enable enough workable plant to be made operable to assist in reactivating the works at Rome and Rieti, and also give the Naples works the possibility of a limited production of fiocco during the second half of the year.

PART VI REQUISITIONS.

Requisitions for high quality cellulose, suitable for synthetic fibre production and in amount to meet the production programmes set forth in Part III (a) and (B) above are in the course of preparation. All other materials will be met from local resources.

PART VII. EFFECT ON SHIPPING SITUATION.

No great effect in the saving of shipping space can be achieved by this programme because, in rough terms, about one ton of cellulose must be imported for every ton of synthetic fibre produced. It does, however, permit the importation of a low cost commodity to enable the local production of a high cost one.

PART VIII. INCREASE OF PRODUCTION THROUGH THE IMPLEMENTATION OF THIS PROGRAMME

Since there is at present no production of synthetic fibres in liberated Italy the entire produce of this planned campaign will represent "increase of production".

In conclusion it may be useful to summarise the effect of the production programme in over-all tonnages:

Total production of Fiocco in 12 months	7,740 tons
" " " Rayon " " "	2,160 tons
Total production of synthetic fibres	9,900 tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

be imported for every ton of synthetic fibre produced. It does, however, permit the importation of a low cost commodity to enable the local production of a high cost one.

PART VIII. INCREASE OF PRODUCTION THROUGH THE IMPLEMENTATION OF THIS PROGRAMME

Since to there is at present no production of synthetic fibres in liberated Italy the entire produce of this planned campaign will represent "increase of production".

In conclusion it may be useful to summarise the effect of the production programme in over-all tonnages:

Total production of Fiocco in 12 months	7,740 tons
" " " Rayon " " "	2,160 tons
Total production of synthetic fibres	9,900 tons

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 1 521

SECTION 3 - TEXTILES

HEADQUARTERS
ALLIED SUB-COMMISSION
[illegible]
APO 394

ANNEX A1.

Sub. 556.

Ref. ACC/3596/IND

FJM/rj

21 July, 1944.

SUBJECT: CISA VISCOSA (Compagnia Industriale Soci ta Anonima).

I. These works belonging to the CISA VISCOSA group are covered in this report.

(a) Cisa Viscosa, NAPLES
(b) Cisa Viscosa, ROME
(c) Cisa Viscosa Carbon Bisulphide Plant at RIETI (Soc. Umbra. Prodotti Chimici).

A fourth major unit of the group, at RIETI, will be surveyed and reported upon as soon as time permits.

II. The Cisa Viscosa group is controlled from above by the Snia Viscosa combine. The General Manager of Cisa Viscosa is Dott. F.M. Ottasso. He is assisted by Ing. G. Campolunghi as Technical Manager.

III. Cisa Viscosa, NAPLES. Director Ing. Fubbri. Inspected 26 June 1944. This plant is severely damaged, chiefly by German demolitions. It is under control of PRO engineers. Normally it produced 52,000 Kg. of Staple Fibre (fleece) per day (no continuous rayon filament) and employed 1,000 persons, of whom 900 were workers, 10 and 100 directors and technicians.

a. This plant cannot operate except after some period of reconstruction. German demolitions have destroyed much important machinery including looms, churns, dissolvers, filters, spinning and dyeing equipment, and serious damage has been done to steam boilers, two or three turbo-generators, air compressors and ammonia refrigerating plant. Much good and valuable equipment, however, remains, the destruction having been hasty and scattered. Many of the buildings are still in good condition.

b. Pieces of intrinsic or Hon' include:

Declassified E.O. 12356 Section 3.3/NND No. 785015

A fourth [illegible]
upon as soon as time permits.

II. The Cisa Viscosa group is controlled from above by the Snia Viscosa combine. The General Manager of Cisa Viscosa is Dott. F.M. Ottasso. He is assisted by Ing. G. Campolunghi as Technical Manager.

III. Cisa Viscosa, Vidden. Director Ing. Fabbri. Inspected 26 June 1944. This plant is severely damaged, chiefly by German demolitions. It is under control of 135 engineers. Normally it produced 52,000 Kg. of Staple Fibre (fibres) per day (as continuous rayon filament) and employed 1,000 persons, of [illegible] 900 were workpeople and 100 directors and technicians.

A. This plant cannot operate except after a long period of reconstruction. German demolitions have destroyed much important machinery including guns, churns, dissolvers, filters, spinning and dying equipment, and serious damage has been done to steam boilers, two or three turbo-generators, air compressors and certain refrigerating plant. Much good and valuable equipment, however, remains, the destruction having been hasty and scattered. Many of the buildings are still in good condition.

B. Stocks of materials on hand include:

(1) About 2,500 m. tons of high grade Austrian and Finnish cellulose in six depots about the plant.
(2) About 200 bales of short fibre clean cotton of approximately 1 quintal each.
(3) 51 Carboys of 50° Be Sulphuric Acid.
(4) Several tons of new jute packing material in bolts.
(5) 30/40 m. tons of carbon disulphide stored in open concrete tanks under water.
(6) About 50 barrels of roofing pitch.
(7) About 10 drums of lubricating and transformer oils.
(8) About 50 carboys (demijohns) of acetic acid (believed to be "glacial" grade).
(9) 35 Oxygen cylinders scattered about the plant, particularly between the spinning machines. and
(10) Large stocks of steel and cast-iron steam and water piping up to 16 inches diameter.
(11) Large cast-iron pipe elbows and fittings.
(12) Stocks of Eternit pipes up to 14" diameter.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(13) Large stocks of steel forms and shapes.
(14) Stocks of steel strip for boxing and baling.
(15) Stocks of steel baling wire.
(16) Stocks of steel rails, Standard and Decauville.
(17) Several large coils of steel rope.
(18) Very large stocks of steel boiler tubes in a wide variety of forms.
(19) Stocks of fire brick.
(20) Lead: sheet and pipe.
(21) Much cork and glass-wool insulation.
(22) Brass, Bronze and Lead-Line piping, fittings and valves.
(23) About 50 round bronze bars for bearings, about 4" dia. x 12" long.
(24) Heavy sheet copper.
(25) Copper tubing and pipe 1¼" to 2" dia. x 15 to 18 feet in length.
(26) A complete steam turbine rotor, reaction type.
(27) Variety of electrical instruments, switch gear, etc.
(28) Large assortment of electrical motors, starters, and gear reduction boxes.
(29) Steam space-heating radiators.
(30) Ceramic acid storage jar 1500 litres capacity.
(32) Ceramic piping, fittings and valves.
(32) Cast-iron stoker grates and replacement bars.
(33) Large electrical current breakers.
(34) Much shafting, pulleys, multi-sheave drive wheels.
(35) Stocks of leather and rubber endless V-belts in many sizes.
(36) Stocks of 2" Aluminum tubing.
(37) 2 ft. square steel ventilating ducts.
(38) 3 ton hydraulic baling press.
(39) Hydraulic pumps in variety of heads and capacities.
(40) Large number of rayon spinning pumps.
(41) About 300 10-inch rubber tyred cart wheels.
(42) Boxes of glass laboratory apparatus.

C. Power Plant consisted of:

(1) Three Ansaldo boilers each of 12 tons steam per hour at 25 Kg./sq. cm. These have automatic stokers which have been damaged.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(26) A complete steam turbine rotor, reaction type.
(27) Variety of electrical instruments, switch gear, etc.
(28) Large assortment of electrical motors, starters, and gear reduction boxes.
(29) Steam space-heating radiators.
(30) Ceramic acid storage jar 1500 litres capacity.
(31) Ceramic piping, fittings and valves.
(32) Cast-iron stoker grates and replacement bars.
(33) Large electrical current breakers.
(34) Mish shafting, pulleys, multi-sheave drive wheels.
(35) Stocks of leather and rubber endless V-belts in many sizes.
(36) Stocks of 2" Aluminum tubing.
(37) 2 ft. square steel ventilating ducts.
(38) 3 ton hydraulic baling press.
(39) Hydraulic pumps in variety of heads and capacities.
(40) Large number of rayong spinning pumps.
(41) About 300 10-inch rubber tyred cart wheels.
(42) Boxes of glass laboratory apparatus.

C. Power Plant consisted of:

(1) Three Ansaldo boilers each of 12 tons steam per hour at 25 Kg./sq. cm. These have automatic stokers which have been damaged.
(2) One boiler rated at 30 tons steam per hour at 32 Kg/sq. cm. with automatic overhead coal feed. This unit appeared intact.
(3) Three Ansaldo steam turbo-generators each of 750 KVA at 450 Volts. 3 phase, 45 cycles. These were designed to reduce steam pressure from 25 Kg./sq. cm. to 3.5 Kg/sq. cm., endues the exhaust steam for process heating. Of these three turbo-generators, one is intact, a second is seriously damaged but believed to be repairable, a third is completely destroyed.
(4) Ammonia refrigerating system: composed of two units of 600,000 calories/hour capacity each, and driven by 210 KW motors. One unit is intact, but without ammonia and motor. The latter was requisitioned and taken to Corradini Wire Plant. The second unit is seriously damaged.

Declassified E.O. 12356 Section 3.3/NND No. 785015

D. Comments and Recommendations.

(1) This plant is too badly damaged for consideration in any plan for immediate reconstruction. It is therefore recommended that this works be viewed chiefly as a source of cannibalised materials and equipment for the Rome and Rieti plants.

(2) Some of the materials listed in B above are important to a plan of reconstruction and operations by the company. So far as is possible, those materials should be conserved for that purpose. Much of the material in this list is not needed in any immediate plans and as such should be reported to the Engineering Materials Sub-Committee of AFLR (I) B.

(3) The large stock of high grade cellulose should be divided according to some rational scheme between urgent Italian needs for paper and a planned campaign for the manufacture of rayon and staple fibre.

IV. Cisa Viscosa Works, ROME. Director, Dott. E. Martegiani.

A. This works suffered only sporadic damage by aerial bombing. Most of the plant and equipment is undamaged, but most of the electric motors in the plant have been carried away by the Germans and must be replaced, presumably from motors now in the Company's plant at Naples.

Normal production was 10.000 Kg. fiocco and 10.000 Kg. rayon per day.

B. Plant and Equipment.

(1) Nine caustic steeping tanks and hydraulic presses with a capacity of 3.000 Kg. of initial cellulose per press per day. Hydraulic pumps and motors must be brought from Naples.
(2) Twelve large Fenaetti alkali-cellulose shredders. Require motors and belts.
(3) Two large air-conditioned ripening rooms for alkali cellulose, in operable condition - (22-23°C).
(4) 16 Xanthating churns capable of converting the [illegible] cellulose per day. Condi-

Declassified E.O. 12356 Section 3.3/NND No. 785015

paign for the manufacture of rayon and staple fibre.

IV. Cisa Viscosa Works, ROME. Director, Dott. E. Martegiani.

A. This works suffered only sporadic damage by aerial bombing. Most of the plant and equipment is undamged, but most of the electric motors in the plant have been carried away by the Germans and must be replaced, presumably from motors now in the Company's plant at Naples.

Normal production was 10.000 Kg. fiocco and 10.000 Kg. rayon per day.

B. Plant and Equipment.

(1) Nine caustic steeping tanks and hydraulic presses with a capacity of 2.000 Kg. of initial cellulose per press per day. Hydraulic pumps and motors must be brought from Naples.
(2) Twelve large Fenoglio alkali-cellulose shredders. Require motors and belts.
(3) Two large air-conditioned ripening rooms for alkali cellulose; in operable condition - (22-23°C).
(4) 16 Xanthating churns capable of converting the equivalent of 1600 Kg. cellulose per day. Condition is good but require motor drives.
(5) Eight viscose dissolvers; require motors and belts.
(6) Four large staple fibre spinning, curing and cutting machines. Require motor drives.
(7) 53 rayon spinning machines of which 35 are in operable condition and 18 seriously damaged by aerial bombing. Each machine has 200 spinnerettes (filiere).
(8) Power Plant:
(a) One Franco Tosi boiler at 18 tons steam per hour and 28 Kg/cm sq.
(b) Four low pressure boilers; two B & W and two Ansaldo-Buttner, each 6/7 tons steam per hour at 16 Kg/cm. sq.
(c) Two Franco Tosi steam turbo-generators which top the steam to 3 Kg/cm. sq.
1350 KW high pressure 28 Kg/cm. sq.
900 KW low " 16 " " "

Declassified E.O. 12356 Section 3.3/NND No. 785015

These two units formerly produced 85% of the electrical energy needed for the production of staple fibre (fiocco).

Stoker motors and boiler feed pumps have been carried away by the Germans; all transformers and switch gear, but two, carried away by the Germans.

C. Raw Materials,

(1) Cellulose; 200 tons in the plant, another 200 tons on railway cars in the Rome area loaded by Germans for despatch to Germany, i.e. enough for 5 month's operation on the basis of first program (see below).
(2) Caustic Soda; 50 m. tons.
(3) Carbon Bisulphide; 34 tons.
(4) Sulphuric Acid 50° Be; 23 tons.
(5) Salt; 350 tons.
(6) Lignite; 300 tons.

D. The Company has advanced a plan of operations that initially embraces only the Rome plant.

(1) First phase will convert 3000 Kg. Cellulose per day and yield roughly the same weight of fiocco. This will use one steeping press, two alkali cellulose disintegrators, one cellulose ripening room, two Xanthating churns, one fiocco machine.

Raw material requirements per month for the production of 90 m. tons of fiocco are,

100 tons cellulose
60 tons caustic soda
38 tons carbon bisulphide
162 tons 50° Be sulphuric Acid
1.5 tons zinc
4.5 tons salt
536 tons Sardinian coal
0.2 tons soap
130.000 KWH Electric Power (250 KW)

(2) The second phase plans to produce 60 m. tons of rayon (continuous filament) per month and will use the following additional equipment; one steeping press, two al-

Declassified E.O. 12356 Section 3.3/NND No. 778015

D. The Company has advanced a plan of operations that initially embraces only the Rome plant.

(1) First phase will convert 3000 Kg. Cellulose per day and yield roughly the same weight of fiocco. This will use one steeping press, two alkali cellulose disintegrators, one cellulose ripening room, two Xanthating churns, one fiocco machine.

Raw material requirements per month for the production of 90 m. tons of fiocco are,

100 tons cellulose
60 tons caustic soda
28 tons carbon bisulphide
162 tons 50° Be sulphuric Acid
1.5 tons zinc
4.5 tons salt
536 tons Sardinian coal
0.2 tons soap
130.000 KWH Electric Power (250 KW)

(2) The second phase plans to produce 60 m. tons of rayon (continuous filament) per month and will use the following additional equipment, one steeping press, two alkali cellulose shredders, two Xanthating churns, one rayon spinning machine and necessary winding and twisting machines.

Raw material requirements per month for the production of 60 m. tons of rayon filament are stated to be:

78 m. tons cellulose
51 m. tons caustic soda
22 m. tons carbon bisulphide
140 m. tons 50° Be sulphuric acid
1.7 m. tons zinc
18 m. tons salt
0.5 m. tons soap
0.2 m. tons acetic acid
572 m. tons Sardinian coal
240.000 KWH Electric Power (660 KW)

Declassified E.O. 12356 Section 3.3/NND No. 785015

(3) The third contemplated phase looks forward to a gradual overall increase in production as supplies of raw materials and electric power permit.

E. Recommendations:

(1) The company should be permitted to embark on phase 1 only after due consideration has shown that the necessary raw materials and electric power can be made available for six month's operation. A hand to mouth operation with raw materials in inadequate amount for such a program will lead only to continuous demands and requests and an unsatisfactory labor situation.

(2) Assistance should be afforded the company to move from Naples to Rome such equipment and materials as are important to preparing the Rome Works for Phase 1 operations. Care should be taken, however, not to interfere with the Armies' use of critical engineering materials in the Naples Works which are not essential to programs 1 and 2.

V. Advance Information on CISA VISCOSA, RIETI

A. Normal production was 23,000 Kg. filecce and 10,000 Kg. rayon per day.

B. The plant is reported in good condition except for electric motors, pumps, and switch gear carried away by the Germans.

C. The Company is seeking to repair a water turbo-generator of 250 KW capacity to supply power for Rieti.

VI. Miscellaneous Notes.

A. Utita machine tool works at Padua which make machine tools, e.g. shell turning lathes at Navalmeccanica, etc; also textile machinery, is a wholly owned subsidiary of CISA VISCOSA.

B. Padua Works of CISA VISCOSA is reported to have a normal production of 8000/9000 Kg. Rayon filament and 5000/6000 Kg. fiocco per day.

Declassified E.O. 12356 Section 3.3/NND No. 730015

Works which are not essential to programs 1 and 2.

V. Advance Information on CISA VISCOSA, RIETI

A. Normal production was 23,000 Kg. fiocco and 10,000 Kg. rayon per day.

B. The plant is reported in good condition except for electric motors, pumps, and switch gear carried away by the Germans.

C. The Company is seeking to repair a water turbo-generator of 250 KW capacity to supply power for Rieti.

VI. Miscellaneous Notes.

A. Utita machine tool works at Padua which make machine tools, e.g. shell turning lathes at Novalmeccanica, etc; also textile machinery, is a wholly owned subsidiary of CISA VISCOSA.

B. Padua Works of CISA VISCOSA is reported to have a normal production of 8000/9000 Kg. Rayon filament and 5000/6000 Kg. fiocco per day.

C. All Italian rayon (continuous filament) was sold through a cartel known as "Italraion", MILANO.

A cartel known as "Italviscosa", Milano, sold the fiocco output of Snia Viscosa, Cisa Viscosa and Chatillon, and accounted for 95% of Italian fiocco production.

Rome Telephone Cisa Viscosa 62909
Via Dei Sabini.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 1 6 2 1

SECTION 3 - TEXTILES

APPENDIX B

TEXTILE REQUIREMENTS FOR CIVILIAN POPULATION, SPECIFICATIONS, JUSTIFICATION AND INDIVIDUAL ALLOTMENTS.

Item & Specification	Justification	Recommended requirement per Individual
(a) Flannel approximate construction 44x36 36" wide, napped on both sides - all shades	1,125,000 yds. To be used for manufacture of garments for children up to 5 years of age, pyjamas and night gowns.	1½ yds.
(b) Cotton or cotton & rayon & cotton & wool i.e., Chambray, calico, poplin, muslin. White, plain, fancies, prints, woven & knitted (plain) 2 to 9 oz. weight	281,400,000 yds. To be used for manufacture of: -Rompers (2 per child) 1½ yds. per garment	3 "
	-Underwear (2 per child) 2½ yds per garment	5 "
	-Blouses (1 per child) 1½ yds per garment	1½ "
	-Handkerchief (9 per yd) 2 per capita.	1/4 "
	-Dresses (1 per woman) 4 yds per dress	4 "
	-Underwear (2 sets each woman) 2½ yds per garment.	5 "
	-Blouses (1 per woman) 2 yds per blouse	2 "
	-Shirts (2 per man) 3½ yds per garment.	7 "
	-Underwear (2 sets each man) 2½ yds per set	5 "
	-Bed clothese (sheets & pillow cases) M.H. 6 yds per family of 5.	1.1/5 "
(c) 54" wide - 12/13 oz. manipulated wool, suiting "Suder type" - cotton, wool and rayon mixtures.	14,215,000 yds. To be used for: -Two piece man's suits 2/5 suit per man	15 inches
	- (4 yds per garment) - Boys' trousers (1 per boy) ½ yd per garment	½ yd.
	-Two piece boys suit (1 per boy)	

Declassified E.O. 12356 Section 3.3/NND No. 785015

i.e., chambray, cambric, poplin, muslin. White, plain, fancies, prints, woven & knitted (plain) 2 to 9 oz. weight

-Underwear (2 per child)
2½ yds per garment . . . . . 5 "
-Blouses (1 per child)
1½ yds per garment . . . . . 1½ "
-Handkerchief (9 per yd)
2 per capita. . . . . 1/4 "
-Dresses (1 per woman)
4 yds per dress . . . . . 4 "
-Underwear (2 sets each woman)
2½ yds per garment. . . . . 5 "
-Blouses (1 per woman)
2 yds per blouse . . . . . 2 "
-Shirts (2 per man)
3½ yds per garment. . . . . 7 "
-Underwear (2 sets each man)
2½ yds per set . . . . . 5 "
-Bed clothes (sheets & pillowcases)
N.B. 6 yds per family of 5. . . . . 1.1/5 "

(c) 54" wide - 12/13 oz. manipulated wool, suiting "Suder type" - cotton, wool and rayon mixtures.

14,915,000 yds.
To be used for;
-Two piece men's suits
2/5 suit per man . . . . . 15 inches
- (4 yds per garment)
- Boys' trousers (1 per boy)
½ yd per garment . . . . . ½ yd.
-Two piece boys suit (1 per boy)
3 yds per garment . . . . . 3 "
-Skirts for girls (1 per girl)
3/4 yd per garment. . . . . 3/4 "

(d) 54" wide - 20/24 oz - manipulated wool overcoating woven or knitted fabric

27,000,000 yds.
To be used for;
-Children (average 12 years old)
2/5 per child, 2 yds per garment . . 1 1/3 yd
-Women (2/5 per woman)
3 yds per garment . . . . . 1 1/3 "
-Men (2/5 per man)
3 yds per garment . . . . . 1 1/3 "

Declassified E.O. 12356 Section 3.3/NND No. 785015

Item and Specification	Justification	Recommended requirement per individual
(e) 36" wide, 3¾/4 oz. in weight Linings rayon and/or acetate	14,900,000 yds. 23,800,000 yds. -Men's garments (2/5 coats & overcoats per man) 2 yds per garment	1½ yds
	-2/5 coat per women 2 yds per garment	3/4 "
	-2/5 coat per child 1 yd per garment	½ "
(f) Utility fabrics 54" wide; Cotton Denim or drill for work clothing, chemically (water repellent) treated or rubberized for rain wear. - 11/12 oz. weight.	4,900,000 yds. To be used for manufacture of: -Two piece overalls and work clothing for men (2/5 garment per man) 3 yds per garment	1 1/3 "
	-Raincoats (1/10 garment per man) 3 yds per garment	12 inches
	-1/10 garment per child 2 yds per garment	7.1/4 "
	-1/10 garment per woman 2¼ yds per garment.	9 "
(g) 36" wide, 8/10 oz. Utility fabric. Cotton Corduroy	23,800,000 yds. -Men and boys' jackets and trousers 2/5 per person - 7 yds per garment. .	2 3/4 "
(h) Blanket fabric 60" wide, 22/25 oz weight, manipulated wool or knitted (napped)	12,500,000 yds 2½ yds per blanket 1 blanket for each family of 5	½ "
(i) Yarn (wool, cotton and cotton and wool) light weight for socks and/or stockings and moderately heavy for sweaters.	39,650,000 lbs. - socks for men (2 pr each)	1 lb.
	- socks for women (2 pr each)	1 "
	- sweater for woman (1 each)	1 "
	- socks for children (2 pr each). . . .	1 "
	- sweaters for children (1 each). . . .	3/4 "

0164

Declassified E.O. 12356 Section 3.3/NND No. 785015

	(water repellent) treated or rubberized for rain wear. - 11/12 oz. weight.	3 yds per garment	1 1/3 "
		-Raincoats (1/10 garment per man)	
		3 yds per garment	12 inches
		-1/10 garment per child	
		2 yds per garment	7.1/4 "
		-1/10 garment per woman	
		2½ yds per garment.	9 "
(g)	36" wide, 8/10 oz. Utility fabric. Cotton Corduroy	23,800,000 yds.	
		-Men and boys' jackets and trousers	
		2/5 per person - 7 yds per garment. .	2 3/4 "
(h)	Blanket fabric 60" wide, 22/25 oz weight, manipulated wool or knitted (napped)	12,500,000 yds	
		2½ yds per blanket	
		1 blanket for each family of 5	½ "
(i)	Yarn (wool, cotton and cotton and wool) light weight for socks and/or stockings and moderately heavy for sweaters.	39,650,000 lbs.	
		- socks for men (2 pr each)	1 lb.
		- socks for woman (2 pr each)	1 "
		- sweater for woman (1 each)	1 "
		- socks for children (2 pr each). . . .	1 "
		- sweaters for children (1 each). . . .	3/4 "

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

APPENDIX "C"

TEXTILE REQUIREMENTS FOR ITALIAN ARMED FORCES;
SPECIFICATIONS AND INDIVIDUAL ALLOTMENTS.

1. ITALIAN AIR CORPS: 31,000 man complement requirements are as follows:

Specification	Individual requirement	Total
Blanket fabric, 60" wide, wove or manipulated wove 22/24 oz.	2 blankets per man 2½ yds per blanket	77,500 yds
Overcoating 27/28 oz. 54" wide, wool or manipulated wool	1 coat per man 2 3/4 yds garment	86,800 "
Suiting 15/16 oz. 54" wide, wool or manipulated wool	1 uniform per man 4 yds per garment ½ yd per man for cap	129,000 "
Denim - 54" wide, cotton	overalls (work clothes) 2 per man 3 yds per garment	186,000 "
Knitted underwear fabric tubular (split) 36" wide cotton	2 per man 3 yds per garment	186,000 "
36" wide cotton gabardine or poplin shirting	2 per man 3½ yds per shirt	217,000 "
Knitting yarn (wool and cotton) moderately heavy	socks 3 per man ½ lb. per pair	46,500 lbs.
Knitting yarn (cotton)	socks, 3 pr per man 1/4 lb. per pair	23,250 lbs.
Cotton Drill (chemically treated for water proofing or rubberized)	1 Raincoat per man 3 yds per garment	93,000 yds.

The requirements as presented above do not include heavy flying clothing which, for the most part, is fur lined.

Declassified E.O. 12356 Section 3.3/NND No. 718015

SECTION 3 - TEXTILES

APPENDIX "C"

TEXTILE REQUIREMENTS FOR ITALIAN ARMED FORCES;
SPECIFICATIONS AND INDIVIDUAL ALLOTMENTS.

1. ITALIAN AID CORPS: 31,000 man complement requirements are as follows:

Specification	Individual requirement	Total
Blanket fabric, 60" wide, wove or manipulated wove 22/24 oz.	2 blankets per man 2½ yds per blanket	77,500 yds
Overcoating 27/28 oz. 54" wide, wool or manipulated wool	1 coat per man 2 3/4 yds garment	86,800 "
Suiting 15/16 oz. 54" wide, wool or manipulated wool	1 uniform per man 4 yds per garment ½ yd per man for cap	129,000 "
Denim - 54" wide, cotton	overalls (work clothes) 2 per man 3 yds per garment	186,000 "
Knitted underwear fabric tubular (split) 36" wide cotton	2 per man 3 yds per garment	186,000 "
36" wide cotton gabardine or poplin shirting	2 per man 3½ yds per shirt	217,000 "
Knitting yarn (wool and cotton) moderately heavy	socks 3 per man ½ lb. per pair	46,500 lbs.
Knitting yarn (cotton)	socks, 3 pr per man 1/4 lb. per pair	23,250 lbs.
Cotton Drill (chemically treated for water proofing or rubberized)	1 Raincoat per man 3 yds per garment	93,000 yds.

The requirements as presented above do not include heavy flying clothing which, for the most part, is fur lined.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Denim - 54" wide, cotton	overalls (work clothes) 2 per man 3 yds per garment	186,000 "
Knitted underwear fabric-tubular (split) 36" wide cotton	2 per man 3 yds per garment	186,000 "
36" wide cotton gabardine or poplin shirting	2 per man 3½ yds per shirt	217,000 "
Knitting yarn (wool and cotton) moderately heavy	socks 3 per man ½ lb. per pair	46,500 lbs.
Knitting yarn (cotton)	socks, 3 pr per man 1/4 lb. per pair	23,250 lbs.
Cotton drill (chemically treated for water proofing or rubberized)	1 Raincoat per man 3 yds per garment	93,000 yds.

The requirements as presented above do not include heavy flying clothing which, for the most part, is fur lined.

2. ITALIAN NAVY: 79,000 men complement requirements are as follows:

Suiting 15/16 oz., 54" wide wool or manipulated wool	1 uniform per man 4 yds per garment 1/3 yd per man for cap	342,500 yds.
Overcoating 24/28 oz. 54" wide manipulated wool	1 coat per man 3½ yds per garment	276,000 yds.
Shirts, 36" wide flannel	2 shirts per man 3½ yds per garment	546,000 yds.
Knitted underwear fabric tubular (split) 36" wide cotton	2 undershirts per man 2 underpants per man 2 yds per garment	316,000 yds.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Specification	Individual requirement	Total
Blankets fabric 60" wide 22/24 oz., wool or manipulated wool	2 blankets per man 2½ yds per blanket	395,000 yds.
Knitting yarn (wool & cotton)	socks, 3 pr per man ½ lb. per pair	118,500 lbs.
Wool jersey fabric (wool or manipulated wool)	1 garment per man 1 lb per garment	79,000 lbs.
Cotton drill - water proof - ed or rubberized	Raincoats - 1 per man 3 yds per garment	237,000 yds.

In addition, the needs of 30,000 men overseas are as follows:

Tropical shirts, cotton gabardine or poplin shirting, 36" wide 8/9 oz.	2 per man 3½ yds per shirt	210,000 yds
Tropical shorts, 54" wide cotton gaberdine	2 pr per man 1 yd per pair	60,000 yds
Knitting yarn (cotton)	2 pr socks per man 1/4 lb per pair	15,000 lbs.

3. ITALIAN ARMY. 350,000 man complement requirements are as follows:

54" wide 12/13 oz. manipulated wool suiting	Trousers, 1 per man 1½ yd per garment Jacket, 1 per man 2½ yds per garment woolen cap ½ yd per garment	1,575,000 yds
54" 22/24 oz. wool or manipulated wool overcoating	1 overcoat per man 3 yds per garment	1,050,000 yds
36" wide 8 oz Twills or denim cotton suiting	Trousers, 1 per man 2½ yds per garment Jackets, 1 per man 3½ yds per garment Cap, 1 per man, ½ yd per garment	2,275,000 yds

Declassified E.O. 12356 Section 3.3/NND No. 785015

Tropical shorts, 54" wide cotton gabardine	2 pr per man 1 yd per pair	60,000 yds
Knitting yarn (cotton)	2 pr socks per man 1/4 lb per pair	15,000 lbs.

3. ITALIAN ARMY. 350,000 man complement requirements are as follows;

54" wide 12/13 oz. manipulated wool suiting	Trousers, 1 per man 1½ yd per garment Jacket, 1 per man 2½ yds per garment woolen cap ½ yd per garment	1,575,000 yds
54" 22/24 oz. wool or manipulated wool overcoating	1 overcoat per man 3 yds per garment	1,050,000 yds
36" wide 8 oz Twills or denim cotton suiting	Trousers, 1 per man 2½ yds per garment Jackets, 1 per man 3½ yds per garment Cap, 1 per man, ½ yd per garment	2,275,000 yds
Muslin 36" wide	Handkerchiefs, 3 per man 9 per yd	117,000 yds
Cotton Denim 54" wide	work garments 1/5 per man 3 yds per garment	210,000 yds
36" wide cotton, poplin or gabardine	Shirts, 2 per man 3½ yds per garment	2,450,000 yds
54" wide manipulated wool shirting 10/11 oz.	Shirts, 2 per man 2½ yds per garment	1,750,000 yds

Declassified E.O. 12356 Section 3.3/NND No. 785015

Specification	Individual requirement	Total
Knitted underwear fabric wool & cotton 36" wide Tubular (split)	2 per man 3 yds per garment	1,900,000 yds.
Cotton underwear knitted fabric 36" wide	2 per man 3 yds per garment	1,900,000 "
Yarn wool & cotton moderately heavy	Gloves 1 pr per man 1/4 lb per pair Socks 2 pr per man ½ lb per pair	437,500 lbs.
Cotton yarn	socks 2 pr per man 1/4 lb per pair	175,000 lbs.

Declassified E.O. 12356 Section 3.3/NND No. 785015

01721

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

APPENDIX "D"

HEADQUARTERS
ALLIED CONTROL COMMISSION
ECONOMIC SECTION
APO 394

Ref. ACC/5157/EC

EEEK/668

29 May 1944
Amended to
28 Aug.1944

SUBJECT: Production of Cotton Goods in Liberated Italy.

SURVEY OF THE MANIFATTURE COTONIERE MERIDIONALI

REFERENCES 1. Reference is made to this HQ even numbers of 11 Feb '44 and 20 Mar. '44, and to Colairgram 8 of 25 Mar. 44.

INTRODUCTION 2. Additional data have not been obtained regarding the present and future potential capacity of the M.C.M., and, with particular reference to an assessment of and justification for the importation of essential requirements of raw materials, replacements and commodities ancillary to manufacturing processes, these data are detailed as to type, make and size, where this information was forthcoming or deemed necessary.

3. In order as far as possible to obviate errors of description, a glossary of the translations given to some of the more technical Italian terms is attached as an Appendix.

4. As has been previously pointed out, of the six factories of the M.C.M. situated in Liberated Italy, three, namely those of NAPLES (Poggioreale), PIEDIMONTE and FRATTAMAGGIORE have been so heavily damaged as a result of enemy demolitions andbombings as to make rehabilitation a long term policy, whereas the remaining three, at NOCERA, ANGRI and FRATTE DI SALERNO, are substantially undamaged, and, subject to the completion of minor repairs which are now being carried out, are immediately capable of resuming full production.

5. This survey is therefore confined to the activities of the three latter factories, except that brief notes on the prospects of the other three are included.

6. The plants at NOCERA, ANGRI, and FRATTE DI SALERNO form in themselves an independent and completely balanced unit,

Declassified E.O. 12356 Section 3.3/NND No. 785015

present and future production, with particular reference to an assessment of and justification for the importation of essential requirements of raw materials, replacements and commodities ancillary to manufacturing processes, these data are detailed as to type, make and size, where this information was forthcoming or deemed necessary.

3. In order as far as possible to obviate errors of description, a glossary of the translations given to some of the more technical Italian terms is attached as an Appendix.

4. As has been previously pointed out, of the six factories of the M.C.M. situated in Liberated Italy, three, namely those of NAPLES (Pozzioreale), PIEDIMONTE and FRATTAMAGGIORE have been so heavily damaged as a result of enemy demolitions andbombings as to make rehabilitation a long term policy, whereas the remaining three, at NOCERA, ANGRI and FRATTE DI SALERNO, are substantially undamaged, and, subject to the completion of minor repairs which are now being carried out, are immediately capable of resuming full production.

5. This survey is therefore confined to the activities of the three latter factories, except that brief notes on the prospects of the other three are included.

6. The plants at NOCERA, ANGRI, and FRATTE DI SALERNO form in themselves an independent and c ompletely balanced unit, capable of producing 25/30,000,000 metres of cotton fabrics yearly, together with a surplus of cotton yarn which can be woven or converted elsewhere either into cloth or other cotton products, e.g. sewing thread, cord, twine, candlewicks and the like. In this connection it should be noted that the M.C.M. possesses the only cotton spinning in liberated Italy, and therefore all other consumers of cotton yarn must, failing importations, derive their supplies from M.C.M.

7. At this moment the balance of old stocks of cotton and staple fibre and the 1943 mainland crop are being used, and last year's Sicilian crop, estimated at 300 tons, has been frozen and allotted to M.C.M., and arrangements are being concluded to have this shipped as quickly as possible to the spinning mill at Nocera in time to avoid a breakdown in production. On account of difficulties raised by the panco di Sicilia,

Declassified E.O. 12356 Section 3.3/NND No. 785015

who had a lien upon it, this cotton had not been delivered by the end of August. Consequently production estimates suffered severely.

6. Output in May was at the rate of 3/10,000,000 metres per annum (or 33-1/3% of potential), of which 20% approximately was going to the Italian War Ministry and the remainder into grey fabrics suitable, either with or without subsequent dyeing or printing, for inclusion in a proposed civilian rationing scheme. Later this rate decreased on account of the non-arrival of the Sicilian crop.

