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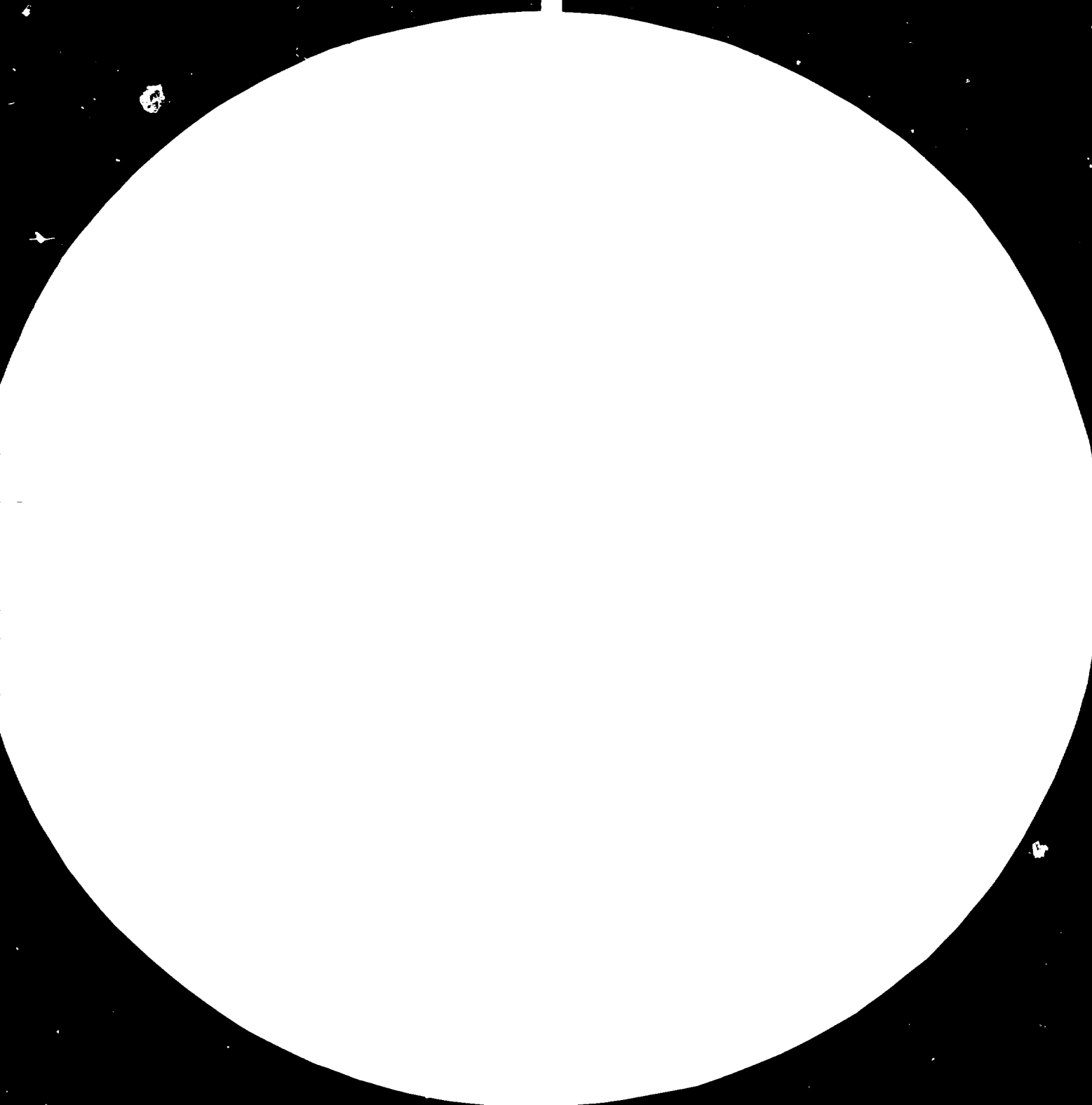
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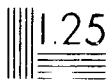
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4 February 1982.  
English

Iraq.

MARKETING AT STATE COMPANY OF ALUMINIUM  
PRODUCTS IN NASSIRIYAH . ]  
TF/IRQ/77/002/11-07/31.8.E.

IRAQ

Terminal report

Prepared for the Government of Republic of Iraq  
by the United Nations Industrial Development Organization,  
executing agency for the United Nations Development Programme.

Based on the work of S. Fulop,  
marketing adviser on survey, analysis and product development

United Nations Industrial Development Organization  
Vienna

EXPLANATORY NOTES.

The value of the Iraqi currency during the period of  
the project:           1 \$US = 0,295 ID.

Abbreviations:

SCAP	-	State Company for Aluminium Semi Products
PR	-	Public Relations
GDP	-	Gross Domestic Products
ID	-	Iraqi Dinars
SOEI	-	State Organization for Engineering Industry

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A B S T R A C T .

The post title: Marketin Adviser on survay, Analysis and Product Development

Number of the project: TF/IRQ/77/002/11-07/31.8.E.

The purpose of the mission: to provide expertise and assistance to the management of SCAP in the period of consolidation after start-up.

The expert was assigned to the State Company for Aluminium Semi Products in Nassiriyah, to work as the Adviser to the Management in matters related to marketing and product development. His mission started on the 17<sup>th</sup> of November 1981 and finished on the 2<sup>nd</sup> of February, 1982.

The main conclusions of the findings are:

- To run production and the whole organization of the Company by 45% of the actually needed staff is a rather difficult task, what the Management fulfilled so far with the best results attainable.
- The development of the plant is nearly not finished yet, thus there is still a possibility to reevaluate again the feasibilities of further developments.

The main groups of recommendations are related with

- the organisation, the steps and methods of market research and marketing for SCAP,
- the needs and possibilities of enlarging the assortment of semiproducts, the formulation of production programm,
- the proposal of extending the activity to the field of finished products manufacture.

## C H A P T E R I: I N T R O D U C T I O N .

Iraq has no domestic resources of non-ferrous metals. Aluminium ingot is imported, mostly from Bahrein.

The aluminium semis plant, SCAP was established under the supervision of SOEY, in Nassiriyah, 360 km south of Baghdad, neighbouring the State Enterprise for Cables, which consumes a large quantity of rolled wire, about 1/3 of the

production of SCAP. The plant is near to the Power Station of Nassiriyah and located beside the main railway line of Baghdad-Basrah.

The prime-contractor and supplier was SECIM of France. The plant was commissioned in 1977-78 with the traditional technologies of most tradicional products, covering only a part of the range of aluminium semi products. Nominal capacities:

- Continuons casted rolled wires, 10 000 t/y.

- Extrusions, 4000 t/y.
- Hot and cold rolled products, 16 000 t/y
- Foils, 2000 t/y.

Actually the nominal capacities never could be filled up because the supposed assortment did not cover the need appearing in orders, and never could be reached so far, because the shortage of manpower.

The neat scrap of the plant is remelted in the foundry shop. There is no recycling, collecting the scrap from other factories and from the public in Iraq yet.

The staff of the company was trained on work and is still in training on work. There is a team of Polish engineers, technicians and machine operators /about 60/, the production is running under their supervision and partly by them. Technical and administrative functions are exerted with difficulty, there is a severe shortage of staff and manpower. A few international experts of UNIDO assisted in the start-up and first consolidation period, among them Mr Bakarian Marketing Economist, right before commissioning of the plants, Mr. K.V. Padmanabhan Metallurgist Engineer, in the start-up period and Mr Becker and Mr Nock in the consolidation period. /The names of main international counterparts are in Appendix I/.

The objectives of the present mission were:

- To evaluate the current supply situation of semis.
- To give advice on organizing of market research and marketing activities, to provide on-the-job training on marketing and products development matters to the national counterparts.
- To estimate the demand-potential of domestic market for the next 5 years, to evaluate the possibilities of export market for the plant's products.
- To advise on formulation of production program for the plant.

The results of the mission are summarized in this report. When the score is found not to be 100%, that is owed to the absolute lack of staff /e.g. on-the-work training in demographic market research/, deficiency in informations and time.



The senior counterparts of the company did their best they could, thanks for their effort.

## CHAPTER II. RECOMMENDATIONS

The recommendations discussed in details in the chapters of this report, dealing with the organization of marketing activities and with the further development are summarized in the followings.

### A. Recommendations for the management of SCAP

#### 1. Organization of marketing.

The minimum staff needed for continuous market research and marketing: 3 officers, one of them for market research, one for marketing /propaganda and PR/ and one for calculation of prices and costs of each item produced by the plant. They would work under the supervision of Commercial Manager, the first two attached to the existing Commercial Office in Baghdad. And further; the company and the customers as well, need a technical adviser staff, consisting minimum 1 mechanical engineer, 1 architect and a metallurgist to give advice on the proper use and application of aluminium, to promote the sale of products of the company, to initiate further developments of products at the company and at the customers. This staff could be attached to the Baghdad Office, too, but under the supervision of the Manager of Research and Development.

#### 2. The methods of marketing activity.

For the actual market research, marketing and related activities, the attached job descriptions can be used as manuals, until gaining ample of own experience what enables the preparation of a system and description which fits better to the prevailing conditions, then. /Appendix III., IV., V./.

The 5 year production program could be revised yearly, adding always 1 year ahead to the line and fixing the others with always more accuracy. The evaluation of the year passed, comparing the facts with the forecasts helps to get even better estimations in the future.

3. Price policy.

Without using price differences of products, there is a danger of losses, in margins of sales revenues and costs, in imported material wastes, at the company, at the customer and in case of export-import in the budget of State.

Argumentation and method is in CHAPTER III.

4. Enlargment of assortment.

There are some triviale possibilities without any risk and with minimal investment to serve the customers better, to enlarge the use and application of aluminium, to decrease the amount of import by decreasing the weight of material necessary for a given purpose, to earn more on selling the same weight of material.

