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INDUSTRIALIZATION IN THE DEMOCRATIC REPUBLIC OF THE SUDAN 1/

by

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CONTENTS

I) Development of the Sector

A) Background:

As in many developing countries, industrialization in the Sudan is mainly a post-independence phenomenon. On the eve of independence - 1955/56 - the share of manufacturing in the GDP was significantly unimportant, a mere 1%; the labour force employed in this sector numbered only 9505 employees, and the volume of capital investment undertaken in its different establishments amounted to only £S 536,000.

The industrial composition of the sector was essentially that of a 'very simple consumer goods' sector - production was confined to a narrow range of products involving simple processes. Food processing contributed 54% of total output, followed by the Beverage and Tobacco manufacture whose share in total output was 12%. The share of textiles was as low as 1%. This is in spite of the fact that cotton production accounted for 13% of the GDP in that year. The bulk of the country's requirements of textiles was imported.

B) The Present Situation - Facts & Problems

1 - Facts:

It has been demonstrated by many economies in the world today that the elimination of a country's socio-economic backwardness calls for diversification of its economy through industrialization. Whereas no sector of the economy could be neglected, the importance of the industrial sector in stimulating economic activity in general is perhaps the highest. Its expansion and growth tends to permeate the other sectors of the economy and tends to bind them together in certain proportions.

That being the case, the creation of an industrial sector - both public and private - to serve as a powerful instrument in the overall balanced socio-economic development, has become the great concern of the Sudanese Government. Hence, the Five Year Development Plan 1970-75 came to interfere with the industrial sector for its structural transformation.

S£ 0.35 = US$ 1.00

This has been reflected in the following plan objectives:

a) Increase industrial production volume by 57.4%;

b) Introduce new types of products and meet most of the domestic requirements through the growth of the national industrial production;

c) Implement an extensive programme of public capital investment outlay.

To achieve these objectives an amount of £S 60.4 million was allotted to the industrial sector - £S 36 million for the public sector and £S 24 million for the private sector. This amount represented 14.2% of the total plan allocations of £S 426.7 million.

However, as the case with most development plans is that they are subject to continuous assessments, the Five Year Plan was revised and a "Phased Action Programme" was adopted.

This Action Programme adopted the following objectives for the Industrial Sector:

a) To achieve self-sufficiency in the essential commodities;

b) Maximum utilisation of local raw materials;

c) Balanced regional dispersal of industries;

d) Improvement and modernisation of traditional industries in the rural areas in an attempt to stop the Urban drift.

Hence the number of projects executed in the public sector has increased to include mainly sugar, textiles and leather and in turn investment allocations have also increased reaching over £S 300 million in the period 70-76. This increase is not of course attributed solely to the inclusion of new projects, it is also attributed to the redesigning of some of the already proposed projects and the increase in the costs of materials and equipment resulting from world inflation and domestic price increase.

As a result of this unprecedented concern with industrial development, the share of the industrial sector in G.D.P. has risen from 4.3% to 15.1% during the period 1956 - 1975, taking 1956 current prices at factor cost as a base, and the manufacturing sector has recorded a growth rate of 5.6% in the period 1966/67 - 74/75. At present the industrial sector provides employment for about 240,000 people about 5% of the economically active population. Moreover it has experienced a noticeable shift in the shares of its main subsectors in gross value added e.g. shares of Food, Beverages and Tobacco declined from 66.0% to 32.9%, while that of Textiles, Apparel and Leather rose from 1.0% to 17.2%.

Refer to tables, I, II and III (See Annexes I - III).

It is reasonable to expect that given the accelerated and expanded investment activity during 74-75, and on the assumption of one year for the implementation of new projects, total industrial production in real terms should register an increase in 1977.