7. When the latter does arrive output will be increased almost to capacity. This will enable production to be maintained for 1-2 months, when imports of American or Egyptian cotton will be necessary to carry over until the 1944 Italian crop can be gathered and delivered though this can only be regarded as a stop-gap, equivalent to 2-3 months supply.

CONTENTS: For convenience of reference, the summary which follows is sub-divided into Sections as under:-

I Production potential
II Raw Cotton Requirements
III Preparation and Spinning - NOCERA.
IV Weaving - ANGRI
V Bleaching, Dyeing & Finishing - FRATTE DI SALERNO
VI Labour
VII Power
VIII FRATTAMAGGIORE factory
IX PIEDIMONTE and NAPLES factories
X Conclusion

M.C.M. I. PRODUCTION POTENTIAL

Briefly, the daily cycle of operations and output at the rate of maximum production can be diagrammised as below:

IMPORTS OF RAW COTTON	(A) AMERICAN 52 Bales	(B). EGYPTIAN 44 Bales	ITALIAN Operating temporarily to exclude or reduce

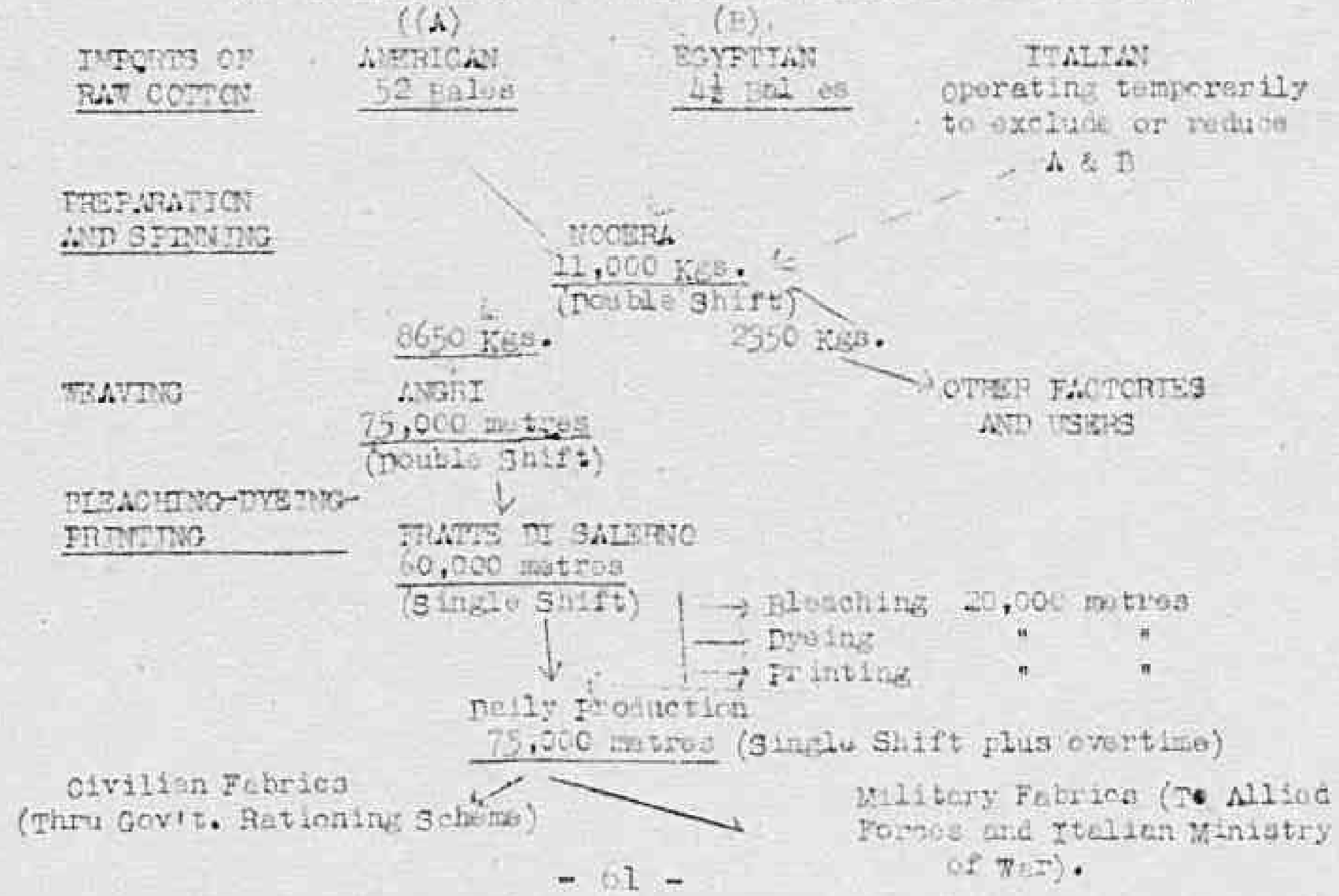
Declassified E.O. 12356 Section 3.3/NND No. 785015

is sub-divided into Sections as under:-

I Production Potential
II Raw Cotton Requirements
III Preparation and Spinning - NOCERA.
IV Weaving - ANGRI
V Bleaching, Dyeing & Finishing - FRATTE DI SALERNO
VI Labour
VII Power
VIII FRATTAMAGGIORE Factory
IX PIEDMONTE and NAPLES Factories
X Conclusion

M.C.M. I. PRODUCTION POTENTIAL

Briefly, the daily cycle of operations and output at the rate of maximum production can be diagrammised as below;



Declassified E.O. 12356 Section 3.3/NND No. 785015

M.C.M. II. RAW COTTON REQUIREMENTS.

1. The spinning plant of recent investigations comprises 72916 ring spinning spindles with all necessary preparatory and ancillary machinery, and has a potential daily output of 11,000 kgs. of yarn, both carded and combed, of an average count of 26s, by working two shifts of eight hours each or 15 effective hours per day.

2. On the assumption that indigenous cotton is not available or has been exhausted, the amount of cotton necessary to maintain a daily output of 11,000 Kg., and using the machinery to the best advantage, is as follows,-

AMERICAN COTTON: (for carded yarns)

Strict Middling or Middling 1-1/32" st. col.

Daily Consumption	11,550 Kg.	
yielding 89% -		10,100 Kg. yarn

EGYPTIAN COTTON: (for combed yarns)

Uppers of good type and staple (for fine count - weft)

Daily Consumption	530 Kg.	
yielding 65% -		350 Kg. yarn

Sakellaridas of good type and staple (for fine counts - warp and sewing thread)

Daily Consumption	846 Kg.	
yielding 65%		550 Kg. yarn

Total Daily Consumption of Cotton - 12,726 Kg.

Total Daily Production of Yarn - 11,000 Kg. yarn

SUMMARY:

Assuming a month of 25 working days and an average

Declassified E.O. 12356 Section 3.3/NND No. 785015

Yielding 65% - 550 Kg. yarn

EGYPTIAN COTTON: (for combed yarns)

Uppers of good type and staple (for fine count - weft)

Daily Consumption 530 Kg.
yielding 65% - 350 Kg. yarn

Sakellarides of good type and staple (for fine counts - warp and sewing thread)

Daily Consumption 846 Kg.
yielding 65% 550 Kg. yarn

Total Daily Consumption of Cotton - 12,726 Kg.

Total Daily Production of Yarn - 11,000 Kg. yarn

SUMMARY:

Assuming a month of 25 working days and an average bale weight of 220 Kg. for American and 330 Kg. for Egyptian Cotton, monthly requirements will be

AMERICAN S.M. OR M.	-	1300 Bales
EGYPTIAN UPPERS	-	45 "
" SAKEL	-	66 "

M.C.M.III. PREPARATION AND SPINNING - NOCERA.

1. Very little damage has been done to this plant by military action, but since the previous report, some roofs have collapsed under the weight of dust and ashes deposited upon them during the recent eruption of Vesuvius. Fortunately the damage has not seriously affected the machinery, repairs are within the capacity of the firm's own workshops, and future production will not be effected. It is estimated, however, that 2,000 railway car loads of deposit will eventually have to be removed from the factory premises.

Declassified E.O. 12356 Section 3.3/NND No. 785015

2. The machinery installed deals with the raw cotton from the bale to the finished yarn ready for warping or the shuttle. The plant was constructed with a view to the production of an average count of 20s, and therefore, on account of the size and gauge of individual machines, the most economical as well as the maximum output is attained by spinning varying counts; from 16s to 32s for carded yarns, and from 36s to 80s combed. (Combed yarns represents less than 10% of the total production by weight, and provide a valuable source of yarn not only for light-weight clothes, but for the manufacture of threads, and twines. In addition, if the combing facilities were ignored, overall output would be correspondingly reduced.)

3. MACHINERY:

a) Preparation

		Make
2 bale breakers	36"	Lord Brothers
2 Hopper feeds with openers and Scutchers	45"	" "
2 Hopper feeds with porcupine openers, exhaust openers and scutchers	40") 45")	Platt Brothers
1 Hopper feed with Scutcher and Crichton opener	45"	" "
2 Scutchers with 2 beaters	45"	" "
7 Scutchers (single)	45"	" "
2 Rag Machines		S. Brooks
1 Garnetting Machine		
1 Willey		Hetuoverscne Maschinenfabrik Chemnitz

b) Carding Machines

86 Flat Cards	45"	Platt Brothers
34 " "	40"	" "
10 " "	45"	Bielleso
130		

1 Card Clothing Machine	Pronsfield
3 Card Grinders (traverse)	"

Declassified E.O. 12356 Section 3.3/NND No. 785015

	2 Hopper feeds with openers and Scutchers	45"	" "
	2 Hopper feeds with porcupine openers, exhaust openers and scutchers	40" / 45"	Platt Brothers
	1 Hopper feed with Scutcher and Crichton opener	45"	" "
	2 Scutchers with 2 testers	45"	" "
	7 Scutchers (single)	45"	" "
	2 Rag Machines		S. Brooks
	1 Garnetting Machine		
	1 Willey		Hetmoversche Maschinenfabrik Chemnitz

b) Carding Machines

86	Flat cards	45" Platt Brothers
34	" "	40" " "
16	" "	45" Rieliuse
136		

1 Card Clothing Machine	Pronsfield
3 Card Grinders (traverse)	"

c) Combing and drawing

24	Combs with 6 deliverg	Nasmith
6	Drawing Frames	Alsacienne
14	" "	Platt Brothers
20	" " (106 Deliveries)	

d) Slubbing Frames (

5	Slubbers	Marzoli 1940
2	"	" 1941
1	"	Platt Bros. 1910
3	"	" " 1908
5	"	" " 1904
1	"	" " 1901
1	"	" " 1897
2	"	Rieter 1909
20		

Declassified E.O. 12356 Section 3.3/NND No. 785015

e) Intermediates

14	Intermediate	Marzoli	1940/41
8	"	Alsacienne	190 .09
2	"	Platt.bros.	1908
11	"	" "	1893/06
5	"	Rieter	1909
40			

f) Roving Frames

4	Roving frames	Marzoli	1940
32	" "	Platt bros.	1901/10
16	" "	Alsacienne	1908/09
12	" "	Reiter	1908/09
64			

g) Jack Frames

6	Jack frames	Marzoli	1940
6	" "	Dobson	1900
2	" "	Alsacienne	1908
1	" "	"	1898
1	" "	Platt bros.	1897
16			

h) Spinning

(i) Breakdown of frames by types
(ii) Breakdown of frames by make and size

(iii) Daily Production

Summary

		Spindles
119	Ring Spinning Frames for warp	44,472
69	" " " " weft	28,444
188		72,916

of which the following are suitable for combed yarn:-

55	frames for warp	20252	spindles
11	" " weft	4620	"
		24872	"
122	remainder for carded yarn	48044	

Declassified E.O. 12356 Section 3.3/NND No. 785015

2	"	"	Alsacienne	1908
1	"	"	"	1898
1	"	"	Platt Bros.	1897
16				

h) Spinning

(i) Breakdown of frames by types
(ii) Breakdown of frames by make and size

(iii) Daily Production

Summary

		Spindles
119	Ring Spinning Frames for Warp	44,472
69	" " " " Weft	28,444
188		72,916

of which the following are suitable for combed yarn:-

55	frames for warp	20252	spindles
11	" " weft	4620	"
		24872	"
122	remainder for carded yarn	48044	
188			72916

i) Winding & Doubling

At present there are only 3 doubling frames, used chiefly for foldingyarns for selvedges, but some are being removed from the wrecked factory at Naples to Nocera for overhaul and repair. Installation has, however, been delayed by lack of space, aggravated by the damage done by Vesuvius. When this has been completed, the doubling capacity of approximately 36 frames will be able, if need be, to deal with the production of yarn (2350 Kg. per day - See 1 above) which is surplus to the consumption capacity of the Angri weaving mill. It should be noted, however, that these frames are not suitable for specialised work such as the fold-

Declassified E.O. 12356 Section 3.3/NND No. 785016

ing of sewing thread or twine. The plant installed consists of:-

3	Doubling frames	Brooks pow 1906
3	Twin Thread Cheesers	Schlafhorst &Cie Zolliker
20	Tubular Cord Twisters	Various
2	Weft rewinder	Lenon

M.C.M. IV WEAVING - AMONI

1. The weaving shed contains 1615 automatic weft changing looms and 96 dobby looms, under one roof. The shed is partitioned into three for conservation of heat and humidity. In addition there is all the appropriate warp preparation machinery, in addition to a tool shop where overhauls and repairs and manufacture of minor spares can be carried out.

2. Within recent months a maximum of approximately 1040 looms have been running a single shift of 8 hours; further production cannot be attained until increased quantities of yarn are produced by the spinning mill at Nocera, which in turn is limited by the amount of cotton available.

3. MACHINERY.

Weft. being spun straight on to weft tubes, goes, after being conditioned, straight to the looms.

Warp passes through the following machinery;

		Maker & Year
a)	Winding	
	10 Frames x 200 spindles	Ruti - -
b)	Beam warping (English system)	
	18 V creels x 600 bobbins	" 1906
	18 warping mills	-
c)	Warp Sizing & Beaming	
	3 machines	" 1907/20/25
d)	Knotting	
	2 Automatic warp knotters	Barber & Coleman -
	1 Model 5 E	-
	1 Model 4 E	-

Declassified E.O. 12356 Section 3.3/NND No. 785015

Further production cannot be extended until increased quantities of yarn are produced by the spinning mill at Nocera, which in turn is limited by the amount of cotton available.

3. MACHINERY.

Weft. being spun straight on to weft tubes, goes, after being conditioned, straight to the loom.

Warp passes through the following machinery:

	Maker & Year
a) Winding	
10 frames x 200 spindles	Ruti - -
b) Beam Warping (English system)	
15 v creels x 600 bobbins	" 1906
18 warping mills	-
c) Warp Sizing & Beaming	
3 machines	" 1907/20/25
d) Knotting	
2 Automatic warp knotters	Barber & Coleman -
1 Model 5 E	-
1 Model 4 E	-

e) Production per single shift of (a - d) above:-

(a) Winding	4450 Kg.	
(b) Warping	4450 Kg.	
(c) Sizing	2240 Kg.	(2 shifts necessary)
(d) Knotting	2880 Kg.	(" " ")

f) Weaving

	Reed Space	Picks per min.	Maker & Date	
27 looms	85 cm.	159	Bohemia	Date & Unknown
1 "	95 cm.	159	Maker	"
2 "	100 cm.	159	"	"
888 "	105 cm.	159	"	"
69 "	112 cm.	159	"	"
1 "	115 cm.	159	"	"
45 "	125 cm.	152	"	"
26 "	135 cm.	148	"	"

Declassified E.O. 12356 Section 3.3/NND No. 785015

(f) cont'd.

1059 automatic weft changing looms

Weaving	Reed Space	Picks per min.	Maker & Date
454 looms	106 cm	160	Ruti
102 "	110 cm	164	" 1926
556 automatic weft changing looms			
1615			
4	117		G.Giani 1941
24	127		" 1942
2	206		" 1942
30			M. Somberger 1943
6	135		
36 dobby looms			
1651 total looms			

g) Measuring & Inspecting

17 power driven measuring tables Zell-Baden 1923/24

A typical weaving plan has been prepared, using the yarn production given, and working a double shift of 15 effective hrs. No account has, however, been taken of the dobby looms which were installed especially for the weaving of rayon. As however, there is no availability of rayon yarn, except by imports, this potential has been ignored. For information the following details of the rayon preparatory plant is given below,-

h) Rayon

6 bottle winders	Fontana-Legnano		1941
3 Section Warping Mills	"	"	"
5 Weft Winders	"	"	"
1 Warp Sizer	"	"	"

4. On completion of the cycle described above, the grey cloth is sent by road to the finishing plant at FRATTE DI SALERNO for bleaching, printing or dyeing.

M.C.M. V. BLEACHING, DYEING, PRINTING - FRATTE DI SALERNO.

1. The factory at FRATTE DI SALERNO received the grey pieces from the weaving mill at ANGRI, and after

Declassified E.O. 12356 Section 3.3/NND No. 785015

17 power driven measuring tables Zell-Baden
1923/24

A typical weaving plan has been prepared, using the yarn production given, and working a double shift of 15 effective hrs. No account has, however, been taken of the dobby looms which were installed especially for the weaving of rayon. As however, there is no availability of rayon yarn, except by imports, this potential has been ignored. For information the following details of the rayon preparatory plant is given below:-

h) Rayon

6 bottle winders	Fontana-Legnano	1931
3 Section Warping Mills	"	"	"
5 Weft Winders	"	"	"
1 Warp Sizer	"	"	"

4. On completion of the cycle described above, the grey cloth is sent by road to the finishing plant at FRATTE DI SALERNO for bleaching, printing or dyeing.

M.C.M. V. BLEACHING, DYEING, PRINTING - FRATTE DI SALERNO.

1. The factory at FRATTE DI SALERNO received the grey pieces from the weaving mill at ANGRI, and after half bleaching, with or without subsequent full bleaching, dyeing or printing, acts as warehouse and dispersal centre for the finished goods.

2. The plant is comprehensive and almost undamaged, and is capable of dealing easily with the whole output from the looms at ANGRI.

3. It may be noted that, although not adapted for garment dyeing, a portion of the plant has been reorganised, at the instigation of HQ ACC, for the dyeing of unserviceable army uniforms for subsequent issue to Italian civilians, as a temporary expedient to relieve the acute clothing shortage, especially amongst heavy workers. An initial contract for 10,000 garments has been placed, and will be followed by others, dependent upon the results of the first.

Declassified E.O. 12356 Section 3.3/NND No. 785015

4. MACHINERY

As the plant is very extensive and is of a nature such as to require few if any replacements or spares, (other than commodities used in processing), only an outline of the more important machines are given in this summary.

a) Bleaching

6	Shearing and trimming machines	Monforts
1	Singeing Machine	Mather & Platt 1922
1	" "	Dehaitre "
12	Washing "	Mather & Platt "
3	Horizontal Bleachers	" " "
3	Vertical "	" " "
1	Calender	Gonschovitz "
2	Horiztonal Drying Machines	Mather & Platt "
1	Vertical " "	James Scott "

Vats, Sizing & rolling machinery and hydro-extractors.

b) Finishing

1	Wringer	Gonschovitz
3	Tenters	Edmeston-Golderf
3	Calenders	James Scott-Manchester
1	Size Breaker	Weisbach - Chemnitz
3	Whipping Machines	Wenner - Manchester
1	Trimming Machine and	Cresal-Busto Arsizio
1	Pin Tenter	

Various rolling machines and hydraulic presses.

c) 14	Jiggers	Comerio - Busto Arsizio
26	"	Beninger
2	Calenders	Comerio - Fontadera
1	Hydro-extractor	
3	Drying Machines (for cloth)	

Various Vats and winding, folding and tentering machinery.

d) Printing

1	Mercerising Machine	Zittauer
2	Shearing "	Poveri & Marcali

Declassified E.O. 12356 Section 3.3/NND No. 785015

Hydro-extractors.

b) Finishing

1 Wringer	Conschovitz
3 Tenters	Edmeston-Soldorf
3 Calenders	James Scott-Manchester
1 Size Breaker	Weisbach - Chemnitz
3 Whipping Machines	Wenner - Manchester
1 Trimming Machine and	Cressi-Busto Arsizio
1 Pin Tenter	

Various rolling machines and hydraulic presses.

c) 14 Jiggers — Comerio - Busto Arsizio
26 " — Benninger
2 Calenders — Comerio - Pontedera
1 Hydro-extractor
3 Drying Machines (for cloth)
Various Vats and winding, folding and tentering machinery.

d) Printing

1 Mercerising Machine	Zittauer
2 Shearing "	Boveri & Marcelli
4 Brushing "	Meltrone
2 Winding "	-
2 Tentering "	Zittauer-Mather &Platt
4 Etching "	Mather & Platt
9 Printing "	" " 1922
1 " "	Godet "
1 " "	Andre Kechting "
1 Drifting Machine	Secnoscluto
9 Engraving "	Schultz & Succoman and Soc.Alsacienne

1923/4/5

and various ancillary machines and equipment. Also complete dye mixing plant and machinery for finishing and conditioning printed fabrics.

Declassified E.O. 12356 Section 3.3/NND No. 785015

(e) Warehouse and Stock Disposal

At present approximately 8,000,000 metres of cotton fabrics of various kinds, chiefly in the grey, are in stocks, and are being gradually added to by present production. Some withdrawals have been made by Allied Forces for military purposes, but the bulk is frozen and earmarked for inclusion in a rationing scheme, now under active consideration by this HQ and the Italian Government.

M.C.M. VI. LABOUR

Labour is adequate and skilled, and live adjacent to the various factories so that transportation is not a problem. When fully occupied the employment provided is approximately as follows:

NOCERA--- 600 workers
ANGRI --- 900 "
FRATTE DI SALERNO-- 500 "
FRATTA-MAGGIORE -- 250 " (not yet in operation)

M.C.M. VII. POWER AND FUEL

1. At maximum rate of production the monthly requirements of power an fuel will be as follows:

	ANGRI	NOCERA	FRATTE DI SALERNO	FRATTAMAGGIORE	TOTAL
Coal (tons)	110	25	400	20	555
Nafta "	-	-	180	0-	180
Electricity (KWH)	270,000	330,000	225,000	80,000	905,000

2. At Fratte di Salerno steam is raised for both power and processing by two vertical tube boilers, one for burning coal and one nafta. It has been found that the coal-fed boiler cannot consume Sardinian coal on account of the difficulty of raising the necessary pressure, and also because the high sulphur content causes rapid deprec-

Declassified E.O. 12356 Section 3.3/NND No. 785015

FRATTE
DI SALERNO-- 500 "
FRATTA-
MAGGIORE -- 250 " (not yet in operation)

M.C.M. VII. POWER AND FUEL

1. At maximum rate of production the monthly requirements of power an fuel will be as follows,

	AVORI	NOCERA	FRATTE DI SALERNO	FRATTAMAGGIORE	TOTAL
Coal (tons)	110	25	400	20	555
Nafta "	-	-	180	0-	180
Electricity (KWH)	270,000	330,000	225,000	80,000	905,000

2. At Fratte di Salerno steam is raised for both power and processing by two vertical tube boilers, one for burning coal and one nafta. It has been found that the coal-fed boiler cannot consume Sardinian coal on account of the difficulty of raising the necessary pressure, and also because the high sulphur content causes rapid deprecciation in the automatic stoker. In all other cases it is considered that Sardinian coal can be made to serve.

M.C.M. VIII FRATTAMAGGIORE

1. Of the three heavily damaged factories, that at FRATTAMAGGIORE alone presents some prospects of early reactivation. This is a weaving plant of approximately 560 dobby looms, the majority of which have escaped serious damage, and M.C.M. are engaged in repairing and overhauling these with the intention ultimately of putting between 300 and 400 into commission. A number are already in running order, but it will be some months before the remainder are working; one of the chief difficulties being lack of transmission belting, which has been universally looted.

Declassified E.O. 12356 Section 3.3/NND No. 785015

2. In full production the plant will consume about 1500 Kg. of yarn daily, which can be supplied from the surplus produced at Nocera.

3. Preparatory machinery, winding, warping, and sizing, has been almost completely destroyed. It will therefore be necessary to deliver warps ready beamed from Angri.

4. All the looms are very old, and comprise a large number of different makes, many of them have already been cannibalised, and this process will need to be continued to produce the estimated 300 or 400 which will eventually operate. For this reason no specific details can be given at this stage.

5. Part of the premises has been requisitioned by Allied Forces, but this HQ has taken action to ensure that this occupation does not interfere with the medified rehabilitation being carried out.

6. Power and power lines are available, the source of supply being public utility.

M.C.M. IX FIELDMENTS AND MAINES (Confidential)

1. The first named factory has been almost entirely destroyed, but a survey will shortly be made to see if any reactivation or recovery of machinery is possible. The second is very seriously damaged structurally, and vital equipment wrecked, for example the battery of eight boilers have all been methodically mined. In addition the premises are largely occupied by P.O.W.E., and efforts by this HQ to limit their expension have been denied on the grounds of military necessity.

2. A considerable amount of the spinning frames and looms are, however, capable of operation after extensive overhaul and repair or cannibalisation, and this is proceeding.

M.C.M. X CONCLUSION

1. The group of three mills covered by this survey form a completely balanced unit and can make an important contribution to the rehabilitation of the economic life of South Italy, not only by providing employment, but by reducing the need for importation of semi-manufactured goods. In order to make this effective, however, considerable

Declassified E.O. 12356 Section 3.3/NND No. 785015

1. The first named factory has been almost entirely destroyed, but a survey will shortly be made to see if any reactivation or recovery of machinery is possible. The second is very seriously damaged structurally, and vital equipment wrecked, for example the battery of eight boilers have all been methodically mined. In addition the premises are largely occupied by R.E.M.E., and efforts by this HQ to limit their expension have been denied on the grounds of military necessity.

2. A considerable amount of the spinning frames and looms are, however, capable of operation after extensive overhaul and repair or canaibelisation, and this is proceeding.

M.C.M. X CONCLUSION

1. The group of three mills covered by this survey form a completely balanced unit and can make an important contribution to the rehabilitation of the economic life of South Italy, not only by providing employment, but by reducing the need for importation of semi-manufactured goods. In order to make this effective, however, considerable quantities of raw materials and other supplies will be required, and these have been the subject of appropriate requisitions, which were submitted under dates July 29 and July 30 1944.

2. The directorate has been purged of unreliable and fascist elements, and under the supervision of this HQ is now managed by nominees of the shareholders approved by A.C.C.

3. No account has been taken in this survey of the financial position of the M.C.M., but it will be appreciated that the

Declassified E.O. 12356 Section 3.3/NND No. 785015

enormous damage suffered by part of the group must inevitably involve substantial adjustments to its future capital structure.

For Lieutenant General MASON MACFARLANE:

D.S. ADAMS
Colonel, CE
Executive officer,
Economic section.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0194

Declassified E.O. 12356 Section 3.3/NND No. 785015

0195

Declassified E.O. 12356 Section 3.3/NND No. 785015

FILATURA DI NOCERA

RING SPINNING PLANT

Type and number of Machines	No. of Spindles	Diameter of rings	Diameter of rollers	Creel	D
Frames for combed warp					
55	20252	1 ½"	1"	Double	
Frames for carded warp					
10	3840	1 ½"	1"	Single	
" " "	34	12496	1 5/8"	1"	"
" " "	14	5484	"	7/8"	"
" " "	6	2400	"	13/16"	"
Frames for combed weft					
11	4620	1-1/4"	1-1/16"	Double	
Frames for carded weft					
8	3360	1-1/4"	1-1/16"	Single	
42	17072	1-1/4"	1"	"	
8	3392	1-1/8"	1"	"	
188	72916				

All spinning frames have 3 rollers with the exception of 3 which have 4.

0196

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

ERA — RING SPINNING PLANT — APPENDIX "A" to Appendix D

No. of Spindles	Diameter of rings	Diameter of rollers	Creel	Length of tubes	TOTALS	
20252	1 ½"	1"	Double	180 m/m	20252	20252
3840	1 ½"	1"	Single	" "	3840	
12496	1 5/8"	1"	"	" "	12496	
5484	"	7/8"	"	" "	5484	24220
2400	"	13/16"	"	" "	2400	
						44472
4620	1-1/4"	1-1/16"	Double	165 m/m	4620	4620
3360	1-1/4"	1-1/16"	Single	" "	3360	
17072	1-1/4"	1"	"	" "	17072	23824
3392	1-1/8"	1"	"	" "	3392	
72916						28444
						72916

rollers with the exception of 3 which have 4.

0197

Declassified E.O. 12356 Section 3.3/NND No. 785015

FILATURA DI NOCERA — Ring Spinning - Daily Production

Quality	Yarn Counts	Product required	Counts Roving	Counts Drawing	Tourns per Inch	Spindle revs. per min.	Product in Hanks 8 hrs.	Product in 15 hrs.	Produc in gramm per s do ho
Warp	16	1450	1.80	8.9	16.5	7000	5.05	11.3	22
Weft	16	1450	"	"	14.-	6500	6.65	12.5	22
Warp	24	1200	3.-	8.-	22.-	8500	5.65	10.6	12
Medium	24	700	"	"	21.-	"	5.9	11.1	13
Weft	26	1000	"	"	19.2	8200	6.1	11.4	13
Warp	32	1400	3.80	8.4	25.5	9000	5.25	9.85	8
Medium	32	700	"	"	24.-	"	5.75	10.8	9
Weft	32	1400	"	"	21.5	8500	5.9	11.1	10
Medium	40	800	"	10.6	29.-	8000	4.1	7.8	5
warp	38	250	10.2	7.6	25.-	9000	5.48	10.3	7
Warp	50	150	"	10.-	31.-	8900	4.2	7.9	4
Weft	50	200	"	10.-	27.-	8000	4.55	8.55	4
Weft	60	150	"	12.-	31.-	"	3.97	7.45	3
Medium	60	90	"	12.-	34.-	"	3.65	6.9	3
Medium	80	60	14.2	11.4	44.-	7500	2.66	5.-	1
		11000							St

Average Spindles per frame, warp 383
" " " " weft 412

SUMMARY:

Warp 16S carded 1450)
24S " 1200
32S " 1400 (4450 Kg.
38S combed 250
50S " 150

Weft 16S carded 1450)
24S " 1000
32S " 1400 } 4200 Kg.
50S combed 300
60S " 150

Medium 24S
32S
40S
50S

(c) Surplus to yarn consumption capacity of the Angri weav

0198

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

Ring Spinning - Daily Production

APPENDIX "B"
to Appendix 'D'

s Counts g Drawing	Tourns per Inch	Spindle revs. per min.	Product in Hanks 8 hrs.	Product in 15 hrs.	Product in grammes per spindle hour	Product per frame 15 hrs.	No. of frames	Total Production
5.9	16.5	7000	5.05	11.3	22	114	13	1482
"	14.-	6500	6.55	12.5	22.4	139	11	1529
8.-	22.-	8500	5.65	10.6	12.7	85	14	1190
"	21.-	"	5.9	11.1	13.3	89	8	712
"	19.2	8200	6.1	11.4	13.2	82	12	984
8.4	25.5	9000	5.25	9.85	8.9	49.5	29	1435
"	24.-	"	5.75	10.8	9.7	54.5	13	715
"	21.5	8500	5.9	11.1	10	62	23	1426
10.6	29.-	8000	4.1	7.8	5.6	31.5	26	832
7.6	25.-	9000	5.48	10.3	7.79	43.5	6	264
10.-	31.-	8500	4.2	7.9	4.52	25.4	6	156
10.-	27.-	8000	4.55	8.55	4.9	30.2	7	217
12.-	31.-	"	3.97	7.45	3.55	22	7	154
12.-	34.-	"	3.65	6.9	3.27	18.5	5	90
11.4	44.-	7500	2.66	5.-	1.8	10.1	6	60
							186	11246
						Standing for overhaul	2	
							188	

70 (5)

, warp 383
weft 412

Weft	16S carded	1450	Medium	24S carded	700		TOTAL 11000Kg.
	26S "	1000		32S "	700		
	32S "	1400	4200 Kg.	40S "	800	2350 Kg.	(10100 Kg. carded
	50S combed	300		60S combed	90	(c)	900 " combed
	60S "	150		80S "	60		

n consumption capacity of the Angri weaving mill.

0199

Declassified E.O. 12356 Section 3.3/NND No. 735015

MANIFATTURE COTONIERE MERIDIONALI - Filatura di Nocera Inferiore

Sets of Machines - Preparation - Roving

No. of Set	Type of Machines				Diameter of Rollers							
	Slubber	Inter-mediate	Final	"Jack" (extra) fine	Slubber				Intermediate			
					1°	2°	3°	4°	1°	2°	3°	4°
1	1	2	4	-	1 1/4	1 1/8	1 1/4	-	1 1/4	1 1/8	1 1/4	-
2	1	2	4	-	"	"	"	-	"	"	"	-
3	1	2	4	-	1 1/8	1	1 1/8	-	1 1/8	1	1 1/8	-
4	1	2	4	-	"	"	"	-	"	"	"	-
5	1	2	4	2 6	1 1/8	1	1 1/8	-	30 □/□	25 □/□	30 □/□	-
6	1	2	4	2 6	1 1/8	1	1 1/8	-	30 □/□	25 □/□	30 □/□	-
7	1	2	-	-	1 1/8	1	1 1/8	-	"	"	"	-
8	1	2	-	-	"	"	"	-	"	"	"	-
9	1	1	-	-	"	"	"	-	1 1/8	7/8	1 1/8	-
		1	4						30 □/□	25 □/□	30 □/□	
10	1	2	4	-	"	"	"	-	"	"	"	-
11	1	2	4	-	30 □.	25 □.	30 □.	-	27 □.	21 □.	27 □.	-
12	1	2	4	-	"	"	"	-	1 1/8	7/8	1 1/8	-
13	1	2	4	-	1 1/8	1	1 1/8	-	"	"	"	-
14	1	2	4	-	"	"	"	-	"	"	"	-
15	1	2	4	-	"	"	"	-	"	"	"	-
16	1	2	4	-	"	"	"	-	"	"	"	-
17	1	2	4	-	"	"	"	-	"	"	"	-
18	1	2	4	-	"	"	"	-	"	"	"	-
19	1	2	-	-	1	7/8	1	1	1	7/8	1	-
20	1	2	-	-	"	"	"	"	"	"	"	-
Total	20	40	64	16								

0200

Declassified E.O. 12356 Section 3.3/NND No. 785015

APPENDIX "C"
to Appendix D

Rollers									No. of Spindles				
diate			Final				Extra fine						
	3°	4°	1°	2°	3°	4°	1°	2°	3°	4°	Slub	Intermediate	Final	Extra fine	
/8	1 1/4	–	1 1/4	1 1/8	1 1/4	–	–	–	–	–	90	140	170	–	For long staple
	"	"	1 3/16	1	1 3/16	–	–	–	–	–	90	140	144	–	from 32 to 46 □/□
	1 1/8	–	27 □	23 □	27 □	–	–	–	–	–	90	140	132	–	For medium staple
	"	–	" □	" □	" □	–	–	–	–	–	90	140	132	–	from 26 to 34 m/□
	30 □	–	27 □	23 □	27 □	–	32 □	28 □	32 □	–	74	102	132	from	For combings
	□						1 1/4	1	1 1/4					156 to 200	(4 stages)
	30 □	–	27 □	23 □	27 □	–	"	"	"	–	78	102	132	184/188	"
	"	–				–	"	"	"	–				200	
	"	–	–	–	–	–	–	–	–	–	72	102	–	–	For medium
	"	–	–	–	–	–	–	–	–	–	72	102	–	–	staple from 26
1	1/8	–	–	–	–	–	–	–	–	–	78	106	–	–	to 34 □/□
30	□		30 □.	25 □.	30 □.	–						102	132		" "
	□														
	"	–	"	"	"	–					72	106	132	–	" "
27	□.	–	29 □.	22 □.	29 □.	–					64	106	132	–	" "
1	1/8	–	1 1/8	7/8	1 1/8	–					64	106/124	148	–	" "
	"	–	"	"	"	–					72	124	148	–	" "
	"	–	"	"	"	–					72	124	148	–	" "
	"	–	"	"	"	–					74	124	148	–	" "
	"	–	"	"	"	–					74	124	148/172	–	" "
	"	–	"	"	"	–					88	100	172	–	" "
	"	–	"	"	"	–					90	140	172	–	" "
	1	–	–	–	–	–					90	140	–	–	For mixed
	"	–	–	–	–	–					90	140	–	–	

0201

Declassified E.O. 12356 Section 3.3/NND No. 785015

TYPICAL CLOTH PRODUCTION PLAN

Type				Wrp.Weft				Wrp.Weft	
Grey	A	cm. 68	counts	16/16	Threads per cm.			18/18	= le
"	B	" 92	"	24/26	"	"	"	25/25	=
"	C	" 92	"	32/32	"	"	"	28/29	=
"	D	" 83	"	38/50	"	"	"	36/38	=
"	F	" 83	"	50/60	"	"	"	34/40	=

The above plan will consume the following quantities of yarn daily (See Appx.B):-

Warp - 16S - 1450 Kg.
24S - 1200 "
32S - 1400 "
38S - 250 "
50S - 150 "

4450 "

Weft -

Average counts 25½ S.