One of them is to introduce new alloys /3 of them are described in Chapter III./ which fit better to the needs of food industry, packaging, building industry, vehicle production and defence.

Second is the use of simple technologies with minimal costs of putting some machinery and equipment into the existing workshops, e.g. drawing benches, profile rolling machine to get semis of greater strenght of thinner wall, with smoother surface and lover specific weight; gravity dies for casting off remelted and alloyed scrap, polishing machine for tubes, rods and profiles, coloring baths for anodised extrusions.

The third, is to produce new products on the existing machinery with some implements and dies, e.g. to start perforating of strips on the presses, to deep-draw on them some simple products, to produce continuons casted and rolled strips, to cut slabs from that for impact extrusion of collapsible tubes, or to produce bus-bars from that for the electrical industry, to produce desoxidant material for steel industry by cutting to pieces continuous cast material, to produce household wares only by cutting extrusions to proper size, to bend wiring chanel for electrical industry from the perforated strips, to outfit thick decoration foils, deeply embossed foils.

Fourth, to produce some finished goods which need a great quantity of material but without the need of high degree investment and manpower, e.g. traffic signs with poles, frames

of plastic-covered greenhouse tunnels.

B. Recommendations for the supervisor authorities  
of SCAP:

5. Direction and control of the development of SCAP.

In some cases the risk of development is greater than the company could bear, they need the authorization, the financial help. There is a necessity in some cases to obtain feasibility studies, which can not be prepared at the company, and even in most cases the decision needs a better knowledge of national plans and coherencies what the company not possess.

In the current sphere of activities of SCAP, the list of the possibilities are worth for investigation: wire drawing, tube welding, coil lacquering and varnishing, heat treating, die producing, pressure casting, forging, grinding of foil scrap, production of irrigation pipes, refrigerator evaporators in sheets and solar heat-exchangers.

6. Direction of expansion of SCAP's activity to the field of finished goods production.

As an experience, the aluminium semi-producers of the world expand their activity for producing finished goods either on their premises, or by creating filials elsewhere. The following possibilities are worth for further investigations: panel production for buildings, gas-bottle, lamp-pole, transport milk-can, soda-water syphon, container, tank and bunker production, as they all consume a great amount of aluminium, can be automatized fairly well, thus don't need a number of employees, and the utilities /power, water, railway, etc./ are given.

7. Organization of scrap collecting for recycling.

The world's consumption of secondary aluminium tends to be 30%. The importance of recycling is ever growing.

There is a possibility at SCAP in the foundry to remelt the scrap collected from other factories and from the public, to decrease by that the amount of imported basic material.

It is a matter of consideration and decision of authorities to order or to advise the companies of the public sector to

collect and handle their aluminium scrap in a proper way, and transport that in given doses to SCAP. To collect scrap from the public is not so simple yet, that needs a network of general scrap collecting of usefull wastes, not only aluminium.

### C H A P T E R I I I .

#### EVALUATION OF THE CURRENT SUPPLY SITUATION OF ALUMINIUM SEMIS.

##### A. The existing assortment.

##### 1. Technologies and products.

The technologies and the products of the company are the most traditionals.

In the foundry there is a possibility of recycling, remelting of scrap. They produce continuous casted rolled wire in diameters 9,5-15 mm.

In the press-works the extrusions produced serve the manufacture of windows, door-frames and portals. The number of variations are limited.

The profiles can be anodized.

- In the rolling mills, the production range covers
- hot rolled sheets, with thickness of 5,5-12 mm-s, width 900-1300 mm-s,
  - cold rolled sheets, in 0,5-2 mm thickness, 600-1250 mm width, 2-4 m lenghts,
  - corrugated sheets, they are usually 0,7 mm thick, 2-12 m in lenght,
  - coils with material thickness of 0,5-2,5 mm, in 100-1250 mm width,
  - discs cut on presses in 0,8-2,5 mm of thickness, 120-500 mm diam.,
  - circles cut on sheers, off 2,5-6 mm material, indiameters 500-1250.

They produce foils in coils

- plain foils, 0,020-0,080 mm thick, 25-1050 mm wide,
- embossed foils, 0,009-0,050 mm thick, 50-1000 mm wide
- painted, laminated foils, 0,009-0,080 mm thick, 50-1000 mm.wide.

Most of the technologies and machinery sold by the prime contractor represent the technical level considered moderne 10-15 years ago. The workshops are neat, kept cleen and in

good order.

The capacities of each sectors are far behind the capacities presumed to be optimal, thus can serve mainly the domestic needs but hardly able to compete on external market.

The material assortment of the works consists of 4 commercial qualities and 7 alloys.

2. Analysis of the assortment in the aspect of marketing.

The prices of aluminium semi products on the international market are usually 140-160 % higher than of basic materials. The so called "phasis price" in some extent follows the "phasis cost", the cost of producing the semi from the previous technological phase.

Thus the prices of different kinds of semis, even if they produced with the same technology, are based on the production costs /such are direct material, derct labor, factory and company overhead costs, etc./.

For example, in the case of sheets, the prices of alloyed plates are generally higher by 5 to 10% than that of unalloyed plates. Price of half-hard plate is higher 1-2% than that of hard, and the soft plate is more expensive than hard one. The price of 0,5 mm thick sheet is higher about 40% than that of 5 mm thick plate.

The prices change to a considerably lesser extent than mechanical properties. The quazi-equivalent thicknesses of sheets in respect of the same strenghts /calculated roughly from the tensile strenghts/ and the weight of  $1m^2$  sheet-surfaces of those are in the next table, in accordance with the assortment of SCAP.

	Type and temper of material	Quazi-equivalent	
		thickness, mm	weight, kg/m <sup>2</sup>
1060	0	2,1	5,7
	H12	1,5	4,0
	H18	1	2,7
1100	0	1,5	4,0
	H12	1,2	3,2
	H18	0,8	2,2
3003	0	1,2	3,2
	H12	1	2,7
	H18	0,6	1,6

Type and temper of material		Quazi-equivalent thickness, mm	weight, kg/m <sup>2</sup>
3004	0	0,8	2,2
	H 32	0,6	1,6
	H 38	0,5	1,4
5005	0	1,2	3,2
	H 12	1	2,7
	H 18	0,6	1,6
5050	0	1	2,7
	H 32	0,8	2,2
	H 38	0,6	1,6
5457	0	1	2,7
	H 112	0,7	1,9
	H 34	0,5	1,4

The price of any kind of sheet at SCAP is uniform, there is no price difference according to alloy, thickness, length, width, state or temper of the product. Pre- and-after calculation on the different items does not exist. This means the possibility of great losses on behalf of the company and State.

When the company sells the largest quantity in the thinnest, narrowest, shortest size, and annealed temper of highly alloyed material on the average price prescribed, certainly loses money because the production costs are the highest. The ambition of the company is certainly to sell the largest quantity in the thickest, widest, longest size, in hard temper of commercial unalloyed material. In this latter case the sales revenues surpass greatly the production costs, what is an aim of the Company. But this is a possibility of wasting material on the side of the user, the customer, and finally on behalf of the State, the owner of the company. According to the table above, the weight ratio of the same strength of material, if it is not chosen properly, or the customer is not served out properly, can be even more than 3 /that means three times of the necessary material/.

In the case of export the losses can be critical. At present the export is a danger of voluntarism. SCAP can not think seriously of exporting now, because of the possibilities of great losses. When the risk is overtaken by a foreign trade company, the result is just the same, finally the State can lose.

To complicate the matter, in case of extruded profiles, tubes, rods the price differences on international markets are 20 to 25%

owing to the quality differences. Difference among prices of products of different state but of same quality ranges between 10 and 15 % on the international market. Price of product of minimal cross section is higher by 30 to 40 % than that of product of maximal cross section if quality and state are unchanged. Between the two limits there is a minimal price, too.

The price of drawn products is higher by 20 to 25% than that of extruded products of same quality and cross section. Price difference is lower than strength difference, thus application of drawn tube is generally more advantageous for the user than other kind of tube, because in case of same tube cross section /inside diameter/ thin wall tube can also be used for a lower specific price /proposal in para B/.

Welded tube is even cheaper than drawn one. In general, it is advisable to use strip-rolled profile because of thinner wall and smaller cross section, compared to extruded profile.

Selection of the proper semi for the given purpose is always a matter of search, applying mainly but not alone strength and price for the optimal product. Considering the primary costs only, aluminium structures are in most cases more expensive than steel and wood structures used for the same purpose, but they are cheaper than structures of plastic materials and other non-ferrous metals. Comparison between the purchase prices of products made of different materials for the same purpose doesn't reliably base decision for purchase and application. Besides the prices, most of the users consider the advantageous properties of aluminium especially if proper convincing information is available. This underlines the need of technical advice /See Appendix V./. It can be proved that certain advantageous properties moderate price differences /smaller weight, corrosion-resistance, heat conductivity, reflectance, etc./.

Calculation method for user's expectable decision, for their influence, what is an aim of marketing activity, endeavours to take all the effects into account. The essence of the calculation is that all the costs calculated for a desired lifetime of the

product made of the material to be substituted, e.g.  
purchase price  
erection costs  
transport costs  
operating costs  
maintenance costs would be added, and  
returns from waste sale  
other cost-decreasing factors derived.

This amount would be reduced by the time-varying costs, as  
operating costs  
maintenance costs  
other costs, minus cost decreasing factors,  
summarized for the same period of the product made of aluminium.  
The difference gained has to cover the procuring cost of the product made of aluminium. Other wise that can not sell.

