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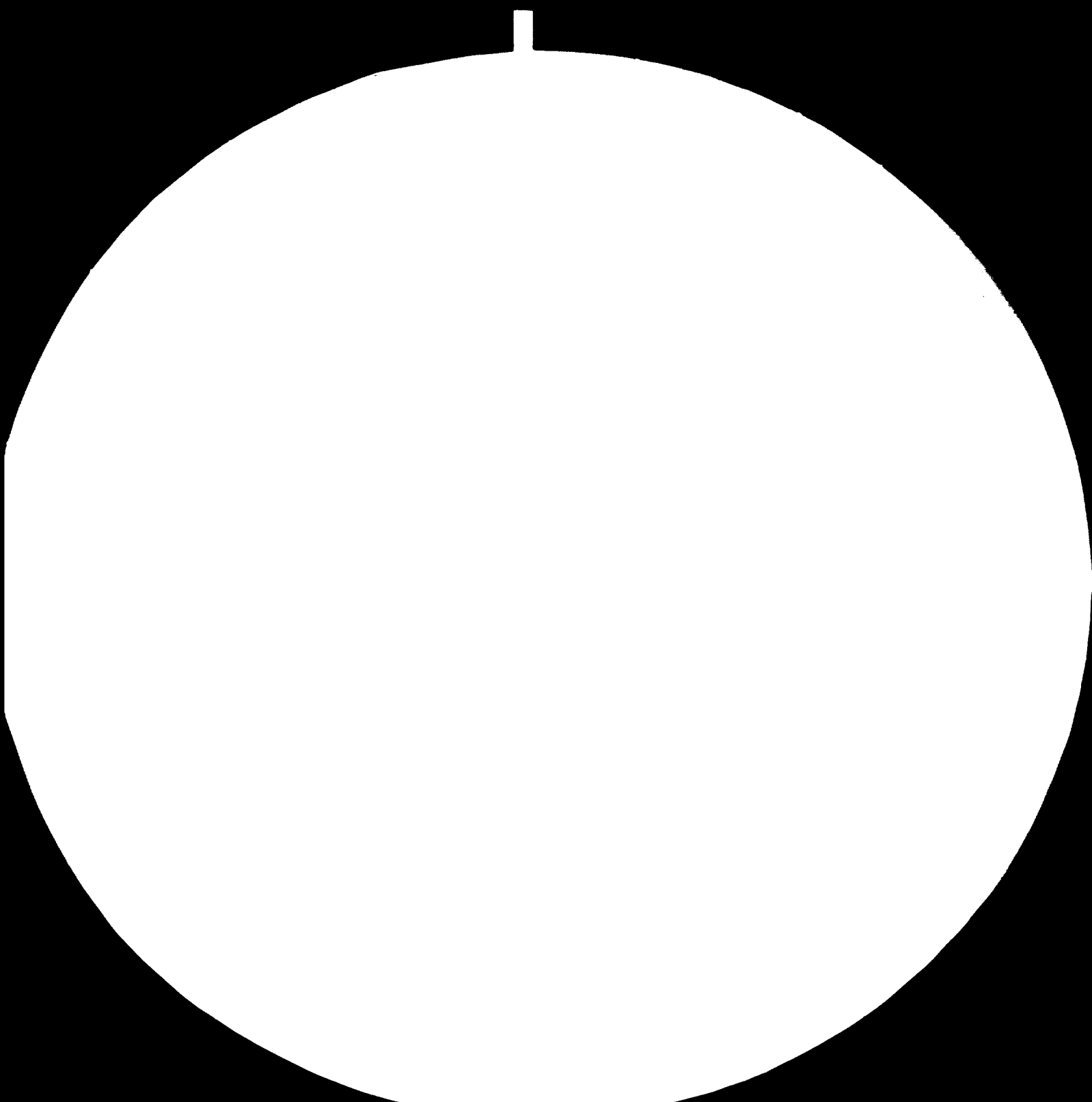
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MICROCOPY RESOLUTION TEST CHART

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(R) REVIEW OF LOCAL MANUFACTURING CAPABILITIES
FOR SPARE PARTS AND EQUIPMENT FOR THE OILS AND FATS INDUSTRY
IN THE REPUBLIC OF KOREA.