Average counts

0202

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3 - TEXTILES

APPENDIX "I"
to Appendix 'D'

TYPICAL CLOTH PRODUCTION PLAN

Wrp.	Weft		Wrp.	Weft		Metres
s	16/16	Threads per cm.	18/18	= length		22300
	24/25	" " "	25/25	= "		18600
	32/32	" " "	28/29	= "		27300
	38/50	" " "	35/38	= "		5050
	50/60	" " "	34/40	= "		4160
						77410

per donble shift of 15 effective hours.

above plan will consume the following
uantities of yarn daily (See Appx.B):-

Weft	- 16S	-	1450	Kg.
	26S	-	1000	"
	32S	-	1400	"
	50S	-	200	"
	60S	-	150	"
			4200	"

- 1450 Kg.
- 1200 "
- 1400 "
- 250 "
- 150 "

4450 "

25½ S.

Average counts 27 S.

7c (a)

APPENDIX "E"
to Appendix 'D'

Ring frames

No.	Make and Year		No. of Spindles	Gauges Sistema (Section?)	Between Spindles	Diameter of the front 1st roller	Lift
5	Tweedales	1906	424	22"	2.1/4	1"	6"
3	"	"	424	"	"	7/8	6"
11	"	1907	424	"	"	1	6"
2	"	"	424	"	"	7/8	6
2	Platt	1909	384	18.3/4	2.3/8	7/8	6
2	"	"	384	"	"	1	6
4	"	1908	384	"	"	1	6
12	"	1907	384	"	"	"	6
4	"	1906	384	"	"	"	6
2	"	1905	384	"	"	"	6
3	Alsacienne	1910	416	455 m	56 m	25 m	160 m/m
2	Brooke dow	1908	420	18	2.1/4	1	6
2	Samuel Bros	"	352	20.7/8	2.5/8	1	7
11	Brooke Dow	"	352	"	"	"	7
8	Samuel Bros	"	360	"	"	"	7
4	Brooke Dow	"	360	"	"	"	7
3	Marzoli	1940	420	20	2.1/2	1	7 with 4 rollers
4	Dobson	-	396	20.7/8	2.5/8	1	7
5	Platt Bros	1900	420	18	2.1/4	1.1/16	6
4	" "	1902	420	"	"	"	6
1	" "	1903	420	"	"	"	6
8	" "	1904	420	"	"	"	6
3	" "	1904	420	"	"	1	6
1	" "	1905	420	"	"	"	6
3	" "	1906	420	"	"	"	6
2	" "	1909	420	"	"	1.1/16	6
4	" "	-	344	21.7/8	2.3/4	1	7
4	" "	-	360	20.7/8	2.5/8	"	7
6	" "	-	400	15.3/4	2.5/8	13/16	7

0 2 0 3
Declassified E.O. 12356 Section 3.3/NND No. 785015

12	"	1907	384	"	"	"	6
4	"	1906	384	"	"	"	6
2	"	1905	384	"	"	"	6
3	Alsacienne	1910	416	455 m	56 m	25 m	160 m/m
2	Brooks Dow	1908	420	18	2.1/4	1	6
2	Samuel Bros	"	352	20.7/8	2.5/8	1	7
11	Brooks Dow	"	352	"	"	"	7
8	Samuel Bros	"	360	"	"	"	7
4	Brooks Dow	"	360	"	"	"	7
3	Merroli	1940	420	20	2.1/2	1	7 with 4 rollers
4	Dobson	-	356	20.7/8	2.5/8	1	7
5	Platt Bros	1900	420	18	2.1/4	1.1/16	6
4	" "	1902	420	"	"	"	6
1	" "	1903	420	"	"	"	6
8	" "	1904	420	"	"	"	6
3	" "	1904	420	"	"	1	6
1	" "	1905	420	"	"	"	6
3	" "	1908	420	"	"	"	6
2	" "	1909	420	"	"	1.1/16	6
4	" "	-	344	21.7/8	2.3/4	1	7
4	" "	-	360	20.7/8	2.5/8	"	7
6	" "	-	400	15.3/4	2.5/8	13/16	7
2	" "	-	400	"	"	1	7
11	" "	-	400	20.7/8	"	"	7
2	" "	-	400	15.3/4	"	7/8	7
2	" "	-	400	"	"	1	7
5	" "	-	380	16.3/8	2.3.3/4	7/8	7
1	" "	1898	344	21.7/8	2.3/4	1	7
2	" "	1905	344	"	"	1	7
17	" "	1912	344	"	"	"	7
4	" "	1913	344	"	"	"	7
1	" "	1904	360	20.3/8	2.5/8	"	7
1	" "	1909	360	"	"	"	7
2	" "	1903	400	"	"	"	7
9	" "	1904	400	"	"	"	7
1	" "	1904	400	"	"	"	7
3	" "	1912	400	15.3/4	2.5/8	7/8	7

188 Rings

70 (e)

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3.

T E X T I L E S

APPENDIX "F"
to APPENDIX D

G L O S S A R Y

English	Italian
Bale Breakers	Rompiballe
Beam Warper	Orditoi
Breaker	Rompiappretto
Brushing Machine	Spazzolatrici
Crichton Opener	Sgrossatore
Deliveries	Teste
Drawing Machine	Stiratoi
Drifting Machine	Macchina Mandrinare
Drying Machine	Asciugatoio
Flat Cards	Carde a capelli
Hopper feed	Caricatoi Automatici
Jack Frames	Finissimi
Lift	Alzata
Lug Straps	Cacciatacchetti
Opener	Apritoio
Pickers	Tacchetti
Pin Tenter	Rameus a punte
Rewinder	Ribobinatrici
Roving Frames	Infini
Scutcher	Battitoio
Section	Sistema
Shearing Machines	Cimatrici
Singeing Machine	Bruciapelo
Slubber	Ingrosso
Staple Fibre	Fiocco
Tentering Machine	Alzatrice
Trimming Machine	Macchina taglia splitz
Twisting or Doubling	Ritorcitura

Declassified E.O. 12356 Section 3.3/NND No. 785015

Drawing Machine	Stiratoi
Drifting Machine	Macchina Mandrinare
Drying Machine	Asciugatoio
Flat Cards	Carde a capelli
Hopper feed	Caricatoi Automatici
Jack Frames	Finissimi
Lift	Alzata
Lug Straps	Cacciatacchetti
Opener	Apritoio
Pickers	Tacchetti
Pin Tenter	Rameus a pinne
Rewinder	Ribobinatrici
Roving Frames	Infini
Scutcher	Battitoio
Section	Sistema
Shearing Machines	Cimatrici
Singeing Machine	Bruciapelo
Slubber	Ingrosso
Staple Fibre	Fiocco
Tentering Machine	Alzatrice
Trimming Machine	Macchina taglia splitz
Twisting or Doubling	Ritorcitura
Twin Thread Cheeser	Binatrice
Tubular Cord Twister	Trecciatrice
Warp Sizing Machine	Imbozzimatrice
Warp Winding or Cheesing	Incannatoi
Washing Machine	Clapot
Weft Winder	Bobinatrice
Whipping Machine	Rompiapprette
Wringer	Sbagnatrice

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3

TEXTILES

APPENDIX 'E'

MANIFATTURE COTONIERE MERIDIONALI

REQUISITION FOR RAW MATERIALS AND MATERIALS USED IN MANUFACTURING PROCESSES

ACC - QM - 8 - 45 29 July 1944

1.		COTTON for carded yarns, American, Universal Standard, Strict Middling (or Middling), 1-1/32 in., standard colors, in 480-lb. bales. OR COTTON, for carded yarns, Egyptian, Uppers, any of following types: 36,136,211, Lesar, 26 Senna, Zog I, Daddy, or equal, in 720-lb. bales.	Lb.	7.488.000
None				
2.		COTTON, for combed yarns, Egyptian, Uppers, of any good type and staple, in 720-lb. bales.	Lb.	388.800
None				
3.		COTTON, for combed yarns, Egyptian		

Declassified E.O. 12356 Section 3.3/NND No. 785015

	Strict Middling (or Middling), 1-1/32 in., standard colors, in 480-lb. bales.			
	OR			
None	COTTON, for carded yarns, Egyptian, Uppers, any of following types: 36,136,211, Lesar, 26 Senna, Zog I, Daddy, or equal, in 720-lb. bales.	Lb.	7.488.000	
None	2. COTTON, for combed yarns, Egyptian, Uppers, of any good type and staple, in 720-lb. bales.	Lb.	388.800	
None	3. COTTON, for combed yarns, Egyptian, Saskellarides of good type and staple, any of following types: Giza 7, Maerad or similar, in 720-lb. bales.	Lb.	570.240	
	4. DYE.ANILINE, for cotton:			
	Color			
None	Black, direct.	Lb.	5.000	
None	Black, reduced.	Lb.	2.000	
None	Black, diazo, BH.	Lb.	2.000	
None	Blue, direct.	Lb.	6.000	
None	Blue, dark, direct.	Lb.	1.200	

Declassified E.O. 12356 Section 3.3/NND No. 785015

None	Brown, direct, B.	Lb.	4.000
None	Yellow,direct,B.	Lb.	2.000
None	Red, direct, 5B	Lb.	800
None	Green,dark,direct	Lb.	1.000

5. DYE,ANILINE, paste,for printing: Color

None	Black,direct	Lb.	4.000
None	Blue,direct	Lb.	6.000
None	Yellow. direct	Lb.	6.000
None	Red,direct	Lb.	4.000
None	Green, direct	Lb.	4.000

6. BASE,DYE for making scarlet

None	T dye	Lb.	2.400
None	7. ANILINE SALT	Lb.	6.000
None	8. ANILINE OIL	Lb.	1.000

9. GUM,ARABIC

None	SS 42-2-24,lump form, ENG SPEC 51-5340.3	Lb.	2.200

10. GLYCERINE, technicel,FS O-G-491 Grede A,ENG SPEC

None	51-5284.5,86°/28°Bè.	Lb.	15.400

11. SODIUM SULPHURET,

None	62 per cent.	Lb.	22.000
None	12. SODIUM BICHROMATE	Lb.	22.000

Declassified E.O. 12356 Section 3.3/NND No. 785015

	c. DIS,DIS for making scarlet			
None	T dye	Lb.	2.400	
None	7. ANILINE SALT	Lb.	6.000	
None	8. ANILINE OIL	Lb.	1.000	
	9. GUM,ARABIC ES 42-2-24,lump form,			
None	ENG SPEC 51-5340.3	Lb.	2.200	
	10. GLYCERINE, technical,FS O-G-491 Grede A,ENG SPEC			
None	51-5284.5,86°/28°Bè.	Lb.	15.400	
	11. SODIUM SULPHURET,			
None	62 per cent.	Lb.	22.000	
None	12. SODIUM BICHROMATE	Lb.	22.000	
	13. SODIUM SILICATE			
None	58/60 Bè,FS 4-10354	Lb.	11.000	
	14. SODIUM BISULPHITE			
None	60/62 Bè.	Lb.	6.600	
None	15. SODIUM CHLORATE	Lb.	4.400	
None	16. SODIUM PERBORATE	Lb.	2.200	
	17. POTASSIUM CARBONATE			
None	98 per cent.	Lb.	17.600	
None	18. POTASSIUM PRUSSIATE	Lb.	8.800	

Declassified E.O. 12356 Section 3.3/NND No. 785015

None	19. ACID,ACETIC, technical grade,90 per cent.	Lb.	44.000	ACC-QM-8-45
None	20. ACID,FORMIC, technical grade,90 per cent.	Lb.	44.000	
None	21. ACID,OXALIC, technical grade, FS O-A-91,crystal.	Lb.	500	
None	22. ACETATE OF CHROMIUM technical grade,grain	Lb.	8.800	
None	23. FERRIC CHLORIDE, (iron perchloride) technical grade,60 per cent, crystal.	Lb.	1.100	
None	24. MAGNESIUM SULPHATE technical grade.	Lb.	17.600	
None	25. STEARINE technical grade	Lb.	39.600	
52-R-898	26. ROSIN (Colophony) QS 3-45,Grad E,lump.	Lb.	2	
None	27. COCONUT OIL	Lb.	4.400	
None	28. SOAP fatty acid - 62 per cent.	Lb.	41.800	

L A S T I T E M

DELIVERY: Ship all items as soon as available to DUKO consigned to Industry Sub-Commission. Items 1 to 3, inclusive, are for monthly shipment during one year period

Declassified E.O. 12356 Section 3.3/NND No. 785016

		(iron peroxide) technical grade,60 per cent, crystal.	Lb.	1.100
None	24.	MAGNESIUM SULPHATE technical grade.	Lb.	17.600
None	25.	STEARINE technical grade	Lb.	39.600
52-R-898	26.	ROSIN (Colophony) QS 3-45,Grad E,lump.	Lb.	2
None	27.	COCONUT OIL	Lb.	4.400
None	28.	SOAP fatty acid - 62 per cent.	Lb.	41.800

L A S T I T E M

DELIVERY: Ship all items as soon as available to DUKO consigned to Industry Sub-Commission. Items 1 to 3, inclusive, are for monthly shipment during one year period in the following amounts:

Item 1-524.000 lbs. per mo.
Item 2- 32.400 lbs.per mo.
Item 3- 47.520 lbs. per mo.

JUSTIFICATION: 1. Reference following documents:

a. CAL Airgram 8, 29 March 1944

b. Requisition No.MGS-164-QM,LAC AIRGRAM, 17 May 1944.

Declassified E.O. 12356 Section 3.3/NND No. 785015

c. Report on production of Cotton Goods in Liberated Italy, dated 29 May 1944, reference ACC/5157/IC.

d. Requisition No. ACC-ENG-7-45, dated 30 July 1944.

2. Requirements for raw materials, replacement and spare parts for placing in operation three plant (located at Nocera, Angri and Fratte di Salerno) of the Manifatture Cotoniere Meridionali are covered by Requisition No. ACC-ENG-7-45, dated 30 July 44. Complete details of plants and survey of machinery are given in Report referred to in par. 1c. above.

3. This requisition covers requirements of cotton to be supplied for one year's operation of the three plants; also dyes and chemicals necessary for the same period.

4. The three plants at Nocera, Angri and Fratte di Salerno, comprise an independent and completely balanced unit capable of producing 25/30.000.000 metres of cotton febrics yearly, together with a surplus of cotton yarn which can be woven or converted elsewhere either into cloth or other cotton products as, for example, sewing thread, cord, twine, candlewicks and the like.

5. Present output is at the rate of 8/10.000.000 meters per annum (or 33 1/3% of potential) of which 20% is going to the Italian War Ministry and the remainder into grey fabrics suitable for inclusion in a proposed civilian rationing scheme.

6. The amount of cotton necessary to mantain a daily output of 11.000 Kg. (24.200 lbs.) of yarn and using machinery to the best advantage, is as follows:

American Cotton (for carded Yarn)
Daily consumption 24.970 lbs.
Yelding 89% or 22.220 lbs.yarn
Egyptian Cotton (for combed yarns)

Declassified E.O. 12356 Section 3.3/NND No. 785015

supplied for one year's operation of the three plants; also dyes and chemicals necessary for the same period.

4. The three plants at Nocera, Angri and Fratte di Salerno, comprise an independent and completely balanced unit capable of producing 25/30.000.000 metres of cotton fabrics yearly, together with a surplus of cotton yarn which can be woven or converted elsewhere either into cloth or other cotton products as, for example, sewing thread, cord, twine, candlewicks and the like.

5. Present output is at the rate of 8/10.000.000 meters per annum (or 33 1/3% of potential) of which 20% is going to the Italian War Ministry and the remainder into grey fabrics suitable for inclusion in a proposed civilian rationing scheme.

6. The amount of cotton necessary to maintain a daily output of 11.000 Kg. (24.200 lbs.) of yarn and using machinery to the best advantage, is as follows:

American Cotton (for carded Yarn)		
Daily consumption	24.970 lbs.	
Yelding 89% or		22.220 lbs.yarn
Egyptian Cotton (for combed yarns)		
a. Uppers of good type and staple		
Daily consumption	1.170 lbs.	
Yelding 65%		770 lbs.
b. Sakellarides of good type and staple		
Daily consumption	1.860 lbs.	
Yelding 65%		1.210 lbs.
Total daily consumption	28.000 lbs.	
Total daily production		24.200 lbs.

Assuming a month of 25 working days and an average bale weight of 485 pounds for American and 725 for Egyptian cotton, monthly requirements will be as follows:

Declassified E.O. 12356 Section 3.3/NND No. 785015

American	S.M. or M.	1.300 bales
Egyptian	Uppers	45 "
"	Sakel	66 "

7. At present the balance of the old stocks of cotton and staple fibre and the 1943 Mainland crop are being used, and 300 tons of Sicilian cotton which was frozen and allotted to Manifatture Cotoniere Meridionali. (The original amount of cotton frozen was 670 tons, but only 300 tons have been turned over to M.C.M. An investigation is underway to determine the disappearance of 370 tons.)

8. Dye requirements have been cut to leave only the more basic and economical colours. Chrome and Vat dyes have therefore been excluded. Stocks in hand will enable them to produce a limited range of colours for 4-5 months

9. Only those chemicals have been included which cannot be found in Italy. Others have been deleted in every case in which it was considered that vigorous search would find them without the need for importation, or where they were considered unessential or capable of substitution.

10. Labor is adequate and skilled. Employees live near t to the various factories so that transportation is not a problem. When fully occupied the employment provided is approximately as follows: Nocera - 600 workers, Angri - 900 workers, and Fratte di Salerno, 500.

11. Special studies have been made of the fuel and power requirements necessary to operate the plants. These studies have been submitted by Industry and Commerce Sub-Commission under date of 1 July 44, to Coal Division, Transportation Subcommission and to Public Works and Utilities Sub-Commission. Request has been made for allocation in due course for necessary fuel and power in order to maintain production schedules. Tentative approvals have already been given to these studies and it is reasonably assured that sufficient quantities of fuel and power will be made available to operate the

Declassified E.O. 12356 Section 3.3/NND No. 785015

9. Only those chemicals have been included which cannot be found in Italy. Others have been deleted in every case in which it was considered that vigorous search would find them without the need for importation, or where they were considered unessential or capable of substitution.

10. Labor is adequate and skilled. Employees live near t to the various factories so that transportation is not a problem. When fully occupied the employment provided is approximately as follows: Nocera - 600 workers, Angri - 900 workers, and Fratte di Salerno, 500.

11. Special studies have been made of the fuel and power requirements necessary to operate the plants. These studies have been submitted by Industry and Commerce Sub-Commission under date of 1 July 44, to Coal Division, Transportation Subcommission and to Public Works and Utilities Sub-Commission. Request has been made for allocation in due course for necessary fuel and power in order to maintain production schedules. Tentative approvals have already been given to these studies and it is reasonably assured that sufficient quantities of fuel and power will be made available to operate plants on full scale production.

12. Similar study was made of lubricants necessary for operation of machinery which has been presented to Petroleum Section ...I. It is expected, that sufficient quantities of lubricants will be made available when needed.

13. It is believed that this group of three plants can make an important contribution to the rehabilitation of the economic life of Southern Italy, not only by providing employment, but by reducing the need for importation of semi manufacturated goods

RATING: III

E N D O F R E Q U I S I T I O N

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 3

T E X T I L E S

APPENDIX "F"

MANIFATTURE COTONIERE MERIDIONALI

REQUISITION FOR SPARE PARTS AND MAINTENANCE MATERIALS .

ACC - Qm - 8 - 45 30 July 1944.

LEATHER ACCESSORIES

1. Belting, leather, flat, oak tanned, for driving spinning, weaving, and finishing machinery in textile mill, single ply:

	Width			
None	1-	in.	Ft.	1.050
None	1-3/16	in.	Ft.	1,500
None	1-1/2	in.	Ft.	1,200
None	1-3/4	in.	Ft.	6,000
None	2-	in.	Ft.	1.500
None	2-3/8	in.	Ft.	1,500
None	2-3/4	in.	Ft.	600
None	3-	in.	Ft.	900
None	3-1/4	in.	Ft.	300
None	3-1/2	in.	Ft.	600
None	4-	in.	Ft.	150
None	5-	in.	Ft.	150
None	6-	in.	Ft.	150

Declassified E.O. 12356 Section 3.3/NND No. 785015

ving spinning, weaving, and finishing machinery in textile mill, single ply:

	Width			
None	1-	in.	Ft.	1,050
None	1-3/16	in.	Ft.	1,500
None	1-1/2	in.	Ft.	1,200
None	1-3/4	in.	Ft.	6,000
None	2-	in.	Ft.	1,500
None	2-3/8	in.	Ft.	1,500
None	2-3/4	in.	Ft.	600
None	3-	in.	Ft.	900
None	3-1/4	in.	Ft.	300
None	3-1/2	in.	Ft.	600
None	4-	in.	Ft.	150
None	5-	in.	Ft.	150
None	6-	in.	Ft.	150

2. Picker, loom.
for Northrop type looms, dimensions - 2 x 1 - 1/2 x 1-1/3 x 1 in. (51x39x34x 26 mm), hole size for picker sticks - 0.7 x 0.55

None	in. (18 x 14 mm).	Ea	600

3. Lug strap, leather:
dimension

Length - 5 ft. (1,500 mm)
Width - 1/4 in. (6 mm)

Declassified E.O. 12356 Section 3.3/NND No. 785015

	3. (continued)			
	Thickness - 1/4 in. (32 mm)			
	Weight - 1/2 lb. (230 gms)	En	2,500	
	4. Lacing, belt,			
	rawhide, FS KK-L-201:			
	Width / lenght			
34-5264.03-6	1/4 in. / 60 in.	Lb	500	
34-5264.03-72	3/8 in. / 72 in.	Lb.	500	
	SPINDING ACCESSORIES			
	5. Cloth, woolen.			
	plain, white, for cov-			
	ering spinning rollers:			
	Width / Wt.per Yd.			
None	1 yd. / 14 oz.	Yd.	350	
None	1 yd. / 16 oz.	Yd.	50	
	6. Cloth, woolen.			
	green, tubular, for			
	spinning rollers:			
	Diam.			
None	1.063 in. (27 mm)	Lb.	660	
None	1.5 (38 mm)	Lb.	220	
	7. Velvet.			
	Green, 1 Yd. width,			
	for spinning rollers.	Yd.	250	
	8. Varnish.			
None	for spinning rollers.	Lb.	110	
	9. Travellers,			
	for ring spindles, in			

Declassified E.O. 12356 Section 3.3/NND No. 785015

		Width	Wt.per Yd.	
None		1 yd.	14 oz.	Yd. 350
None		1 yd.	16 oz.	Yd. 50
	6.	Cloth, woolen. green, tubular, for spinning rollers:		
		Diam.		
None		1.063 in. (27 mm)		Lb. 660
None		1.5 (38 mm)		Lb. 220
	7.	Velvet. green, 1 Yd. width, for spinning rollers.		Yd. 250
	8.	Varnish.		
None		for spinning rollers.		Lb. 110
	9.	Travellers, for ring spindles, in boxes of 10,000 pieces each.		
		No.		
None		1		Bx. 10
None		2		Bx 10
None		3		Bx 20
None		4		Bx 10
None		5		Bx 10
None		6		Bx 20
None		7		Bx 10

0220

Declassified E.O. 12356 Section 3.3/NND No. 735015

9. (continued)

No.			
8		Bx	10
None 9		Bx	10
None 10		Bx	10
None 11		Bx	10
None 12		Bx	10
None 20		Bx	10
None 30		Bx	10
None 40		Bx	10
None 1/0		Bx	10
None 2/0		Bx	10
None 3/0		Bx	10
None 4/0		Bx	10
None 5/0		Bx	10
None 6/0		Bx	10
None 7/0		Bx	10
None 8/0		Bx	10
None 9/0			
None			

10. Travellers. for doubling rings, in boxes of 5,000 pieces each

No.		
15	Bx	4
None 18	Bx	4
None 19	Bx	6
None 20	Bx	6
None 21	Bx	6
None 23	Bx	6
None 24	Bx	6
None		

11. Card can, fiber, vulcanized, height-

Declassified E.O. 12356 Section 3.3/NND No. 785015

None		3/0	Bx	10
None		4/0	Bx	10
None		5/0	Bx	10
None		6/0	Bx	10
None		7/0	Bx	10
None		8/0	Bx	10
None		9/0	Bx	10
	10.	Travellers, for doubling rings, in boxes of 5.000 pieces each No.		
None		15	Bx	4
None		18	Bx	4
None		19	Bx	6
None		20	Bx	6
None		21	Bx	6
None		23	Bx	6
None		24	Bx	6
	11.	Card can, fiber, vulcanized, heighth- 36 in. inner diam. -9 in.,		
None		outer diam. 9-1/4 in.	Ea	500
	13.	Blade steel, for card combs, length- 45 in.,width- 7/8 in., thickness -0,078 in. (2 mm), 18 teeth per		
None		inch.	Ea	100
	13.	Ribbon, emery, for card grinders, width-		
None		1 in.	Yd.	1.000

Declassified E.O. 12356 Section 3.3/NND No. 785015

CARD CLOTHING.

(Note: Card clothing consists of hardened and tempered steel wire with cotton wool and rubber foundation for cylinders, and cotton wool and cotton foundation for doffers and flats.)

	14. Cylinders:			
None	a) For 45 in.carding machine (Platts), length-302 ft.(92 m), width-2 in., (51 mm), wire BWG No.100	Ea	20	
None	b) For 40 in.carding machine (Dobson and Barlow,1907), length-271 ft. (82.4 m), width -2 in. (51 mm), wire BWG No. 100	Ea	20	
None	c) For 38 in. carding machine (Dobson and Barlow, 1906)	Ea	10	
	15. Doffers:			
None	a) For 45 in. carding machines (Platts), length-203-1/2 ft.(62 m) width - 1-1/2 in. (38mm); wire BWG No. 110	Ea	20	
	b) For 40 in. carding machines (Dobson and Barlow,			

Declassified E.O. 12356 Section 3.3/NND No. 785015

None	BWG No.100	Ea	20
	b) For 40 in. carding machine (Dobson and Barlow,1907), length-271 ft. (82.4 m), width -2 in. (51 mm), wire BWG No.		
None	100	Ea	20
	c) For 38 in. carding machine (Dobson and		
None	Barlow, 1906)	Ea	10
	15. Doffers:		
	a) For 45 in. carding machines (Platts), length-203-1/2 ft.(62 m) width - 1-1/2 in. (38mm);		
None	wire BWG No. 110	Ea	20
	b) For 40 in. carding machines (Dobson and Barlow, 1907, length-187 ft. (57 m), width-1-1/2 in. (38 mm); wire		
	BWG No. 110	Ea	20
	16. Plate:		
	a) For 45 in. carding machines (Platts), length-45 in., width 0.91 in.		
None	(23 mm) wire BWG No. 110	Ea	2,200

Declassified E.O. 12356 Section 3.3/NND No. 785015

	b) For 40 in. carding machines (Dobson and Barlow, 1907), length- 40 in., width- 0,91 in.(23 mm),		
None	wire BWG No.110	Ea	2.200
	c) For 38 in. carding machines (Dobson and Barlow,1905), length-38 in.,width-0,91 in.		
None	(23 mm), wire BWG No.110	Ea	1.100
17.	Hand stripping cards. for cotton cards, 21.6 x 4.13 in. (550 x 105 mm)		
None	wire BWG No. 20	Ea	20
18.	Taker-in saw tooth clothing:		
	Thickness		
None	0.047 in. (1.2 mm)	Lb.	220
None	0.049 in. (1.25 mm)	Lb.	220
19(a).	Clothing (filletting). for card roller stripping brush, straight wire, 1-1/2 in. wide, wire BWG		
None	No. 18.	Ft.	1,980
19(b).	Clothing (filletting). for card roller stripping brush, bent (angular) wire, 1-1/2 in. wide, wire		
None	BWG No.18.	Ft.	1.980
20.	Fin. comb		

0 2 2 8

Declassified E.O. 12356 Section 3.3/NND No. 785015

		Card stripping cards: for cotton cards, 21.6 x 4.13 in. (550 x 105 mm) wire BWG No. 20		
None			Ea	20
	18.	Taker-in saw tooth clothing: Thickness		
None		0.047 in. (1.2 mm)	Lb.	220
None		0.049 in. (1.25 mm)	Lb.	220
	19(a).	Clothing (Filletting). for card roller stripping brush, straight wire. 1-1/2 in. wide, wire BWG		
None		No. 18.	Ft.	1,980
	19(b).	Clothing (filletting). for card roller stripping brush, bent (angular) wire, 1-1/2 in. wide, wire		
None		BWG No.18.	Ft.	1.980
	20.	Pin, comb for Naismith combs:		
		Size / Length		
None		No. 24 / 3/8 in.	Ea.	50.000
None		No. 28 / 3/8 in.	Ea.	50.000
None		No. 33 / 3/8 in.	Ea	50.000
	21(a).	Tube Paper. for bobbins, length- 5.66 in.(144 mm), diameter 0,55 in.(14 mm), weight-		
None		0.21 oz.	Lb.	2.200

0226

Declassified E.O. 12356 Section 3.3/NND No. 735015

21(b). Tube paper for rings (warp spinning):

	Length	Weight.		
None	7.16 in.(182 mm)	0.12 oz.	Lb	33.000
None	7.16 in.(182 mm)	0.35 oz.	Lb	2.200

21(c). Tube paper. for rings (weft spinning), specifications as per designs Nos.3 and 4 attached; samples also attached.

	Length		
None	5.43 in.	Ea	480.000
None	6.22 in.	Ea	400.000

WEAVING ACCESSORIES

22. Shuttles. specifications as per designs Nos.5 and 6 attached, samples of metal parts also attached:

	Model	Size		
None	1H	14.9 in. (378 mm)	Ea	2.000
None	2H	15.3 in.(388 mm)	Ea	2.500
None	4 B	14.5 in. (368 mm)	Ea	3.000

23. Pin, weft tube, for automatic looms, specifications as per designs Nos.1 and 2 attached:

	Length		
None	6.69 in. (170 mm)	Ea	40.000
None	7.48 in. (190 mm)	Ea	25.000

Declassified E.O. 12356 Section 3.3/NND No. 785015

None		5.43 in.	Ea	400.000	
None		6.22 in.			
		WEAVING ACCESSORIES			
	22.	Shuttles. specifications as per designs Nos.5 and 6 attached, samples of metal parts also attached:			
		Model / Size			
None		1H 14.9 in. (378 mm)	Ea	2.000	
None		2H 15.3 in.(388 mm)	Ea	2.500	
None		4 B 14.5 in. (368 mm)	Ea	3.000	
	23.	Pin, weft tube, for automatic looms, specifications as per designs Nos.1 and 2 attached:			
		Length			
None		6.69 in. (170 mm)	Ea	40.000	
None		7.48 in. (190 mm)	Ea	25.000	
	24(a)	Wire,drop. for warp stop motion, closed type, rustless, length-4,92 in.(125 mm), width- 0.43 in.(11 mm) thickness-.008 in.(0.2 mm) split 2,12 x 0.197 in., one hole, 0.24 in. diam.			
None			Ea	300.000	

Declassified E.O. 12356 Section 3.3/NND No. 785015

	24(b)	Wire, drop. for warp stop motion, closed type, rustless, length-4.92 in.(125 mm) width-0.43 in.(11 mm) thickness-.008 in., (0.2 mm) split 1.97 x 0.77 in.,two holes, 0.24 in. diam.			
None				Hn.	300.000
	25.	Heddle, steel. BWG / Length			
None		28 / 11.02 in.(280 mm)		Hn	770.000
None		32 / 11.02 in. (280 mm)		Hn.	200.000
	26.	Steel, mild, bar, for covering loom beams to prevent slipping, width-1-1/2 in., thickness -.0058 in.			
None				Ft.	13.200

MISCELLANEOUS ITEMS FOR REPAIR AND MAINTENANCE.

	27.	Screw,machine, FS FF-S-91, steel,NFTS, flat head,bright: Diam. / Length			
None		3/16 in.	3/4 in	Ea	2.500
43-7519.03-07		1/4 in.	1- in	Ea	2,500
43-7519.035-13		5/16 in.	1-1/4 in	Ea	2,500
None		3/8 in.	1-1/2 in.	Ea	2,500
None		1/2 in.	2- in.	Ea	2,500
None		5/8 in.	2-3/8 in.	Ea	2,500

0 2 7 9
Declassified E.O. 12356 Section 3.3/NND No. 785015

None	28	11.02 in. (280 mm)	Ea	170.000
None	32	11.02 in. (280 mm)	Ea	200.000

26. Steel, mild,
bar, for covering loom beams to prevent slipping, width-1-1/2 in., thickness -.0056 in.

None	Ft.		13.200

MISCELLANEOUS IT MS FOR REPAIR AND MAINTENANCE.