So, if this coverage is higher than the fix-cost, as  
purchase price or production cost,  
erection cost  
transport cost added, minus returns of waste sale  
of product made of aluminium, the resulting cost difference constitutes savings i.e. profit owing to the use of aluminium. As higher are these savings, as easier to sell even on higher prices the needed semis for the given purpose.

Ranking of aluminium application fields can be effected unambiguously on the basis of economic advantages of end users. Demand-possibility will grow parallel to the coverage of costs, compared to the costs. The Sequence of products can be defined by the use of indexes: savings / expenditures, or savings / required lifetime, weight used.

These sequences can give the real implements of use of prices as means of marketing in the hands of the management of SCAP and the authorities directing and controlling the aluminium industry. In all cases, the aim of marketing is to create a dynamic balance between production and consumption, which take common interest of SCAP, national economy and of users into consideration.



B. The possibilities of enlarging the assortment.

1. The use of new alloys

Actually the proposed alloys are widely used but are not among the assortment of SCAP.

Differences in strenght properties of different kinds of aluminium are essentially wider than that of different kinds of steel. The high-strenght of aluminium alloys are sold on 15-20 % higher prices compared with commercial qualities. Thus the company can get higher sales revenues and profits by producing these off the same quantity of basic material bought. Besides, to assure more the possibilities of enlarging the proper use and application of aluminium in the production of finished goods, the alloy assortment of the company's products can be easily enlarged.

The material mostly used in packaging and in food industry, and in the mass production of household appliances is an alloy with 2,7-3,5% magnezium, and with a copper content less than 0,1%. This alloy is not heat treatable, can be produced easily in rolled form, but hardly as an extrusion. Well anodizable, having the following mechanical characteristics:

temper /state/	appr. tensile strenght MPa	elongation
mild /O/	175	15
1/2 hard /H 12/	215	6
hard /H 18/	255	3

The most oftenly used alloy in building industry, vehicle and mass production in the form of extrusion has the content of 1-1,6 % Mg, 0,8-1 % Mn, 1,2-1,6 % Si.

The tensile strenght in extruded state is 100 MPa, the elongation is 12%. The strenght properties of the material can be increased by heat treatment. Cooled in water from 490-500°C and kept in room temperature, after 3 days the tensile strenght reaches 200 MPa; or kept on about 160°C for 8 hours, the tensile strenght can be 300 MPa. Even blowing the profile or tube with cold air, when coming out off the recipient through the die of the extruder press, can increase fairly the tensile strenght

of the product, what method is easily realizable in the workshop of SCAP, because fans are mounted on the proper place above the press.

In riveted structures of airplanes, vehicles and bridges /mostly used by the army/ the most common alloy has a content of

3,8-4,8% Cu, 0,4-0,8% Mg, 0,4-0,8 % Mn.

The material is used both in rolled and extruded form. After cooling down from 490-500°C, and keeping in natural storehouse temperature, after 5 days the tensile strenght of the material reaches 360-390 MPa.

The heat treatment is not necessarily be done at SCAP, but when is done, the better prices would be reached.

## 2. New technologies

In decreasing the amount of imported semis and gaining the importers, best method is to serve them and to match their needs. The proposals for enlarging the technological readiness of the company are as follows.

### a. Drawing

This technology means smoother surface, accurancy, higher strenght of the product, thus the possibility of using less material by the end user by weight, but means self promotion, higher prices for the company, with less impecerial expenses. For producing drawn tube, rod and l actually the same drawing benches can be used. They cost a few thousands only, and there is enough space to put some in the workshop.

Beside cable industry, outlet can be found for drawn wires, e.g. for making fences in the form of mesh, or producing rivets, nails and screws, what are essential in building industry and elsewhere to connect aluminium parts, to avoid corrosion of the connection. Somewhat is more complicated to produce welding-wires, but canbe earned good money on that.

### b. Profile rolling.

Simple profiles can be rolled instead of extruded, from cold rolled coils or strips, with higher productivity, smoother surface, higher strenght and thinner wall accordingly, for the same use. Other advantage, they can be produced off those alloys

can not be easily extruded other wise. An acceptable machine costs less, than \$ 20 000, and does not occupy large space.

Instead of extruded /or drawn/ tube, welded tube can be used, advantageously produced from those alloys can not be produced easily otherwise, too. Welded tubes are commonly used in the production of camping furnitures, in furnitures for the army, in the production of irrigation pipes, polietilene-foil covered house frames for agricultural purposes, because of their proper strenght in very small weight.

On the tube welding machine, disconnecting the welding accessories, rolled profiles can be manufactured untill the capacity is not filled entirely.

c. Polishing, coloring.

Tubes, rods, bars and simple profiles can be polished on a machine bought for, or made in the maintenance shop for this purpose. After polishing and anodizing, to colore the oxid layer would not need expensive equipment.

d. Lacquering.

Lacquered narrow coils and strips can be used in building industry, e.g. for venetian blinds, ceiling and column covers, etc.

Varnished coils can be used in food industry.

e. Perforation.

Perforated strips are used in building industry and in appliances. Perforation can be done on the existing presses used for disc-cutting, exploiting their capacity. The scrap of perforation, the slab out falling can be remelted. Usualy the perforated strips are sold on the price of original, unperforated. The margin is the scrap remelted, or sold as desoxidator. Die casting, forging, heat treating, die producing sooner or later will be necessary. The feasibility studies could be prepared in time.

3. New products.

New technologies usualy mean new products for sale, or the possibility of producing still furter production, investment,

or consumer goods.

In some triviale and simple cases, when the risks are not so great /as in case of using new alloys, starting with drawing, profile rolling, perforating, polishing and coloring/ the decision can be made by the management of SCAP and executed on own resources, based on the findings of market research /as in Appendix III./. In other cases, the market research is only the iniciative of processes. When SCAP would apply for loan, for financial help and permission of the supervisors and authorities, feasibility studies should be made in the required form, or in the usual form, described e.g. in the "Manual for Preparing Feasibility Studies"./UNIDO, Vienna/. Without feasibility study, the mistake of voluntarizm is a real danger.

The possible new products arising from the existing and proposed technologies, machinery and equipments of SCAP are the followings.

a. Continuous casted and rolled strips.

They can be produced on the existing Properzi type of machine, changing the necessary instruments. The products' use is usual in electrical industry /e.g. bus-bars/ and in producing slabs for collapsible tube manufacture.

b. Desoxidant for steel industry.

The necessary size of pieces can be cut from the scrap of continuous casted and rolled products. In case of increase of orders, the correct chemical compound of material can be alloyed for the purpose. This method can be used in that case, when the workshop is short of orders for wires like now, or strips.

c. Powder and paste.

To remelt the scrap of foil is wasting material and money. By wet-grinding of scrap, paste can be produced for paint. By drying out the grist, the powder can be used beside of producing explosives, as a foam-for mator ingredient added to concrete.

d. Decoration foil.

About 0,040 mm thick foils, colored, and outfitted on the similar way as the household packaging-foils are, can be sold

for decoration purposes.

e. Deeply embossed foil.

For the building industry, about 0,050 mm thick, deeply embossed foils /looking like corrugations in both rectangular directions/ can be manufactured. They are used for sealing, insulating and covering purposes.

f. Foil-container.

Foil tray /dish/ can be produced, as known by the company, for the food industry, for packaging ready or semi-ready meals.

g. Jar cap, pilver-proof buttle cap.

For the food industry, for caning, caps can be produced off the varnished coils. For some foods degreasing is enough.

Moreover the shallow cans can be produced, too. h. Slab.

For the impact extrusion of collapsible tubes, used in packaging of cosmetics, toot-pastes, meat creams, tomato creams, mustard, etc., slabs can be produced in two ways.

- cut out as discs on the existing or smaller presses from continuous casted and rolled narrow strips / the scrap can be sold as desoxidator again/, or

- cut off extruded and drawn bars, by so called without-waste cutting.

The first method can be used for every purposes, with or without a hole in the middle of the slub /like a washer/, the second method is for producing slubs without hole only, as for tubes of food industry, because they require closed mouth-hole of collapsible tube.

i. Wiring chanel.

To hold cables in industrial buildings, wiring chanel used to be mounted. They are made of perforated aluminium strips, bent as trays on hydraulic presses, or produced as rolled profiles.

j. Refrigerator evaporators, solar heat-exchangers.

They are usually produced by the rolling mills, everywhere, welded by rolling 2 sheets together with a litographed labirint-pattern bet ween them on one of the sheets. Blowing up, the pattern forms closed tubes with inlet and outlet.

k. Traffic signs.

They can be cut out off sheets in the required form, anodized for the further painting. The poles are extruded tubes cut in size only. Simple product, and a great amount is needed if the traffic authorities could be convinced.

l. Frames of plastic-foil covered greenhouses.

They are welded /or drawn/ tubes cut in size, bent in half-circles. These half-circles are pushed on both ends, 0,5 m deep into the earth, 1-1,5 m after each other, holding the polietilen foils covered on them, thus creating a tunel form of house. The house is used in horticulture, for growing vegetables /and in the army as shelters, but covered with cloth, or mesh/. Sometimes 2 concentric layers are formed and water sprinkled between the layers, assuring the proper temperature for the flora inside /or whaterer is inside/.

m. Deep-drawn products.

To fill the capacity of existing presses, simple deep drawn products can be produced, such are trays, ash trays, saucers, etc. They can be anodized and colored, too.

n. Household utensils /mass products/.

There are a number of consumer-goods can be produced only by cutting extruded profiles in pieces. Some examples: rack for mounting on wall or door, latches of doors, carnishes for mounting above windows to hold curtains, etc.

o. Irrigation pipes.

Made in 6 m lengths off  $\varnothing$  80-120 mm, usually welded /or seldom drawn/ tubes, with casted connectors welded on both ends.