2 - Problems:

However, despite the recent significant progress attained in the industrial sector, several constraints persist which affect both the growth and efficiency of the enterprises.

a) The Development Projects Under Execution:

These are mainly sugar, textiles and leather projects. Most of these projects have experienced great delays in execution due to the following:

- Sharp increase in the cost of machinery due to world inflation imposed great constraints on the ability to import the machinery required;
- Delays in foreign exchange allocations for the adequate and timely procurement of essential supplies;
- Varying shortages of raw materials- mainly cement;
- Shortages of skilled labour due to the exodus of labour to neighbouring Arab countries;

- Shortages of local funds needed for a timely execution;
- Great element of bureaucracy manifests itself in the system - mainly in the procedure of approval of funds.
- Too many projects implemented at one time.
- Great transportation bottlenecks - handling facilities extremely poor at the port and inland transportation is deficient.
- Deficiency of follow-up and appraisal studies.
- Lack of feasibility studies in certain cases due to non-availability of technical cadres.

b) <u>The Already Executed Industrial Projects:</u>

Judged from its contribution to G.D.P. of just over 10% and employment of less than 1%, manufacturing is still at an infancy stage and is facing great problems resulting in great inefficiencies.

(i) A very serious problem is that of excess capacity which is adversely affecting the profitability of these enterprises.

Refer to tables IV and V in the annex.

Although no studies of the causative factors exist, the following are generally thought of as the factors responsible and whose solution needs further investigation.

- Many industries were established without conducting the appropriate feasibility studies. Such studies could have revealed that many things were wrong, right from the start, including the raw material to be used and the location of the factories.

  Allied to this is the fact that most of the existing institutions dealing with industrialisation are deficient in industrial project analysts. As a result some of the technologies being applied did not suit the country's conditions.

- Inefficient management is another factor contributing to the plight of these industries. In most cases managerial appointments were made on basis other than managerial and technical competence and managerial training was lacking. This problem of the shortage of adequately qualified people has led to bad management and operations.

ii) Inadequacy of Skilled or Sufficiently Qualified Personnel:

Inspite of the fact that efforts are presently directed to create and upgrade skills, there is still great shortage of skilled and sufficiently qualified personnel. Most workers' training centres suffer from having under-qualified instructors, old equipment and non-availability of spare parts and training materials. Training of supervisors on the other hand is completely neglected. Skilled workers are usually promoted to fill the posts of supervisors without having the required training.

This problem of the inadequacy of skilled labour is expected to be aggravated if necessary measures are not taken mainly because the country is at the present embarking on a number of industrial development projects.

iii) Foreign Exchange Shortages:

Due to the lack of sizeable domestic intermediate and capital goods producing industry, the foreign exchange requirements of establishing and running an industry in the Sudan are very heavy. There is great evidence that many projects are not executed because of lack of foreign exchange and that many factories which needed repair or expansion were not able to procure the required machinery because of this problem.

iv) Problem of Mobilising Financial Resources for Small-Scale Rural Industries:

At the moment there is only one saving bank in the country geared to rural development and it is faced with organisational, managerial and operational problems and others such as identification, formulation, evaluation and implementation of projects.

v) There exists at present a number of institutions whose functions are identical. This led to the duplication of functions and overstretching of scarce human and financial resources among these institutions. Such a situation may perpetuate the very constraints which these institutions were established to remove.

vi) Many projects are faced with problems of raw material supply mainly as a result of the lack of resource studies, in the first place, and the existence of great transportation bottlenecks. In fact the transportation bottlenecks are imposing a very severe constraint on the industrial development of the Country.

II. Measures and Policies for Industrial Development:

Here are some recommended measures and policies which are thought necessary for the elimination of the problems impeding industrial development in the country:

1 - Industrial growth for the present should take place on a carefully selected basis. It is necessary to move away from the present pattern

of spreading thinly over a wide range of industries to a pattern more oriented towards selective industrial specialisation. Efforts should be concentrated on the development of selected number of efficient industrial complexes based on the maximum exploration of the existing and long-term comparative advantages in the agricultural sector of the economy.