27. Screw,machine,
FS FF-S-91, steel,NFTS, flat head,bright:

	Diam.	Length			
None	3/16	in.	3/4	iN	Ea	2.500
43-7519.03-07	1/4	in.	1-	in	Ea	2,500
43-7519.035-13	5/16	in.	1-1/4	in	Ea	2,500
None	3/8	in.	1-1/2	in.	Ea	2,500
None	1/2	in.	2-	in.	Ea	2,500
None	5/8	in.	2-3/8	in.	Ea	2,500

28. Bolt,machine.
FS FF-B-571,steel, HCTS, hexagon head, with nut blank:

	Diam.	Length			
None	1/4	in.	1-1/4	in.	Ea	1.000
None	5/16	in.	1-1/2	in.	Ea	1.000
None	3/8	in.	1-3/4	in.	Ea	1.000
None	7/16	in.	2-	in.	Ea	1.000
None	1/2	in.	2-	in.	Ea	1.000
43-1901.06-02	5/8	in.	2-	in.	Ea	1.000
43-1901.07-035	3/4	in.	3-1/2	in.	Ea	1.000

0230
Declassified E.O. 12356 Section 3.3/NND No. 785015

	29(a). Steel, tool high speed, round, 1 in. diam., in bars.			
None		Ft.	15	
	29(b) Steel, tool High speed, square; in bars. Dimensions			
None	3/8 x 3/8 in.	Ft	60	
None	5/8 x 5/8 in.	Ft	45	
None	3/4 x 3/4 in.	Ft	45	
None	1 - 1/4 x 1-1/4 in.	Ft	45	
	30. Babbitt metal. National Bearing Metals Corp., St.Louis, Mo., No. 397	Lb.	500	
	31. Cloth, emery QS 29-51, sheet, 9 x 11 in. Grade:			
42-3625.5-05	No. 0	Sh	200	
42-3625.5-04	No. 00	Sh	300	
42-3625.5-1	No. 1	Sh	700	
42-3625.5-2	No. 2	Sh	500	
42-3625.5-3	No. 3	Sh	700	
42-3625.5-4	No. 4	Sh	300	
42-3625.5-5	No. 5	Sh	300	
	32. Paper, emery. sheet, 9 x 11 in. Grade.			
None	No. 00	Sh	200	
None	No. 0	Sh	300	

Declassified E.O. 12356 Section 3.3/NND No. 785015

30. Babbitt metal.
National Bearing Metals Corp.,St.Louis, Mo.,

None	No. 397	Lb.	500

31. Cloth, emery
QS 29-51, sheet, 9 x 11 in.
Grade:

42-3625.5-05	No. 0	Sh	200
42-3625.5-04	No. 00	Sh	300
42-3625.5-1	No. 1	Sh	700
42-3625.5-2	No. 2	Sh	500
42-3625.5-3	No. 3	Sh	700
42-3625;5-4	No. 4	Sh	300
42-3625.5-5	No. 5	Sh	300

32. Paper, emery.
sheet, 9 x 11 in.
Grade.

None	No. 00	Sh	200
None	No. 0	Sh	300
None	No. 1	Sh	700
None	No. 2	Sh	700
None	No. 3	Sh	600
None	No. 4	Sh	500

33. Hook, belting.
wire, 1,000 hooks per box, Armstrong-Bray & Co.,Chicago, Illinois:
Size

None	No. 4	Bx	150
None	No. 5	Bx	150

0 2 3 2
Declassified E.O. 12356 Section 3.3/NND No. 785015

	34.	Glue high tensile, for belting repaire.		
None			Lb.	280
	35.	Tape, insulating, rubber, FS HH-T-111 width - 1 in, thickness- .027 to 033 in.		
17-8884.5-1			Lb	100
	36.	Wire, steel, spring, FS QQ-W-465, hard drawn:		
		Diam. BISG		
None		.020 -	Lb	20
22-8995.5-34		.049 18	Lb	30
22-8995.5-38		.065 16	Lb	30
None		.080 -	Lb	30
22-8995.5-46		.109 12	Lb	40
None		.120 -	Lb	40
None		.160 -	Lb	40
None		.200 -	Lb	30
	37.	Drill, twist, QS 17-114, carbon steel, straight shank:		
		Diam.		
40-4135.3-005		5/64 in.	Ea	30
40-4135.3-008		1/8 in.	Ea	30
40-4135.3-01		5/32 in.	Ea	30
40-4135.3-013		13/64 in.	Ea	30
40-4135.3-016		1/4 in.	Ea	20
40-4135.3-018		9/32 in.	Ea	20
40-4135.3-02		5/16 in.	Ea	20
40-4135.3-022		11/32 in.	Ea	20
40-4135.3-026		13/32 in.	Ea	30
40-4135.3-028		7/16 in.	Ea	20
40-4135.3-03		15-32 in.	Ea	20

0 2 3 3

Declassified E.O. 12356 Section 3.3/NND No. 785015

22-8995.5-34	.094	18	Lb	30
22-8995.5-38	.065	16	Lb	30
None	.080	-	Lb	30
22-8995.5-46	.109	12	Lb	40
None	.120	-	Lb	40
None	.160	-	Lb	40
None	.200	-	Lb	30

37. Drill, twist.
QS 17-114, carbon steel, straight shank:

	Diam.		
40-4135.3-005	5/64 in.	Ea	30
40-4135.3-008	1/8 in.	Ea	30
40-4135.3-01	5/32 in.	Ea	30
40-4135.3-013	13/64 in.	Ea	30
40-4135.3-016	1/4 in.	Ea	20
40-4135.3-018	9/32 in.	Ea	20
40-4135.3-02	5/16 in.	Ea	20
40-4135.3-022	11/32 in.	Ea	20
40-4135.3-026	13/32 in.	Ea	30
40-4135.3-028	7/16 in.	Ea	20
40-4135.3-03	15-32 in.	Ea	20
40-4135.3-051	1/2 in.	Ea	20
40-4135.3-036	9/16 in.	Ea	20

38. Drill, twist.
QS 17-114, carbon steel, taper shank, long taper:

	Diam.		
40-4267.2-38	19/32 in.	Ea	6
40-4267.2-4	5/8 in.	Ea	6
40-4267.2-43	43/64 in.	Ea	6
40-4267.2-46	23/32 in.	Ea	6
40-4267.2-48	3/4 in.	Ea	6
40-4267.2-5	25/32 in.	Ea	6
40-4267.2-53	53/64 in.	Ea	3

0234
Declassified E.O. 12356 Section 3.3/NND No. 785015

38.	38.(continued) Diam.			
40-4267.2-56	7/8	in.	Ea	3
40-4267.3-64	1-	in.	Ea	3
40-4267.3-7	1-3/32	in.	Ea	3
40-4267.3-76	1-3/16	in	Ea	3

PRINTING ACCESSORIES

39. Cloth, cotton. Osnaburg, QS 6-200 Class D, for printing machines.

	Weight (oz)	Width (in)		
27-3014.5-4	6-1	40	Yd	16
27-3014.5-45	6-1	45	Yd	8

NOTE: The following are suggested sources of supply of certain of the items listed on this requisition:

SOURCES OF SUPPLY

Items 1 - 4

Charles Bond Co., 617 Arch St., Philadelphia, Pa.
Geo. Rehmann & Co., 31 Spruce St., New York, N.Y.
H.F. Jockill & Sons, Ltd. 14 A Blackfriars St., Manchester, England.
Joshua Kershen & Co. Ltd., Victoria Leather Works, Stockport, England.

Items 5 - 7

James Kenyon & Sons Ltd., Bury, England.
Peers Knowles, St. James St., Accrington, England.
John Bright & Bros, Ltd., Rochdale, England.

Items 8 - 10

Brooks and Doxey, Manchester, England.
Eadie Bros, & Co., Ltd., King St., Manchester, England.

0 2 3 5

Declassified E.O. 12356 Section 3.3/NND No. 785015

	Weight (oz)	Width (in)		
27-3014.5-4	6-1	40	Yd	16
27-3014.5-45	6-1	45	Yd	8

NOTE: The following are suggested sources of supply of certain of the items listed on this requisition:

SOURCES OF SUPPLY

Items 1 - 4

Charles Bond Co., 617 Arch St., Philadelphia, Pa.
Geo. Rohmann & Co., 31 Spruce St., New York, N.Y.
H.F. Lockill & Sons, Ltd. 14 A Blackfriars St., Manchester, England.
Joshua Hargreaves & Co. Ltd., Victoria Leather Works, Stockport, England.

Items 5 - 7

James Kenyon & Sons Ltd., Bury, England.
Peers Knowles, St. James St., Accrington, England.
John Bright & Bros, Ltd., Rochdale, England.

Items 8 - 10

Brooks and Doxey, Manchester, England.
Eadie Bros. & Co., Ltd., King St., Manchester, England.

Item 11

Fibre speciality Mfg. Co., Kennet Square, Philadelphia, Pa.
Rogers Fibre Co., 210 Lincoln St., Boston, Mass.

Items 12 - 16

Standard Bros Mfg Co., Worcester, Mass.
Joseph Sykes Bros., Acre Mills, Lindley, Huddersfield, England.
John Whiteley & Sons, Brunswick Mills, Halifax, England.

Items 17 - 20

John Hetherington & Sons, Ltd., Manchester, England.

Item 21

Sonoco Products Company, Hartsville, S.C.
Textile Paper Tube Co., Ltd., Romiley, England.

Item 22

Litchfield Shuttle Co., Southbridge, Mass.
Wilson Bros. Bobbin Co., Ltd. Garston, Liverpool, England.

0236
Declassified E.O. 12356 Section 3.3/NND No. 785015

Item 23

Dana S. Courtney Co., Chicopee, Mass.
Wilson Bros. Bobbin Co., Ltd. Carston, Liverpool, England.

Items 24 - 25

Steel Heddle Mfg. Co., 2100-18 West Allegheny Ave., Phila., Pa.
A Hill & Co., 17 a Lloyd Sheet, Manchester, England.

JUSTIFICATION.

1. Reference is made to the following:

a. CAL Airgram 8, 25 March 1944 from CCAC to PHMGS on subject of Production of Textile Goods.

b. Report of Survey of Production of Cotton Goods in Liberated Italy, dated 29 May 1944, reference ACC/5157/IC.

2. CAL Airgram 8 states "if increased production is to be recommended advise what additional materials from outside sources will be needed to run mills.... at capacity after all existing salvageable supplies from destroyed plants are made available to operating plants..... When submitting list of requirements please state exact specification and when spare parts or replacements are needed, include data such as country of origin, make, style of machinery, width of loom, gauge of shipping.....".

3. These requisitions cover spare and replacement parts and materials necessary for one year's operation of three plants of the Manifatture Cotoniere Meridionali. The allowances have been made for stocks and materials on hand, and for cannibalization possibilities. The items requested are detailed as to type, make and size wherever information was available.

4. There are six factories of the Manifatture Cotoniere Meridionali situated in liberated Italy, three of which, namely those at Naples (Poggioreale), Piedimonte and Frattamaggiore have been so gravily damaged as a result of enemy demolitions and bombings as to make

Declassified E.O. 12356 Section 3.3/NND No. 785015

b. Report of Survey of Production of Cotton Goods in Liberated Italy, dated 29 May 1944, reference AGO/5167/IC.

2. CAL Airgram 8 states "if increased production is to be recommended advise what additional materials from outside sources will be needed to run mills.... at capacity after all existing salvageable supplies from destroyed plants are made available to operating plants..... When submitting list of requirements please state exact specification and when spare parts or replacements are needed, include data such as country of origin, make, style of machinery, width of loom, gauge of shipping.....".

3. These requisitions cover spare and replacement parts and materials necessary for one year's operation of three plants of the Manifatture Cotoniere Meridionali. The allowances have been made for stocks and materials on hand, and for cannibalization possibilities. The items requested are detailed as to type, make and size wherever information was available.

4. There are six factories of the Manifatture Cotoniere Meridionali situated in liberated Italy, three of which, namely those at Naples (Poggioreale), Piedimonte and Frattamaggiore have been so gravily damaged as a result of enemy demolitions and bombings as to make rehabilitation a long term policy. No consideration is being given for the rehabilitation of these plants at this time and are, therefore, not covered by this requisition. The other three plants are located at Nocera, Angri, and Fratte di Salerno. These plants are only slightly damaged, and subject to completion of minor repairs, are capable of resuming immediate full-scale production.

5. These latter three plants (Nocera, Angri, and Fratte di Salerno) form in themselves an independent and completely balanced unit, capable of producing 25/30.000.000 metres of cotton fabrics yearly, together with a surplus of cotton yarn which can be woven or converted elsewhere either into cloth of other cotton products as sewing thread, cord, twine, candlewicks and the like.

0238
Declassified E.O. 12356 Section 3.3/NND No. 785015

6. Present output is at the rate of 8/10,000,000 meters per annum, of which approximately 20 per cent is going to the Italian War Ministry and the remainder into grey fabrics suitable, either with or without subsequent dyeing or printing, for inclusion in a proposed civilian rationing scheme.

7. The spinning plant at Nocera comprises 72,916 ring spinning spindles with all necessary preparatory and ancillary machinery, and has a potential daily output of 24,300 pounds of yarn, both carded and combed, of an average count of 28s, by working two shifts of eight hours each, or 15 effective hours per day. The machinery installed deals with the raw cotton from the bale to the finished yarn ready for warping or the shuttle. The plant was constructed with a view to the production of an average count of 28s, and therefore, on account of the size and gauge of individual machines, the most economical as well as the maximum output is attained by spinning varying counts such as from 16s to 32 s for carded yarns, and from 36s to 80 s combed.

8. The weaving shed at Angri contains 1,615 automatic weft changing looms and 36 dobby looms. At present approximately 1,040 looms are running a single shift of 8 hours. Further production cannot be attained until increased quantities of yarn are produced by the spinning mill at Nocera, which in turn is limited by the amount of cotton available.

9. The factory at Fratte di Salerno receives the grey pieces from the weaving mill at Angri, and after half bleaching, with or without subsequent full bleaching, dyeing or printing acts as warehouse and disposal center for the finished goods. The plant is large and is capable of dealing easily with the whole output from the looms at Angri.

10. Labor is adequate and skilled. Employees live near to the various factories so that transportation is not a problem. Where fully occupied the employment provided is approximately as follows: Nocera - 600 workers, Angri - 900 workers, and Fratte di

0 2 3 9

Declassified E.O. 12356 Section 3.3/NND No. 758015

structed with a view to the production of an average count of 28s, and therefore, on account of the size and gauge of individual machines, the most economical as well as the maximum output is attained by spinning varying counts such as from 16s to 32 s for carded yarns, and from 36s to 80 s combed.

8. The weaving shed at Angri contains 1,615 automatic weft changing looms and 36 dobby looms. At present approximately 1,040 looms are running a single shift of 8 hours. Further production cannot be attained until increased quantities of yarn are produced by the spinning mill at Nocera, which in turn is limited by the amount of cotton available.

9. The factory at Fratte di Salerno receives the grey pieces from the weaving mill at Angri, and after half bleaching, with or without subsequent full bleaching, dyeing or printing acts as Warehouse and dispersal center for the finished goods. The plant is large and is capable of dealing easily with the whole output from the looms at Angri.

10. Labor is adequate and skilled. Employees live near to the various factories so that transportation is not a problem. When fully occupied the employment provided is approximately as follows: Nocera - 600 workers, Angri- 900 workers, and Fratte di Salerno 500.

11. Special studies have been made of the fuel and power requirements necessary to operate the plants. These studies have been submitted by Industry and Commerce Subcommission under date of 1 July 44, to Coal Division, Transportation Subcommission and to Public Works and Utilities Subcommission. Request has been made for allocation in due course for necessary fuel and power in order to maintain production schedules. Tentative approvals have already been given to these studies and it is reasonably assured that sufficient quantities of fuel and power will be made available to operate plants on full scale production.

0 2 4 0

Declassified E.O. 12356 Section J.J/NND No. 785015

12. Similar study was made of lubricants necessary for operation of machinery which has been presented to Petroleum Section, AAI. It is expected that sufficient quantities of lubricants will be made available when needed.

13. It is estimated that the Manifatture Cotoniere Meridionali will be able to work up to full production (dependent on the arrival of cotton) in about three months, and that with materials on hand will carry it over this period and perhaps a month or two beyond. There are, however, a few exceptions and these concern deficiencies in leather accessories, especially belting, and weft tubes. These items are most critical. The shortage of weft tubes is already being felt even at existing reduced rate of production. The requirements of leather transmission belting have been transmitted in full. The quantities are reasonable in view of the extensive looting which took place in September 1943, coupled with the fact that no belting has been renewed since 1941.

14. As indicated in the preceding paragraph, paper tubes, especially weft tubes, are most critical. These were originally made in North Italy. Stocks of this item are now depleted and the whole program for increasing to maximum capacity is being jeopardised. Urgent priority is being requested for this item.

15. Scale drawings of some of the weaving accessories are attached and samples are also being forwarded in amplification of the descriptions and measurements given.

16. All repair materials, except for a few essential items, for which there is no probability of local availability have been deleted from these requisitions. In this connection it should be stated that the fullest possible effect has been given to local availability as of June 15, 1944. Future availability will depend in large measure on resources freed by the liberation of Northern Italy of which no account can or has been taken. It should be noted too that existing availability is liable to fluctuation. Local resources immediately available may be unexpectedly drained by other consumers.

0 2 4 1

Declassified E.O. 12356 Section 3.3/NND No. 785015

ber 1943, coupled with the fact that no belting has been received since 1941.

14. As indicated in the preceding paragraph, paper tubes, especially weft tubes, are most critical. These were originally made in North Italy. Stocks of this item are now depleted and the whole program for increasing to maximum capacity is being jeopardised. Urgent priority is being requested for this item.

15. Scale drawings of some of the weaving accessories are attached and samples are also being forwarded in amplification of the descriptions and measurements given.

16. All repair materials, except for a few essential items, for which there is no probability of local availability have been deleted from these requisitions. In this connection it should be stated that the fullest possible effect has been given to local availability as of June 15, 1944. Future availability will depend in large measure on resources freed by the liberation of Northern Italy of which no account can or has been taken. It should be noted too that existing availability is liable to fluctuation. Local resources immediately available may be unexpectedly drained by other consumers.

17. Possible sources of supply for many of the items covered by this requisition have been given where known.

18. Requirements of cotton, dyes, and chemicals necessary for the production of cotton goods by the three plants referred to herein are covered by Requisition No. AGC-QM-S-45.

19. It is believed that this group of three plants can make an important contribution to the rehabilitation of the economic life of Southern Italy, not only by providing employment, but by reducing the need for importation of semi-manufactured goods.

RATING III.

E N D O F R E Q U I S I T I O N .

0 2 4 2

Declassified E.O. 12356 Section 3.3/NND No. 785015

0243

SECTION 4 .

M O N O P O L Y P R O D U C T S .

Contents . .

A. T O B A C C O .

		Page
I .	Introduction	71
II.	Requirements and justification	72
III.	Production potential of end product	73
IV.	Production potential of required raw materials	76
V.	Supporting Data	77
VI.	Requisitions	77
VII.	Effect on shipping situation	78
VIII.	Increase of production through implementation of programme	78

B. M a t c h e s .

I.	Introduction	81
II.	Requirements and justification	82
III.	Production of potential end product	82
IV.	Production potential of required raw materials	83
V.	Supporting Data	83
VI.	Requisitions	84
VII.	Effect on shipping situation	84
VIII.	Increase of production through implementation of programme	84

Annex A. Raw material Requirements 85

Declassified E.O. 12356 Section 3.3/NND No. 785015

VI. Requisitions
VII. Effect on shipping situation 78
VIII. Increase of production through implementation of programme 78

B. M a t c h e s .

I. Introduction 81
II. Requirements and justification 82
III. Production of potential end product 82
IV. Production potential of required raw materials 83
V. Supporting Data 83
VI. Requisitions 84
VII. Effect on shipping situation 84
VIII. Increase of production through implementation of programme 84

Annex A. Raw material Requirements 85

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 4

MONOPOLY PRODUCTS

A. TOBACCO

PART I INTRODUCTION

The rehabilitation of the Tobacco Industry is of considerable importance to the Italian economy for the reason that the revenue from sales represents about 17% of the total taxation income of the State. This revenue in 1943/1944 was estimated at 8 billion lire.

The industry is completely controlled by the State, the Ministry of Finance being the responsible department. No definite system of taxation by weight or number applies in the case of the main products; tobacco, cigars, snuff and cigarettes, nor in the case of the by-products; nicotine, sulphate and tobacco extract, which are valuable insecticides. A simple system of the appropriation by the State of 80% of the total receipts of the industry is applied; the remaining 20% normally covers cost of raw materials, manufacture, packing, wholesale and retail profits and distribution. The rapidly advancing cost of transportation is, however, in process of making the system difficult.

The number of persons employed in the cultivation of the tobacco leaf, in its processing into pipe tobacco, cigars, snuff, cigarettes and insecticides was substantial in normal times, amounting to 270.000. Further personnel find employment in transportation, warehousing and distribution. The factories are directly controlled by the Government-owned Regia Manifatura Tabacchi.

The effects of war and of the occupation by the Allies of Sicily, Sardinia and the mainland of Italy dealt the industry an all but fatal blow. This was due not so much to any destruction of the tobacco crop or damage to the factories in the South of Italy, which actually escaped owing to the rapid advance of the Allied Armies, as to the stoppage of auxiliary supplies and spares. These auxiliary items, the paper for the manufacture of cigarettes, and the cardboard for cartons, had all previously been received from the North of Italy. Another, at that time irreplaceable, item was the fabric-bands on which the cigarettes are rolled, and which are expended extremely rapidly.

By October 1943, the situation in regard to cigarette paper was becoming desperate. Little of this paper remained in the two factories then working in Apulia, at Bari and Lecce, although good stocks of cigarette tobacco (the product of Lecce Province) were on hand, employees and all other ma-

0245

Declassified E.O. 12356 Section 3.3/NND No. 785015

is applied; the remaining 20% normally covers cost of raw materials, manufacture, packing, wholesale and retail profits and distribution. The rapidly advancing cost of transportation is, however, in process of making the system difficult.

The number of persons employed in the cultivation of the tobacco leaf, in its processing into pipe tobacco, cigars, snuff, cigarettes and insecticides was substantial in normal times, amounting to 270.000. Further personnel find employment in transportation, warehousing and distribution. The factories are directly controlled by the Government-owned Regia Manifatura Tabacchi.

The effects of war and of the occupation by the Allies of Sicily, Sardinia and the mainland of Italy dealt the industry an all but fatal blow. This was due not so much to any destruction of the tobacco crop or damage to the factories in the South of Italy, which actually escaped owing to the rapid advance of the Allied Armies, as to the stoppage of auxiliary supplies and spares. These auxiliary items, the paper for the manufacture of cigarettes, and the cardboard for cartons, had all previously been received from the North of Italy. Another, at that time irreplaceable, item was the fabric-bands on which the cigarettes are rolled, and which are expended extremely rapidly.

By October 1943, the situation in regard to cigarette paper was becoming desperate. Little of this paper remained in the two factories then working in Apulia, at Bari and Lecce, although good stocks of cigarette tobacco (the product of Lecce Province) were on hand, employees and all other materials were available. Short time had to be instituted and production reduced while an urgent requisition for cigarette paper was dispatched to the U.S.A. on 6 November 1943. Strict rationing of consumption of cigarettes on a greatly reduced scale was instituted.

Delays inseparable from the conditions of wartime and the difficulty of provision of shipping space for civilian supply items to a theater of war caused the first supply of paper, due in January, to arrive only in April 44. The production situation was by then desperate and the effect on the country's revenue disastrous.

A picture of the situation can be gathered from the fact that in November 43, when the disturbance to the trade was at its maximum, the income from tobacco taxation was at Lit. 85.000.000. The revenue remained at a monthly figure around Lit. 120 to 130 millions until April when it rocketed to Lit. 225.000.000. From November 1943 until the actual arrival of the cigarette paper strenuous efforts had been made, by cable representations to Washington, to urge delivery, and the docking of the steamer with the first supply relieved a situation which had become very serious. A complete stoppage of production with serious damage to the country's financial stability had just been averted.

There is no possibility of the production of cigarette paper in that part of liberated Italy which is south of the Pisa-Rimini line, and indeed it would

0246

Declassified E.O. 12356 Section 3.3/NND No. 785015

not appear, under today's conditions, to be economical to manufacture this paper in Italy as the bulk and weight of the completed paper would not greatly exceed those of the raw materials needed to be brought in. These materials also would need to be imported from more than one country and the shipments would need to be coordinated.

The object of these preliminary remarks is merely to indicate the supreme importance in the case of the tobacco industry of the maintenance of regular supplies of raw and auxiliary materials.

PART II. REQUIREMENTS AND JUSTIFICATION

a. 1. Prewar consumption averaging 1938 to 1943 inclusive for each kind of tobacco was the following:

Cigarettes	Cigars	Tobacco for Pipe and Cigarettes	Snuff Tobacco
Kg.	Kg.	Kg.	Kg.
0,4786	0,0822	0,1302	0,023

Total: 0,724 Kilos per person per year

2. Present ration of tobacco is 30 grams per smoker per week. The chances of increase in production is limited by destruction of some factories. This averages 30 cigarettes in Rome and in the balance of liberated Italy per week. This ration is drawn as a tobacco equivalent in terms of cigarettes or other products.

3. This ration is considered sufficient by the Monopoly as it is their expected production capacity. This ration can only be drawn by smokers, males over 18, who constitute 30% of the population. Women are not considered as smokers.

4. The revenue and morale value of tobacco are important. The limiting factor is manufacturing equipment, not tobacco leaf, of which Italy was considered practically self-sufficient. Importation of some machinery would enable a larger ration.

5. On this basis it is recommended that requirements be placed at 50% of 1938/1943 average, for the civilian population taken at 25.000.000 persons.

6. Italian Armed Forces: the ration of cigarettes for the Italian Armed

0247
Declassified E.O. 12356 Section 3.3/NND No. 785015

Kg.	Kg.	Kg.	Kg.
0,4786	0,0922	0,1302	0,023

Total: 0,724 Kilos per person per year

2. Present ration of tobacco is 30 grams per smoker per week. The chances of increase in production is limited by destruction of some factories. This averages 30 cigarettes in Rome and in the balance of liberated Italy per week. This ration is drawn as a tobacco equivalent in terms of cigarettes or other products.

3. This ration is considered sufficient by the Monopoly as it is their expected production capacity. This ration can only be drawn by smokers, males over 18, who constitute 30% of the population. Women are not considered as smokers.

4. The revenue and morale value of tobacco are important. The limiting factor is manufacturing equipment, not tobacco leaf, of which Italy was considered practically self-sufficient. Importation of some machinery would enable a larger ration.

5. On this basis it is recommended that requirements be placed at 50% of 1938/1943 average, for the civilian population taken at 25.000.000 persons.

6. Italian Armed Forces: the ration of cigarettes for the Italian Armed Forces is set at 5 per man per day plus ½ oz. of tobacco per man per week.

b. Tobacco growth for all Italy has averaged 43.000 tons per year with waste of 50% in production of final products. This covers consumption of 0,724 Kg. per person per year, which totals 32.580 tons per year for 45.000.000 people.

c. Total requirement for 12 months:

	Cigarettes Kg.	Cigars Kg.	Pipe & Cigarette Tobacco Kg.	Snuff Tobacco Kg.	Total Kg.
Basic consumption for civilians at 50% of normal rate:					
Kg. per person per year:	0,240	0,050	0,065	0,012	0,367

Declassified E.O. 12356 Section 3.3/NND No. 785015

	Cigarettes Kg.	Cigars Kg.	Pipe & Cigaretto Tobacco Kg.	Tobacco Kg.	Total Kg.
Total requirements tons per year:					
Italian Armed Forces	858	-	1.038	-	1.896
Civilians	6.000	1.250	1.625	300	9.175
Total	6.858	1.250	2.663	300	11.071

PART III PRODUCTION POTENTIAL OF END PRODUCT

Based on present ration and demands it can be said that, subject to assistance to the Industry by way of fulfillment of requisitions mentioned in para. 6 and to transportation facilities being available, about 80% of the demand can be met. The demand for cigarettes of 6.858 tons per annum can be satisfied only as to 5670 tons, cigars can be supplied practically to the total needed and in the case of snuff the demand for 300 tons per annum can be met only as to less than 50%.

The demand for loose tobacco does not clarify how large a quantity is for individual rolling of cigarettes and how much is to be used as pipe tobacco; the supply in any case is 270 tons short of requirements.

The situation could be balanced and an export surplus for North Italy or an increased ration for liberated Italy provided, if it were possible to replace machines which are listed below and which have been destroyed by war operations. Only the lack of these machines prevents increased production.

Chiaravalle	16 machines
Naples (Factories of S. Pietro Martire & Sez. Scafati)	25 "
Rome	4 "
Perugia	4 "

Attached as Annex A is a complete list of plants whose production and condition are known, showing the normal production and presently considered potential capacity.

0 2 4 6

Declassified E.O. 12356 Section 3.3/NND No. 785015

The demand for loose tobacco does not clarify how large a quantity is for individual rolling of cigarettes and how much is to be used as pipe tobacco; the supply in any case is 270 tons short of requirements.

The situation could be balanced and an export surplus for North Italy or an increased ration for liberated Italy provided, if it were possible to replace machines which are listed below and which have been destroyed by war operations. Only the lack of these machines prevents increased production.

Chiaravalle	16 machines
Naples (Factories of S. Pietro Martire & Sez. Scafati)	25 "
Rome	4 "
Perugia	4 "

Attached as Annex A is a complete list of plants whose production and condition are known, showing the normal production and presently considered potential capacity.

0250

Declassified E.O. 12356 Section 3.3/NND No. 785015

0251

Declassified E.O. 12356 Section 3.3/NND No. 785015

Productive Capacity of the Italian Tobacco Industry in Liberat
Comparison for Seasons 1942/3 and 1945

(All figures in tons of 1.000 kg.)

Factory	Actual Production per Month Season 1942/43					
	Snuff	Pipe Tobacco	Cigars	Cigarettes	Total	Sp
Bari	-	7.6	21.3	200.0	228.9	
Cagliari	4.0	-	9.0	50.0	63.0	
Catania	-	10.3	10.5	43.0	63.8	
Chiaravalle	4.2	-	27.0	160.0	191.2	
Lecce	3.5	-	-	46.0	49.5	
Napoli SS. A e Soc. di Cava	-	-	59.6	-	59.6	
Napoli S.P. Martire e Soc. Scafati	-	80.5	-	170.5	251.0	
Palermo	4.4	40.0	5.6	100.0	150.0	
Roma	-	-	-	131.5	131.5	
Tons	16.1	138.4	133.0	901.0	1.188.5	

Capacity is therefore 60% of 1942/3 figure, which latter c
sidered as normal.

0252

Declassified E.O. 12356 Section 3.3/NND No. 785015

Annex A

Capacity of the Italian Tobacco Industry in Liberated Italy
Comparison for Seasons 1942/3 and 1945

(All figures in tons of 1.000 kg.)

Actual Production per Month Season 1942/43					Maximum Attainable Monthly Production for 1945 at Present Plant Capacity				
uff	Pipe Tobacco	Cigars	Cigarettes	Total	Snuff	Pipe Tobacco	Cigars	Cigarettes	Total
	7.6	21.3	200.0	228.9	-	14.0	8.5	135.0	157.5
0	-	9.0	50.0	63.0	4.0	43.0	8.0	30.0	85.0
.	10.3	10.5	43.0	63.8	-	3.0	4.5	30.0	37.5
2	-	27.0	160.0	191.2	-	-	27.0	12.5	39.5
5	-	-	46.0	49.5	3.5	-	-	80.0	83.5
.	-	59.6	-	59.6	-	-	50.0	-	50.0
.	80.5	-	170.5	251.0	-	47.5	-	50.0	97.5
4	40.0	5.6	100.0	150.0	4.4	8.5	2.5	50.0	65.4
.	-	-	131.5	131.5	-	-	-	85.0	85.0
1	138.4	133.0	901.0	1.188.5	11.9	116.0	100.5	472.5	700.9

is therefore 60% of 1942/3 figure, which latter can be con-
s normal.

Stock of Unprocessed Tobacco as of 31 July 1944
(Including 1943 Crop Balances in Stock at the Concession Warehouses)
(all figures in metric tons)

Warehouse or Plant		Cigarette Tobacco	Pipe Tobacco	Snuff Tobacco	Total	Monthly Consumption	Remarks
Manufact.	Bari	637	323	-	960		
"	Cagliari	159	179	46	384		
"	Catania	59	28	-	87		
"	Cava						No advices
"	Chiaravalle						" "
"	Lecce	30	42	66	138		
"	Napoli SS.A	-	195	-	195		
"	" S.P.M.	91	101	-	192		
"	Palermo	128	35	9	172		
"	Roma	254	109	-	363		
"	Scafati	75	125	-	200		
D.C.C.T.	Benevento	-	160	-	160		
"	Cava	150	2.800	-	2.950		Estimated stock
"	Lecce	6.500	-	-	6.500		" "
"	Palermo						
"	Perugia	550	350	-	900		No advices
"	Roma	-	21	-	21		" "
Istituto	Scafati	-	130	-	130		" "

tion is 500 tons cigarette tobacco and 335 tons pipe and
Consumption of cigarette tobacco is calculated on the
es actually in working order and the consumption of cig
ious years' experience.

Declassified E.O. 12356 Section 3.3/NND No. 785015

"	Napoli SS.A	-	195	-	195	
"	" S.P.M.	91	101	-	192	
"	Palermo	128	35	9	172	
"	Roma	254	109	-	363	
"	Scafati	75	125	-	200	
D.C.C.T.	Benevento	-	160	-	160	
"	Cava	150	2.800	-	2.950	Estimated stock
"	Lecce	6.500	-	-	6.500	" "
"	Palermo					No advices
"	Perugia	550	350	-	900	" "
"	Roma	-	21	-	21	" "
Istituto	Scafati	-	130	-	130	
Ag. Coltiv.	Benevento	-	900	-	900	Estimated stock
" "	Cava	-	600	-	600	
" "	Lecce	440	-	-	440	
" "	Perugia	900	-	-	900	
" "	S. Giorgio	-	700	-	700	
Mag. Tab. Greg.	Ancona					No advices
" " "	Gallipoli	400	-	-	400	Estimated stock
" " "	Lecce	9.676	-	-	9.676	
" " "	Scafati	-	40	50	90	
Totals		20.049	6.838	171	27.058	835

Monthly consumption is 500 tons cigarette tobacco and 335 tons pi
cigar tobacco. Consumption of cigarette tobacco is calculated o
basis of machines actually in working order and the consumption o
tobacco on previous years' experience.

Declassified E.O. 12356 Section 3.3/NND No. 785015

It has not been considered useful, for production in 1945, to calculate on replacement of the 49 machines known to have been destroyed; such machines are highly complicated, in short world supply and would require a period extending beyond 1945 for delivery.

PART IV PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

Tobacco

The table attached as Annex indicates the stocks of unprocessed tobacco at the various depositories as of 31 July 1944, which indicates that consumption is considerably below the production. These figures concern the 1943 crop And it is estimated, on return so far at hand, that the 1944 crop will produce a minimum of 11000 tons cigarette tobacco (the bulk from Lecce Province) and 7900 tons of pipe and cigar tobacco. These figures will be exceeded when further information is at hand and it can be stated with safety that there will be no lack of tobacco for processing in 1945. In fact, there will be a substantial excess as stocks in hand are sufficient (as of August 1944) for 31 months work.

Cigarette Carton Card & Packing Paper

The table below indicates consumption of cigarette paper, carton card and cigar and pipe tobacco packing paper. It is confirmed that subject to implementation of the program of paper manufacture proposed in Section 2 of this program, importation of the items shown in columns 2, 3 and 4 will not be necessary. The quantity of cigarette paper, however, indicated in colum 1 cannot be produced in liberated Italy and must be imported to a total of 283½ metric tons for the year 1945.

Annual Consumption of (1) Cigarette Paper, (2) Carton Card, (3) and (4) Packing Paper (See figures in kilograms.)

Factory	Cigarette Paper in Spools of 1560 Meters (1)	Carton Card on Spools (2)	Packing Paper for Cigars, Cigarettes and Tobacco (3)	Packing Paper for Tobacco in Continuous Lengths (4)
	Kg.	Kg.	Kg.	Kg.
Bari	81,000	324,000	33,456	21,840
Cagliari	18,000	72,000	18,624	67,680
Catania	18,000	72,000	8,726	4,680
Chiaravalle	7,500	30,000	13,152	-
Lecce	48,000	192,000	15,360	-
Napoli SE.A. e Sez. Cava	-	-	28,800	-
Napoli S.P.M. e Sez. Scafati	30,000	120,000		

025
Declassified E.O. 12356 Section 3.3/NND No. 785015

The table below indicates consumption of cigarette paper, carton card and cigar and pipe tobacco packing paper. It is confirmed that subject to implementation of the program of paper manufacture proposed in Section 2 of this program, importation of the items shown in columns 2, 3 and 4 will not be necessary. The quantity of cigarette paper, however, indicated in column 1 cannot be produced in liberated Italy and must be imported to a total of 283½ metric tons for the year 1945.

Annual Consumption of (1) Cigarette Paper, (2) Carton Card, (3) and (4) Packing Paper (See figures in kilograms.)