As a thumb rule, the products manufactured up to the neares stage to final consumption, are sold on the highest price by weight, and usually assure the maximal profits by production time, by production costs and by the weight of the product. In some cases, as mentioned before, the company can decide to start with the production of new items on own risk and sources. This is proposed in case of goods are named under a, b, d, e, k, m and o points of this chapter. Other cases need to prepare feasibility studies, what is not only a marketing, but technical and financial task, too.

C H A P T E R IV.  
ADVICE ON COMMERCIAL ACTIVITIES OF S.C.A.P.

A. Approaches to marketing the products of SCAP.

In the commercial activities of SCAP, besides the merchandizing processes carried out so far /accepting orders, contracting, fulfilling, transporting and invoicing, etc./, need to be other rather important activities provisioning of work and ensuring the permanent development of the company. These are

- market\_research based on constant and yearly summarised observation and interpretation of the actual and potential needs and characteristics of the market, in order to satisfy the demand for specific aluminium goods, thus achieving continuity of work, profits and balanced expansion of the company. This factor is no less important than the financial, technical and production factors, so this factor is needed to improve, enlarge and to support from the management and Supervisor authorities /the steps and methods of the proposed market research are in Appendix III. and IV./,

- marketing, what is a concept of the management /derived e.g. from the prepared 5 year production and development plan/ based on the findings of market research and consists of a mix of methods of influencing the market into a direction desired by the concept of the company /the proposed steps and methods are in Appendix V/. The marketing activity starts where the market research ends and the concept of the company is formed by the management.

The products of SCAP are either investment goods, or production goods, remaining in the industrial sphere, others are used in final consumption. Sometimes they overlap each other. For example the corrugated sheets are investment goods, when built directly in buildings of a company, but are production goods, when the buyer produces containers, garages and sells them on the market. In the first case the corrugated sheet is consumed, but not in personal consumption. The later case can be final consumption; a garage can be sold for a private person, but can be an investment good if sold for a company and used there as a storage. A container bought by a company can be investment good, when used in transport and storage, but can be production good, if the buyer mounts transformers, switches in it and sells further for investment

purpose, or if the buyer puts air conditioner, furniture, sanitary equipment in it and sells for accomodation purposes. This building can be investment good again, if serves as an office, can be consumer good, if serves as living accomodation for private, but can be production good, when bought for mounting wheels onit, and so on."

The link between the SCAP and the end-user of the products of SCAP can be very short and very long as well, the route almost unfellowable. The same product can serve investment, production and consumption purposes. Finaly every product serves the personal consumption of individuals, even if never reaches them, remaining in the sphere of industry and public sector. Some of the producers of aluminium semis in their concept use

- "pull strategy", they concentrate on the most final consumers and individuals. A mass of people they try to convince and from that position they almost "pull" the industry, their direct customers. This takes time, needs money and organization;
- "push strategy", concentrated on the immediate customers in convincing them and gaining their loyalty, almost "push" them and their products to the market, towards the most final consumption. To do only this, the results are not sufficient enough, because there is no deeply developed market yet for SCAP.

A mix of these methods can be used /as outlined in Appendix V/ and not a segregated method. One would satisfy at present, in the first phase, to get acquainted with the buyers and perspective buyers of the products of the company, to collect their oppinions about their needs, to match those with the facts derived from the national plans, and with the will of authorities, to correct them according to the prevailing conditions of tendencies derived from relevant international trends, too.

One should keep in mind that in case of SCAP, being a fairly new producer of the field, to start with the proper connection of customers and almost to nursing them is very important. The personal contact by visits of the factories of the buyers, or by inviting them to visite SCAP, the help full inquiries about their



problems are no less important than keeping good relation with the authorities, the supervisors of the company and with the public in general.

B. Proposed organization of marketing:

The present staff in Commercial Management is hardly enough to carry on the routine merchandizing work, even the Director has to deal with routine, sometimes fireman's work. There are 3 salesmen, a traveling agent, 1 importer clerk, 2 buyers. In the Baghdad Commercial Office there are 2 more salesmen and an administrator. The existing functions need not be enlarged only with one person,

- a calculator for pre-and-after calculation of prices and costs of items produced at SCAP.

To deal seriously with market research and marketing, there is a need of persons and functions

- one, to carry on the continuous market research /his activity detailed in Appendix III and IV/,
- one marketing-propagandist /his activity is described in Appendix V./

This minimum staff advantageously should be attached to the Baghdad Commercial Office, because most of the informations they need can be collected easier in Baghdad than in Nassiriyah, and they have better access to the customers and partners there.

Moreover, to assure the proper use and application of the products of company, to get convinced the users of the advantage of using aluminium, to propose further developments /as discussed thoroughly in Appendix V. para E/, and not at last, until the needs of the users are higher, as those exceed the given possibilities and present production of the company, to give proposal of the rank of needs to be served out first, there is a necessity of technical staff. This technical advisory team should consist, as a minimum, of

- one mechanical engineer, familiar with electrical engineering, packaging, transport and storage, finished goods production, and with economics,
- one architect, with ample experience in the field of pre-fabricated buildings, civil works, in the field of the use of aluminium as windows, doors, portals, furnitures, with an ability of designing all these, and with a

knowledge of economics,

- one metallurgist, familiar thoroughly with the technologies of semi products' producing, to help the customers to choose the proper material for their product or application out of the products of SCAP, to help to redeem and substitute the imported semis and finished goods with domestic products.

This staff should be supervised by the Director of Research and Development of the company, as they should initiate development proposals as well as find outlet of the products of the company. They would work in close relation with the enlarged staff of the Baghdad Commercial Office, actually on the same premises in Baghdad.

CHAPTER V.

ESTIMATION OF FUTURE DOMESTIC DEMAND OF ALUMINIUM AND EVALUATION OF POTENTIAL EXPORT MARKET.

The usual methods of forecast are detailed in Appendix III. Accordingly, the probleme can be approached from two sides. A desc-research can be made off secondary data /sometimes called oecoscopical research/ collected from existing sources /statistics, publications, plans, etc./ and the results can be checked by primary data /sometimes called demoscopical research/ collected from the prevailing and perspective customers. The findings of the desc-research for the domestic demand are summarized in the following table:

	1982	1983	1984	1985	1986
The expected population, millions	14,2	14,7	15,2	15,8	16,4
Per capita GDP, without oil industry, expected, \$ US.	776	807	845	870	900
Per capita alu. consumption, according to GDP, kg.	1,8	1,9	2	2,1	2,2
Total aluminium consumption, '000 tons	25,5	28	30,5	33	36

The consumption of oil industry, and the plus amount can be consumed on the base of oil revenues, the demand of recovery after war are not calculated.

The forecast consumption figures ara in accordance with the planed investment and industrial growth. The 5 year index of them 1,47 and the growth of aluminium consumption is 1,41 times in 5 years. They are in accordance with the planed growth of machine building industry, what is 11% /year, because the forecast consumption grows 8-10% /year within the period in question. Thus the consumption demand is not over estimated at all, it is moderate and safe.

It is recommended to prepare estimations yearly and carry on the market research continuously as it is described in Appendix III., to get more and more exact forecast. This is rather necessary in a country of centrally planed economy, because the will of the government can change basicly the figures derived off international experiences. For example: it is planed that in Iraq, will be produced yearly 120 000 passanger cars, 25 000 trucks,

15 000 tractors. In one passenger car, a world average again, 107 kg of aluminium was used in the last years. That means 12 840 tpy of possible aluminium demand off which about 1 500 tons are semiproducts, the remainders are castings. The whole vehicle programm would need approximately 6200 tpy of semiproducts, what can greatly affect the production programm of SCAP. From the housing and building programm of Iraq one can estimate an approximate demand of 9800 tpy, what means nearly 6000 tpy semi product consumption.

The company can keep the eyes open to use the possibilities in time, because most of the needs of the vehicle and building programm can be substituted by iron and steel even if this substitution is not economical for the producers and for the country. Presently there is an iron-producing capacity of 1,2 million tpy, off which about 0,4 millions are steel capacities. The users won't wait for SCAP to be prepared to match their need, nor do the neighbouring countries.

The Gulf-countries are going to increase the present production of 280 000 tpy of aluminium to 1 million in the following 20 years. They are starting to develop an enormous semi product manufacturing industry, too. There are existing already some extruders in Kuwait, Arabian Light Metals Co., Kuwait Aluminium Co., with an output of 11 000 tpy, and with a well accomplished engineering and technical advisory Staff. And there are some rolling capacities at Alba, too, with planned enlargements. In Bahrein /with an interest of Iraq/ will be a rolling capacity of 40 000 tpy, in Saudi Arabia a similar will start production in 1984-85 with a capacity of 270 000 tpy. It is quite uncertain to complete them, because they are on site, they will have larger capacities thus presumably lower production costs than SCAP has. Moreover, they will face with merchandizing problem because their domestic consumption in 1985 estimated to be in

Saudi Arabia	25 000 t
Kuwait	8 000 t
Others in Gulf	2 000 t.

In the next step they will start to develop finished goods production, so their need is not in semis but in ready made products yet.

The situation in other neighbouring countries is also not promising. In Jordan, the flash report shows:

	1982	1983	1984	1985	1986
Expected population, millions	3,8	3,9	4,05	4,2	4,4
Per capita GDP, \$US	450	470	490	510	530
Per capita consumption, kg.	0,8	0,9	1	1,2	1,5
Aluminium consumption, '000 t.	3	3,5	4,1	5	6,5

The market will remain limited. The country imports 5,5 times as much goods in value as exports, so the balance of payment is not encouraging SCAP to sell, except if the Government of Iraq guaranteed the revenues.