2 - As a number of industrial units are currently plagued by the problem of underutilisation of capacity, it is necessary that excessive creation of capacity ahead of demand should be discouraged.

3 - The public sector should pay as much attention to investment activities on the improvement of the country's basic infrastructure needs, namely, transportation, power, other utilities and labour skills as on investing in manufacturing ventures. This is necessary if existing bottlenecks are to be removed.

4 - Improvement of the appraisal capabilities of the public sector should receive attention.

5 - As the present information gap seriously handicaps Government and institutional decision making on a number of vital issues, it is necessary to embark on the design of suitable information systems.

6 - Although the suggested complexes under (1) above are capable of serving both the export and domestic markets, their major products should largely be geared to the export markets. As such emphasis on efficiency and specialised production are inevitable.

7 - For transition to a more viable and higher stage of import - substituting industrialisation - special priority should be given to the following:

a) dynamic industries that can be immediately and efficiently started on a feasible scale;

b) industries of an intermediate nature that would help to strengthen the linkages within the sector;

c) industries providing various inputs for the agricultural sector.

d) and construction material industries.

8 - Activate and seriously promote the extractive industries as a base for future heavy industrialization.

9 - A pragmatic approach to the private sector involvement in small-scale industry calls for the encouragement of the establishment of technologically and economically efficient small-scale industries. Activities in these industries should be limited to those that will contribute most to:

a) the rise in the productivity in the large traditional part of the economy,

b) and generally to its dynamic transformation.

10 - Provision of more relevant training programmes for semi and skilled labourers.

11 - The public sector should continue to lead the main trend of the industrial development in the country.

III) Technical Assistance Required:

1) A number of experts are required to investigate into the problem of excess capacity. These experts will be attached to the Industrial Research Institute.

2) Experts on industrial engineering, industrial economics or financial analysis, loans administration are required to be attached to the Ministry of Planning, the Ministry of Industry, the Industrial Bank, and the Saving Bank for a period of not less than two years; mainly to assist these institutions in carrying out their functions and to strengthen the planning

machinery in both the Ministry of Planning and Industry so as to increase efficiencies in the fields of industrial planning, project formulation, evaluation and implementation, and financial analysis.

3) Training either at home or abroad for those who are involved in project analysis in both the Ministry of Planning and Industry is requested. The duration of these training programmes should not exceed one year each time. UNIDO can either sponsor scholars abroad or arrange training programmes locally.

In the field of training also UNIDO and other agencies are requested to assist in the training of semi-skilled and skilled labourers either through strengthening the existing vocational training centres or contributing to the establishment of new training centres such as the creation of a specialized textile technology centre similar to that of the sugar. As a first step, UNIDO is requested to send a man expert in this field, to assess the type of vocational training required.

As regards training for top executive and management, UNIDO can arrange more relevant rotational courses with the Mangement Development and productivity Centre in the Sudan.

And if possible provide advisory teams to both the sugar and textile corporations.

4) Rationalisation of existing identical Institutions:

There exist a number of institutions with identical functions and the danger of duplicating efforts exists.

It is therefore necessary that an urgent study of these objectives, functions and operations of these institutions with a view to demarcating areas where there are duplications, and the best way of rationalising the available resources, be conducted.

5) Sudan, like most developing countries, is faced with the problem of shortages in foreign reserves needed for the execution of the development projects and as the country lacks the proper machinery for the promotion of investment, UNIDO is requested to assist in the establishment of such a machinery within the Ministry of Planning.

Referring to the proposals made by the Industrial Operations Division in the UNIDO Desk Study, UNIDO/ICIO.76, of 6 August 1976 we further request the following:

a) Assistance for the clearing up of the situation in Canning Factory in Wau as explained in the study

b) UNIDO textile experts to be assigned to the textile corporation

c) Experts in leather technology to develop an integrated approach for the further development of leather and leather products industries for export purposes

d) Assistance to establish secondary wood processing industry

e) Carrying out of a survey for the chemical industries potentialities as explained in the text.

f) Assistance for the Khartoum Central Foundry as explained in the study.

g) Establishment of a Mechanical Workshop with a forgeshop and a foundry in the South of Sudan

These are by no means all the projects which need possible UNIDO assistance.