Factory	Cigarette Paper in Spools of 1560 Meters (1)	Carton Card on Spools (2)	Packing Paper for Cigars, Cigarettes and Tobacco (3)	Packing Paper for Tobacco in Continuous Lengths (4)
	Kg.	Kg.	Kg.	Kg.
Bari	81,000	324,000	33,456	21,840
Cagliari	18,000	72,000	18,624	67,680
Catania	18,000	72,000	8,716	4,680
Chiaravalle	7,500	30,000	13,152	-
Lecce	48,000	192,000	15,360	-
Napoli SS.A. e Sez. Cava	-	-	28,800	-
Napoli S.F.M. e Sez. Scafati	30,000	120,000	18,720	74,100
Palermo	30,000	120,000	12,472	13,260
Roma	51,000	204,000	16,320	-
	283,500	1,134,000	165,620	181,560

Hemp Bands for Cigarette Machines

These were, until the Allied occupation of Southern Italy, imported from Milan. They serve to fold the cigarette tobacco into the paper wrapper and consumption is very high, the Lecce factory's figure being 25 per day in all. The problem of replacement becoming acute, the Lecce plant improvised with repaired bands while capacity was sought for local production. The machinery necessary for the fabrication of those hemp bands is particularly complicated, and although research still proceeds, it is considered inadvisable to consider as practical any other course than importation for the 1945 manufacturing program. It is understood that these belts are identical or similar to those produced in the U. S. Annex shows consumption for each plant of each width for six months. (See Part VI of this report for suggested requisition.)

0 2 5 6

Declassified E.O. 12356 Section 3.3/NND No. 735015

Consumption of Fuel and Electric Energy per annum

Factory	Power Taken at Kw.	Consumption in Kw. H	Consumption of Sardinian Coal Tons
Bari	100	200,000	1,200
Cagliari	75	65,000	1,660
Catania	67	57,000	1,440
Chiaravalle	6.5	5,500	(not known, but small)
Lecce	90	110,000	300
Naples	80	160,000	1,200
Palermo	145	300,000	684
Rome	80	150,000	450
	643.5	1,047,500	6,934

It is considered, in view of the very modest demands for coal (which can be of Sardinian origin) and electric energy, that no difficulties should arise on these subjects.

Certain auxiliary materials, such as knives for cutting tobacco, will be required. At the moment, due to the impossibility of ascertaining the requirements of the recently liberated plants, and the difficulty of collecting details from Sicily, Sardinia and the mainland at short notice, particulars will need to follow, if and when the presently proposed program is accepted.

PART V SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV

Annex referred to in Part IV serves as an indication of the possibility of provision of raw tobacco.

Section 2 of the Report (on paper production) provides justification for the assumption that importation of packing paper and carton card need not be considered.

Hemp bands are subject to importation.

Sulphuric acid for production of nicotine sulphate (which is mentioned separately) can be provided from local resources.

Production figures are based on past experience.

0 2 5 7

Declassified E.O. 12356 Section 3.3/NND No. 785015

of Sardinian origin) and electric energy, that no difficulties should arise on these subjects.

Certain auxiliary materials, such as knives for cutting tobacco, will be required. At the moment, due to the impossibility of ascertaining the requirements of the recently liberated plants, and the difficulty of collecting details from Sicily, Sardinia and the mainland at short notice, particulars will need to follow, if and when the presently proposed program is accepted.

PART V SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV

Annex referred to in Part IV serves as an indication of the possibility of provision of raw tobacco.

Section 2 of the Report (on paper production) provides justification for the assumption that importation of packing paper and carton card need not be considered.

Hemp bands are subject to importation.

Sulphuric acid for production of nicotine sulphate (which is mentioned separately) can be provided from local resources.

Production figures are based on past experience.

Demands for coal and electric energy are of such modest proportions that they should be met.

PART VI REQUISITIONS

It will be necessary, to provide for the requirements of cigarette manufacture, to requisition the following quantities of materials:

Cigarette Paper - quality as before supplied to the following specification:

Combustible
Weight per square meter, 20 grams with a plus/minus tolerance of 5%
Internal diameter of spools, 120 m/m
Length of paper on each spool, 1560 meters

Width	27	28	28½	29	30 m/m spools
	190,000	30,000	6,000	48,000	4,500

Glue, appropriate quantity for above
Delivery: one twelfth of above each month

A year's supply of endless fabric belts of hemp or flax made in simple cross-weave (warp and weft) from equal parts of (warp) 25x2 and (weft) 25x3 threads.

0 2 5 8

Declassified E.O. 12356 Section 3.3/NND No. 785015

Machine Type	Sizes in m/m	Number of Belts
Universal	35 x 2560	7000
	25 x 1760	2000
	21 x 1760	5000
	32 x 1920	500
Standard	26 x 2200	2000
Excelsior D.B.	56 x 3820	600
	23 x 2300	600
Excelsior D.C.	56 x 3820	500
	24 x 2500	300

The bands should comply in average with the following specification which is based on 25 x 1760 x 0,72 m/m:

Breaking strain, 180 kg.
Elongations, 6%
Weight (average), 550 grams per square meter
Thickness 56 x 3820, 0,93 m/m - all others, 0,72 m/m
Flexibility - to work without difficulty on a drum of a minimum diameter of 23 m/m
Impregnation - water and starch

Carton Cards - in addition, a demand should be lodged for the production from local resources (see Paper report in Section 2) of the following:

Thin Carton Card glazed one side, width 68 m/m wound on spools containing about 20 kg., inner diameter of spools 150 m/m, weight of card 140/160 grams per square meter.

Yellow	Light Blue	Light Green	Buck Red	
100	420	200	100	tons

Delivery in 12 equal monthly lots assorted proportionately to colors ordered.

PART VII EFFECT ON SHIPPING SITUATION

Assuming that all cigarettes, tobacco, cigars and snuff consumed in liberated Italy needed to be imported it may be stated that, the cargo being light and bulky, a tonnage of shipping space more than 40 times the space to be occupied by the items proposed to be requisitioned would be required.

PART VIII INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAM

It is unfortunately not possible to give production figures for that part of

0 2 5 9
Declassified E.O. 12356 Section 3.3/NND No. 785015

Impregnation - water and starch

Carton Cards - in addition, a demand should be lodged for the production from local resources (see Paper report in Section 2) of the following:

Thin Carton Card glazed one side, width 68 m/m wound on spools containing about 20 kg., inner diameter of spools 150 m/m, weight of card 140/160 grams per square meter.

Yellow	Light Blue	Light Green	Buck Red	
100	420	200	100	tons

Delivery in 12 equal monthly lots assorted proportionately to colors ordered.

PART VII EFFECT ON SHIPPING SITUATION

Assuming that all cigarettes, tobacco, cigars and snuff consumed in liberated Italy needed to be imported it may be stated that, the cargo being light and bulky, a tonnage of shipping space more than 40 times the space to be occupied by the items proposed to be requisitioned would be required.

PART VIII INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAM

It is unfortunately not possible to give production figures for that part of 1944 which has now expired, as the disorganization in the industry and difficulty in obtaining accurate information from the various centers renders accurate check impossible. It is, however, possible to say that implementation of the program here proposed will enable full use to be made of the Italian resources for tobacco manufacture, will assist morale, employ many hands and will bring the maximum possible income from taxation, thus assisting materially in the rehabilitation of the country.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Carton Card for Cigarette Production

Plant	Monthly Production of Cigaretts m. tons	Monthly Consumption of Carton Card m. tons	Six Months Requirements of Carton Card m. tons
Blue Card			
Bari	100	20	120
Cagliari	25	5	30
Catania	20	4	24
Lecce	25	5	30
Palermo	20	4	24
Rome	40	8	48
	230	46	276
Yellow Card			
Lecce	35	7	42
Palermo	15	3	18
Rome	30	6	36
	80	16	96
Green Card			
Bari	20	4	24
Cagliari	5	1	6
Catania	10	2	12
Lecce	20	4	24
Palermo	15	3	18
	70	14	84

The data above refer only to that part of the production of cigarettes which is supplied to the public in cartons.

0291

Declassified E.O. 12356 Section 3.3/NND No. 785015

Lecce	35	7	42
Palermo	15	3	18
Rome	30	6	36
	80	16	96

Green Card

Bari	20	4	24
Cagliari	5	1	6
Catania	10	2	12
Lecce	20	4	24
Palermo	15	3	18
	70	14	84

The data above refer only to that part of the production of cigarettes which is supplied to the public in cartons.

Declassified E.O. 12356 Section 3.3/NND No. 785015

Data on Cigarette Paper Consumption

Plant	Monthly Production of Cigarettes m. tons	Number of Spools of Paper Consumed per month	Requirements in Spools per 6 months
Width of Paper - 27 m/m			
Bari	120	6.000	36.000
Cagliari	30	1.500	9.000
Catania	30	1.500	9.000
Lecce	45	2.250	13.500
Napoli	10	500	3.000
Palermo	35	1.750	10.500
Rome	40	2.000	12.000
	310	15.500	93.000
Width of Paper - 28 m/m			
Bari	10	500	3.000
Napoli	40	2.000	12.000
	50	2.500	15.000
Width of Paper - 28.5 m/m			
Bari	5	250	1.500
Rome	7.5	375	2.250
	12.5	625	3.750
Width of Paper - 29 m/m			
Bari	-	-	-
Lecce	35	1.750	10.500
Palermo	15	750	4.500
Rome	30	1.500	9.000
	80	4.000	24.000
Width of Paper - 30 m/m			
Rome	7.5	375	2.250
		375	2.250

0265

Declassified E.O. 12356 Section 3.3/NND No. 785015

Width of Paper - 20 m/m

Bari	10	500	3.000
Napoli	40	2.000	12.000
	50	2.500	15.000

Width of Paper - 28.5 m/m

Bari	5	250	1.500
Roma	7.5	375	2.250
	12.5	625	3.750

Width of Paper - 29 m/m

Bari	-	-	-
Lecce	35	1.750	10.500
Palermo	15	750	4.500
Roma	30	1.500	9.000
	80	4.000	24.000

Width of Paper - 30 m/m

Roma	7.5	375	2.250
	7.5	375	2.250

Totals	460	23.000	136.000

0 2 6 4

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION IV

B. MATCHES

PART I INTRODUCTION

Match production is of great importance to Italy which before the war produced her own requirements and a modest export surplus, which normally was shipped to South America.

After the outbreak of hostilities between Germany and the Allies, and up to the entry of Italy into the war on the side of Germany, this surplus was diverted to Great Britain, where at that moment a scarcity existed owing to restrictions on imports of raw materials due to the utilization of the British mercantile marine for war cargoes. "Cerini", small wax-cotton matches similar to the British larger 'wax vestas' appeared in England for the first time.

The matches produced in Italy are of two main types - those with wooden 'splints' i.e., sulphur, paraffin and safety matches; and 'cerini'.

Raw materials for match manufacture were in great part imported in the form of paraffin for impregnation of wooden safety matches, wax and cotton for 'cerini' and phosphorus for preparation of the 'dip' or igniter. Some phosphorus was produced at the SAFFA works at Spoleto; this plant has been completely destroyed by aerial bombardment. 'Splints' (match stems) were produced from domestic poplar-wood.

The SAFFA plant in Naples produced 'booklet' matches and with the stock of raw materials on hand can continue this work for a further five months. The production is at the rate of 500,000 booklets, each containing 40 matches, per month. After consumption of present stocks of raw materials, SAFFA will discontinue this branch of their manufacture, for the reasons that:

a. Production is expensive and uneconomical and consumes large quantities of chlorate of potassium and other chemicals.

b. Kraft paper must be used - this is in acutely short world supply.

In Naples also, difficulties have been encountered in the production of 'cerini', cotton thread being scarce and the special paper which can substitute it unobtainable. Experiments are now proceeding in the hope of utilizing domestic hemp for 'cerini' but this is considered an unsatisfactory substitute for cotton, and the latter material has been envisaged as available for 1945 production.

0 2 6 5

Declassified E.O. 12356 Section 3.3/NND No. 785015

of paraffin for impregnation of [illegible]
'cerini' and phosphorus for preparation of the 'dip' or igniter. Some phosphorus was produced at the SAFFA works at Spoleto; this plant has been completely destroyed by aerial bombardment. 'Splints' (match stems) were produced from domestic poplar-wood.

The SAFFA plant in Naples produced 'booklet' matches and with the stock of raw materials on hand can continue this work for a further five months. The production is at the rate of 500,000 booklets, each containing 40 matches, per month. After consumption of present stocks of raw materials, SAFFA will discontinue this branch of their manufacture, for the reasons that:

a. Production is expensive and uneconomical and consumes large quantities of chlorate of potassium and other chemicals.

b. Kraft paper must be used - this is in acutely short world supply.

In Naples also, difficulties have been encountered in the production of 'cerini', cotton thread being scarce and the special paper which can substitute it unobtainable. Experiments are now proceeding in the hope of utilizing domestic hemp for 'cerini' but this is considered an unsatisfactory substitute for cotton, and the latter material has been envisaged as available for 1945 production.

As in most European countries, match production is state-controlled and heavily taxed. The industry's importance to the national economy cannot, therefore, be overstressed. Pre-war the industry found employment for 4000 persons of both sexes; match manufacture by reason of its small equipment of extremely intricate and elaborate machinery is a modest employer of labor.

The greatest contribution of the match industry to the stability of Italy's economy is the revenue resulting from a heavy tax on every box of matches consumed. The cost of production of a box of 100 matches is today Lit. 0.56, duty is Lit. 1.24, and the cost to the consumer Lit. 2.00. The difference allows for profit and cost of distribution. In a normal year the revenue from match sales in the whole of Italy was Lit. 300,000,000.

Match manufacture in Italy is as to 90% in the hands of SAFFA (Soc. Anon. Fabbriche Fiammiferi ed Affini) whose head office and overseas sales department is in Milan. SAFFA control nearly all plants in liberated Italy. CIF (Consorzio Industrie Fiammiferi) deals with sales and distribution of all matches produced in liberated Italy. Both concerns are Government-controlled.

CIF distribution of matches takes place through 23 main and 647 secondary warehouses. They employ a number of motor vehicles for distributing to the main warehouses.

Declassified E.O. 12356 Section 3.3/NND No. 785015

It is obviously of the greatest importance to encourage and assist the Italian match industry to rehabilitate itself and to stimulate production. Fortunately the consumption of electric energy is not heavy. Coal demands are not of great importance and are capable of satisfaction from local sources. The volume of necessary imports should be justified by the resultant assistance to the financial stability of the country.

PART II REQUIREMENTS AND JUSTIFICATION

1. Pre-war consumption, 140 matches per person per month, averaged over years 1938 to 1943 inclusive.

2. Present ration of 25 matches per person per month is considered below minimum civilian requirements.

3. Ration deemed minimum under conditions of 1945: 50 matches per person per month.

4. Population of area concerned, 25,000,000; Italian Army Forces assumed as 309,000; Carabinieri, 55,000; Air Force, 31,000; Navy, 75,000.

5. Ration for matches for Italian Armed Forces is considered 40 per week.

Total Requirements for 12 Months

1.	Civilians	15,000,000,000 matches
2.	Italian Armed Forces (approx.)	1,000,000,000 "
	Total Essential Needs	16,000,000,000 "

PART III PRODUCTION OF POTENTIAL OF END-PRODUCT

Assuming that requisitions of the materials shown in column 15 of Annex A are met in good time, that electric power to the modest extent indicated can be supplied and that the necessary transportation facilities within Italy are available, a total of 32,612,000,000 matches of all types can be produced in 1945 in the factories now in the area covered by this program. It is assumed for this purpose that the plants at Putignano (Pisa), Fucecchio, Pontorme (Empoli) and at Empoli are in a condition to function normally.

Plant	Type of Match	Quantity of Matches
Putignano	Safety	4,000,000,000
	Splints	7,000,000,000

Declassified E.O. 12356 Section 3.3/NND No. 785015

75,000.

5. Ration for matches for Italian Armed Forces is considered 40 per week.

Total Requirements for 12 Months

1.	Civilians	15,000,000,000 matches
2.	Italian Armed Forces (approx.)	1,000,000,000 "
	Total Essential Needs	16,000,000,000 "

PART III PRODUCTION OF POTENTIAL OF END-PRODUCT

Assuming that requisitions of the materials shown in column 15 of Annex A are met in good time, that electric power to the modest extent indicated can be supplied and that the necessary transportation facilities within Italy are available, a total of 32,612,000,000 matches of all types can be produced in 1945 in the factories now in the area covered by this program. It is assumed for this purpose that the plants at Putignano (Pisa), Fucecchio, Pontorme (Empoli) and at Empoli are in a condition to function normally.

Plant	Type of Match	Quantity of Matches
Putignano	Safety	4,000,000,000
	Sulphur	7,000,000,000
Fucecchio	"	4,500,000,000
Pontorme	"	600,000,000
Empoli	"	900,000,000
Perugia	Wax	3,500,000,000
Jesi	Sulphur	5,500,000,000
Benevento (Marsiglia)	"	500,000,000
Benevento (De Negris)	"	500,000,000
Benevento (Fucci)	"	250,000,000
Fondi	"	200,000,000
Naples	Wax	5,000,000,000
Valguarnera (Sicily)	Sulphur	150,000,000
S. Giovanni Gemini (Sicily)	"	12,000,000
Total		32,612,000,000

N.B. Sicily produced her own requirements in sulphur matches, but drew supplies of wax matches from the mainland.

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART IV PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

Annex A of this report contains a complete and tabulated statement of the raw materials required for a normal year's operation of all plants. Of these the following will need to be imported (all figures in m. tons). The remainder will be supplied from local resources.

Raw Material	Quantity	Remarks
Sesqui Phosphorus	211.8	
Amorphous	24.0	
Potassium Chlorate	1.155.6	Produced in North Italy, north of Pisa-Rimini line
Zinc Oxide	340.1	Produced in North Italy, north of Pisa-Rimini line
Manganese Peroxide	7.0	
Sodium Silicate	337.8	
Starch	514.4	Could only be produced in Italy at the expense of food
Gum (Arabic or Manila)	379.0	
Paraffin	228.0	
Stearine	3.162.0	

These figures of necessary importations are trifling, the main raw materials which would occupy valuable shipping space, i.e., wood and sulphur, being available in Italy.

Electric power consumption is not heavy, and can be considered, in view of the importance of the match industry, as available. Only 10 KWH are required per million matches produced. No imported coal is required.

Certain chemicals, e.g., Potassium Chlorate and Zinc Oxide are likely to be available from domestic resources by the time production on the 1945 program can commence.

Transportation of raw materials, unless conditions improve considerably in the meantime, is certain to be a major difficulty.

Paper at this moment is in short supply, but if the program for paper production (see Part II) is implemented, the requirements of the match industry should be met with no difficulty.

It is pointed out that the match plants recently liberated from German occupation are considered, for the purposes of this report, as being in working order, but as having no stocks of raw material on hand to carry forward into the new year.

0298

Declassified E.O. 12356 Section 3.3/NND No. 785015

These figures of necessary importations are trifling, the main raw materials which would occupy valuable shipping space, i.e., wood and sulphur, being available in Italy.

Electric power consumption is not heavy, and can be considered, in view of the importance of the match industry, as available. Only 10 KWH are required per million matches produced. No imported coal is required.

Certain chemicals, e.g., Potassium Chlorate and Zinc Oxide are likely to be available from domestic resources by the time production on the 1945 program can commence.

Transportation of raw materials, unless conditions improve considerably in the meantime, is certain to be a major difficulty.

Paper at this moment is in short supply, but if the program for paper production (see Part II) is implemented, the requirements of the match industry should be met with no difficulty.

It is pointed out that the match plants recently liberated from German occupation are considered, for the purposes of this report, as being in working order, but as having no stocks of raw material on hand to carry forward into the new year.

PART V SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV

Item 3 of Annex A - Skin Glue - sufficient production in Rome area subject to hides being available for processing
Item 4 - Potassium Chlorate - recommended for requisition
Item 7 - Sicilian and Avellino production
Item 12 of Annex A - Cotton Thread for 'Cerini' production at Cotoniere Meridionali, Naples and Salerno - see detailed report under Section 3 Textiles
Item 14 - Poplar wood, available all over Italy
Item 15 - Straw Paper - production at Poligrafica dello Stato Foggia and at Isola dei Liri and various other small plants
Item 16, 17, 18, 19, 20 as for 15
Item 21 - Sufficient domestic production in many small plants
Item 22 - Sufficient domestic production - Naples (2 plants), Ilva, Torre Annunziata and Terni
Item 23 - Many lignite mines

Transportation will be a major problem in the supply of raw materials to the various plants.

Declassified E.O. 12356 Section 3.3/NNU No. 785015

PART VI REQUISITIONS

So far as requisitions of raw materials are concerned, the items and quantities outlined in IV as being unavailable from domestic resources are being requisitioned for supply in equal monthly lots commencing December, January next.

PART VII EFFECT ON SHIPPING SITUATION

Apart from the dismissal of 5240 people at present employed, the stoppage of domestic manufacture and its substitution by imports would involve the importation of matches to the total weight of 4000 tons per annum, occupying 1,000,000 cubic feet of shipping space. Matches are dangerous and bulky cargo, require special packing for shipment and involve heavy insurance rates.

PART VIII INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAM

The present production of matches is at the rate of one billion per annum. The program now proposed provides for an increase to 31.6 billion per annum.

The difference of 31.6 billion matches would represent 3800 tons of shipping space, against which the program provides for 363 tons only of imported raw materials per annum.

Therefore, 3164 tons of dead weight shipping space or approximately 750.000 cubic feet will be saved by its implementation.

0 2 7 1 1

Declassified E.O. 12356 Section 3.3/NND No. 785015

The program now proposed provides for an increase to 31.6 billion per annum.

The difference of 31.6 billion matches would represent 3800 tons of shipping space, against which the program provides for 363 tons only of imported raw materials per annum.

Therefore, 3164 tons of dead weight shipping space or approximately 750.000 cubic feet will be saved by its implementation.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0273

Declassified E.O. 12356 Section 3.3/NND No. 785015

List of Raw Materials Required for One Year's Work
Broken Down by Plants

	Rutigniano (Pisano) Svedesi Safety	Rutigniano (Pisano) Solfomti Sulphur	Duppli	Portoms	Fucecchio	Perugia	Jesi	Fondi	Napoli	M
Metric Tons										
1. Sesqui Phosphorus	-	4.2	0.55	0.4	2.8	3.6	1.7	0.07	7.0	
2. Amorphus Phosphorus	2.4	-	-	-	-	-	-	-	-	
3. Skin Glue for Phosphoric Mixture	3.2	14.0	1.6	1.2	8.3	11.0	5.1	0.2	11.3	
4. Potassium Chlorate	24.8	35.0	4.6	3.1	2.3	-	14.2	0.5	23.8	
5. Zinc White (Zinc Oxide)	2.2	9.8	1.3	0.9	6.3	-	3.8	0.14	7.6	
6. Manganese Peroxide	0.7	-	-	-	-	-	-	-	-	
7. Double refined sulphur in Blocks	-	136.0	18.0	12.0	90.0	-	53.7	2.0	-	
8. Sodium Silicate	-	14.0	1.8	1.2	8.6	-	5.2	0.2	-	
9. Starch	16.0	8.4	1.1	0.7	5.4	5.4	3.3	0.15	9.3	
10. Gum (Arabic or Manila)	4.4	-	-	-	-	12.5	-	-	21.0	
11. Paraffin	22.8	-	-	-	-	-	-	-	-	
12. Cotton Thread	-	-	-	-	-	5.3	-	-	38.6	
13. Stearine	-	-	-	-	-	120.2	-	-	196.0	
14. Poplar Wood	2600.0	3150.0	400.0	280.0	2025.0	-	1237.5	45.0	-	
15. Straw Paper for Match Boxes	-	280.0	36.0	24.0	202.5	-	110.2	4.0	-	
16. Straw Wrapping Paper (for packages of 100 boxes)	28.0	24.0	3.1	2.1	14.8	2.2	9.2	0.35	14.3	
17. Blue Paper for Match Boxes	28.8	-	-	-	-	-	-	-	-	
18. Yellow Paper for Match Box Labels	11.2	-	-	-	-	-	-	-	-	
19. White Thin Cardboard for Cerini	-	-	-	-	-	60.9	-	-	150.0	
20. Green Thin Cardboard for Cerini	-	-	-	-	-	24.5	-	-	145.0	
21. Paste for Cardboard	-	-	-	-	-	0.8	-	-	3.6	
22. Nails	2.8	0.5	0.07	0.1	0.4	2.2	0.2	0.02	3.3	
23. Pit Coal	304.0	420.0	54.0	36.0	270.0	214.0	138.0	6.0	375.0	
Thousand KW.H.										
24. Electric Power	48.0	84.0	9.0	7.0	50.0	20.0	60.0	1.0	24.0	

(a) Italy
(b) Possibly Montecatini, Bussi
(c) Italy - Co
(d) Italy - Li

0274

Declassified E.O. 12356 Section 3.3/NND No. 785015

List of Raw Materials Required for One Year's Work

Broken Down by Plants

Annex A

	Empoli	Pontorme	Fucecchio	Perugia	Jesi	Fondi	Napoli	Benevento: Marsiglia	Benevento: De Nigris	Benevento: Fucci	Valgumarnera	Giovanni Gemini	Total	
	0.55	0.4	2.8	3.6	1.7	0.07	7.0	0.3	0.3	0,15	0,1	0,01	21.18	
	-	-	-	-	-	-	-	-	-	-	-	-	2.4	
	1.6	1.2	8.3	11.0	5.1	0.2	11.3	1.0	1.0	0.5	0.25	0.03	58.68	
	4.6	3.1	2.3	-	14.2	0.5	23.8	2.6	2.6	1.3	0.7	0.065	115.56	
	1.3	0.9	6.3	-	3.8	0.14	7.6	0.7	0.7	0.35	0.2	0.02	34.01	
	-	-	-	-	-	-	-	-	-	-	-	-	0.7	
	18.0	12.0	90.0	-	53.7	2.0	-	9.8	9.8	4.9	3.0	0.25	339.05	(a)
	1.8	1.2	8.6	-	5.2	0.2	-	1.0	1.0	0.5	0.25	0.03	33.78	
	1.1	0.7	5.4	5.4	3.3	0.15	9.3	0.6	0.6	0.3	0.17	0.02	51.44	
	-	-	-	12.5	-	-	21.0	-	-	-	-	-	37.9	
	-	-	-	-	-	-	-	-	-	-	-	-	22.8	
	-	-	-	5.3	-	-	38.6	-	-	-	-	-	43.9	(c)
	-	-	-	120.2	-	-	196.0	-	-	-	-	-	316.2	
	400.0	280.0	2025.0	-	1237.5	45.0	-	225.0	225.0	122.5	67.5	4.5	10382.0	(a)
	36.0	24.0	202.5	-	110.2	4.0	-	20.0	20.0	10.0	6.0	0.5	713.2	(a)
	3.1	2.1	14.8	2.2	9.2	0.35	14.3	1.7	1.7	0.85	0.5	0.05	102.75	(a)
	-	-	-	-	-	-	-	-	-	-	-	-	28.8	
	-	-	-	-	-	-	-	-	-	-	-	-	11.2	(a)
	-	-	-	60.9	-	-	150.0	-	-	-	-	-	210.9	(a)
	-	-	-	24.5	-	-	145.0	-	-	-	-	-	169.5	(a)
	-	-	-	0.8	-	-	3.6	-	-	-	-	-	4.4	(a)
	0.07	0.1	0.4	2.2	0.2	0.02	3.3	0.1	0.1	0.05	0.03	0.02	11.89	(a)
	54.0	36.0	270.0	214.0	138.0	6.0	375.0	30.0	30.0	15.0	9.0	1.0	1902.0	(d)
	9.0	7.0	50.0	20.0	60.0	1.0	24.0	6.0	6.0	3.0	2.0	.02	324.0	

(c) Italy - Cotoniere Meridionali, Naples & Salerno
(d) Italy - Lignito

Montecatini, Bussi

0 2 7 5

SECTION 5

F E R T I L I Z E R S

Contents

A. SUPERPHOSPHATE FERTILIZERS

		Page
I.	Introduction	86
II.	Requirements and justification	86
III.	Production potential of end product	86
IV.	Production potential of raw material	87
V.	Supporting data	87
VI.	Requisitions	88
VII.	Effect on shipping situation	88
VIII.	Increase of production through implementation of programme	88

B. NITROGENEOUS FERTILIZERS

I.	Introduction	89
II.	Requirements and justification	89
III.	Production potential of end product.	90
IV.	Production potential of required raw materials	90
V.	Supporting data	90
VI.	Requisitions	91
VII.	Effect on shipping situation	91

Declassified E.O. 12356 Section 3.3/NND No. 765015

II. Requirements and justification 86
III. Production potential of end product 86
IV. Production potential of raw materials 87
V. Supporting data 87
VI. Requisitions 88
VII. Effect on shipping situation 88
VIII. Increase of production through implementation of programme 88

B. NITROGENOUS FERTILIZERS

I. Introduction 89
II. Requirements and justification 89
III. Production potential of end product 90
IV. Production potential of required raw materials 90
V. Supporting data 90
VI. Requisitions 91
VII. Effect on shipping situation 91
VIII. Conclusions 91

Declassified E.O. 12356 Section 3.3/NND No. 715015

SECTION 5

FERTILIZERS

The production of fertilizers involves essentially two classes of products:

a) Superphosphate fertilizers
b) Nitrogenous fertilizers

The superphosphate plants and the nitrogenous fertilizer plants are to be considered as two different industries and therefore the respective production programs will be analyzed separately.

A. SUPERPHOSPHATE FERTILIZERS

PART I. INTRODUCTION

The application of superphosphate fertilizer on land is essential for maintaining a constant yearly production level of grain and other agricultural products.

The superphosphate is obtained by treatment of phosphate rock (calcium phosphate) imported usually from Africa (Tunisia, Algeria and Sudan) with sulphuric acid 50 Be (chamber acid). Therefore superphosphate plants consist of two departments:
Department a) - Plant for the production of sulphuric acid 50 Be.
Department b) - Plant for the treatment of the rock by means of the above sulphuric acid.

PART II. REQUIREMENTS AND JUSTIFICATION
(supplied by the Commerce Sub-Commission)

A. Bases and Justifications

Phosphate fertiliser: Application varies from 1 to 2 quintals per hectare or 132 lbs. minimum to 200 lbs. maximum per acre, for a base of 5,500,000 acres-increase in the yield about 2/3 of the equivalent of increase with nitrate. Applied prior to the planting of legumes, these phosphates are important not only for legume production but for the gains in grain yield following the legume crop.

B. Requirements

	Yearly average during 1938-1941	Estimated requirements for 1945 (south of the Pisa-Rimini

Declassified E.O. 12356 Section 3.3/NND No. 785015

The superphosphate is obtained by treatment of phosphate rock (calcium phosphate) imported usually from Africa (Tunisia, Algeria and Sudan) with sulphuric acid 50 Be (chamber acid). Therefore superphosphate plants consist of two departments:
Department a) - Plant for the production of sulphuric acid 50 Be.
Department b) - Plant for the treatment of the rock by means of the above sulphuric acid.

PART II. REQUIREMENTS AND JUSTIFICATION
(supplied by the Commerce Sub-Commission)

A. Bases and Justifications
Phosphate fertilizer: Application varies from 1 to 2 quintals per hectare or 132 lbs. minimum to 200 lbs. maximum per acre, for a base of 5,500,000 acres-increase in the yield about 2/3 of the equivalent of increase with nitrate. Applied prior to the planting of legumes, those phosphates are important not only for legume production but for the gains in grain yield following the legume crop.

B. Requirements

Material	Yearly average during 1938- 1941 in M. tons	Estimated requirements for 1945 (south of the Pisa-Rimini line) - in M. tons
Superphosphate	722,000	361,000

PART III. PRODUCTION POTENTIAL OF END PRODUCT

a) - No information is available on 15 plants in Tuscany, at present still in the fighting zone.
b) - South of the Pisa-Rimini line and north of the Roma-Pescara line all plants, with the exception of the Orbetello plant, are very badly damaged or destroyed owing to war action and no estimates can be made at present as to their use for 1945.
c) - The Orbetello factory, scheduled for reactivation in 2 months, cannot be taken at present into consideration for superphosphate production, being reserved for "electrolyte" (sulphuric acid for batteries) for the Army. In this respect instructions from HQ AFLRS are pending.
d) - The potential production will, therefore, refer to factories south of the Rome-Pescara line including Sicily and Sardinia. Ten plants have been reactivated by Industry Sub-Commission and two are in course of reactivation. Their total potential production in 1945 will be (with the exception of the above-mentioned 15 Tuscany plants)

Declassified E.O. 12356 Section 3.3/NND No. 785015

330,000 M. tons per year,

which corresponds approximately to 90% of the requirements according to the figures supplied by Commerce Sub-Commission in Part II.

PART IV. PRODUCTION POTENTIAL OF RAW MATERIAL

The raw materials required for the production of superphosphate are:
a) Pyrites (for production of sulphuric acid)
b) phosphate rock

a) Pyrites

For the production of 330,000 M. tons superphosphate there are needed:

100,000 M. tons per year

of pyrites. This amount is available in stock at the Scarlino-station (prov. Grossoto - map reference: sheet 15; E.4387) and the only problem that arises is the transportation of these stocks to the various plants.

b) Phosphate rock

For the production of 330,000 M. tons superphosphate there are needed (rounded):

220,000 M. tons per year

of phosphate rock (average grade 60%). This rock must be imported (preferably from Tunisia) and in this respect only the transportation problem arises.

PART V. SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV.

The following plants are scheduled for operation by 1 January 1945:

Locality and/or name	Monthly production of superphosphate in M. tons	Yearly production of superphosphate in M. tons
Sicily		
Campofranco	2,000	

Declassified E.O. 12356 Section 3.3/NND No. 785015

b) Phosphate rock

For the production of 330,000 M. tons superphosphate there are needed (rounded):

220,000 M. tons per year

of phosphate rock (average grade 60%). This rock must be imported (preferably from Tunisia) and in this respect only the transportation problem arises.

PART V. - SUPPORTING DATA FOR PRODUCTION ESTIMATES IN PARTS III AND IV.

The following plants are scheduled for operation by 1 January 1945:

Locality and/or name	Monthly production of superphosphate in M. tons	Yearly production of superphosphate in M. tons
Sicily		
Campofranco	2,000	24,000
Tommaso Natale	2,500	30,000
Milazzo	1,500	18,000
Licata	2,000	24,000
Bicocca	2,000	24,000
Sardinia		
S. Gilla (Cagliari)	1,500	18,000
Mainland		
Crotone	2,000	24,000
Taranto	2,500	30,000
Brindisi	2,500	30,000
Barletta	4,000	48,000
Protici	1,500	18,000
Pontecagnano	2,000	24,000
Rome - Tuscolana	1,500	18,000
	Total	330,000 M. tons

At present ten of the above-indicated thirteen plants have been reactivated by Industry Sub-Commission and are ready to start working, provided that phosphate rock be available.

The Brindisi and Rome-Tuscolana plants will be ready by 1 January 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785015

The Pomezia plant is occupied by the Armed Forces, who consider it as a key position for the distribution of supplies in the zone. Therefore, it cannot be estimated whether the plant will be freed by January 1945.

Electric Power

Electric power requirements are almost negligible in the superphosphate industry. In an average sized plant (2,500 M. tons/year) 50 to70 KW are required. Consumption: about 40 KWh per 1 M. ton of superphosphate.

Coal

Coal is not needed for producing superphosphate.

PART VI. REQUISITIONS

In order to implement the production program as in Part III requisitions are being lodged for:

220,000 M. tons

of phosphate rock (average grade 60%).

PART VII. EFFECT ON SHIPPING SITUATION.

For the production of 330,000 M. tons superphosphate 220,000 M. tons of phosphate rock are needed. Therefore, importing the rock instead of the end product

110,000 M. tons

of shipping tonnage are saved.