In Syria:

	1982	1983	1984	1985	1986
Expected population, millions	9,64	10	10,38	10,78	11,2
Per capita GDP, \$US	860	915	970	1030	1090
Per capita al. consumption, kg.	2,1	2,3	2,55	2,8	3,1
Total consumption, '000 tons	20,2	23	26,5	30,2	34,7

In 1979 they have imported 10 367 tons of semis and ingots, and 8481 tons of aluminium cables. This, in the future can be of interest for SCAP and the neighbouring Cable Works, so it can be advised to carry on the detailed market research as listed in Appendix IV., together. The existing cable works in Syria use for production mostly copper, 7 000 tons per year.

The great handicaps of SCAP on the export market are the followings:

- The capacities of each existing technologies are far behind the presumed optimal, so the products are hardly competitive.
- The assortment is poor, the specialities are missing, just those, where the capacities easily can be optimal, and what the neighbouring countries are not supposed to have for the time being.
- The deficiency in elasticity, what means the ability to comply quickly to the needs, because there is no die

designing, scalping and heat-treatment facility, because the shortage of skilled manpower.

- The deficiency in pricing, because there is no pre-and-after calculation, thus export price-limit can not be stated.

Exporting semis is advantageous only in the case if the price margin between semis and ingot is greater than the production costs of the process from ingot to semis. The price margin has to cover the quantity-proportioned direct expenses at least.

Trade of bauxite and alumina is about 50%, and 25-30% of the world's primary aluminium get into foreign trade. Only 9-10% of semis and finished goods get into the world's trade. In finished goods, simple mass products may cost twice so much, and more complicated ones seven times more than ingots. Their prices are more affected by modernness, use advantages, saving issuing from their employment and application, etc., than by producing costs. More can be gained on them, than on semis, compared to costs even, not only to weight.

There is a possibility of specialization, dividing of the production, and co-operation. Mutual agreements shall evidently consider the situation already existing. The country, where the intellectual and material basis regarding production of finished goods is on higher level, has a more advantageous position when concluding these agreements.

This is the first point, why it is advisable for SCAP to start with the specialities and to expand the activity to the field of finished products manufacture. The second point is the deficiency of basic materials of aluminium. The import of basic material also urges to manufacture the products up to the nearest stage of final consumption.

To get invoved in co-operation and integration with the Arab countries, SCAP could benefit off the existence of Arab Federation for Engineering Industries. The possibilities range from the simple co-operation to joint-venture, even with third party invoved, with an advantage of geting solved the probleme of the shortage of manpower and of the lack of experience at the same time. For this type of joint-venture the Arab partners could be Jordan and Yemen, the third party from Europe.

C H A P T E R VI.

ADVICE ON FORMULATION OF PRODUCTION PROGRAMM AND DEVELOPMENT.

A. The production of finished goods.

The large aluminium companies of the world expand their activity also for producing finished goods either in a direct or indirect way. Among the many reasons the followings are the most importants:

- The technology of finished goods' production is highly aluminium specific, requires the use of knowledge accumulated in the aluminium semi product industry.
- Production of finished goods needs co-operation with the manufacturing of semis.
- Price margin of sale between semis and finished goods are bigger than the expenses arising when semis are turned into fully manufactured articles.
- Certain finished products require the exact technology used in semi production, e.g. roofing materials, building coverings, etc.
- A considerable benefit can be assured if the neat scrap, originating in large quantities from the finished products' manufacturing, is rapidly returned back into the cycle.

Because of the listed reasons, it is advisable for SCAP, as the semi producer of Iraq, to extend the activities on the field of finished goods in the future.

To accelerate own development the following foreign services are available:

- import of intellectual property /know-how/,
- the above and import of equipment,
- plus import of a plant,
- plus aquire prime contracting.

It is advisable to buy intellectual product only in the case of

- its level and modernity exceeds the average level, it
- comprises complete knowledge,
- possesses referencies demonstrating the availability of good knowledge,
- facilitates domestic adoption by indigenous experts.

Aquiring know-how, adaptation is practically the only condition for success which relies upon the maximal knowledge of the local circumstances.

Intellectual and physical preparation is based upon the thorough knowledge of the new product to be introduced including foreign experiences, it can be completed with its adoption to local conditions. Consequently, it is not advisable to rely upon only foreign experts in this matter who have profound knowledge in their professions but superficial knowledge of the local circumstances. /This can be observed in the case of SCAP/. The local knowledge and personal connections are the decisive factors which indigenous experts possess, and foreign experts can get only by long staying on the spot.

Achievement in development of aluminium finished goods producing industry and increase the application of aluminium can be attained with success by such a team wholives in the country and loyal to the country.

The list of proposed products, in the rank of needs, with estimated requirements are summarised in the following table:

Product	Optimal quantity per year	Required material tons/y.	Manpower per shift	Workshop place m <sup>2</sup>	Builtin power kW	Cost of machinery, tooling know-how, \$US
Panel of building	200 000 m <sup>2</sup>	1400	12	1300	130	710 000
Gas-bottle, cylinder	250000 pcs	4000	72	3500	1500	5100000
Lamp pole	20000 pcs	800	16	900	800	3300000
Transport milk-can	25000 pcs.	200	12	850	350	1150000
Soda-water syphon	500000 Pcs.	350	60	800	400	2600000
Ladder, furniture skeleton	800 tons	800	38	300	minimal	50000
Portal, pavilion, facade	250000 m <sup>2</sup>	1000	44	1000	minimal	95000
Container, tank, bunker	36000 m <sup>3</sup>	1200	120	4000	800	3000000
Household utensils	370000 pcs.	150	26	950	350	680000
total requirements		9900	400	13600	4330	16 685000

To avoid the danger of voluntarizm it is advised to obtain feasibility-studies and not only offer in every case.



When the studies prove the feasibilities of the listed Workshops, than presumeably the panel, milk-can, ladder and furniture skeleton, portal, pavilion and facade productions can be started the soonest and most easily way even in 1983 already. It can be followed by the gas-bottle and lamp pole production in 1984 and finally by the others in 1985.

The material requirements, accordingly:

Production	1983			1984			from 1985		
	R	E	O	R	E	O	R	E	O
Panel	1400	-	-	1400	-	-	1400	-	-
Gas-bottle	-	-	-	3200	400	400	3200	400	400
Lamp pole	-	-	-	60	690	50	60	690	50
Milk-can	170	10	20	170	10	20	170	10	20
Syphon	-	-	-	-	-	-	350	-	-
Ladder....	720	70	10	720	70	10	720	70	10
Portal....	450	500	50	450	500	50	450	500	50
Container....	-	-	-	-	-	-	1150	20	30
Household u.	-	-	-	-	-	-	120	10	20

Total, tons: 2740 580 80 6000 1670 530 7620 1700 580

Where R = rolled products, E = extruded and O = other semis

The breakup of the last year; of 1985:

	sheet	circle	welded tube	profile	drawn tube	forging	casting
Panel	1400	-	-	-	-	-	-
Gas-bottle	-	3200	-	400	-	400	-
Lamp pole	60	-	-	-	690	-	50
Milk-can	-	170	-	10	-	-	20
Syphon	-	350	-	-	-	-	-
Ladder....	20	-	700	70	-	-	10
Portal....	450	-	-	500	-	-	50
Container..	1150	-	-	20	-	-	30
Household u.	-	120	-	10	-	-	20
Total, tons	3080	3840	700	1010	690	400	180

B. Semi production.

The breakup of world's consumption of aluminium in the different semis, the current capacities of SCAP, the expected consumption at the end of the period in question are summarized in the following table.

	<u>SCAP's</u>			The use of capacity %	Domestic consumption forecast for 1986 in tons
	World's average capacities in %	Current capacities in tons	Output in 1981 in tons		
Rolled products,	54	18 200	7034	38,6	18 000
- sheet and wtrip	43	14 700	4903	33,4	9000
- circle and disc	2,5	1 500	1452	96,8	5500
- foil	7,1	2 000	679	33,9	2000
- welded tube	1,2	-	-	-	1500
Extrusions,	20,4	3800	2087	54,9	5200
- profile, bar, tube	16,8	3800	2087	54,9	4000
- drawn rod and bar	2,9	-	-	-	500
- drawn tube	0,7	-	-	-	700
Wire /cast-rolled pr./	7,7	10 000	5948	69,5	6000
Forging	1,2	-	-	-	400
Pigment	1,2	-	-	-	400
Form-casting	15,5	-	-	-	6000
Total	100%	32 000	15069	47,1	36000

There are fairly large gaps between the capacities and the actual production of the company. Some of them are natural, obvious in case of a country with relative small population and inner market. The realizable minimal capacities may be larger than the domestic needs, even if those capacities are far behind the optimals.

To get dissolved the contradiction of the capacities and future needs, the actual methods and proposals were detailed previously. Summarized again:

- the enlargement of assortment of semis /as in Chapter III./,
- the development of own produce-consumption /as in para A of this chapter/,
- the use of international co-operation and foreign trade /Chapter IV./

A proposed breakup of current capacities with only the minimal assortment-enlargement and minimal investment is summarized in the next table:

	Breakup of existing main capacities till 1986 in tons	Surplus over domestic need /or deficit/ in 1986, in tons
Rolled products	18 200	+ 200
- sheet and strip	5700	- 3300
- circle and disc	5500	-
- foil	2000	-
- welded tube, rolled prof.	5000	+ 3500
Extrusions	3 800	- 1400
- profile, bar, tube	2600	-1400
- drawn rod, bar	500	-
- drawn tube	700	-
Cast-rolled products	10000	" 4000
- strip and slug	1000	-
- rolled wire	7000	+3000
- drawn wire	2000	+1000
<b>Total</b>	<b>32000</b>	<b>+ 2800</b>

The occurring deficit of rolled sheets can be solved by import, easily, as SCAP imported already 2000 tons of them from Bahrain in 1981.