IV. The Future Trend:

1) Objectives:

Recognizing the importance of creating an industrial sector, both public and private, to serve as a powerful instrument of change in the overall balanced socio-development, the Government of the Sudan has given a special place for the industrial sector in its coming Development Plan 1977-83.

This fact is endorsed by the following "major objectives" set for the industrial sector during the coming Six Year Plan 1977-83.

a) The development of agro-industries for processing of agricultural products;

b) The production of inputs for agriculture such as fertilizers, insecticides, agricultural machinery and tractors;

c) The development of small scale industries based on appropriate technology and local raw materials;

d) More attention to export oriented industrial production;

e) Exploring the country's abilities in the fields of mineral resources and petroleum to create a base for further industrialisation;

f) Continuation in the production of import substitutes for the purpose of achieving self-sufficiency;

g) The development of the infrastructure required such as power, transport and construction and building materials;

h) Promotion of local and foreign private sectors participation in industry;

i) Priority to vertical development in industry for better productivity standards.

It is worth mentioning that the industrial sector has been alloted about 23% of the total plan allocations in the coming six years and is envisaged to grow at a target growth rate of 9.5%.

2) Strategy:

Taking into consideration these major objectives set for the industrial sector, and after carefully evaluating the present stage of industrialisation, it would seem that the following adopted strategy is the most relevant for the choice of an optimal industrialisation path for the coming development stage.

a) More attention to be given to agro-industries for an optimum utilisation of the country's agricultural, animal and fishery resources.

This is mainly to:

i) Provide for the increasing consumer's demand

ii) Achieve self-sufficiency in some of these commodities

iii) Export the surplus in these commodities to foreign markets

b) Establish industries for the inputs of agriculture such as insecticides, machineries and animal feed

c) The active and serious development of the construction industry to meet the country's increasing demand

d) Development of handicraft industries to play a more positive role in the development of the rural areas

e) Promotion of private sectors participation in industry through:

i) Expansion of industrial credit facilities to cater for those projects which conform to the development priorities and which have feasibility studies;

ii) Improve industrial legislation to cope with new trends in the industrial sector;

iii) Provide material incentives for the national industries through exemptions from duties on machinery and equipment.

f) Give priority to vertical development and full utilisation of excess capacity. This among other things requires the provision of spare parts and the undertaking of regular inspections;

g) Attention to be given to power generation specially hydro-electric power.

h) Develop and activate the extractive industries to pave the way for the development of the basic industries;

i) Efforts should be concentrated on the development of those industries which are based on the maximum exploitation of the existing and potential comparative advantages in the wide range of resources available to the country.

j) Promotion of industrial investment in rural areas through granting incentives and facilities. This is mainly to meet the requirements of the development projects in these areas and to contribute to the achievement of regional balance and social justice.

V. Projects Seeking Finance:

At present a number of projects are under consideration for the Six Year Plan; however with the exception of few most of them are ideas as no feasibility studies have been prepared yet.

A list of those projects which either have ready feasibility studies or feasibility studies still under way and which need financing is presented below:

1) Mongalla Sugar Project:

This project aims at establishing a sugar factory on a plantation in the Gemmeiza area, approximately 50 km. north of Mongalla in the Southern Region.

- Planned Capacity:
Milling of 4000 tons of cane per day to produce 21,750 tons in year one and up to 63,500 tons in year eight;

- Total Capital Investment:
£S 30,327,600 inclusive. An estimated foreign component of £S 21,317,000 (i.e. 70%). Total investment includes: working capital, social facilities, contingencies.