PART VIII. INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAM.

At present due to lack of transportation of the phosphate rock from Africa, production for the moment is carried on in only two plants(Campofranco, Sicily and Portici, Naples). In addition, owing to the limited supplies of the rock, these plants cannot be operated at full capacity.

The monthly production in these two plants is 3,000 M. tons superphosphate, corresponding to36,000 tons superphosphate per year.

Therefore, through implementation of program, the production can

Declassified E.O. 12356 Section 3.3/NND No. 763015

220,000 M. tons
of phosphate rock (average grade 60%).

PART VII. EFFECT ON SHIPPING SITUATION.

For the production of 330,000 M. tons superphosphate 220,000 M. tons of phosphate rock are needed. Therefore, importing the rock instead of the end product

110,000 M. tons

of shipping tonnage are saved.

PART VIII. INCREASE OF PRODUCTION THROUGH IMPLEMENTATION OF PROGRAM.

At present due to lack of transportation of the phosphate rock from Africa, production for the moment is carried on in only two plants(Campofranco, Sicily and Portici, Naples). In addition, owing to the limited supplies of the rock, these plants cannot be operated at full capacity.

The monthly production in these two plants is 3,000 M. tons superphosphate, corresponding to36,000 tons superphosphate per year.

Therefore, through implementation of program, the production can be increased from 36,000 M. tons/year to 330,000 M. tons/year, or 10 times the present output.

CONCLUSIONS

a) Superphosphate production of 330,000 M. tons/yearly, corresponding to the almost entire requirement south of the Pisa-Rimini line, can be covered by using existing plant capacity and pyrites from local resources, provided that the required quantity of phosphate rock (220,000 M. tons) be imported.

b) In order to realize the above program it is essential that transportation of pyrites to the plants be granted.

c) It is considered convenient to increase the superphosphate production to full plant capacity in order to make the highest possible quantity of fertilizer available for application on land or for stockpiling for the northern areas. This would substantially reduce imports of grain in Italy for the year 1945.

0282

Declassified E.O. 12356 Section 3.3/NND No. 755015

0 2 8 3

B. NITROGENOUS FERTILIZERS

PART I. INTRODUCTION

Nitrogenous fertilizer production is completely different and much more complicated from the technical point of view than that of superphosphate fertilizers.

The nitrogen is extracted from the air (air is a mixture of about 80% of nitrogen and 20% of oxygen) and then transformed, by combining it with hydrogen, into ammonia (NH_3).

Ammonia is a basic material for preparing the following nitrogenous fertilizers:

a) Ammonium sulphate
b) Ammonium nitrate
c) Calcium nitrate

Another nitrogenous fertilizer largely consumed in Italy is calcium cyanamide (the only one prepared without using ammonia as basic material). Calcium cyanamide was produced in the Papigno plant (prov. Terni). The electric power station supplying the plant was completely destroyed and therefore no estimate can be made as regards the potential possibilities in 1945.

The nitrogenous fertilizer industry, in contrast with the superphosphate fertilizer industry, requires very large amounts of electric power. Therefore, these plants are not spread equally over the country, but are usually concentrated in a few large units and in places where large and cheap quantities of electric power are available.

Before the war the nitrogenous fertilizer plants, existing south of the Pisa-Rimini line, were situated in the following localities:

Crotone	(province Catanzaro)
Bussi	(" Pescara)
Papigno	(" Terni)
Nera Montoro	(" Terni)
Tarquinia	(" Viterbo)
Oschiri	(Sardinia)

The Bussi-, Papigno- and Tarquinia-plants were very badly damaged by enemy mines and by Allied bombing and at present no estimates can be made as regards the possibilities of their reactivation for

Declassified E.O. 12356 Section 3.3/NND No. 785015

(prov. Terni). The electric [illegible] completely destroyed and therefore no estimate can be made as regards the potential possibilities in 1945.

The nitrogenous fertilizer industry, in contrast with the superphosphate fertilizer industry, requires very large amounts of electric power. Therefore, these plants are not spread equally over the country, but are usually concentrated in a few large units and in places where large and cheap quantities of electric power are available.

Before the war the nitrogenous fertilizer plants, existing south of the Pisa-Rimini line, were situated in the following localities:

Crotone	(province Catanzaro)
Bussi	(" Pescara)
Papigno	(" Terni)
Nera Montoro	(" Terni)
Tarquinia	(" Viterbo)
Oschiri	(Sardinia)

The Bussi-, Papigno- and Tarquinia-plants were very badly damaged by enemy mines and by Allied bombing and at present no estimates can be made as regards the possibilities of their reactivation for the year 1945.

The three fertilizer plants of Crotone, Nera Montoro and Oschiri are being reactivated. Their production is being standardized for technical reasons for the year 1945 on ammonium sulphate only.

PART II. REQUIREMENTS AND JUSTIFICATION
(supplied by the Commerce Sub-Commission)

A. Bases and Justification

Nitrogenous fertilizer: Application of 66 lbs. per acre on 1,094,000 acres of grain (less than 20% of total acreage) increases yield of grain 130,000 to 197,000 M. tons. Minimum requirement to be fulfilled is 50% of 1938-1941 three years average spring application. Approximately 10% of total at rate of 100 lbs. per acre to 500 acres of vegetables (10,000 M. tons per month yield). Approximately 3% at rate of 100 lbs. per acre for 25,000 acres of hemp, increasing yield between 1,100 M. tons to 1,500 M. tons of hemp. High nitrogen ammonium nitrates save 50% of cargo and storage space. Italian stocks have been used up, domestic production cannot supplement supply for the 12 months' period indicated.

Due to some availability in the local production of nitrogenous

Declassified E.O. 12356 Section 3.3/NND No. 785015

fertilizers in the form of ammonium sulphate, the requirement of ammonium nitrate is given in terms of ammonium sulphate 20% nitrogen.

During prewar years approximately half of the nitrogenous fertilizers used were in the sulphate form, as by products from gas plants, etc.

The requirement of 20% ammonium sulphate corresponding to 33% ammonium nitrate and capable of replacing the latter is 117,000 M. tons for 12 months.

B. Requirements

Material	Yearly average during 1938-1941 in M. tons	Estimated requirements for 1945 (south of Pisa-Rimini line) M tons
Ammonium sulphate	390,000	117,000

PART III. PRODUCTION POTENTIAL OF END PRODUCT

The production potential of ammonium sulphate in 1945 will be

45,000 M tons,

corresponding to 40% of the yearly requirements estimated by Commerce Sub-Commission in Part II.

PART IV. PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

For the production of 45,000 M. tons of ammonium sulphate are needed:

a) Sulphuric acid (calculated 100%) 34,000 M. tons/year
b) Ammonia 11,000 M. tons/year

In order to produce the required sulphuric acid pyrites are needed. These are available and stocked in Tuscany (Scarlino station - map reference: sheet 15; E 4387).

There arises only the question of the transportation to the plant.

Nitrogen and hydrogen are required for the production of ammonia. The nitrogen is extracted from the air and the hydrogen from distilled water. In order to extract both of them large quantities of electric power are required.

PART V. SUPPORTING DATA FOR THE PRODUCTION ESTIMATES IN PARTS III AND IV

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART III. PRODUCTION POTENTIAL OF END PRODUCT

The production potential of ammonium sulphate in 1945 will be

45,000 M tons,

corresponding to 40% of the yearly requirements estimated by Commerce Sub-Commission in Part II.

PART IV. PRODUCTION POTENTIAL OF REQUIRED RAW MATERIALS

For the production of 45,000 M. tons of ammonium sulphate are needed:

a) Sulphuric acid (calculated 100%) 34,000 M. tons/year
b) Ammonia 11,000 M. tons/year

In order to produce the required sulphuric acid pyrites are needed. These are available and stocked in Tuscany (Scarlino station - map reference: sheet 11; E 4387).

There arises only the question of the transportation to the plant.

Nitrogen and hydrogen are required for the production of ammonia. The nitrogen is extracted from the air and the hydrogen from distilled water. In order to extract both of them large quantities of electric power are required.

PART V. SUPPORTING DATA FOR THE PRODUCTION ESTIMATES IN PARTS III AND IV

The figures regarding the plants at Oschiri (Sardinia), Crotone (Province Catanzaro-Calabria) and Nera Montoro (prov. Terni), which are at present in course of reactivation by Industry Sub-Commission, are as follows:

Locality	Production capacity of ammonium sulphate in M. tons daily capacity	yearly capacity	Installed Electric power (KW) Available by 1 Jan 1945	Consumption of Electric Power (KWH) daily cons.	yearly cons.
Oschiri (Sardinia)	30	10,800	5,600	134,400	4,800,000
Crotone (Calabria-prov. Catanzaro)	75	27,000	14,000	336,000	10,000,000
Nera Montoro (prov. Terni)	30	10,800	5,600	134,400	4,800,000
Total	135	48,600	25,200	604,800	19,600,000

Consumption per 1 M. ton ammonium sulphate: 4,500 KWH.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 2 8 7

Coal

Coal requirements for production of ammonium sulphate are small. For the quantity of 45,000 M. tons of ammonium sulphate are needed

1,000 M. tons of coal.

PART VI. REQUISITIONS

According to figures supplied by Commerce Sub-Commission in Part II, ammonium sulphate requirements for the year 1945 are:

117,000 M. tons

The production capacity for the year 1945 is:

45,000 M. tons

Therefore, requisitions should be lodged for:

72,000 M. tons of ammonium sulphate.

PART VII. EFFECT OF SHIPPING SITUATION.

The production of the reactivated plants will save

45,000 M. tons

of shipping tonnage.

CONCLUSIONS

a) Ammonium sulphate production of 45,000 M. tons/yearly, corresponding to 50% of the requirements south of the Pisa-Rimini line, can be covered from local resources provided that the required electric power be allocated for the plants. This electric power subdivided as follows: 14,000 KW at Crotone; 3,600 KW at Oschiri and 5,000 KW at Nera Montoro, will be available by January 1945 and should not be diverted for other uses than nitrogenous fertilizers production.

b) In order to realize the above program transportation of pyrites to the plants should be granted.

Declassified E.O. 12356 Section 3.3/NND No. 785015

PART VII. EFFECT ON SHIPPING SITUATION.

The production of the reactivated plants will save

45,000 M. tons

of shipping tonnage.

CONCLUSIONS

a) Ammonium sulphate production of 45,000 M. tons/yearly, corresponding to 50% of the requirements south of the Pisa-Rimini line, can be covered from local resources provided that the required electric power be allocated for the plants. This electri power subdivided as follows: 14,000 KW at Crotone; 5,600 KW at Bacchiri and 5,600 KW at Nera Montoro, will beavailable by January 1949 and should not be diverted for other uses than nitrogenous fertilizers production.

b) In order to realize the above program transportation of pyrites to the plants should be granted.

Declassified E.O. 12356 Section 3.3/NND No. 785015

ITALIAN STEEL INDUSTRY

(Liberated Italy)

Contents.

			Page
Memorandum on rehabilitation			92
Appendix	A.	Ilva Steel Plant, Piombino	95
Appendix	B.	Società La Magona d'Italia	98
Appendix	C.	Terni Soc. per l'Industria e l'Elettricità Stabilimenti Siderurgici	100
Appendix	D.	Ilva Steel Works Bagnoli	108
Appendix	E.	Ilva Steel Works - Torre - Annunziata	112
Appendix	F.	S.A. Acciaierie e Ferriere Pugliesi, Bari	118
Appendix	G.	S.A. Acciaierie e Ferriere Pugliesi - Giovinazzo	121

0286

Declassified E.O. 12356 Section 3.3/NND No. 785015

SECTION 6.

M E M O R A N D U M O N:

ITALIAN STEEL INDUSTRY (LIBERATED ITALY)

The following major Iron and Steel Plants are located in liberated Italy, south of the Pisa-Rimini line:

(1) ILVA - PIOMBINO
(2) LA MAGONA D'ITALIA - PIOMBINO
(3) TERNI SOC. PER L'INDUSTRIE E L'ELETTRICITA'
STABILIMENTO SIDERURGICI
(4) ILVA - BAGNOLI
(5) ILVA - TORRE ANNUNZIATA
(6) S.A. ACCIAIERIE E FERRIERE PUGLIESI - BARI
& GIOVINAZZO

Of the above plants ILVA - TORRE ANNUNZIATA is in partial operation producing steel sections for Army requirements. The S.A. ACCIAIERIE E FERRIERE PUGLIESI at GIOVINAZZO is also operating producing steel sections for the Director of Works.

Both these units are relatively small. Of the remaining units only the large plant at Terni is in any kind of condition to operate in a relatively short period of time, and even then would require power not yet available.

The plant at Terni, with the exception of the power plant, escaped serious damage from bombing and demolition, but certain items of plant, notably the electric steel furnaces, some of the forging presses and some of the rolling mill equipment were removed North by the Germans. The potential of the plant, however, is still about 60% of the original capacity but the firm will be unable to manufacture any quantity of alloy or high quality steels which were normally made in electric furnaces. This plant is not laid out for the mass production of medium and low carbon materials but covers a wide range of steel and engineering products. They have a well equipped steel foundry and machine shops, together with extensive shops devoted to the production of gun ammunition and weapons of war.

The plant of ILVA at BAGNOLI and at PIOMBINO are heavily damaged, the first by German demolition squads and the second at Allied bombing. Of the two plants, the works at BAGNOLI are by far the most modern and have themselves already carried out certain repairs. When in running

Declassified E.O. 12356 Section 3.3/NND No. 785016

both these units are relatively small. Of the remaining units only the large plant at Terni is in any kind of condition to operate in a relatively short period of time, and even then would require power not yet available.

The plant at Terni, with the exception of the power plant, escaped serious damage from bombing and demolition, but certain items of plant, notably the electric steel furnaces, some of the forging presses and some of the rolling mill equipment were removed North by the Germans. The potential of the plant, however, is still about 60% of the original capacity but the firm will be unable to manufacture any quantity of alloy or high quality steels which were normally made in electric furnaces. This plant is not laid out for the mass production of medium and low carbon materials but covers a wide range of steel and engineering products. They have a well equipped steel foundry and machine shops, together with extensive shops devoted to the production of gun ammunition and weapons of war.

The plant of ILVA at BAGNOLI and at PIOMBINO are heavily damaged, the first by German demolition squads and the second at Allied bombing. Of the two plants, the works at BAGNOLI are by far the most modern and have themselves already carried out certain repairs. When in running order this plant would be capable of producing all types of steel sections and semi-finished materials including coke, pig iron and by products, such as fertilisers and cement.

It is the decision of the Industry Sub-Commission that the plant at Piombino should be cannibalised to strengthen the unit at Bagnoli. The two works are similar in scope, and produce the same type of finished materials. Both have blast furnaces, coke ovens, steelworks and rolling mills, - many items of the plant although not identical are similar and complementary to each other. Both are on the coast and the necessary movement of machinery and raw materials could be carried out by water. The plant at Piombino could also be utilised to replace damaged parts at ILVA, TORRE ANNUNZIATA and increase the output. The Tinplate and Sheet plant of Le Magone D'Italia, Piombino, has been so heavily damaged by Allied aerial bombardment that nothing short of completely rebuilding the plant would suffice. Many sections of this plant are old and most of the equipment would have difficulty in competing with the latest British or American practice. In addition, the present site of the works is bad and water is found 1 metre below the surface, necessitating expensive foundations for the buildings and machinery. It is submitted that the rehabilitation of this

Declassified E.O. 12356 Section 3.3/NND No. 785015

works is not possible in one year, and operations should be confined to salvage of useful plant and raw materials.

Briefly our plan for the rehabilitation of the central and southern Italian steel industry is as follows:

(1) Maintain operations and if possible expand the output at Piombino and Torre Annunziata.
(2) Assist in every way the Terni plant to get into operation and then expand its production. This will call for the restarting of steel furnaces, rolling mills for plates, sheets and sections, and the steel foundry and machine shops, tyre mill, forge and pattern shops. It is not proposed to reactivate any of the firm's specialised armament plant for the production of ammunition, armour plate and guns.
(3) Start rehabilitation work at the Piombino plant, using as much as possible cannibalised items from Piombino. In this way it is anticipated that imported plant items can be kept down to a negligible quantity.

Obviously this programme will call for a large quantity of imported raw materials and attached to this report are estimated requirements of these materials to cover this programme from Dec. 1944 to Dec. 1945. Every effort will be made to use local products. Large tonnages of steel scrap will have to be collected and classified, coking coal will have to be imported in large tonnages. Where Italian lignite or Sardinian coal can be used no imported coal has been asked for. The Terni plant being especially designed to use lignite almost exclusively, can operate with little imported coal.

The finished products to be produced from the several steel plants are:

(a) Steel Sections, including heavy sections and rails.
(b) Steel sheets, plates and corrugated sheeting, tin and black plate, locomotive tyres.
(c) Steel tubes up to 4" diameter.
(d) Iron and Steel castings and forgings for locomotives, hydro-electric plants and general construction and repairs.
(e) Reinforcing rods, wire rods, nails, nuts and bolts, etc.

To assist in the realisation of this programme it will be necessary to put into operation the following subsidiary plants:

0 2 9 2
Declassified E.O. 12356 Section 3.3/NND No. 785015

[illegible] be anticipated that imported plant items can be kept down to a negligible quantity.

Obviously this programme will call for a large quantity of imported raw materials and attached to this report are estimated requirements of these materials to cover this programme from Dec. 1944 to Dec. 1945. Every effort will be made to use local products. Large tonnages of steel scrap will have to be collected and classified, coking coal will have to be imported in large tonnages. Where Italian lignite or Sardinian coal can be used no imported coal has been asked for. The Terni plant being especially designed to use lignite almost exclusively, can operate with little imported coal.

The finished products to be produced from the several steel plants are;

(a) Steel Sections, including heavy sections and rails.
(b) Steel sheets, plates and corrugated sheeting, tin and black plate, locomotive tyres.
(c) Steel tubes up to 4" diameter.
(d) Iron and Steel castings and forgings for locomotives, hydro-electric plants and general construction and repairs.
(e) Reinforcing rods, wire rods, nails, nuts and bolts, etc.

To assist in the realisation of this programme it will be necessary to put into operation the following subsidiary plants;

(1) ILVA IRON FOUNDRY, FALONIGA, for the production of ingot moulds, cast iron rolls, and general consumable items of auxiliary plant used in the steelworks.

(2) CANTIERI METALLURGICI ITALIANI, CASTELLAMMARE, with their sheet mills, nut and bolt plant, iron foundry and construction shops.

Many other plants, notably the shipyards at Naples, Castellammare, and Taranto will link into the programme with the gradual availability of materials and the well equipped engineering shops of Navalmeccanica and the machine tool plant of Bencini in Naples can assist in the supply of maintenance parts for machinery and the completion of semi-finished steel parts.

It is estimated that this programme would give direct employment to 10,000 workmen, with indirect employment to 9,000 more, and would produce after one years working 30,000 tons of steel per month.

Declassified E.O. 12356 Section 3.3/NND No. 785015

It is hardly necessary to point out that unless facilities for intercommunication between the various plants, their sources of raw materials and the consumers of the materials are made available the scheme will not work. Road, rail and coastal shipping facilities must be made available for the collection of materials and the distribution of the finished product.

A priority for available power must be established especially in the Terni area, where the destruction caused by the Germans to the main power plants have caused a serious situation. Some assistance in this can be given by the Terni Group who have a scheme for coupling an existing water turbine formerly driving the armour plate mill onto a generator. Supplies of oxygen for demolition and repair work must be made available to all plants.

All the plants will have to work together under a committee appointed from the directors of the various firms, together with representatives of A.C.C. and the Italian Government. It is suggested that the Italian Government could control and allocate raw materials from central stockpiles and the finished materials could in turn be allocated by them on a ration basis. In fact, a similar body to the British Iron and Steel Control could be formed. This control should of necessity consist of men well acquainted with the needs and functions of the industry.

Attached are individual reports on all the firms covered by this programme, together with schedules giving their requirements for raw materials, and estimated finished products for the period Jan. 1, 1945 to Dec. 31, 1945.

The estimated raw materials have been broken down into imports and those materials which can be obtained locally.

In order to implement this programme, requisitions for the necessary raw materials are in course of preparation and will be submitted at an early date. It is hoped they will all be accepted to enable the programme to be put into smooth operation.

The production of 400,000 tons of steel, iron and other materials, per year against imports of raw materials amounting to 165,000 tons will show a net saving in imports of 435,000 tons per annum.

At the same time the availability of these basic materials will enable many consumers to start the wheels turning again. For example, Public Works authorities will be able to construct bridges, steel will

Declassified E.O. 12356 Section 3.3/NND No. 785015

that the Italian Government could control and allocate raw materials from central stockpiles and the finished materials could in turn be allocated by them on a ration basis. In fact, a similar body to the British Iron and Steel Control could be formed. This control should of necessity consist of men well acquainted with the needs and functions of the industry.

Attached are individual reports on all the firms covered by this programme, together with schedules giving their requirements for raw materials, and estimated finished products for the period Jan. 1, 1945 to Dec. 31, 1945.

The estimated raw materials have been broken down into imports and those materials which can be obtained locally.

In order to implement this programme, requisitions for the necessary raw materials are in course of preparation and will be submitted at an early date. It is hoped they will all be accepted to enable the programme to be put into smooth operation.

The production of 600,000 tons of steel, iron and other materials, per year against imports of raw materials amounting to 165,000 tons will show a net saving in imports of 435,000 tons per annum.

At the same time the availability of these basic materials will enable many consumers to start the wheels turning again. For example, Public Works authorities will be able to construct bridges, steel will be available for building construction, the food processing and canning industries will have some tin or black plate for the production of containers. Steel and iron castings for general engineering and repairs to hydro-electric stations will be available; locomotive, tramway and railway wagon tyres will be produced locally, plates and forgings for marine end ship construction and repairs will be available in some quantities. The call and necessity for steel in LiberatedItaly will be so large that the programme we have under review will do little more than touch the fringe of the requirements.

APPENDICES ATTACHED

Appendix A. Report on Ilva Steel Plant, Piombino.
" B. Report on Soc. La Magona d'Italia, Piombino.
" C. Report on Terni Soc. per l'Industrie e l'Elettricita Stabilimento Siderurgici.
" D. Report on Ilva Steel Plant, Bagnoli.
" E. Report on Ilva Steel Plant, Torre Annunziata.
" F. Report on S.A. Acciaerie e Ferriere Pugliesi, Bari.
" G. Report on S.A. Acciaerie e Ferriere Pugliesi, Giovinazzo.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 2 9 9 1

APPENDIX A.

REPORT ON ILVA STEEL PLANT, PIOMBINO

GENERAL.

This plant is situated within the Port Area of Piombino and covers a large area of some 1.000.000 sq. metres. The covered space is approximately 100.000 sq. metres. The products of the plant were:- coke, motor fuel, ammonia, tar, fertiliser, pig iron, steel ingots, finished steel rolls, beams, sections and re-inforcing rods.

The plant operated continuously 24 hours per day, and employed approximately 3.000 hands. The output of the principal products were as follows:-

1500 tons of coke daily.
1200 tons of pig-iron daily.
1000 tons of finished steel daily, and
800 tons of ingots.

The plant has been heavily damaged by aerial bombardment - the damage is chiefly confined to the shop structures and mill floors. Most items of remaining plant can be salvaged. Some of the plant, especially the more modern, has been removed by the Germans, notably; two 120 ton Siemens Tilting Furnaces and all auxiliary gear; all mechanical gear from the coke ovens and the new power plant.

Generally, speaking, this was an integrated steelworks. All furnaces, both melting and re-heating, were fired by a mixture of coke oven and blast furnace gas; standby gas producers however are available. The steam raising equipment was operated by gas burners.

Some 1000 bombs fell within the precincts of the plant; many however on open ground, but the general appearance of the works is bad. All roof covering has been stripped off the buildings; many bomb craters have been blown in the shop floors and wrecked run out tables and other auxiliaries.

PLANT DETAILS.

1. BLAST FURNACES. Two modern blast furnaces with a combined output of 1200 tons of pig-iron daily have been heavily damaged by

Declassified E.O. 12356 Section 3.3/NND No. 785015

1000 tons of finished steel daily, and
800 tons of ingots.

The plant has been heavily damaged by aerial bombardment - the damaged is chiefly confined to the shop structures and mill floors. Most items of remaining plant can be salvaged. Some of the plant, especially the more modern, has been removed by the Germans, notably: two 120 ton Siemens tilting furnaces and all auxiliary gear; all mechanical gear from the coke ovens and the new power plant.

Generally, speaking, this was an integrated steelworks. All furnaces, both melting and re-heating, were fired by a mixture of coke oven and blast furnace gas; standby gas producers however are available. The steam raising equipment was operated by gas burners.

Some 1000 bombs fell within the precincts of the plant; many however on open ground, but the general appearance of the works is bad. All roof covering has been stripped off the buildings; many bomb craters have been blown in the shop floor and wrecked run out tables and other auxiliaries.

PLANT DETAILS.

1. BLAST FURNACES. Two modern blast furnaces with a combined output of 1200 tons of pig-iron daily have been heavily damaged by German demolitions. In addition, some parts have been removed. A small proportion of the iron ore was imported from Elba, but the majority of this raw material came from Morocco.

2. COKE OVENS. All the mechanical equipment for the ovens have been removed to Germany. What remains of the plant has been damaged by bombs. This plant will have to be completely rebuilt and can be forgotten on any short term programme.

3. ORE HANDLING PLANT. Most of this plant has been badly damaged and it is impossible to repair without many replacement parts.

4. STEEL MELTING PLANT. This plant is not in very good shape. Of the 7 furnaces only 3 remain on site and these will need re-bricking and repairs to gas producers. Two of these units could, however, be put into condition to work in a period of approximately 3/4 months.

The most modern portion of the plant, i.e. two 120 tons Tilting furnaces together with a 600 ton Hot Metal Mixer have been taken away by the Germans.

Declassified E.O. 12356 Section 3.3/NND No. 785015

The shop structure is reasonably good, and overhead cranes and charging gear are in fair condition. Fresh roof sheeting will be necessary.

5. ROLLING MILLS: The company has several rolling mills. These mills cover a wide range. Only one unit has been removed by the Germans (the most modern) and generally speaking the remainder can be repaired.

The mill details are as follows;

a) 1000 m/m Blooming Mill, steam driven, soaking pits and auxiliaries, slightly damaged.
b) 350 m/m Train, connected to 1000 m/m Mill drive. Old machinery, but in good condition.
c) 850 m/m Mill. The most modern unit has been removed to Germany.
d) 550 m/m Mill. The mill train and housings are in good condition; the driving motor has suffered a direct hit and has been demolished.
e) 500 m/m Mill. The Rolling Mill and drive are in fairly good condition.
f) 300 m/m Mill. This unit is in good condition with the exception of the housing tops, which are missing.
g) 500 m/m; 320 m/m, and 290 m/m Looping Mill for small rounds. This equipment has suffered some damage but can be repaired. The plant was built in 1937 and laid down for the production of reinforcing rods.

Generally speaking, all the above equipment can be put to work after a period of reconstruction, which would not call for any large amount of new materials. The first step to be taken would be the collection of all the roof sheeting now lying over the plant and using this to re-cover the roof. This will clear up the shop floor and enable work to be started on the repair to machinery.

6. MACHINE SHOP: The machine shop still possesses the bare essentials to run the plant. There are 4 good roll turning lathes, and many items of heavy plant, including planing machines, lathes, drills, etc., for general maintenance. Unfortunately a large bomb crater in the middle of the shop floor has damaged the shop structure.

7. POWER PLANT: The company has two power units. The newer

0 2 9 8
Declassified E.O. 12356 Section 3.3/NND No. 785015

removed to Germany.

d) 550 m/m Mill. The mill train and housings are in good condition; the driving motor has suffered a direct hit and has been demolished.

e) 500 m/m Mill. The Rolling Mill and drive are in fairly good condition.

f) 300 m/m Mill. This unit is in good condition with the exception of the housing tops, which are missing.

g) 500 m/m; 350 m/m, and 250 m/m Looping Mill for small rounds. This equipment has suffered some damage but can be repaired. The plant was built in 1937 and laid down for the production of reinforcing rods.

Generally speaking, all the above equipment can be put to work after a period of reconstruction, which would not call for any large amount of new materials. The first step to be taken would be the collection of all the roof sheeting now lying over the plant and using this to re-cover the roof. This will clear up the shop floor and enable work to be started on the repair to machinery.

6. MACHINE SHOP: The machine shop still possesses the bare essentials to run the plant. There are 4 good roll turning lathes, and many items of heavy plant, including planing machines, lathes, drills, etc., for general maintenance. Unfortunately a large bomb crater in the middle of the shop floor has damaged the shop structure.

7. POWER PLANT: The company has two power units. The newer unit has had the turbines taken away by the Germans and can be ruled out. In the old power house however there is a Steam Turbo-Generator 3000 KW and a smaller unit Steam Turbo-Generator 1500 KW. Both these units are in good condition, but the boilers would have to be converted to oil firing before they could be used.

8. AUXILIARY SERVICES: All auxiliary services are in bad condition. There is no possibility of any blast furnace or coke oven gas and the standby producers would have to be altered to burn either coal or lignite. The removal of three bi electric generators of a total of 21.500 KW has effectively stopped any operations on a large scale until these are replaced or an alternative supply arranged.

CONCLUSIONS AND RECOMMENDATIONS.

1. This plant has been so heavily damaged by bombing and by German depredations that a possibility of the plant restarting in a short period of time is out of the question.

Declassified E.O. 12356 Section 3.3/NND No. 735015

2. The management of the firm were asked to put forward a programme for the rehabilitation of the plant covering a period of one year. It is suggested that this plan be considered with care, because the potential products of this unit will be a necessity to the industrial and civil rehabilitation of Italy.

3. Some 25% of the plant is capable of a short term policy of salvage and it is suggested the consideration be given to the firm's proposals based on the use of local iron ore and lignite.

4. Advantage should be taken to consolidate this unit in terms of machinery to strengthen the plants at Bagnoli and Torre-Annunziata.

0 3 0 9

Declassified E.O. 12356 Section 3.3/NND No. 785015

0301

Declassified E.O. 12356 Section 3.3/NND No. 785015

APPENDIX II

REPORT ON SOC. "LA MAGONA" D'ITALIA

PIOMBINO

REPORT.

This is a large plant which originally devoted its capacity to the production of tin-plate, galvanised sheets, black-plate, etc. The maximum productive capacity was rated at 90,000 tons per year. The plant was originally founded in 1896 and is British in origin. It is understood that a large portion of the capital is still British owned.

The works are self-contained. They make their own steel which is processed by them down to the finished sheets. The plant has been so heavily damaged by aerial bombardment that it is the opinion of the general manager that the only sound solution will be to completely rebuild the plant, preferably on a fresh site adjacent to Piombino. There is no doubt that the works are in a very bad state, and as much of the equipment is old any question of attempted rehabilitation in its original form is not recommended.

The plant last operated on Jun. 18th, when a devastating Allied raid stopped all work. The shops are so broken up with bomb craters that it is extremely difficult to tour the works, and even clearing up will take many months.

Many direct hits have been scored on the steelworks and rolling mills and caused heavy damage.

PLANT DETAILS.

So badly damaged is this unit that little purpose would be served in going into much detail, beyond saying that most major plant items have suffered damage in one form or another. Briefly, the plant consists of the following:

Two 50 ton O.H. Siemens Martin furnaces. Three 35 ton and Two 25 ton Siemens Martin O.H. Furnaces. Gas producers to some of this plant has been so badly damaged and all but two of the furnaces wrecked.

Declassified E.O. 12356 Section 3.3/NND No. 785015

been so heavily damaged by aerial bombardment that it is the opinion of the general manager that the only sound solution will be to completely rebuild the plant, preferably on a fresh site adjacent to Plembing. There is no doubt that the works are in a very bad state, and as much of the equipment is old any question of attempted rehabilitation in its original form is not recommended.

The plant last operated on jan. 18th, when a devastating Allied raid stopped all work. The shops are so broken up with bomb craters that it is extremely difficult to tour the works, and even clearing up will take many months.

Many direct hits have been scored on the steelworks and rolling mills and caused heavy damage.

PLANT DETAILS.

So badly damaged is this unit that little purpose would be served in going into much detail, beyond saying that most major plant items have suffered damage in one form or another. Briefly, the plant consists of the following:

> Two 50 ton C.H. Siemens Martin furnaces. Three 35 ton and Two 25 ton Siemens Martin C.H. Furnaces. One producers to some of this plant has been so badly damaged and all but two of the furnaces wrecked.

The main heavy rolling mill has suffered a direct hit on the housing and heavy damage has resulted. The mill floor is so broken up with bomb craters and covered with wreckage that little re-construction work is possible.

The remaining plant consists of 3 tinplate mills and 3 sheet mills, in addition there were the usual galvanising, pickling and tinning plants, together with a partially dismantled sulphuric acid plant.

Most of the above equipment with the exception of 1 tinplate and 1 sheet mill can be considered an almost complete loss. Some of the mill driving motors are in reasonable condition. The transformer sub-station is reasonably intact, the power supply coms in from Lurdermilc, and the adjacent ELVI plant. All services such as water

Declassified E.O. 12356 Section 3.3/NNO No. 785015

0 3 0 4

supply, power and other auxiliaries are broken down and could not be operated.

Within the works there are many large stocks of finished and semi-finished steel in the form of ingots, sheet bars, black plate and tin plate. Not much requisition has been carried out by the Allies on these stocks due probably to the difficulty of obtaining access to the works caused by the wreckage.

CONCLUSIONS AND RECOMMENDATIONS.

1. The state of this plant and equipment is such as to make it impossible to carry out any kind of rehabilitation.

2. This fact is well realised by the plant manager, who expressed the view that the only way to resurrect this plant was to build an entirely new unit on a fresh site.

3. The stocks of sheet bar would probably be useful to D.W. for use in the tin plate plant at Castellammare.

Declassified E.O. 12356 Section 3.3/NND No. 785015

an entirely new unit on a green site.

3. The stocks of steel bar would probably be useful to D.W. for use in the tin plate plant at Castelnaumare.

Declassified E.O. 12356 Section 3.3/NND No. 785015

10306

ATTENDIX C

REPORT ON TERNI SOC. PER L'INDUSTRIE E L'ELETTRICITA STAB-ILIMENTO SIDERURGICI

REPORT.

This is an enormous plant comparable to any of the huge Sheffield steel and armaments plants and manufactures all kinds of finished and semi-finished steel and associated materials from tin-plate to the heaviest naval guns and armour plate. When working to full capacity the works employed 10,000 hands and manufactured 5000 tons of steel per week. Much of this steel wasin the form of better quality alloy materials, such as nickel steel and stainless quality.

The ochcern consisted of some 20 main departments and their scope was almost unlimited. A good portion of the plant is old and many of the machines date back to before the last war. There are however, several modern sections, notably the rolling mills and some of the machine shops. Another interesting and most important point is the fact that the Siemens melting and also the re-heating and treatment furnaces are designed to burn local brown coal (or lignite) almost exclusively, and the firm own and work big deposits some 20 KM to the north. Some idea can be gained from the fact that they used 500.000 tons of lignite and only 30.000 tons of long flame coal per annum.

With the exception of the iron foundry the works have escaped serious damage from aerial bombardment or demolitions, but whole sections including all the electric steel melting furnaces and one heavy rolling mill have been removed to Germany. These electric furnaces were used for the production of alloy steels and owing to their removal the production of these quality materials will be difficult. Throughout the works there are some 70 gas producer machines designed to burn lignite. Most of the hydraulic systems are adequate and in good condition.

PLANT DETAILS.

It is proposed to briefly enumerate the various departments, in order to give some information as to the condition and scope of the various sections.