The deficit in extrusions can be completed by substitutions with welded tube and rolled profile, and the part what can not be, may be imported. There are possibilities of product-exchange, too, e.g. with Kuwait, by redeeming of imported extrusions with welded tubes and rolled profiles. The quantity of welded tube still remaining can be sold in the neighbouring countries for production of irrigation pipes, furnitures, etc. In case of adding one more extruder press to the line, there would occur again a surplus of capacity which could be hardly utilized.

The eventual surplus of cast-rolled materials in our days can be sold for example to India, where is a constant need of materials for electrical conductors, when can not be sold in the neighbouring countries /e.g.: to Liban Cables, to Aleppo Co. for Cables, etc./

By the choice of possible assortment enlargements and developments detailed in the previous chapters, variations of production programmes can be elaborated, and can be selected. The best decision can be made by taking into account all the advantages, preferences, disadvantages and handicaps inferable not only from the possible market, but off the technical, financial, labor, etc. situations and possibilities of SCAI:

INTERNATIONAL AND SENIOR COUNTERPART STAFF OF  
S.C.A.P.

International counterparts:

A.J. Mscichowski, M.Sc. Eng, head of the Polish team, since 1980 Jerzy Doniec, M.Sc. Eng., deputy, acting as a substitute of Production Manager, since 1980.

B.N. Bhargava, Mech.Eng, head of maintenance, since 1979.

Counterparts on behalf of SCAP:

Issam M. Mustafa, General Director since 1980.  
Mohamed Kattan, Technical Director since the erection of workshops.

Monier Abdul Karim, Commercial Director since 1979.  
Kassam Harbi, Director of Research and Development, since 1980.

APPENDIX II.

LIST OF DOCUMENTATION PREPARED.

For documentary purposes the prepared outputs given to the counterparts are the followings:

- Approaches of marketing the products of SCAP.  
25.11.1981.
- Proposed steps and methods of domestic market research for SCAP  
22.11.1981.
- Proposed steps and methods of export market research for SCAP  
24.11.1981.
- Proposed marketing and PR activities for SCAP  
25.11.1981.
- Possibilities of increasing aluminium consumption  
26.11.1981.
- Possibilities of enlarging the assortment of products at the company  
28.11.1981.
- Pre-feasibility comments on starting finished goods' production at SCAP  
03.12.1981.
- Price policy as a mean of marketing for SCAP  
02.12.1981.
- Cost analysis as an implement of marketing.  
18.01.1982.

Some of these documentations can serve the supervision of the commercial and development activities of the company as well as can give ideas to the authorities organizing marketing and market research in other branches of industry, e.g. in steel semi production, plastic industry and in others, manufacturing investment or production goods. For this reason some of the outputs are given in this report summarized but sufficiently detailed.

PROPOSED STEPS AND METHODS OF DOMESTIC MARKET  
RESEARCH FOR S. C. A. P.

A. Prevailing conditions in 1981:

Necessary data and the possible sources of data to be collected to ascertain the consumption circumstances of aluminium in Iraq are the followings.

1. From the Bureau of Statistics:

- Per capita GDP with and without oil industry,
- the share in producing the GDP of
  - = the industry, the whole,
  - = the steel-metallurgy production,
  - = machine building industry.
- The population of the country, the manpower in industry.

2. From the Ministry of Trade, the Chamber of Commerce:

- a./
- The import of aluminium semis, in tons and in ID-s of
    - = rolled products
    - = foils
    - = extrusions
    - = drawn products
    - = castings
    - = forgings
    - = any others,
  - the import of ingots for remelting /excluding SCAP/,
  - the import of powder and paste,
  - the import of desoxidator material for steel industry.

/The list of importers and consumers-name and adress-and the quantity they import and use of the above listed products./

- b./
- The import of finished aluminium goods used in
    - = vehicle production and transport
    - = mechanical engineering
    - = electrical engineering
    - = building industry
    - = chemical engineering, food processing, agricultural appliances
    - = packaging

- = pot and pan producing
- = mass production /household utensils/
- = others.

/The name of the products, the quantity in weight and in pieces or meters, square meters, etc. The list of importers/.

- c./ - The export of semis as listed a./ and the export of finished goods according to the list b./.
- d./ - The expenses of import /average or estimat/,
  - = FOB prices
  - = freight and material handling costs
  - = custom duties and others.

3. From the State Organization for Engineering Industry, the Ministry of Industry, National Bureau of Statistics:

- The production /output in ID-s/ of industry of
  - = vehicle production
  - = mechanical engineering
  - = electrical engineering
  - = building industry
  - = chemical industry, food processing, agricultural appliances
  - = packaging
  - = pot and pan producing
  - = mass production /household utensils/
  - = others.
- The fixed assets /or finished investments/ of the above listed sectors.



4. The production /output/ of the SCAP, from the files:

product	t o n s		sales revenues	
	alloy	commercial quality	alloy	commercial quality
hot rolled sheets				
cold rolled products				
sheets				
corrugated sh.				
coils				
circles and discs				
Ex t r u s i o n s				
profiles				
anodized				
nature				
tubes				
anodized				
nature				
rolled wires				
	plain	printed, laminated	plain	printed laminated
foils				

5. The maximal capacity of technological branches existing:

- Casting, remelting of scrap
- wire rolling
- hot rolling
- cold rolling /altogether/
  - = sheet cutting
  - = narrow coil producing
  - = corrugation
  - = press cutting of discs
  - = shear cutting of circles

- foil rolling /altogether/
  - = embossing
  - = laminating
  - = painting, laquering
- extruding
- anodizing.

6. The buyers' list of semis produced in the company, the quantity they bought in one year period /sources: the files of SCAP/, the product produced by the customer from the semi /source: the buyer/ :

- Hot rolled product buyers

name	produced product	quantity bought	
		alloy	non alloy comm. qu.

- Cold rolled product buyers

name	product produced	quantity bought							
		alloy				commercial quality			
		sheet	corrug.	coil	disc	sheet	corr.	coil	disc

- Buyers of extrusions

name	product produced	quantity bought							
		alloy				commercial quality			
		profile		tube		profile		tube	
		nature	anod.	nat.	an.	nat.	an.	nat.	an.

- Foil buyers

name	product produced or foil consumed for	quantity bought			
		plain foil	embossed	laminated	printed laquered

- Wire buyers

name	product produced	quantity bought	
		alloy	non alloy

- Any others, e.g. scraps, ingots, etc.

7. From the Chamber of Commerce, the State Organization for Engineering Industry:

- Price comparison with complements /or substituter, concurrent/ materials, for example

product	Price by weight		
	aluminium	steel	plastic /PVC/
basic /raw/ material			
tube /Ø 40 x 2 mm/			
sheet /1x1000x2000/			

B. Future demand potential for each years of

1982-1983-1984-1985-1986:

The necessary data and the possible source of data to be collected to forecast the consumption, and to prepare a production program for SCAP are the followings.

1. From the Ministry of Planning; for each years:

- Per capita GDP, planned or expected, with and without oil industry.
- The planned or expected share in producing GDP of
  - = industry, as whole
  - = steel-metallurgy production
  - = machine building industry.
- The expected population, the manpower in industry.

2. From the Ministry of Industry, Ministry of Planning, yearly:

- The planned production /output in ID/ of industrial sectors as listed in para A.3.
- The planned investments /or expected fixed assets/ of these sectors of industry

- The planned new factories consuming aluminium, their need of specified products of aluminium, in tons
  - Any planned external commercial agreements influencing the future production and development of SCAP, with focus on the material requirements.
3. From the files of SCAP:
- Any existing plans of enlarging the capacities or the technologies either by the means of putting new or auxiliary machinery in the lines, or by any means of intensification of the production, or lifting productivity /e.g. by better organization/.
4. From the importers and the users of imported semis and basic materials /see para A.2./ and from the importers of finished goods:
- How their need would grow in the years 1982-1986 off the imported or other specified aluminium materials.
5. From the existing customers:
- Their development plans of enlarging production /in ID/ year by year of their existing products or new products consuming aluminium.
  - Their need /in tons/ of specified aluminium semis produced by SCAP /as in para A.5./ or for other, such as, for example
    - = drawn tube or rod /with notice if substitutes declared extrusion needs/
    - = drawn wire /besides the declared rolled wire/
    - = anodized and colored extrusion /instead of nature/
    - = polished tube and profile /instead of nature/
    - = pigment or powder
    - = continuous casted and rolled bar, strip
    - = die casting
    - = forging
    - = any other product /e.g. laquered strip, etc./.
  - Their need of specified other alloy, not produced yet by SCAP /in tons, yearly/
    - = in the form of semi needed
    - = in needed state /e.g. heat treated, etc./.

C: Method of evaluation.

1. Approximate figures of aluminium consumption.

There is a fairly close correlation between the per capita GDP and the per capita aluminium consumption of a country. The ratio of the trend of per capita GDP and aluminium consumption, termed the "elasticity coefficient" internationally 1,4%. For developing countries, up to the year 1985, can be taken 1,9%.

That means, if the GDP of the country grows 1%, the growth of the aluminium consumption expected to be 1,4 - 1,9%. With the expected growth of the population, the approximate quantity of growth in aluminium consumption can be calculated.

On the other hand, there are some correlations among aluminium consumption, industrial production in whole, steel-metallurgy production, and machine building production, too. Aluminium consumption grows about 1,09 times faster than industrial production, 1,37 times faster that of steel production and only 0,89 times of that machine building industry grows, preassuming there are not radical changes in investment policy of a country with a centrally planed economy.

By using the regarding data collected /as para A.1. and B.1./ we get 4 somewhat different consumption forecast figures for evaluation and confirmation of data collected from the existing plans and from the detailed answers of organizations directly involved in the use and development of aluminium products and industry.