- Cash - flow and Operating Results:

i) When both operating costs and sugar prices are kept at 1975 constant prices, the I.R.I. is 9%.

ii) When an Inflation Index has been applied to both costs of production and sugar prices, the I.R.I. becomes 16%. (Aggregated discounted cash-flow calculations, over a 28 year period including 25 operating years and assuming no residual value.)

2) Manufacturing and Assembly of Trucks, Tractors and Agricultural Equipment :

Tractors Project: The project aims at the production of tractors, combines and implements.

Planned Capacity: 6000 tractors, 400 combines and 11,000 agricultural implements

Total Capital Investment by year 1981 is $ 84,359,000 including $ 28,541,000 for working capital.

Operating Results: I.R.R. calculated as 31%.

Foreign reserves saving is expected to be about $ 35 million dollars annually

About 500 new jobs are expected to be created at the end of stage IV. These savings are attributed to local manufacture of over 40% of the products in question.

3) Sennar Distillery Project:

The project aims at the production of industrial alcohol from molasses produced at Sennar and Assalaya Sugar projects.

The E.E. C. has promised to undertake the study related to this project, and one expects that it would be ready by the turn of this year.

A Table Showing the Production of Molasses in tons in the Country

	71/72	72/73	73/74	74/75	75/76	78/79
Guneid	9320	15163	13315	18329		21000
Girba	21282	24330	24782	26694	23000	39000

Expected:

	76/77	77/78	78/79	79/80	
Assalaya	-	12000	24000	37000	To be continued in the future
Sennar	24000	37000			To be continued in the future
Kenana		10000	60000		
Melut			13000	26000	Then jumping to 37,000 tons
Mongala				24000	Jumping to 30000 tons

From the above data it becomes clear that the molasses produced in the country can support such an industry.

At present only a very small amount is utilised - about 3000 tons from Guneid for the production of alcohol in Khartoum North distillery. The rest is either exported, if railway tankers are available or split.

4) Starch and Glucose

A study being prepared by UNIDO can be looked up in UNIDO's library.

5) Pulp and Paper

The E. E. C. is undertaking this feasibility study which is expected to be ready sometime early next year.

6) Chip board manufacture:

A study in the form of a survey has been prepared by a British firm. As this study did not come up with a concrete project, it was suggested that more analysis need to be done for a specific project to be identified.

f. Implementation Status of Public Sector's Projects; Ref to Desk Study:

1) N.W. Sennar sugar factory executed in October 1976

2) Kennaf Bag factory in Abu Nama: executed March 1976

3) Textile factory at Hasa Heysa: executed May 1975

4) White Nile - Wad-Medani Tannery: expected December 1976

5) White Nile Brewery at Wau: expected December 1976

6) Fertilizer factory in Khartoum: this project initially set for Port Sudan, but later on transferred to Khartoum. This is now a joint venture project and expected to be commissioned in 1978.

7) Oil pipeline - Port Sudan-Khartoum: expected to finish in December 1976.

8) Melut Sugar project: expected in 1977/78

9) Mongala Sugar project: Not yet started. However, if financing is made available, it would be ready in 1979/80

10) Malakal Tannery: Not yet started

11) Wau plywood factory: Not yet started

12) Fruit and vegetable canneries in Shendi and Senna are not yet started

ANNEX 1)

TABLE I

GROWTH RATES IN THE MANUFACTURING SECTOR

MANUFACTURING INDUSTRIES (PRIVATE, PUBLIC, TRADITIONAL, MODERN)

	Year								
G.D.P.	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75
Contribution of Manufacturing in G.D.P. at cost price (in millions of pounds)	47.5	52.8	55.0	65.0	67.4	73.7	79.9	107.2	138.3
Deflated G.D.P.	47.5	51.0	51.3	57.7	58.9	63.3	65.2	71.0	76.1

If you take 1966/67 as a base year the rate of growth would be 6.1%, and if you take 1974/5 as a base year then the rate of growth would be 5.1%

- Using Fishers metric mean, the rate of growth for the period 1966/7 - 1974/5 is 5.6 i.e. 5.1 x 6.1 = 31.11 = 5.6

(ANNEX II)

TABLE II

SHARE OF INDUSTRIAL SECTOR IN THE G.D.P.