This plant had a rated output of 300/350

Declassified E.O. 12356 Section 3.3/NND No. 785015

of the machines date back to before the last war. There are however, several modern sections, notably the rolling mills and some of the machine shops. Another interesting and most important point is the fact that the Siemens melting and also the re-heating and treatment furnaces are designed to burn local brown coal (or lignite) almost exclusively, and the firm own and work big deposits some 20 km to the north. Some idea can be gained from the fact that they used 500.000 tons of lignite and only 30.000 tons of long flame coal per annum.

With the exception of the iron foundry the works have escaped serious damage from aerial bombardment or demolitions, but whole sections including all the electric steel melting furnaces and the heavy rolling mill have been removed to Germany. These electric furnaces were used for the production of alloy steels and owing to their removal the production of those quality materials will be difficult. Throughout the works there are some 70 gas producer machines designed to burn lignite. Most of the hydraulic systems are adequate and in good condition.

PLANT DETAILS.

It is proposed to briefly enumerate the various departments, in order to give some information as to the condition and scope of the various sections.

1. STEEL FOUNDRY. This plant had a rated output of 300/350 tons of steel castings per month. They handled chiefly heavy castings for marine work. i.e. rudder frames, stern brackets, etc. also turbine frames and casings for the hydroelectric plants; and other medium and heavy castings. They have an extensive pattern shop to serve this department. The battery of high frequency electric furnaces and two 10 ton Electric Arc Melting Furnaces have been removed to Germany. Three 30 ton Siemens Melting furnaces are still on the site and undamaged. Certain stocks of raw materials still remain. This is an old foundry but has a high degree of technical skill --the heaviest casting ever made was in the order of 130 tons weight; pieces weighing up to 50 tons each were common practice. This department has suffered no serious damage, and is considered an important factor in the reconstruction of Italian industry.

2. PLATE MILL. This plant is old but useful for the production of medium ship plates. It is driven by a 1700 H.I. water turbine and is a 3 high mill with lifting tables. It can handle plates of 3 metres width x 10 metres length. A useful unit should ship plates be required.

Declassified E.O. 12356 Section 3.3/NND No. 785015

3. HEAVY FORGE: This is a very large and extensive plant comparable in scope and size to any similar unit in the world. It has 8 heavy hydraulic presses ranging in size from 12,000 tons capacity down to 2,000 ton capacity. The largest overhead crane has a lift of 300 tons and can handle the heaviest of ingots. Several of the presses including the largest are of British design, constructed at Terni. In addition, there are presses for the bending and forming of heavy ships armour plate. This plant is capable of forging heavy 16" guns, heavy marine propeller shafts, turbine rotors and heavy forgings for the transmission to Germany. It is possible that these parts are still within the district.

4. ARMOUR PLATE MILL. In an extension of the forge there is an old armour plate mill driven by a 3500 H.P. motor connected to a water turbine. This plant is suitable only for the production of heavy armour plate. It was laid down in 1906 and is of French construction (Schneider Creusot). The plant is in good condition.

5. STEEL FURNACE PLANT. Adjacent to the forge and armour plate mill is the second of the firm's steel plants. It consisted originally of three 25 ton Electric Arc Furnaces and two 90 ton Siemens Open Hearth Furnaces. These furnaces are fed by 6 gas producers for burning lignite.

The 3 electric furnaces have been removed to Germany, but the Siemens furnaces remain and are in good condition. This plant is firstly for the production of steel ingots for further manipulation in the forge and armour plate mill.

6. GUN HEAT TREATMENT PLANT. This is a special plant for hardening gun forgings or long marine shafting. It consists of vertical furnaces (electric) and quench tanks. It has been partially damaged by bombs and also certain items of equipment have been removed. This is a special plant designed to link into the firm's gun manufacture programme.

7. SHELL FORGING PLANT. This plant was installed for the production of medium and small artillery shell forgings. It consists of 2 mechanical shell forging presses and 5 hydraulic shell forging presses [illegible] all the necessary furnace equipment and other auxiliaries.

0308
Declassified E.O. 12356 Section 3.3/NND No. 785015

8. ARMOUR PLATE MILL. In an extension of the forge there is an old armour plate mill driven by a 3500 H.P. motor connected to a water turbine. This plant is suitable only for the production of heavy armour plate. It was laid down in 1906 and is of French construction (Schneider Creusot). The plant is in good condition.

5. STEEL FURNACE PLANT. Adjacent to the forge and armour plate mill is the second of the firm's steel plants. It consisted originally of three 25 ton electric Arc Furnaces and two 90 ton Siemens Open Hearth Furnaces. These furnaces are fed by 8 gas producers for burning lignite.

The 3 electric furnaces have been removed to Germany, but the Siemens furnaces remain and are in good condition. This plant is firstly for the production of steel ingots for further manipulation in the forge and armour plate mill.

6. GUN HEAT TREATMENT PLANT. This is a special plant for hardening gun forgings or long marine shafting. It consists of vertical furnaces (electric) and quench tanks. It has been partially damaged by bombs and also certain items of equipment have been removed. This is a special plant designed to link into the firm's gun manufacture programme.

7. SHELL FORGING PLANT. This plant was installed for the production of medium and small artillery shell forgings. It consists of 2 mechanical shell forging presses and 5 hydraulic shell forging presses together with all the necessary furnace equipment and other auxiliaries. The hydraulic pumping plant has been partially dismantled for removal but most of the items still remain, on the site. The output of this plant was 150.000 shell forgings per month.

8. MEDIUM FORGE. This plant has been almost completely dismantled and the parts are alleged to be strewn all over the district. Some of the items have been taken to North Italy and Germany and at the present moment it is not possible to say what can be saved. The management are hopeful of re-erecting one press of 1000 tons capacity. Originally the plant consisted of:

(a) Two 1000 ton presses.
(b) One 1500 ton press.
(c) Two 600 ton presses.

The hydraulic pumping plant is partially intact. This plant originally made small and medium sized forgings of many different types.

9. TYRE MILL: There is an old tyre rolling mill of british design and construction in existence together with a1000 ton press for punching the blanks. One hydraulic pump out of a total of three is capable

Declassified E.O. 12356 Section 3.3/NND No. 785015

of operating. In addition there are three small drop hammers and an old bolt forging plant within the department. The tyre heat-treatment plant is in a state of incompletion, this item is new. This is a potentially useful unit for the production of loco and wagon tyres.

10. GILDA BRICK FACTORY. This plant, which is perfectly intact, has an output of 15,000 tons of refractory materials per month. Raw materials were imported from Sardinia and North Italy. A considerable quantity of brick stocks of various shapes are on hand.

11. ARMOUR PIERCING SHELL FACTORY. This plant produced about 70% of the medium and heavy armour piercing shells used by the Italian Navy. Without knowledge of the proof, conditions or performance, the standard of production appeared to be high and manufacturing details regarding hardness gradients and heat treatment particulars would no doubt be of great interest to British and U.S.A. Armament specialists. Many of the machine tools for the machining operations have been removed to Germany but the heat treatment plant is intact. This plant operated on town's gas supply.

The output of the plant was given as 8/10 of the heavy calibres per day and 40/50 of the medium calibres per day. There are considerable quantities of various calibre shells still within the plant and apparently requiring little work to complete.

12. ROLLING MILLS: This part of the works is of fairly modern construction and consists of 5 mills of various sizes.

a) 750 mm. Blooming Mill (Removed to Germany in 50 wagons, but 35 of these wagons are believed to be still within the district).
b) 750 mm. Section Mill of British design and construction - appeared to be in good condition.
c) 500 mm. Section Mill - can handle joists up to 200 mm.
d) 300 mm. Looping Mill - can handle rounds up to a maximum size of 35 mm. and also strip and plate.
e) 200 mm. Section Mill - can roll sections up to 50 mm. and flats and strips.

A certain amount of damage has been done by aerial bombardment and a direct hit was scored on one of the mill drives. The destruction however can be repaired.

Declassified E.O. 12356 Section 3.3/NND No. 785015

to of great interest to British and U.S.A. Armament Specialists. Many of the machine tools for the machining operations have been removed to Germany but the heat treatment plant is intact. This plant operated on town's gas supply.

The output of the plant was given as 8/10 of the heavy calibres per day and 40/50 of the medium calibres per day. There are considerable quantities of various calibre shells still within the plant and apparently requiring little work to complete.

12. ROLLING MILLS: This part of the works is of fairly modern construction and consists of 5 mills of various sizes.

a) 750 mm. Blooming Mill (Removed to Germany in 50 wagons, but 35 of these wagons are believed to be still within the District).
b) 750 mm. Section Mill of British design and construction appeared to be in good condition.
c) 500 mm. Section Mill - can handle joists up to 300 mm.
d) 300 mm. Looping Mill - can handle rounds up to a maximum size of 95 mm. and also strip and flats.
e) 200 mm. Section Mill - can roll sections up to 50 mm. and flats and strips.

A certain amount of damage has been done by aerial bombardment and a direct hit was scored on one of the mill drives. The destruction however can be repaired.

The main difficulty in operating these departments is the supply of electric power and nothing can be done until the main Gelsite power plant is restored, which will take many months. All furnace plant and auxiliary gear appeared to be intact.

13. STEEL PLANT. Adjoining the rolling mills there is the third of the works steel plants. This unit consists of one 50 ton Siemens Open Hearth Furnace and two 45 ton Siemens Open Hearth Furnaces. One of these furnaces is damaged, one is under reconstruction and the third in good condition. The casting pits, rolling mill, soaking pits, and overhead cranes are in working order.

14. PLATE MILL. The plate mill had an output of some 2000 tons per month of check-plate is at present dismantled. It could, however, be fairly easily re-erected should it be necessary. The driving motor and furnaces are in sound condition.

Declassified E.O. 12356 Section 3.3/NND No. 785015

15. ELECTRIC ORE SMELTING FURNACES: At the extreme end of the works there is a partially constructed plant for melting iron ore in electric furnaces. This is housed in a fine, modern building, but none of the plant is on site and can be ruled out as an operating unit. It could with advantage be used for storage purposes.

16. TIN PLATE MILL: One 6 stand tin plate mill about 25 years old is in an operable condition; the drive and furnaces are intact. In addition there is some 2000 tons of black plate stacked up within the shop, adjacent to the mill there is a tinning plant in operable condition, and a small, rather old 6 stand cold rolling mill. A modern cold strip mill has been removed to Germany.

Consideration would be given to the importation of blocktin to process this 2000 tons of sheets and save imports into Italy. It is known that AMGOT is importing large quantities of tin plate for food canning purposes.

17. GUN TURNING PLANT: This is a large shop especially laid out the rough machining of guns and associated forgings. Many items of valuable plant have been taken away, and what few machines remain leave an unbalanced unit. Little can be done with this unit under present circumstances.

18. HEAVY MACHINE SHOP: This shop is an extremely important one, and is valuable as a factor on the repair of the hydro-electric plants. Many items of turbine castings are already set up on the work tables awaiting repair, and the machinery and equipment in this shop is the only one so far seen with sufficient scope to undertake this work. Unfortunately the action taken by 8th Army Command up to the time of our visit has stopped all work, and repairs are at a standstill.

19. IRON FOUNDRY: This unit, which is the oldest part of the works and situated adjacent to Terni railway station, has suffered heavy damage by aerial bombardment. The damage is such that this plant can be written off: Strewn around this plant, however, are many hundreds of cast iron water pipes of various sizes and a recovery program should be instituted forthwith. The removal of one of the iron cupolas to the steel foundry should be expedited to enable new castings to be made for the hydro-station.

REMARKS: The works are at present being used by 8th Army as a P.O.W. and many items of foodstuffs are stored around the plant. This unfortunately, has led to a certain amount of pilfering on the part of the Italian workpeople and Brigadier Pickards has now [illegible] civilians. This, un-

Declassified E.O. 12356 Section 3.3/NND No. 785015

...the Aiken mechanism of guns and associated forgings. Many items of valuable plant have been taken away, and what few machines remain leave an unbalanced unit. Little can be done with this unit under present circumstances.

18. HEAVY MACHINE SHOP: This shop is an extremely important one, and is valuable as a factor in the repair of the hydro-electric plants. Many items of turbine castings are already set up on the work tables awaiting repair, and the machinery and equipment in this shop is the only one so far seen with sufficient scope to undertake this work. Unfortunately the action taken by 56 Area Command up to the time of our visit has stopped all work, and repairs are at a standstill.

19. IRON FOUNDRY: This unit, which is the oldest part of the works and situated adjacent to Termi railway station, has suffered heavy damage by aerial bombardment. The damage is such that this plant can be written off; Strewn around this plant, however, are many hundreds of cast iron water pipes of various sizes and a recovery program should be instituted forthwith. The removal of one of the iron cupolas to the steel foundry should be expedited to enable new castings to be made for the Hydro-station.

REMARKS: The works are at present being used by 56 Area as a R.S.D., and many items of foodstuffs are stored around the plant. This unfortunately, has led to a certain amount of pilfering on the part of the Italian workpeople and Brigadier Richards has now closed the works and closed any access to civilians. This, unfortunately, is having a disastrous effect on the repair work needed for the power plant, as this plant is the only one capable of carrying out repairs and fabricating the replaced parts.

Also within the works there are some 300 rail cars loaded with machinery, most of these cars have one axle box damaged, and some programme of repair should be instituted on these wagons.

There is no question of restarting any extensive section of these works until the power position is restored, but it is essential that certain sections i.e. steel foundry, iron foundry and part of the heavy machine shops be put to work immediately in order to expedite repairs to the power plants.

The management of the plant are capable and intelligent men well able to undertake the most difficult of work.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 3 1 4

CONCLUSIONS AND RECOMMENDATIONS:

(1) The range and scope of this plant is the widest so far seen in liberated Italy. It has also escaped with the exception of the power plant and iron foundry any serious damage. There is, however, sufficient power to run certain sections, . . steel foundry and part of the machine shop, and arrangements should be immediately made to re-open these departments to enable repairs to be carried out to the vital Terni power plants. Once these power plants are even partially repaired, the rolling mills could be restarted for the fabrication and construction of steel sections for Bailey bridges and smaller structures.

(2) As this plant is the biggest single enterprise in the Terni Valley, the employment of labour will help the relief services, and assist with useful and tangible production against the present inflation tendency. The possibilities with this plant are unlimited and due to the fact that they use only local lignite, and iron ore from Piombino, the import question is not a serious one.

(3) We see no useful purpose in reactivating the heavy forge, armour plate mills, shell plants, gun machine shop, under wartime conditions unless there are requirements for the Italian Navy and Army.

(4) The order of precedence for restarting work should be something of the following order,

a) Iron and Steel Foundries, part of the heavy machine shop. This will take care of repairs to the electricity plants. Available power priority should be given to these departments.
b) Rolling Mills for the production of bridging sections for any requirements.
c) Tin plate mills and tinning plant to save imports of tin plate from U.K. and U.S.A.

(5) The many thousands of tons of steel scrap will cover the firm's steel melting programme for many months to come.

Declassified E.O. 12356 Section 3.3/NND No. 785015

armour plate mills, shell plants, gun machine shop, under wartime conditions unless there are requirements for the Italian Navy and Army.

(4) The order of precedence for restarting work should be something of the following order,

a) Iron and Steel Foundries, part of the heavy machine shop. This will take care of repairs to the electricity plants. Available power priority should be given to these departments.
b) Rolling Mills for the production of bridging sections for any requirements.
c) Tin plate mills and tinning plant to save imports of tin plate from U.K. and U.S.A.

(5) The many thousands of tons of steel scrap will cover the firm's steel melting programme for many months to come.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0316

Declassified E.O. 12356 Section 3.3/NND No. 785015

MONTHLY PROGRAM OF PRODUCTION AT THE STEELWORKS

	PLANTS	PRODUCTS	QUANTITY JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	A
Vol. I	Open Hearth steel works	Ingots	8000	8000	11500	11500	15000	15000	15000	15
	Steel foundry	various castings	120	120	120	120	120	120	120	
	Pig iron foundry	various special castings, pipes & special parts for pipes, ingot moulds	600	600	600	600	800	1000	1350	1
	Sheets rolling mill	Sheets	1200	1200	1200	1200	1200	1200	1200	
	Thin sheets rolling mill	Normal, magnetic & special thin sheets	800	1200	1200	1600	1600	1600	1600	
	Tin plates shop	Tin and black sheets	500	500	500	750	750	750	750	
	Section irons rolling mill	Beams, angles, billets, round irons	2000	3000	3000	3000	6000	6000	6500	
	Forging Shop	Forged irons	200	200	200	300	300	300	300	
	Tyres rolling mill	Tyres for locomotives, vehicles and tramways	250	500	700	700	700	700	700	
	Bolts shops	Rivets, bolts, stay-bolts, spikes	300	450	450	450	450	450	450	
	Pattern makers and joiners	(a)								
	Metallic carpentry	(b) roof girders, tanks, stoves & other works	150	150	150	150	150	150	150	
	Fire bricks Shop	Fire bricks	300	300	300	300	300	300	300	
	Tools shop	(c) Tools	2	3	3	3	3	3	3	

0317

Declassified E.O. 12356 Section 3.3/NND No. 785015

MONTHLY PRODUCTION AT THE STEELWORKS AT TERNI

QUANTITY IN TONS												
JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
8000	8000	11500	11500	15000	15000	15000	15000	15000	15000	15000	15000	159.000
120	120	120	120	120	120	120	120	120	120	120	120	1.440
600	600	600	600	300	1000	1250	1350	1350	1350	1350	1350	12.300
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	14.000
800	1200	1200	1600	1600	1600	1600	1600	1600	1600	1600	1600	17.600
500	500	500	750	750	750	750	750	750	750	750	750	8.250
2000	3000	3000	3000	6000	6000	6500	6500	6500	6500	6500	6500	62.000
200	200	250	300	300	300	300	300	300	300	300	300	3.300
250	500	700	700	700	700	700	700	700	700	700	700	7.750
300	450	450	450	450	450	450	450	450	450	450	450	5.250
150	150	150	150	150	150	150	150	150	150	150	150	1.800
300	300	300	300	300	300	300	300	300	300	300	300	3.600
2	3	3	3	3	3	3	3	3	3	3	3	35

0318

Declassified E.O. 12356 Section 3.3/NND No. 785015

TEM I CONSUMPTION OF RAW MATERIALS

REQUIREMENT IN TONS

	Jan.	Feb.	Mar.	Apr.	May	June	July
From Company's Plants							
Lime and Limestone	565	565	800	1,030	1,040	1,080	1,100
Lignite	11,000	11,000	15,700	20,400	20,500	20,600	20,600
Gas Coke	50	50	80	80	100	100	100
Calcium Carbide	20	20	20	20	20	20	20
From Liberated Italy							
Pig Iron	2,900	2,900	2,900	4,200	5,500	5,500	5,500
Hematite Pig Iron	360	360	360	360	360	360	360
Phosphoric Pig Iron (1)	-	-	-	-	120	240	450
Iron Ore	190	190	270	350	350	350	350
Dolomite	215	215	300	400	400	400	400
Clay	60	60	60	60	60	60	60
China Clay	15	15	15	15	15	15	15
Silica (Quartz)	90	90	90	90	90	90	90
Sillimanite	6	6	6	6	6	6	6
Lead	1	1	1	1	1	1	1
Pig Iron Moulding Sand	250	250	250	250	285	325	380
Cylinder Oil	0.5	0.5	0.5	0.5	0.5	0.5	0.
From Occupied Italy							
Manganese-Iron 55%	112	112	173	200	200	200	200
Silicon-Iron 75%	44	44	57	72	72	75	75
Oven Coke (2)	410	410	480	530	550	580	630
Wood c.m.	30	40	45	45	45	50	55
Steel Moulding Sand	150	150	150	150	150	150	150
Graphite	3	3	3	3	4	5	6.
Welding-Helectrodes	90,000	90,000	90,000	90,000	90,000	90,000	90,000
Engine Oil	4	4	4	4	4	4	4
Hard Grease	0.5	0.6	0.6	0.6	0.6	0.6	0.
Cold Cylinder Neck Grease	0.5	0.6	0.6	0.6	0.6	0.6	0.
Hot Cylinder Neck Grease	10	13	13	18	18	18	18
Copper Wire for Windings of Various Diameters	0.6	0.6	0.6	0.6	0.6	0.6	0.
Bare Copper - Bars and Wire	0.3	0.3	0.3	0.3	0.3	0.3	0.
Insulated Copper for Low Tension Lines	0.1	0.1	0.1	0.1	0.1	0.1	0.
Fluorspar	32	32	46	60	60	60	60

0 3 1 9

Declassified E.O. 12356 Section 3.3/NND No. 785015

TENT CONSUMPTION OF RAW MATERIALS

REQUIREMENT IN TONS

Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
565	900	1,030	1,040	1,080	1,100	1,100	1,100	1,100	1,100	1,100	11,680
11,000	15,700	20,400	20,500	20,600	20,600	20,600	20,600	20,600	20,600	20,600	222,800
50	80	80	100	100	100	100	100	100	100	100	1,060
20	20	20	20	20	20	20	20	20	20	20	240
2,900	2,900	4,200	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	56,900
360	360	360	360	360	360	360	360	360	360	360	4,320
-	-	-	120	240	450	450	450	450	450	450	3,060
190	270	350	350	350	350	350	350	350	350	350	3,800
215	300	400	400	400	400	400	400	400	400	400	4,330
60	60	60	60	60	60	60	60	60	60	60	720
15	15	15	15	15	15	15	15	15	15	15	180
90	90	90	90	90	90	90	90	90	90	90	1,080
6	6	6	6	6	6	6	6	6	6	6	72
1	1	1	1	1	1	1	1	1	1	1	12
250	250	250	285	325	380	380	380	380	380	380	3,890
.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
	112	173	200	200	200	200	200	200	200	200	2,197
	44	57	72	72	75	75	75	75	75	75	814
	430	480	530	550	580	630	630	630	630	630	6,740
	40	45	45	45	50	55	65	65	65	65	635
	150	150	150	150	150	150	150	150	150	150	1,800
	3	3	3	4	5	6.5	6.5	6.5	6.5	6.5	61
	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	1,080,000
	4	4	4	4	4	4	4	4	4	4	48
	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7.1
.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7.1
.5	13	13	18	18	18	18	18	18	18	18	198
	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7.2
	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.6
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2
	2	32	46	60	60	60	60	60	60	60	650

0320

Declassified E.O. 12356 Section 3.3/NND No. 785015

I CONSUMPTION OF RAW MATERIALS (Continued)

REQUIREMENT IN TONS - continued

	Jan.	Feb.	Mar.	Apr.	May	June	July
Importation:							
Coal	1,900	1,900	2,750	3,600	3,600	3,600	3,600
Chromite	29	29	37	45	45	45	45
Magnesite	27	27	31	35	35	35	35
Chamotte	40	40	40	40	40	40	40
Ceylon Silvery Graphite	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Tin	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Copper	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Antimony	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Heavy Scraps	4,300	4,300	6,200	8,000	8,000	8,000	8,000
Light Scraps	2,150	2,150	3,000	4,000	4,000	4,000	4,000

Notes:

a. This shop produces usually the requirements of the works.

b. The production of this shop depends upon the type of the pr
a production of roof girders, camp stoves, etc., for the us

c. In these shops which have usually at disposal 280 machine
be produced:

Pieces for ships (propeller holding axles, propeller
turbines and reducers, collectors, sternposts)

Pieces for railways (crank shafts, straight shafts,
buffers, etc.)

Pieces of cast steel and pig iron, forged pieces, et

(1) We need phosphoric pig iron to produce pig iron pipes.

(2) In big pieces to be used in the cupola furnace (comprising
the dolomite).

0321

Declassified E.O. 12356 Section 3.3/NND No. 785015

I CONSUMPTION OF RAW MATERIALS (Continued)

REQUIREMENT IN TONS - continued

Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1,900	2,750	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	38,950
25	37	45	45	45	45	45	45	45	45	45	500
27	31	35	35	35	35	35	35	35	35	35	400
40	40	40	40	40	40	40	40	40	40	40	480
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7.2
1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.
00	4,300	6,200	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	84,800
50	2,150	3,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	43,300

p produces usually the requirements of the works.

uction of this shop depends upon the type of the products. We have foreseen tion of roof girders, camp stoves, etc., for the use of our works.

shops which have usually at disposal 280 machine tools, following pieces can ced:

ces for ships (propeller holding axles, propeller holding arms pieces for turbines and reducers, collectors, sternposts)

ces for railways (crank shafts, straight shafts, wheel tyres, bushings, buffers, etc.)

ces of cast steel and pig iron, forged pieces, etc.

phosphoric pig iron to produce pig iron pipes.

ieces to be used in the cupola furnace (comprising 180 tons per month to calcine mite).

0322

APPENDIX D

REPORT ON ILVA STEEL WORKS - PATNOLY

GENERAL.

This concern is a large steelworks of the most modern design and construction. It is the largest and most modern plant in Italy and compares favourably in size and design with any plant in Great Britain or the UnitedStates. Its main items of plant and equipment are as follows;

1. Two large batteries of Coke Ovens.
2. Three Blast Furnaces.
3. Sintering Plant of the Dros.
4. Siemens Martin Open Hearth Steel Plant.
5. Thomas Steel plant.
6. Electric Furnace Steel plant.
7. 1150 M/M Blooming Mill.
8. 900 M/M Rail and Section Mill.
9. 750 M/M Rolling Mill.
10. Two smaller mills 450 M/M and 350 M/M for small sections, rounds and strip rolling.
11. All ancillary plant necessary to make an integrated and balanced steelworks.

The whole of the plant and design with the exception of the three blast furnaces are German origin.

A most thorough job of demolition has been done by the Germans, and there can be no such thing as a short term reconstruction programme. The following items of plant are the least damaged, (1) Coke Ovens, (2) Thomas Steel Plant, (3) The Blooming Mill; and to get these items working would take at least 9 months, and they would be of little value except for breaking down ingots to blooms. Partly finished steel would have to go to other plants for re-processing, calling for considerable transport and extra handling.

Given supplies of roofing material, replacements to demolished plant and the importation of coal, it would take 2 years and the expenditure of considerable sums of money to put this plant into anything approaching its former condition. (this, assuming replacement items are available on the world market.)

Declassified E.O. 12356 Section 3.3/NND No. 785015

10. Two smaller mills 450 M/M and 350 M/M for small sections, rounds and strip rolling.
11. All ancillary plant necessary to make an integrated and balanced steelworks.

The whole of the plant and design with the exception of the three blast furnaces are German origin.

A most thorough job of demolition has been done by the Germans, and there can be no such thing as a short term reconstruction programme. The following items of plant are the least damaged; (1) Coke Ovens, (2) Thomas Steel Plant, (3) The Blooming Mill; and to get these items working would take at least 9 months, and they would be of little value except for breaking down ingots to blooms. Partly finished steel would have to go to other plants for re-processing, calling for considerable transport and extra handling.

Given supplies of roofing material, replacements to demolished plant and the importation of coal, it would take 2 years and the expenditure of considerable sums of money to put this plant into anything approaching its former condition, (this, assuming replacement items are available on the world market.)

PLANT DETAILS.

1. Coke ovens. A modern plant only comparatively lightly damaged designed to use Welsh and Durham coal. A considerable number of the large gas pipes have been removed by the U.S. Engineers for bridge building. Could probably be on part production in six months.

2. Blast furnaces. Three blast furnaces, Italian design and construction. All elevating gear has been damaged. The firm's representatives consider one complete unit can be salvaged by a process of cannibalization. Three furnaces worked on imported North African ores and were designed for an output of 1200 tons per day.

3. Sintering plant. This unit is reasonably intact, its rated output is 1200 tons per day.

4. Siemens Martin Open Hearth Steel Plant. This consisted of 5-70 ton furnace with one hot metal mixer. Two of these furnaces might be rebuilt, but overhead tg ping-crane, structure of the building and charging machines are extensively damaged. The gas producers

0323
Declassified E.O. 12356 Section 3.3/NND No. 785015

were alleged to be intact. At least 12 months work to put this plant in order.

5. Thomas steel plant. This consists of 4 Converters each designed for 30 tons per hour each. Only one of these converters ever worked, as the plant had only just been completed at the moment when it was wrecked. It might be possible to get one of these converters working in a period of 6 months.

6. Electric furnace steel plant. This has been thoroughly wrecked, and even if power could be made available it can be written off for a long period.

7. Rolling mills. These have been thoroughly damaged by explosive charges, and the roof beams and trusses dropped onto the mill floor. The housing of the 1150 m/m mill was intact but the ingot turning manipulators had been destroyed by explosive charges. The gear boxes of the run-out tables had been wrecked. Damage of varying degree had also been done to the other mills which are interconnected and each a part of the final process, the putting to work of one or any part would not be a solution. A complete re-building of this part of the plant is necessary and would take a considerable period of time (at least 12 months).

It should also be mentioned that the steam raising plant, power house and blowing engines were heavily damaged and would require a long term programme to rehabilitate.

The only shop capable of any immediate work is the firm's engineer or maintenance shop and this is at present fully employed on bridge work for the Army Authorities. A large proportion of the plant in this department is old and out of date.

REMARKS.

1. Any kind of roof covering is virtually non-existent - enormous quantities of galvanised sheeting would be required to cover the plant.

2. We were informed that the complete plant cost 580,000,000 lire or approximately L. 6,300,000 (pre-war) to construct.

3. The plant in its present form was only completed immediate-

0 3 2 4

Declassified E.O. 12356 Section 3.3/NND No. 785015

floor. The housing of the 1150 m/m mill was intact but the ingot turning manipulators had been destroyed by explosive charges. The gear boxes of the run-out tables had been wrecked. Damage of varying degree had also been done to the other mills/ and interconnected and each a part of the final process, the putting to work of one or any part would not be a solution. A complete re-building of this part of the plant is necessary and would take a considerable period of time (at least 12 months).

It should also be mentioned that the steam raising plant, power house and blowing engines were heavily damaged and would require a long term programme to rehabilitate.

The only shop capable of any immediate work is the firm's engineer or maintenance shop and this is at present fully employed on bridge work for the Army Authorities. A large proportion of the plant in this department is old and out of date.

REMARKS.

1. Any kind of roof covering is virtually non-existent - enormous quantities of galvanised sheeting would be required to cover the plant.

2. We were informed that the complete plant cost 580,000,000 lire or approximately L. 6,300,000 (pre-war) to construct.

3. The plant in its present form was only completed immediately pre-war and never really got into full production.

4. Available throughout the works are approximately 20,000 tons of blooms and ingots. This material is of little use in its present form, but could be made use of by reprocessing down to rails or sections either in other plants in liberated Italy (if available) or in U.K. or U.S.A. In its present state it is contributing virtually nothing to the Allied War Effort.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 3 2 6

Conclusions and recommendations

1. Any possibility of short term reconstruction is out of the question.

2. A reconstruction policy would call for the expenditure of a large sum of money and the importation of heavy replacement parts which would have an extended delivery date (even if they were available on the world market). The fact that the plant is of German origin would complicate this problem.

3. The large stocks (20,000 tons) of ingots and blooms should, if at all possible, be put to use, either on other plants in liberated Italy or in the U.K. or U.S.A.

4. Another tangible asset available for immediate use is some hundreds of expensive forged steel rolls of various sizes, and ancillary equipment for the mills. They are of no use where they are, other plants could probably utilise a portion of this equipment.

5. The firm's chief metallurgist (Dott. Ing. CIRIL NEKAR) who accompanied us round the plant gave the impression of being a man of wide experience in the steel trade and of a go-ahead outlook.

6. It is suggested that should any policy for the reconstruction and rehabilitation of this plant be undertaken, enormous quantities of coal will required to be imported from either U.K. or U.S.A.

7. Considerable shipping space will also be required for the importation of the necessary raw materials in the form of iron ores.

8. Any reconstruction would also require large quantities of oxygen. It is well-known that supplies of oxygen in liberated Italy now and in the near future are very short.

Declassified E.O. 12356 Section 3.3/NND No. 785015

equipment for the mills. They are of no use where they are; other plants could probably utilise a portion of this equipment.

5. The firm's chief metallurgist (Dott. Ing. CIRIL REKAR) who accompanied us round the plant gave the impression of being a man of wide experience in the steel trade and of a go-ahead outlook.

6. It is suggested that should any policy for the reconstruction and rehabilitation of this plant be undertaken, enormous quantities of coal will required to be imported from either U.K. or U.S.A.

7. Considerable shipping space will also be required for the importation of the necessary raw materials in the form of iron ores.

8. Any reconstruction would also require large quantities of oxygen. It is well-known that supplies of oxygen in liberated Italy now and in the near future are very short.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0 3 2 8

Declassified E.O. 12356 Section 3.3/NND No. 785015

PROGRAM OF THE PRODUCTION & CONSUMPTION OF RAW MATERIALS

PLANTS / PRODUCTS	PERIOD Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.
Production of Plant:							
Coke oven plant — Coke	-	-	-	-	-	-	-
Coke oven plant — Pitch-Tar	-	-	-	-	-	-	-
Coke oven plant — Sulphate of Ammonia	-	-	-	-	-	-	-
Blast Furnace — Pig Iron	-	-	-	-	-	-	-
Blast Furnace — Granulated Slag	-	-	-	-	-	-	-
Open hearth steelworks — Ingots	-	-	-	-	-	-	-
Rolling Mills — Rolled beams, rails, channels, etc.	-	-	-	-	-	-	7000
Factory for Cement — Cement	3000	3000	3000	3000	3000	3000	3000
Electric Furnaces — Calcium Carbide	450	450	450	450	450	450	450
Electric Furnaces — Ferro Alloys	-	-	-	-	-	-	-
Dolomite Kilns — Dolomite	250	250	250	250	250	250	250
Factory for Fire Bricks — Lime	-	-	-	-	500	500	500
Fire Bricks — Fire Bricks	400	400	400	400	400	400	400
Power Station — KW-hours	2000x 24x31	2000x 24x28	2000x 24x31	2000x 24x30	3000x 24x31	3000x 24x30	5000x 24x31
Lime Kilns — Lime	-	-	-	-	500	500	500
Consumption of raw materials:							
From liberated Italy:							
Iron Ore from Elba	-	-	-	-	-	-	-
Limestone	2600	2600	2600	2600	3300	3300	3300
Scrap	-	-	-	-	-	-	-
Plaster	150	150	150	150	150	150	150
Dolomitestone	500	500	500	500	500	500	500
Fireclay from Sardinia	500	500	500	500	500	500	500
Coke of the Gas Producers	200	200	200	200	2800	2800	2800
Coal from Sardinia	-	-	-	-	200	200	200
Electrical Energy (bought)	1000x 24x31	1000x 24x28	1000x 24x31	1000x 24x31	1000x 24x31	1000x 24x30	1000x 24x31
Importations:							
Coal for Coke Ovens	-	-	-	-	-	-	-
Coal (Splint) for Steel Works	-	-	-	-	-	-	700
Nafta	-	-	-	-	-	-	700
Coal (long-flame) for f.f. fire br.	250	250	250	250	250	250	250

0329

Declassified E.O. 12356 Section 3.3/NND No. 785015

OF THE PRODUCTION & CONSUMPTION OF RAW MATERIALS PER MONTH IN TONS "TIVA" PATROLI

PERIOD 1945

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
-	-	-	-	-	-	-	7500	7500	7500	7500	7500	37500
-	-	-	-	-	-	-	300	300	300	300	300	1,500
-	-	-	-	-	-	-	120	120	120	120	120	6000
-	-	-	-	-	-	-	-	7500	7500	7500	7500	30000
-	-	-	-	-	-	-	-	3000	3000	3000	3000	12000
-	-	-	-	-	-	-	9000	9000	9000	9000	9000	45000
-	-	-	-	-	-	7000	7000	7000	7000	7000	7000	42000
-	-	-	-	-	-	-	-	-	-	-	-	-
3000	3000	3000	3000	3000	3000	3000	3000	6000	6000	6000	6000	48000
450	450	450	450	450	450	450	450	450	450	450	450	5400
-	-	-	-	-	-	-	-	-	600	600	600	1800
250	250	250	250	250	250	250	250	400	400	400	400	3600
-	-	-	-	500	500	500	500	500	500	500	500	1,000
400	400	400	400	400	400	400	400	400	400	400	400	4800
2000x 21x31	2000x 21x28	2000x 21x31	2000x 21x30	3000x 21x31	3000x 21x30	5000x 21x31	5000x 21x31	7000x 21x30	7000x 21x31	7000x 21x30	7000x 21x31	
-	-	-	-	500	500	500	500	500	500	500	500	4000
-	-	-	-	-	-	-	-	5000	5000	5000	5000	20000
2600	2600	2600	2600	3300	3300	3300	3800	3800	9000	9000	9000	54900
-	-	-	-	-	-	-	1500	2000	2000	2000	2000	9500
150	150	150	150	150	150	150	150	300	300	300	300	2400
500	500	500	500	500	500	500	500	800	800	800	800	72000
500	500	500	500	500	500	500	500	500	500	500	500	6000
200	200	200	200	2000	2800	2800	2800	3000	3000	3000	3000	24000
-	-	-	-	200	200	200	300	300	400	400	400	2400
1000x 24x31	1000x 24x28	1000x 24x31	1000x 24x31	1000x 24,x31	1000x 24x30	1000x 24x31	1000x 24x31	1000x -	-	-	-	
-	-	-	-	-	-	-	10000	10000	10000	10000	10000	50000
-	-	-	-	-	-	700	1800	3000	3000	3000	3000	14500
-	-	-	-	-	-	700	700	1200	1200	1200	1200	6200
-	-	-	-	-	-	250	250	250	250	250	250	3000
250	250	250	250	250	250	250	250	250	250	250	250	

0 3 3 0 1

APPENDIX E

REPORT ON "ILVA" STEEL WORKS - TORRE ANNUNZIATA

General

This plant is a fairly large steelworks and rolling mills, part of the works of old design and construction, but an effort has been made to install modern plant in the form of two new rolling mills. The pre-war number of hands was in the region of 1,800. The plant consumed in 1942 12,700,000 Kw. H. of electric power.