2. Consumption figures beyond the existent production limits of SCAP.

Getting the detailed list of imported semis, basic materials and finished goods, with the expenses of import /as in para A.2./, and the future needs of these materials /as in para B.2./ and these, integrated in the existing plans, in addition of any existent development plan of the SCAP /as in para B.3./, the preparation of pre-feasibility studies of widening the product assortment of the company can be started.

Still more data and suggestion can be worked out off the answers given by the customers /see para B.5./.

3. Evaluation of inquiry results.

The detailed answers of existing customers about their specified needs can be the base of production programm for the next five years. The answers can be collected and processed according to para A.6.

The need of existing customers of existent products of SCAP will provide only the minimal-production programm for the company. This can be enlarged

- by the thorough technical-economical revision of import and intended import of semi products /as in para A.2. and B.4./, in the view of substitution possibilities with domestic products,
- to put in the right place the specified needs of new factories producing finished goods /para B.2./,
- according to the results of pre-feasibility studies /mentioned in para C.2./, the product assortment of the company can be enlarged /paras A.4, 5, 6 and B.5./.

For checking and confirming, all the customers by their products, and all domestic needs can be enrolled into one of the industrial sectors listed in para A.3. The nomenclatures are international, thus allowing comparisons in international,

Summarizing the whole, completed with unavoidable import /semis and finished goods as well/, the planed growth of industrial sectors /para B.2./ should match in general the summarized needs. For double-check we can depend on para C.1.

Finally, to complete the maximum-production programm, the results of the export market research /as proposed in Appendix IV./ should be taken in account.

As usual, the 5 year plan has to be corrected once in a year. The proof and correctness of the programm can be observed in comparison of the planed and actual figures of the passed year. Thus the steps described in paras A.2, 4., 5., 6. and B.3, 4., 5 should be taken. It is advantageous if data are collected continuously, e.g. those described in paras A.4., 5., 6., to avoid a costly, tiring and slow campaign procedure.

APPENDIX IV.

PROPOSED STEPS AND METHODS FOR EXPORT MARKET  
RESEARCH FOR S.C.A.P.

All the work to be carried out in close work-relation with an authorised foreign trade company of Iraq and with the help of the State Organization of Engineering Industry, preferably in Baghdad, because the necessary informations obtainable only in Baghdad and in the target countries.

A. Background Informations.

1. From the National Bureaus of Statistics of the target countries the basic data to be collected are actually the same as in case of domestic market research /see Appendix III. para A.1./:
  - The per capita GDP at present and in the last 5 years.
  - The share in production of GDP of
    - = the industry, in whole
    - = the steel-metallurgy production
    - = the machine building industry.
  - The population, the manpower in industry at present and in the last 5 years.
3. From the National Bureau of Statistics /or from their annual, the Statistical Yearbook/ of the target country, and from international annuals, as World Trade Annual /Walker Co., 720 Fifth Ave., N.Y. 10019/, Analytical Tables of Foreign Trade /Eurostat, Brussels/:
  - The balance of exports and imports of
    - = aluminium basic materials
    - = semis
    - = finished aluminium goods.
  - The aluminium consumption at present and in the last 5 years if they are obtainable.

B. Analysis of selling possibilities.

After collecting the basic data and evaluating the rough trend derived and drawn from the past, a "flash report" can be made as seen in Appendix III. para C.1. on the approximate future consumption of the target countries, with the expectable volume of their import. On the base of findings, the management of SCAP and

the authorities can decide

- to carry on a more detailed survey, or not,
- to give assignment to a local research organization, or follow the survey on own behalf.

When the decision is to give assignment, the most important task to draft properly and precisely the objectives and aims, and superintend the progress of contractor permanently. When the decision is to carry on independently from contractor, the main procedures are as follows.

1. From the local Chamber of Commerce, from the Commercial Secretary of Iraqi Embassy in the target country, and that country's Embassy in Baghdad

- the names of firms to be collected who are involved in
  - = producing basic materials, semis and finished goods /and their production, if obtainable/,
  - = importing and/or wholesaling aluminium goods /with quantity, if obtainable/
- to gain their advice on finding an able and willing local representative for SCAP or for the authorized foreign trade company dealing with the products of SCAP.

The most important is to find the proper local representative and to formulate a mutually agreeable cooperation /e.g. paid employee, exclusive representative, pool partner, etc./. It is advisable before signing any contract on representation to involve the perspective representative into the further research process on his own risk.

2. From the local representative would be procured:

- The selling prices of aluminium semis /as listed in Appendix III. para A.4./ as detailed as he could do, with focus on prices of concurrency.
- An estimation of the quantity he expects to sell on the proposed prices, with focus on concurrent suppliers results, with an introduced estimation of growing needs obtained from local trade associations, authorities, research organizations, customers and users, or any other sources obtained.
- Custom tariffs on imports /as he has access to the custom codes and able to extract the relevant data from it/.



- Import charges, the documentary requirements, restrictions applicable to imports, and any other barriers /e.g. quotas, quantitative restrictions/.
- The transportation costs.

3. Data from the periodicals Metal Bulletin Monthly /consisting data of London Lightmetal Exchange prices/, from the International Commerce Reprints /World-wide Tariff Guide, World-wide Customs Data, World-wide Import Rates/ and from same interviews with the largest buyers /as in para B.1/ the correctness of the answers of the perspective representative can be evaluated roughly, and from the data checked and corrected, a limit-price and a selling target can be determined. Finally the contract may be signed with the representative. /In the evaluation one should ignore any short-term forecast of economic activity, since current events can bias one's thinking/.

To make any further research, to spend money is advisable only after getting in the market, after gaining some good experience on the market and about the results of representative.

As a maximum, all the steps may be taken as described in Appendix III for domestic research, fitting the procedures to prevailing conditions of each target country.

APPENDIX V.

PROPOSED MARKETING AND P.R. ACTIVITIES  
FOR S.C.A.P.

The steps and methods of market research are outlined in Appendix III. and IV. The next phase, making the decision is beyond the commercial sphere. It is the responsibility and privilege of the management to make the concept of plans for production and sale. The means and implements of marketing activity for SCAP, as defined, are as follows.

A. Propapanda.

1. Catalogue.

There is a strong need to prepare a complete and detailed catalogue for the products of the company, enlarging the existing catalogue with extrusions and other products and terms of trade not involved in.

The draft of the catalogue advantageously would be made by the technologists and edited by the commercial management. Besides the technical possibilities, the catalogue can summarise the conditions and requirements necessary for accepting orders, advise the customers to specify correctly the ordered products, the usual dead-lines of delivery dates after contracting, the means of packaging or outfitting, the transport, the conditions of payments, etc. All necessary information should be involved to help the customers to get access to the products of the company, except prices.

The catalogue can be produced in loose-leaf format, allowing the necessary amendments in case of enlarging the assortment, developing new products, changing the characteristics of products, terms of trades, etc.

The catalogue is to be distributed among

- the existing customers /as in Appendix III. para A.6./
- the importers and end-users of imported aluminium products /as in Appendix III. para A.2./
- the local representatives abroad
- trade and commercial associations, presses, editing offices, libraries, technical high schools and colleges, universities,
- Ministry and authorities
- Commercial Secretaries of embassies /either Iraqi abroad,

- or foreign in Iraq/
- trading companies
- anyone asking for information.

The amendments could be sent according to the mailing list kept up to date.

## 2. Booklets.

To edit booklets with the help and permission of State Organization for Engineering Industry and National House for Distributing and Advertising

- on the proper use and application of aluminium in
  - = general, giving the chemical and mechanical properties, the workability of aluminium products, in comparison with other structural materials /with price comparison, too/
  - = in building industry
  - = in agricultural machinery and appliances
  - = in transport and storage, packaging
  - = in machine building industry
  - = in mass production /household wares/, with ample examples of each fields,
- on the proper technologies, applicable in producing finished aluminium goods, as
  - = machining /turning, milling, drilling/
  - = cold forming /cutting, bending, deep-drawing/
  - = surface treatment /polishing, painting, anodizing/
  - = connecting /welding, soldering, glueing, riveting/
- popular booklet about "do-it-yourself" methods.'

These booklets can serve propaganda purposes as well as serve the basic training of the workers, foremen and technicians, getting them used to aluminium as a structural material. The distribution of the booklets may be the same as in para 1., plus

- they can be sold in book shops,
- sent to exhibitions and fairs in the country. That is possible, that experienced authors can not be assured locally in one or the other subject. Digests and translations can be made off foreign books dealing with the concrete theme, untill gaining adequate domestic experience and example.

### 3. Direct mails.

To prepare a complete catalogue takes time. To fasten the publicity and get quick results, direct mails could be sent to the expected customers

- as a first step to those, import aluminium semis /see Appendix III para A.2/, just to notify that SCAP probably can produce those semis or with carefull revision an equally usefull substitute, thus using that, saving time and foreign currency can be achived for the customer and for the country /a summary of the production possibilities would be attached/,
- secondly, all the inquiries sent to customers /such ara described in Appendix III para B.4., 5. and A.6/ should be connected with giving informations about the activity and products of SCAP /in a 1 page leaflet/,
- and third times, beside all invoice mailed to costumer can be sent such a leaflet.

The direct mail campaign is the cheapest and most effective quick way of propaganda for a company producing investment /or production/ goods, as SCAP is producing.

### 4. Advertisements.

The leaflet mentioned previously can be prepared in the form of advertisement and put in technical, economical and trade periodicals through the National House of Distribution and Advertising, but not into newspapers. Daylies, TV and radio are not right medias for advertisements of the products of SCAP, and for any other production material, because the results don't pay out the expenses in this cases. Their use is in PR activities, as in next para.