(millions of Sud.£'s)

Activity	Year 1966/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75
Manufacturing Industries	47.5	52.8	55	65	67.4	73.7	79.4	107.2	138.3
Mining and Quarry	1.9	2.1	2.3	1.8	1.8	3.1	3.5	4.1	4.6
Construction and Buildings	23.9	22.8	24.4	24.3	33.3	26.4	31.2	61	65
Electricity and Water	16.6	16.3	16.6	16.5	16.6	16.9	17.5	18.6	20.9
Total for Industry	89.9	94	98.3	107.6	109.1	120.1	31.6	190.9	228.8
G.D.P.	1060	1125	1193	1143	1199	12406	1307	1375	1510.8=
YEAR	1966/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75
% Contribution of Manufacturing Industry to G.D.P.	8.4	8.3	8.2	9.4	9	9.6	10	13.8	15.1%

The contribution of the Industrial Sector to G.D.P. in the last nine years ranged between 8.2 for 1968/9 and 15.1 for 1974/5

(ANNEX III)

TABLE III

INDUSTRIAL PRODUCTION

COMMODITY	UNIT	1969/70	1974/75	ANNUAL GROWTH RATE Actual %	Planned %
Cement	Thousand Tons	194.0	217.1	2.3	14.9
Flour	"	111.6	375.1	26.3	N.A.
Sugar	"	75.3	129.9	11.5	10.2
Soap (Toilet)	"	2.0	2.6	5.4	6.2
Soap (Normal)	"	21.7	34.6	9.8	6.2
Wine	Thousand Litres	2,450.0	4,529.9	13.4	8.3
Beer	"	4,534.0	9,634.3	16.3	9.7
Cigarettes	Thousand Kgs.	660.9	514.3	4.9	18.0
Matches	Billion	4.9			
Shoes	Million Pairs	6.7	13.3	14.7	8.5

Source: Bank of Sudan Reports

It should be observed that the growth rates achieved for sugar, soap, wine, beer and shoes are ahead of the planned target.

(ANNEX IV)

T A B L E IV

LOSSES INCURRED BY SIX PUBLIC FACTORIES SINCE THEIR INCEPTION

FACTORY	Total loss (£.S)	Invested Capital (£.S.)	PERIOD
1. Gunied Sugar Factory	6,000	10,103	62-69/70
2. Aroma Cardboard Factory	600	721	63-69/70
3. Onions Dehydration Factory	406	728	66-67-68/69
4. Karema Canning Factory	120	1,023	66-69
5. Karema Dates Factory	49	80	65-66-69/70
6. Wau Canning Factory	144	900	68/69-69/70

Source: Ministry of Industry

A/ One of the factories - Aroma Cardboard Factory - turned out to be a total failure and was subsequently shut down

B/ Most of the factories were suffering from high rates of under-capacity utilisation

(ANNEX V)

T A B L E V

CAPACITY UTILIZATION IN EIGHT PUBLIC FACTORIES

FACTORY	Installed Capacity	Actual Prod. 1968/69	Utilized Capacity %
1. Dunied Sugar Factory	60,000 Tons	18,461 +	31
2. El Girba "	60,000 "	50,145	84
3. Onion Dehydration Factory	9,000 "	3,280	36
4. Aroma Cardboard Factory	4,000 "	265	7
5. Karema Canning Factory	8,892 "	1,278	14.4
6. Babanousa Milk Factory	1,848 "	12.7	0.7
7. Karema Dates Factory			33.3
8. Wau Canning Factory	10 Mil."	1.1 Mil.T.	11