The following are the principal departments,

1) Siemens Martin Open Hearth Steel Plant
2) Rolling Mills
3) Wire Drawing Plant
4) Nail Manufacturing Shop
5) Iron Foundry
6) Shell Forging Shop
7) Engineer and Roll Turning Shop

Plant: General.

These works have expanded round the original rolling mills and the steelworks and new mills were constructed about 1925-26. They are a mixture of old and modern. Damage to the plant was sustained both by bombing and by German demolitions, but is in no way so thorough as at ILVA, BAGNOLI, and given a reasonable chance, it is considered that this plant can be rehabilitated throughout in a comparatively short period of time (say 12 months). Parts of the equipment, notably one furnace and two trains of rolls can be got to work in a much shorter period of time (say 2 months) and work on the reconstruction of these items is being pushed ahead with energy.

Plant Details.

I. Siemens Martin Open Hearth Plant. This is a relatively small plant with 3-thirty furnaces fired by producer gas. The charging machine has been damaged, but is now under repair. One furnace is being reconstructed and re-bricked and the firm hope to be producing steel from this furnace in one month's time. All overhead cranes are intact and

Declassified E.O. 12356 Section 3.3/NND No. 785015

4) Nail Manufacturing Shop
5) Iron Foundry
6) Shell Forging Shop
7) Engineer and Roll Turning Shop

Plant: General.

These works have expanded round the original rolling mills and the steelworks and new mills were constructed about 1925-26. They are a mixture of old and modern. Damage to the plant was sustained both by bombing and by German demolitions, but is in no way so thorough as at ILVA, BAGNOLI, and given a reasonable chance, it is considered that this plant can be rehabilitated throughout in a comparatively short period of time (say 12 months). Parts of the equipment, notably one furnace and two trains of rolls can be got to work in a much shorter period of time (say 2 months) and work on the reconstruction of these items is being pushed ahead with energy.

Plant Details.

I. Siemens Martin Open Hearth Plant. This is a relatively small plant with 3-thirty furnaces fired by producer gas. The charging machine has been damaged, but is now under repair. One furnace is being reconstructed and re-bricked and the firm hope to be producing steel from this furnace in one month's time. All overhead cranes are intact and the two ladle cars are workable. The gas producers also escaped serious damage. The structure of the building is good but roof and side sheeting is missing. Maximum output of this plant would be in the order of 21 1200/1300 tons per week. The usual ingot size is 1/2 ton metric.

II. Rolling Mills. The original old rolling mills are as follows;

a) 1-3 High 3 stand 600 m/m Cogging Mill
1-3 High 2 stand 450 m/m Intermediate & Finishing Mill

This plant is under reconstruction. Furnaces are being re-built and the driving motors are intact. These units could roll small beams, angles, channels, rounds, billets, flats and squares. At present progress the plant should be in production in two months. No roof covering for the shop is in existence, and work will be done under difficulties unless this can be provided.

0321
Declassified E.O. 12356 Section 3.3/NND No. 785015

b) 1-2 High 9 Stand 260 m/m Mill
1-2 High 4 Stand 260 m/m Mill

These units are of an old pattern, but are still capable of useful work, driving motors are intact and re-construction work is in progress. These mills could roll small rounds, flats or squares. No roof covering is available over the plant. Furnaces to feed the above rolls are of the continuous billet type, fired by pulverised coal. They are at present under re-construction. The whole of this plant should be ready for rolling within 2 months. The new rolling mills are housed in a large modern type shop and consist of the following:

c) One semi-continuous 11 Stand Mill with an output of 10 tons per hour. All the driving motors have been completely demolished by the Germans, but the mechanical damage to the plant is not heavy. There is no prospect of running this plant unless new driving motors can be obtained. This would take considerable time and can be ruled out as short-term policy.

d) One modern looping mill for wire rods and small flats. This is of modern construction with repeaters, coiling machines, cooling bank and all necessary ancillary equipment. The driving motors have been thoroughly demolished and until these are replaced the plant is unable to operate. Its rated output was approximately 10 tons per hour. Of all the rolling mills, those described under (a) and (b) only can be considered for any work in the near future.

III. Wire Drawing Plant. This department has 12 Drawing benches, and of these 75% are in production, producing wire of various sizes. It was understood that the bulk of the products go to the firm's own nail producing plant. In a short time the firm expects to have the whole of this equipment working. They can draw wire down to 2/10 m/m diameter. The plant appeared to be of fairly modern design and construction.

IV. Nail manufacturing Shop. This is a medium-size plant consisting of some 70 machines producing an assorted variety of nails from 1/2" in length to a maximum of 8" in length. The plant is at present operating at 300 tons of nails per month, but they expect to boost this output to 450 tons per month in about 2 weeks time by the introduction of further machines which are at present under repair. This department gives the impression of being well organised.

V. Iron Foundry. Adjacent to the steel plant there is a small iron foundry with two cupolas, 1-3000 Kg. capacity, and 1-1500 Kg. capacity. This is used chiefly on the firm's own requirements and considered to be only useful for repairs and replacement parts to the steelworks.

0532
Declassified E.O. 12356 Section 3.3/NND No. 785015

d) One modern looping mill for wire rods and small flats. This is of modern construction with repeaters, coiling machines, cooling bank and all necessary ancillary equipment. The driving motors have been thoroughly demolished and until these are replaced the plant is unable to operate. Its rated output was approximately 10 tons per hour. Of all the rolling mills, those described under (a) and (b) only can be considered for any work in the near future.

III. Wire drawing plant. This department has 12 Drawing Benches, and of these 75% are in production, producing wire of various sizes. It was understood that the bulk of the products go to the firm's own nail producing plant. In a short time the firm expects to have the whole of this equipment working. They can draw wire down to 2/10 m/m diameter. The plant appeared to be of fairly modern design and construction.

IV. Nail manufacturing shop. This is a medium-size plant consisting of some 70 machines producing an assorted variety of nails from 1/2" in length to a maximum of 8" in length. The plant is at present operating at 300 tons of nails per month, but they expect to boost this output to 450 tons per month in about 2 weeks time by the introduction of further machines which are at present under repair. This department gives the impression of being well organised.

V. Iron foundry. Adjacent to the steel plant there is a small iron foundry with two cupolas, 1-3000 Kg. capacity, and 1-1500 Kg. capacity. This is used chiefly on the firm's own requirements and considered to be only useful for repairs and replacement parts to the steelworks.

VI. Shell Forging Shop. Situated at the extreme end of the steel plant with the following equipment:

a) 300 Ton punching and drawing Press
b) 150 Ton punching and drawing Press
c) Two continuous billet furnaces fired by coal
d) Two sets of three throw hydraulic pumps together with 9 air bottles with a total capacity of 10 cu.meters. Water pressure is at 220 Kg/cm.
e) Two electric furnaces for the heat treatment of shell forgings.
f) Two semi-automatic shell turning lathes.

0533

Declassified E.O. 12356 Section 3.3/NND No. 785015

Of the above equipment the only damaged items are driving motors to the pumps and the electric heat treatment furnaces. This plant was installed for the production of 105 m/m and 76 m/m shells and should have a minimum production of 100 per hour and 150 per hour of each size concurrently. Large quantities of shell forgings are stocked around the plant.

This department could be easily repaired and put to work again if so desired.

VII. Engineers and Roll Turning Shop. This is a small shop with an assorted variety of plant to cover the firm's own maintenance needs. Workable machines are at present fully employed.

General information.

1. The firm's power station has been heavily damaged, but three transformers of 2500 KVA each have escaped damage and will serve the factory's needs.

2. The following sizes of products can be rolled:

a) Beams 300 m/m max.
b) Angles 120 m/m max.
c) Channels 120 m/m max.
d) Rounds 80 m/m max.
e) Flats 150 m/m x 40 m/m
f) Squares 100 m/m sq.
g) Tees 50 m/m
h) Rails 27 Kg. per metre.

3. The maximum output of the rolling mills was given at 6,200 metric tons per month.

4. Present re-construction work now proceeding should give an output of approximately 2,000 tons per month of assorted products.

Conclusions and Recommendations:

1. A good deal of energy is being used to get portions of this plant working, and in view of the relatively light damage to some items of the plant, should be encouraged.

2. Given the necessary materials in the form of roof-sheeting, replaced motors and certain castings, the plant could be put back to its former condition in a period of 12 months.

3. As a short term policy each section is [illegible]

Declassified E.O. 12356 Section 3.3/NND No. 785015

factory's needs.

2. The following sizes of products can be rolled:

a) Beams 200 m/m max. b) Angles 120 m/m max.
c) Channels 120 m/m max. d) Rounds 80 m/m max.
e) Flats 150 m/m x 40 m/m f) Squares 100 m/m sq.
g) Tees 50 m/m h) Rails 27 Kg. per metre.

3. The maximum output of the Rolling Mills was given at 6,200 metric tons per month.

4. Present re-construction work now proceeding should give an output of approximately 2,000 tons per month of assorted products.

Conclusions and Recommendations:

1. A good deal of energy is being used to get portions of this plant working, and in view of the relatively light damage to some items of the plant, should be encouraged.

2. Given the necessary materials in the form of roof-sheeting, replaced motors and certain castings, the plant could be put back to its former condition in a period of 12 months.

3. As a short-term policy much can and is being done, and the re-habilitation of this plant is much less of a problem than at ILVA-BAGNOLI.

4. The output of the steel plant is approximately 1/3 that of the rolling capacity, and it is pointed out that re-habilitation of all the mill equipment is of little use unless supplies of steel in the block form can be made available from other sources.

5. The importation of coal for gas producers and re-heating furnaces will be necessary.

6. The following stocks of raw and semi-finished materials were observed:

a) Approx. 2,500 tons of steel ingots.
b) Approx. 2,000 tons of steel wire and rods in coils and random lengths.
c) Large quantities of 76 m/m and 105 m/m shell forgings.

Declassified E.O. 12356 Section 3.3/NND No. 785015

7. A directive is sought regarding the policy to be followed on munition plants. It is pointed out that there is a modern and almost intact shell forging plant at these works. Also large quantities of shell forgings which may be of use to USA munition plants.

Declassified E.O. 12356 Section 3.3/NND No. 785015

0337

Declassified E.O. 12356 Section 3.3/NND No. 785015

REQUIREMENTS OF RAW MATERIALS FOR "ILVA" TORRE ANNUNZIATA

All requirements of raw materials are referred to a plant in conjunction w

1 S.M. Furnace 30 tons capacity
2 Rolling Mills
1 Wire Drawing Plant
1 Nail Manufacturing Shop
1 Iron foundry

(x) only until August 1945 when Bagnoli will start w

PROGRAM OF PRODUCTION (IN TONS)

Production:	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Ingots	2700	2700	2700	2700	2700	2700	2700	2700
Beams Channels Flats Angles Flats Bars Round	2250	2250	2250	2250	2250	2250	2250	2250
Castings	50	50	50	50	50	50	50	50
Italy:								
Electric Power	3000 x31	3000 x28	3000 x31	3000 x30	3000 x31	3000 x30	3000 x31	3000 x31
Heavy Scrap	1250	1250	1250	1250	1250	1250	1250	1250
Light Scrap	750	750	750	750	750	750	750	750
Imported:								
Pig Iron (x)	800	800	800	800	800	800	800	800
Coke Coal	10	10	10	10	10	10	10	10
Coal Steel Works	750	750	750	750	750	750	750	750
Coal for reheating	750	750	750	750	750	750	750	750

0338

Declassified E.O. 12356 Section 3.3/NND No. 785015

ULLMENTS OF RAW MATERIALS FOR "ILVA" TORRE ANNUNZIATA STEEL WORKS

raw materials are referred to a plant in conjunction with the following shops:

1 S.M. Furnace 30 tons capacity
2 Rolling Mills
1 Wire Drawing Plant
1 Nail Manufacturing Shop
1 Iron foundry

(x) Only until August 1945 when Pagnoli will start working.

PROGRAM OF PRODUCTION (IN TONS)

Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	32000
2250	2250	2250	2250	2250	2250	2250	2250	2250	2250	2250	27000
50	50	50	50	50	50	50	50	50	50	50	600
3000 x24x28	3000 x24x31	3000 x24x30	3000 x24x31	3000 x24x30	3000 x24x31	3000 x24x31	3000 x24x30	3000 x24x31	3000 x24x30	3000 x24x31	
1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	15000
750	750	750	750	750	750	750	750	750	750	750	9000
800	800	800	800	800	800	800	800	800	800	800	9600
10	10	10	10	10	10	10	10	10	10	10	120
750	750	750	750	750	750	750	750	750	750	750	9000
750	750	750	750	750	750	750	750	750	750	750	9000

0339

Declassified E.O. 12356 Section 3.3/NND No. 785015

REQUIREMENTS OF RAW MATERIALS FOR "ILVA" TORRE ANNUNZIATA
IN TONS

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Italy:								
Tar	1	1	1	1	1	1	1	1
Dolomite	50	50	50	50	50	50	50	50
Iron Ore	50	50	50	50	50	50	50	50
Fire Clay	25	25	25	25	25	25	25	25
Quartz (SiO_2)	100	100	100	100	100	100	100	100
Magnesite $MgCO_3$	20	20	20	20	20	20	20	20
Fluor Spar. CaF_2	7	7	7	7	7	7	7	7
Fe-Si-Mn	10	10	10	10	10	10	10	10
Fe-Si 75%	20	20	20	20	20	20	20	20
Fe-Mn 55%	30	30	30	30	30	30	30	30
Silica Brick		100				100		
Clay Brick		120				120		
Dolomite		40				40		
Magnesite Brick		20				20		

0340

Declassified E.O. 12356 Section 3.3/NND No. 785015

EMENTS OR RAW MATERIALS FOR "ILVA" TORRE ANNUNZIATA STEEL TONS (Continued)

IN TONS

b.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
1	1	1	1	1	1	1	1	1	1	1	12
50	50	50	50	50	50	50	50	50	50	50	600
50	50	50	50	50	50	50	50	50	50	50	600
25	25	25	25	25	25	25	25	25	25	25	300
00	100	100	100	100	100	100	100	100	100	100	1200
20	20	20	20	20	20	20	20	20	20	20	240
7	7	7	7	7	7	7	7	7	7	7	84
10	10	10	10	10	10	10	10	10	10	10	1200
20	20	20	20	20	20	20	20	20	20	20	2400
30	30	30	30	30	30	30	30	30	30	30	3600
00			100				100				300
20			120				120				360
40			40				40				120
20			20				20				60

0 3 4 1

APPENDIX I

REPORT ON S.A. ACCIAIERIE E FERRIERE PUGLIESI
PAPI

GENERAL

This plant is part of the main steelworks at Giovinazzo and consists of modern buildings housing a medium sized hot tube rolling plant; in addition there is one modern 5-ton Electric Arc Furnace for melting steel, a small power station containing two turbo-generators together with the necessary boilers and coal handling plant. The buildings have been taken over by a company of R.E.'s under Major Burton who have converted them into a workshop for repairs to bulldozers, scrapers, rondrollers and other heavy equipment.

Some of the tube making plant has been moved aside to make floor space, but this has been done in a careful and orderly manner. All bays are equipped with modern overhead cranes, furnaces are in position and in sound condition. The electric driving motors for the mills are intact and carefully sheeted to protect them from dust. It is impossible to operate the plant under present conditions, but as the buildings and equipment are undamaged and being carefully preserved, a start could be made shortly after the military have moved out.

PLANT DETAILS.

1. Electric Steel plant.

This unit consist of one modern 5-ton Electric Arc Furnace of the tilting type. There is a good overhead ladle crane and a casting pit. Ingot moulds and hot metal ladles are in existence. Switch gear and control gear appears to be in good condition. This is a potentially useful unit given supplies of raw materials in the form of refractory materials, dolomite, steel scrap, manganese, etc.

2. Tube Rolling plant

This plant consists of one Rotary Billet piercing machine, one two-stand Pilger Mill for the subsequent tube rolling, one reeling and mandrel extracting machine, all the necessary cooling banks and furnace equipment, in addition there are a number of cold draw benches, and annealing furnaces. The cold draw benches have been removed from their original positions; the remainder of the plant, however, is still left

Declassified E.O. 12356 Section 3.3/NND No. 785015

0342

possible to operate the plant under present conditions, but as the buildings and equipment are undamaged and being carefully preserved, a start could be made shortly after the military have moved out.

PLANT DETAILS.

1. Electric Steel Plant.

This unit consist of one modern 5-ton Electric Arc Furnace of the tilting type. There is a good overhead ladle crane and a casting pit. Ingot moulds and hot metal ladles are in existence. Switch gear and control gear appears to be in good condition. This is a potentially useful unit given supplies of raw materials in the form of refractory materials, dolomite, steel scrap, manganese, etc.

2. Tube Rolling Plant

This plant consists of one Rotary Billet piercing machine, one two-stand pilger mill for the subsequent tube rolling, one reeling and mandrel extracting machine, all the necessary reheating banks and furnace equipment, in addition there are a number of cold draw benches, and annealing furnaces. The cold draw benches have been removed from their original positions; the remainder of the plant, however, is still left on site. The maximum size of tube which can be handled by this plant is in the region of 4" diameter, tubes as small as 1" diameter could be drawn by the cold draw benches.

3. Engineers & Maintenance Shop

The plant in this shop has been strengthened by the acquisition of several machine tools by the R.E.'s, this together with the existing machinery, has resulted in a small but useful plant. General repairs are done on this machinery, i.e. production of spline shafts, grinding of roller races, etc.

4. Power Station

Situated within the works and laid down and designed as a standby unit, is a small but complete thermal unit for the production of power. This unit is not operating, but could probably and with advantage

Declassified E.O. 12356 Section 3.3/NND No. 785015

be utilised to assist the grid. The plant consists of;

a) One 700 K V and one 500 K V Brown Boveri Steam Turbines
b) Two Babcock & Wilcox chain grate boilers
c) The necessary coal handling plant and waste heat economisers.

Major Burton stated that he had not sufficient staff to operate this unit, but would be prepared to supervise its running, if the necessary skilled operators were provided.

CONCLUSIONS AND RECOMMENDATIONS

1. This plant is a small self-contained tube works of rather more modern design and construction than the parent company at Cievinazzo. It is a potentially useful unit as the plant and building are intact, in fact they are being improved by the R.E.'s who are at present in occupation of the premises.

2. Nothing can be done to re-activate this plant under present circumstances due to its occupation and use by the R.E.'s as a repair & Op. It will, however, be in a good position to re-start when this workshop moves forward.

3. All stocks of raw materials, in the form of steel scrap (many hundreds of tons), pig iron, and steel tubes have been requisitioned by D.W. and are drawn on, as required by them.

4. It is suggested that some steps be taken to investigate the possibility of re-starting the electric generating station at present intact and inactive. There are some 500 tons of good quality coal lying alongside the coal handling plant.

0 3 4 3

Declassified E.O. 12356 Section 3.3/NND No. 785015

0344

Declassified E.O. 12356 Section 3.3/NND No. 785015

REQUIREMENTS OF RAW MATERIALS FOR "ACCIAIERIE E FERRIERE PUGLIESI" - B
IN TONS

All requirements are referred to a plant working in conjunction with the following shops
1 tube rolling mill and 1 mechanical shop.

	Jen.	Feb.	Mar.	APr.	May	Jun.	Jul.	Aug.
Production:								
Ingots	550	550	550	550	550	550	550	550
Tube	400	400	400	400	400	400	400	400
Electric power	2000x 24x31	2000x 24x28	2000x 24x31	2000x 24x30	2000x 24x31	2000x 24x30	2000x 24x31	2000x 24x31
Importation:								
Pig Iron (1)	100	100	100	100	100	100	100	100
Coke Coal	6	6	6	6	6	6	6	6
Coal (Splint) for reheating furnaces	250	250	250	250	250	250	250	250
From Liberated Italy:								
Coal of Sardinia	900	900	900	900	900	900	900	900
terme-electric stat.	350	350	350	350	350	350	350	350
Heavy scrap	150	150	150	150	150	150	150	150
Light scrap	2	2	2	2	2	2	2	2
Fluor Spar (CaF_2)	5	5	5	5	5	5	5	5
Magnesite ($MgCO_3$)	20	20	20	20	20	20	20	20
Quartz (SiO_2)	5	5	5	5	5	5	5	5
Fire Clay of Sardinia	10	10	10	10	10	10	10	10
Dolomite ($CaMg(CO_3)_2$)	10	10	10	10	10	10	10	10
Iron Ore	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Tar	-	20	-	-	-	20	-	-
Silica prick	-	10	-	-	-	10	-	-
Magnesite prick	-	10	-	-	-	10	-	-
Dolomite	-	25	-	-	-	25	-	-
Clay brick	8	8	8	8	8	8	8	8
Ferro Mangan 55%	5	5	5	5	5	5	5	5
Ferro Silicon 75%	2	2	2	2	2	2	2	2
FE.SI.Mn.								

(1) Imported till August 1945, when Pegnoli will st

0345

Declassified E.O. 12356 Section 3.3/NND No. 785015

OF RAW MATERIALS FOR "ACCIAIERIE E FERRIERE LOMBARDE" - BARI'S STEEL TOWN

IN TONS

o a plant working in conjunction with the following shops: 1 electric furnace (5 tons capacity)
1 tube rolling mill and 1 mechanical shop.

Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
550	550	550	550	550	550	550	550	550	550	550	6.600
400	400	400	400	400	400	400	400	400	400	400	4.800
000x	2000x	2000x	2000x	2000x	2000x	2000x	2000x	2000x	2000x	2000x	
x28	24x31	24x30	24x31	24x30	24x31	24x31	24x30	24x31	24x30	24x31	
100	100	100	100	100	100	100	100	100	100	100	
6	6	6	6	6	6	6	6	6	6	6	1.200
250	250	250	250	250	250	250	250	250	250	250	72
900	900	900	900	900	900	900	900	900	900	900	3.000
350	350	350	350	350	350	350	350	350	350	350	10.800
150	150	150	150	150	150	150	150	150	150	150	4.200
2	2	2	2	2	2	2	2	2	2	2	1.800
5	5	5	5	5	5	5	5	5	5	5	24
20	20	20	20	20	20	20	20	20	20	20	60
5	5	5	5	5	5	5	5	5	5	5	240
10	10	10	10	10	10	10	10	10	10	10	60
10	10	10	10	10	10	10	10	10	10	10	120
5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	120
30	-	-	20	-	-	20	-	-	-	-	6
0	-	-	10	-	-	10	-	-	-	-	60
0	-	-	10	-	-	10	-	-	-	-	30
5	-	-	35	-	-	25	-	-	-	-	30
3	8	8	8	8	8	8	8	8	8	8	75
2	5	5	5	5	5	5	5	5	5	5	96
	2	2	2	2	2	2	2	2	2	2	60
											24

) Imported till August 1945, when Begnoli will start working.

0348

APPENDIX C

REPORT ON S.A. ACCIAIERIE E. FONDERIE JUGLIESI-GIOVINAZZO

GENERAL.

This plant is a small steelworks and rolling mills situated in Giovinazzo north of Bari. It is at present being controlled and operated by P.W. the O/C being Lt. Mortier of No. 2 District 80 E.P.W. A good job of work has been done by these engineers who have now got the plant working to full capacity. Judged by any standard this plant is very small and consists of 1-25-Ton Siemens Martin O.H. Furnace, two rolling mills; an 18" mill and a 12" mill, complete with electric and a standby steam drive; furnace equipment and all necessary auxiliaries.

In addition there is an old forge with several tilt hammers which was originally used for the production of agricultural implements. A new forge with power driven hammers is being installed by P.W. and the machine shops have also been strengthened by the installation of additional machine tools. The section welding and fabricating department is working to capacity on the fabrication of bridge members for the Army. The works are divided into four main departments, i.e. (a) open hearth Siemens Martin Steel Plant (b) The Rolling Mills. (c) The Forging Plant. (d) The Machine Shop and Fabricating Plant. In addition the usual ancillary units such as roll turning shop, testing house, oxygen plant are situated within the works.

PLANT DETAILS

1. Siemens Martin Steel Plant.

This consists of 1-25 Ton O.H. furnace served with two gas producers. Three heats of steel giving an approximate tonnage of 60 tons of good material are produced daily. The majority of the casts are structural steel of an analysis 20/25% Carbon 6/8% Manganese S & P up to 06%. A few casts of a lower carbon quality have been produced. The analysis records show a fairly close control over the material produced. The gas producers are working on Indian coal with a high ash content and much time is taken up in clearing out the ash from producers and

Declassified E.O. 12356 Section 3.3/NND No. 785015

In addition there is an old forge with several tilt hammers which was originally used for the production of agricultural implements. A new forge with power driven hammers is being installed by D.T. and the machine shops have also been strengthened by the installation of additional machine tools. The section welding and fabricating department is working to capacity on the fabrication of bridge members for the Army. The works are divided into four main departments, i.e. (a) open hearth Siemens Martin Steel Plant (b) The Rolling Mills, (c) The Forging Plant, (d) The Machine Shop and Fabricating Plant. In addition the usual ancillary units such as roll turning shop, testing house, oxygen plant are situated within the works.

PLANT DETAILS

1. Siemens Martin Steel Plant.

This consists of 1-35 Ton O.H. furnace served with two gas producers. Three heats of steel giving an approximate tonnage of 60 tons of good material are produced daily. The majority of the casts are structural steel of an analysis 20/25% Carbon 6/8% Manganese S & P up to 06%. A few casts of a lower carbon quality have been produced. The analysis records show a fairly close control over the material produced. The gas producers are working on Indian coal with a high ash content and much time is taken up in cleaning out the ash from producers and flues. A good foreman has been obtained from Ilva Begnoli who is supervising the steel production. The size of the ingots is small the biggest being approximately 500 lbs. in weight. There was no evidence of mechanical charging or stripping, and this part of the work was carried out under difficulties.

2. Rolling Mills

These consisted of 1-4 Stand 3 high 18" Mill and 1-6 Stand 3 high 12" Mill. These mills were driven by one central electric drive connected with a rope drive (this was a special square rope and no spares existed). As a standby to the electric drive there was a steam engine, but the lack of rope drive precluded this being used. The mills are fed by the usual billet furnaces, producers fired, and are capable of rolling a variety of small sections, rounds, flats, etc. The biggest size is a 6" x 3" channel beam. All production from these mills is now going for military requirements. The standard of workmanship was fairly high; and the plant was working to capacity 24 hours per day.

0 3 4 7

Declassified E.O. 12356 Section 3.3/NND No. 785015

3. Forge

The original forge consisted of a number of very old tilt hammers. (this type of hammer has been obsolete throughout the world for many years). These hammers had been installed for the production of agricultural implements and tools, and were hardly suitable for any other purpose, in fact, the D.W. are at present setting up a modern forge in an adjacent building and when this is completed they intend to vacate the old forge.

This plant has been the subject of correspondence with the Italian Government regarding its use by the plant owners for the production of agricultural implements. This question was raised with the D.W. but they were quite definite that owing to the uncooperative attitude of the plant owners, they were not prepared to allow them access to the plant. When, however, the new forge is complete, it may be possible to remove the old plant to some other site to continue operations.

4. Machine & Fabricating Shops.

A shop has been laid out for the fabrication of steel bridge sections and the machining of associated parts; pulley blocks, shackles and other parts being fabricated, all the necessary steel being produced within the works.

GENERAL INFORMATION.

1. The uncooperative attitude of the Italian owners has forced the D.W. to forbid them access to the plant, and to take over the running of the works completely. It was understood from Lt. Nortier that no proper records, drawings or maintenance arrangements existed and they found it necessary to bring in some 20 R.E. Sappers to do this work.

Previously the owners had operatedon a hit and miss basis waiting for something to break down before endeavouring to rectify this state of affairs. In consequence little or no stocks of spares existed.

2. The improvements being made to this plant by D.W. should leave it in a better condition than when it was taken over. A modern smithy is being installed and the plant is being kept in operation instead of being allowed to deteriorate.

3. The D.W. are willing to release certain of the fabricated

0348

Declassified E.O. 12356 Section 3.3/NND No. 785015

A shop has been laid out for the fabrication of steel bridge sections and the machining of associated parts, pulley blocks, shackles and other parts being fabricated, all the necessary steel being produced within the works.

GENERAL INFORMATION.

1. The uncooperative attitude of the Italian owners has forced the D.T. to forbid them access to the plant, and to take over the running of the works completely. It was understood from Lt. Mortier that no proper records, drawings or maintenance arrangements existed and they found it necessary to bring in some 20 R.E. Sappers to do this work.

Previously the owners had operatedon a hit and miss basis waiting for something to break down before endeavouring to rectify this state of affairs. In consequence little or no stocks of spares existed.

2. The improvements being made to this plant by D.W. should leave it in a better condition than when it was taken over. A new forn smithy is being installed and the plant is being kept in operation instead of being allowed to deteriorate.

3. The D.W. are willing to release certain of the fabricated stocks of agricultural implements now lying in the works. They have no use for these parts.

CONCLUSIONS & RECOMMENDATIONS.

1. This is a small unit, but is doing very useful work under the direction of D.W. All departments are working to capacity on army requirements.

2. It is obvious that the works plant and they layout is being improved; the workers are being taught to do work which they previously considered impossible, and the plant is better maintained then before.

0 3 4 9

Declassified E.O. 12356 Section 3.3/NND No. 765015

0350

Declassified E.O. 12356 Section 3.3/NND No. 785015

REQUIREMENTS OF RAW MATERIALS FOR "ACCIAIERIE E FERRIERE

These requirements are referred to a plant working in con
1 S.M. Furnace 25 tons c
2 Rolling Mills working
1 Forging Shop

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Production:								
Ingots	2200	2200	2200	2200	2200	2200	2200	2200
Section	1800	1800	1800	1800	1800	1800	1800	1800
Forging Pieces	100	100	100	100	100	100	100	100
Electric Power	2200 x24x31	2200 x24x28	2200 x24x31	2200 x24x30	2200 x24x31	2200 x24x30	2200 x24x31	2200 x24x3
Importation:								
Pig Iron (x)	650	650	650	650	650	650	650	650
Coke Coal	4	4	4	4	4	4	4	4
Coal for Steel Works (Splint)	550	550	550	550	550	550	550	550
Coal for reheating furnace	450	450	450	450	450	450	450	450

(x) Imported till August 1945 when Bagnoli

0351

Declassified E.O. 12356 Section 3.3/NND No. 785015

OF RAW MATERIALS FOR "ACCIAIERIE E FERRIERE PUGLIESI-GIOVINAZZO'S STEEL WORKS (In Tons)

ments are referred to a plant working in conjunction with the following shops:
1 S.M. Furnace 25 tons capacity
2 Rolling Mills working alternatively
1 Forging Shop

Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	26400
1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	21600
100	100	100	100	100	100	100	100	100	100	1200
2200 x24x31	2200 x24x31	2200 x24x31	2200 x24x30	2200 x24x31	2200 x24x31	2200 x24x30	2200 x24x31	2200 x24x30	2200 x24x31	26400
650	650	650	650	650	650	650	650	650	650	7800
4	4	4	4	4	4	4	4	4	4	48
550	550	550	550	550	550	550	550	550	550	6600
450	450	450	450	450	450	450	450	450	450	5400

(x) Imported till August 1945 when Bagnoli will start working.

Declassified E.O. 12356 Section 3.3/NND No. 785015

RESUME OF RAW MATERIALS FOR MAGNESITE & DOLOMITE FURNACES

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
From Liberated Italy:								
Heavy scrap	1000	1000	1000	1000	1000	1000	1000	1000
Light scrap	600	600	600	600	600	600	600	600
Iron ore	40	40	40	40	40	40	40	40
Fluor Spar (CaF_2)	5	5	5	5	5	5	5	5
Magnesite ($MgCO_3$)	16	16	16	16	16	16	16	16
Quartz (SiO_2)	80	80	80	80	80	80	80	80
Fire Clay of Sardinia	22	22	22	22	22	22	22	22
Dolomite $CaMg(CO_3)_2$	44	44	44	44	44	44	44	44
Tar	1	1	1	1	1	1	1	1
Fe-Mn 55%	15	15	15	15	15	15	15	15
Fe-Si 75%	15	15	15	15	15	15	15	15
Fe-Si-Mn	5	5	5	5	5	5	5	5
High manganese Spiegel	20	20	20	20	20	20	20	20
Silica brick	-	80	-	-	-	80	-	-
Clay brick	-	100	-	-	-	100	-	-
Dolomite	-	30	-	-	-	30	-	-
Magnesite brick	-	5	-	-	-	5	-	-

(x) Reported till August 1945 when Pescnoli will st

0353

Declassified E.O. 12356 Section 3.3/NND No. 785015

...AT MATERIALS FOR MACHINE & MACHINE TOOLS - GIC MATSUO'S STEEL WORKS - IN TONS (contd)

Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
1000	1000	1000	1000	1000	1000	1000	1000	1000	4000	12000
600	600	600	600	600	600	600	600	600	600	7200
40	40	40	40	40	40	40	40	40	40	480
5	5	5	5	5	5	5	5	5	5	60
16	16	16	16	16	16	16	16	16	16	192
80	80	80	80	80	80	80	80	80	80	960
22	22	22	22	22	22	22	22	22	22	264
44	44	44	44	44	44	44	44	44	44	480
1	1	1	1	1	1	1	1	1	1	12
15	15	15	15	15	15	15	15	15	15	180
15	15	15	15	15	15	15	15	15	15	180
5	5	5	5	5	5	5	5	5	5	60
20	20	20	20	20	20	20	20	20	20	240
-	-	-	80	-	-	-	80	-	-	240
-	-	-	100	-	-	-	100	-	-	300
-	-	-	30	-	-	-	30	-	-	90
-	-	-	5	-	-	-	5	-	-	15

(x) Reported till August 1945 when gasuoli will start working.


0354