#### B. Public relations.

The aime of this activity is the propagation of the company itself and not directly, but indirectly the products of the company. It is usefull building up good connections and relations with the

- authorities, whom SCAP depends from
  - organizations of the society,
  - public in general, not only the closest customers,
- to convince them about the usefullness of activity of SCAP, about

the necessity of its further development. It is advisable to catch and to take hold of every opportunity and event /such as any anniversary, starting of new production, or workshop opening, reaching any prominent production result, opening exhibition, etc./. On long term base, the PR is the most successful method, and the cheapest beside that, serving the "good-will" of the company, ensuring the permanent development sources and provisions of work for the company. The advisable methods are the followings.

1. Publicity.

In case of mentioned /real or quasi-real/ events

- press conferencies can be held,
- reports and interviews can be prepared for newspapers, TV, radio /even paid/,
- curculars can be sent, as direct mails.

2. Gifts.

The cheap gifts serv propaganda purposes as well as PR. It is usual to keep in stock small articles and give to visitors of the company, the visitors of future exhibitions of the company. These items should bear the embleme and name of SCAP. Some possibility, e.g.:

- plastic bag /actually in the color of aluminium/
- badge
- key-holder
- small roll of packaging foil
- plastic dossier.

Somewhat more expensive gifts are

- ball pens
- ash trays
- flower-vases
- glass sets
- caffe sets.

And there can be still more expensive personal gifts, too. Some of the gifts can be produced at the company off the company's materials, such are the

- packaging foils
- ash trays /drawn from disc/
- vases /deep drawn or spinned from disc and anodized/
- coffe sets /deep drawn                    - " -                    /
- plaques and badges.

### C. EXHIBITIONS.

There is a very strong necessity of parttaking any domestic national or international exhibition, either in part of the exhibition of State Entreprise of Engineering Industry, or independently. The preparation of exhibition needs the help of artists /architects, decorators, arrangers/ on a contract base. The company gives the list of exhibits, the argumentation to be emphesised, and prepares the needed exhibits by the artists in the best possible form, with the best possible surface finish, and operates the activity of the exhibition after opening.

It is advisable to connect the event with press conference, direct mail campaign, and to send out invitations /10-12 days before opening/ for a visit of the exhibition /the list should be care fully planned/, and during the opening time to take care of visitors /at least one technologist and one merchant should keep permanent inspection/.

Participation in exhibitions abroad needs a very carefull consideration. The decision should be in accordance with the results of market research /described in Appendix IV./, and can serve the aims of market research. The existing local representative could be involved in every exhibition. It is advisable to let him organize the whole participation if there is not an official exhibit of Iraq. In this later case the task of SCAP is to fullfil all the requirements of organise's, to give well prepared exhibits, catalogues, leaflets and informator staff. The invitations and direct mail actions should match the programm of organisers.

### D. Other means of marketing.

Some of them are not commercial, but technical, asin next para. But there are still more, as

- to send permanent representative /delegate/ abroad beside the Commercial Secretary of Iraqi Embassy

- to agree in co-operation with domestic or foreign partners
- joint-venture with domestic or foreign partner
  - = for production, or
  - = in sales.

In case of SCAP these are the futures only, but should be kept in mind.

E. The use of technicals in marketing.

The proposed marketing and public relation activities for SCAP, what implies the formation of development, production and sales concepts relied upon the market research, and the application of usefull methods promoting the success were outlined.

The importance of marketing factor is evident. A development progress can last several years, even decades and the risk is relatively high. Not only SCAP, but the authorities of economics of the country increasingly participate in bearing the risk, in order to form advantageous base material structure and product assortment. Development of aluminium industry is one part of a long-term economics-developing strategy.

The growth in aluminium consumption and exploration of new application-fields are mainly the interest of SCAP. To replace traditional structural materials /copper, tin steel/ by aluminium in various application-fields and to maintain achivements is just as technical as marketing task. Thus, almost every aluminium producing industry operates some technical advising and research organization, what for there is a strong need in the side of SCAP, too.

The techno-economic consulting organization is needed

- to promote widespres economical application of aluminium
- to spread new aluminium applications
- to promote technical advance in aluminium processing by supplying consultancy, documentation **and training**
- to maintain relations with international and domestic organizations
- to promote cooperation between aluminium semis-manufacturers and semis-processing plants /SCAP and customers/,

- collating present and future users' demands with the possibilities of SCAP
- to observe international progress
- to promote adaptation and indigenous development of new finished goods on the basis of the collected knowledge; to promote designing, constructing and testing of prototypes.

The SCAP and the State Organization of Engineering Industry would bear the main burden of maintaining this consulting organization which conducts also developing activities, facilitating thereby adaptation of foreign experiences and advanced fulfillment of special indigenous requirements. Additionally, it should be able to design prototypes of aluminium finished goods and structures demanded by various industries and to assist professional designers in designing such prototypes, help the producers of these to start mass production of new aluminium products. In the everyday work the following aspects are to be consequently considered,

- advantageous properties of aluminium in respect of the final usage
- user's application techniques, technological developments
- price of aluminium semis compared to that of other structural materials
- additional economical advantages arising from the properties of aluminium
- availability of the materials
- state preferences, interferences.

The fastest results can be achieved at the beginning of operation of this organization to look for substitution possibilities of copper, tinsplate and zinc-coated steel. In electrical engineering aluminium is a very good material replacing copper, in many fields of packaging tin and tinsplate are substituted by aluminium, and also aluminium may be employed instead of zinc and zinc-coated steel in the building industry, and aluminium can be used in large quantities in the vehicle industry instead of steel and cast iron.

In case of substitution of copper as conductor with aluminium is obvious, and also the comparing the heat-transfer in heat-



-exchangers made off different metals, application of aluminium proves to be substantiated,

commercial aluminium sheet	3400 kcal/h,kg
aluminium alloy sheet	3000 -"-
copper sheet	1250 -"-
commercial steel sheet	500 -"-

Tinned steel sheet may be replaced primarily in food processing /cans, glass jar tops/, because tin became a shortage material on world market and so it is getting more and more expensive.

As an example, weight can be reduced. One can of 240 ml

made of tinned steel sheet is	77 gr
made of aluminium	27 gr
made of aluminium foil	15 gr.

As an average, using 1 ton of aluminium in building industry means a saving of 2,5 tons of steel sheet and 0,2 ton zinc /as on the steel sheet/. Aluminium goods substituting zinc-coated steel /roofs, side walls, rain gutters, etc./ are generally more expensive, but their durability is much longer without painting, what is necessary in maintenance of zinc-coated steel. Thus aluminium is more favorable in all cases when required durability of the construction is more than 4 years.

Besides the listed activities, the technical staff should deal with standardization, too.

Standards have to assure customers' safety, uniformity of products, exchange accuracy, environmental protection, etc. It is essential that manufacturing and processing companies, users evaluate the products as per same aspects. Manufacturers and consumers of aluminium semis have to agree in quality and size specifications which have to be fixed as standards. In the process of standardization the experts of SCAP have to take part in order to assist in solving detail-questions and to assure the interest of the company.

Existing international standards and other foreign standards promote the standardising activity, but if they are automatically accepted, they often impede progress in the beginning phase of development of aluminium industry. It is inevitably necessary to revise and adapt them as own standards, taking the own achievements

and capabilities into account. And not last, to create such own standards, somewhat different off foreigners, can help the SCAP to exclude the undesirable foreign competitors off the domestic market in the products SCAP can, or intend to produce. This is the sake of SCAP, the economics-authorities and the country.

To form standards is not the task of SCAP, but of the authorities. SCAP and the technical advice organization should, however, take the initiative steps.

LIST OF LITERATURE FOR CONTINUOUS MARKET  
RESEARCH AND MARKETING.

Books for the library:

1. Manual of Export Promotion Techniques.  
UNCTAD/GATT, Geneva.
2. Export Marketing Research for Developing Countries.  
UNCTAD/GATT, Geneva.
3. Development of Industrial Exports.  
UN, New York.
4. Industrial Co-Operation Between Developed and  
Developing Countries for Export. UN, New York,
5. Regional Co-Operation in Industry. UN, New York.
6. Industrial Joint-venture Agreements in Developing  
Countries. UN, New York.
7. World Non-ferrous Metals to 1990. Industry Study.  
Predicast Inc., Cleveland, USA.
8. World Economic Outlook to 1990.  
Predicast Inc., Cleveland, USA.
9. Webster, R: Dictionary of Marketing Terms. Basel.
10. Delens: Principles of Market Research.  
Lockwood, London.
11. Crisp, Richard D.; Sales Forecasting. Marketing Research.  
New York.
12. Economic Analysis for Business Decision s. Manne, AS.  
New York.

Periodicals for the permanent, continuous marketing works:

1. International Trade Forum. /bi-monthly/  
UNCTAD/GATT, Geneva.
2. Metal Bulletin Monthly. London.
3. Aluminium Abstracts.  
Aluminium Association Inc., New York /monthly/
4. Economic Report by Lloyds Bank /annual/  
Volumes: Iraq, Syria, Kuwait, Bahrein, U.A. Emirates, etc.
5. Analitical tables of foreign trade. Volume: Non-ferrous  
metals  
Eurostat, Brussels. /annual/

6. Yearbook of National Accounts Statistics /annual/  
UN, New York.
7. World Trade Annual.  
Walker Co., 720 Fifth Ave., New York 10019.
8. Statistical Yearbook /annual/  
UN, New York.
9. International Commerce Reprints: World-wide Tariff Guide  
World-wide Customs Data  
World-wide Import Rates.  
US Government Printing Office, Washington, D.C. 20402.
10. International Advertising Standards and Practices.  
International Advertising Association, 475 Fifth  
Ave., New York 10017.
11. Statistical Yearbooks for:  
Iraq, Syria, Kuwait, Bahrein, United Arab Emirates,  
Egypt, Lybia, Tunisia, India, etc. /annuals/.