Source: Evaluation Committee

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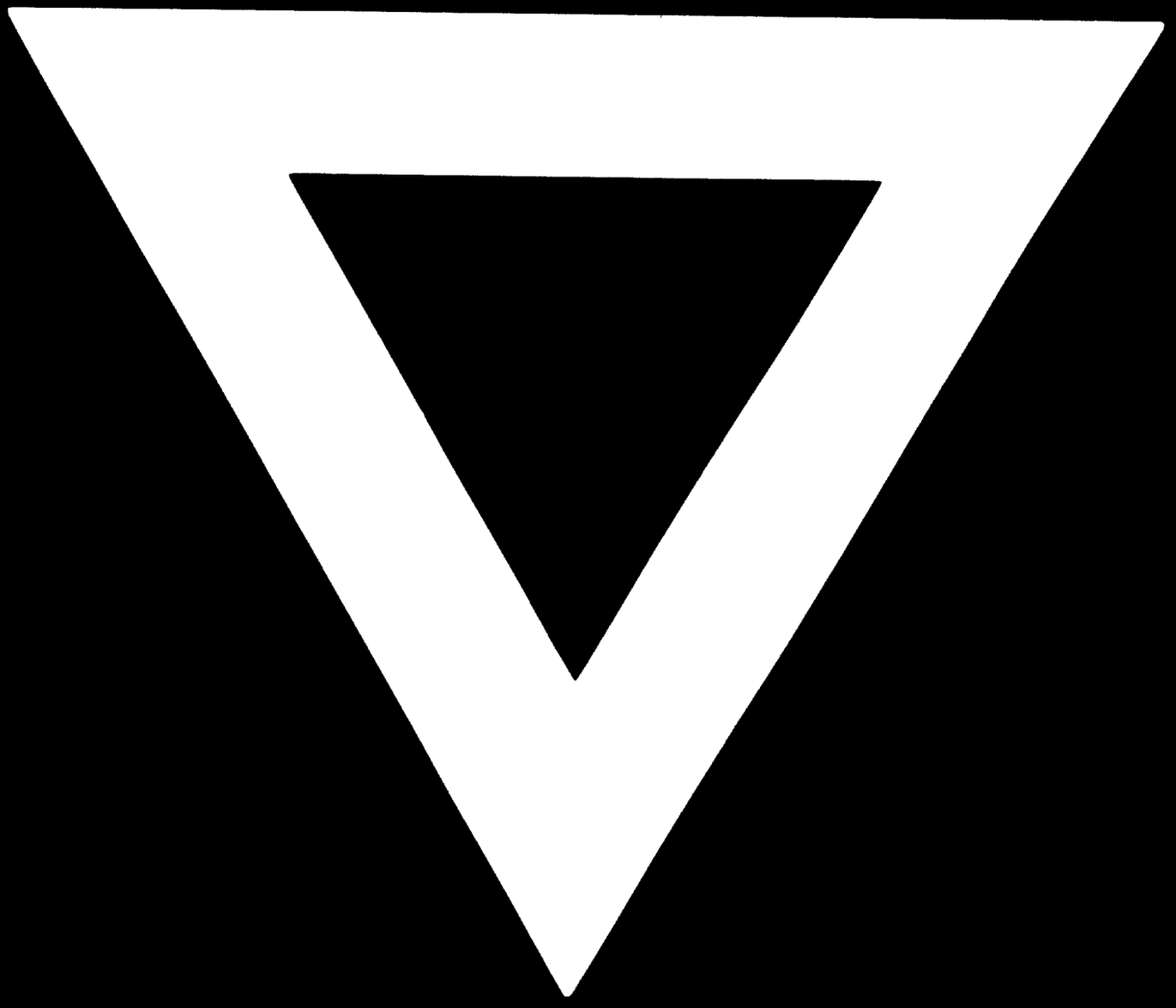

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