US/INT/78/073 .

Terminal Report*

Prepared for the Government of the Republic of Korea
by the United Nations Industrial Development Organization

Based on the work of Maurilio Renoldi, oil-seed and
vegetable oil processing engineer

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* This document has been translated from an unedited original.

INTRODUCTION

In submitting the terminal report on my mission in the Republic of Korea, I wish to express my sincere thanks to: the senior officials of the Ministries of Agriculture and Industry of the Republic of Korea; the Resident Representative and the UNIDO colleagues in that country; the owners of the plants visited.

The data and statistics given in the report come from the Ministries of Agriculture and Industry of the Republic of Korea.

I hope that the investigations carried out will lead to fruitful results.

The situation of the Republic of Korea in regard to its domestic requirements for vegetable oils presents special features.

A marked shortage of raw materials requires the importation of large quantities of rape from Canada and of soya beans and maize from the United States of America.

The only significant positive elements are a modest production of soya and rice - remaining stagnant at an inadequate level - and an increase in the production of maize.

The production of sunflower seeds, after some expansion, has decreased to a marked extent in the recent period.

All other oil-seeds are produced in insignificant quantities and there is no expansion in progress.

Statistics follow concerning the production of oleaginous raw materials (in thousands of tonnes).

OIL-SEED PRODUCTION STATISTICS

Years	Soya		Maize		Sesame		Sunflower	
	Hectares	Tonnes	Hectares	Tonnes	Hectares	Tonnes	Hectares	Tonnes
1968	314	245	42	63	13.6	6.5	12.6	14.9
1969	305	229	44	63	17.4	7.7	17.2	15.6
1970	295	232	47	68	25.8	10.4	1.4	1.6
1971	275	222	40	64	27.7	13.4	31	8
1972	282	224	35	54	30.5	14.4	3	1
1973	312	246	36	61	35.1	16.9	588	283
1974	286	319	31	52	36.9	16.9	9 848	5 166
1975	274	311	31	54	52.2	25.1	5 002	861
1976	247	295	30	70	65.2	35.5	426	88
1977	251	319	30	82	57.6	29.9	459	128
1978	247	293	31	100	70.5	32	--	--
1979	207	257	33	149	63.6	26.7	--	--

Years	Rape		Cotton		Groundnuts		Rice	
	Hectares	Tonnes	Hectares	Tonnes	Hectares	Tonnes	Hectares	Tonnes
1968	17.6	21	16.4	12.7	5.7	4.7	1 151	3 195
1969	27.9	31	16.8	13.5	6.9	5.5	1 219	4 090
1970	23.6	25	16	13.4	7	5.9	1 203	3 939
1971	28.7	37	13.8	12.1	6.3	5.3	1 190	3 998
1972	17.5	21	13	11.4	6.4	4.7	1 191	3 957
1973	13.4	18	13.5	11.6	4.6	3.7	1 182	4 211
1974	25.9	34	10.6	9.2	5.7	4.5	1 204	4 445
1975	26.8	35	7	6.3	9.1	7.6	1 218	4 669
1976	25	35	6.6	5.8	8.2	7.1	1 215	5 215
1977	27.3	34	6.1	5.4	10.5	11.4	1 230	6 006
1978	18.7	22	6.5	5.7	14.4	16	1 230	5 797
1979	11.9	27	8.2	7.7	14.4	15.8	1 233	5 564

Imports of oil-seeds from abroad have shown a strong increase in the past decade, particularly in the case of soya and maize.

OIL-SEED IMPORT STATISTICS

(in thousands of tonnes)

	Rice	Soya	Maize
1969	755	24	124
1970	541	36	284
1971	907	61	315
1972	584	31	422
1973	437	73	456
1974	206	66	573
1975	481	61	532
1976	178	119	890
1977	---	151	1 370
1978	---	223	1 781
1979	502	422	2 881

The consumption of edible oils in the country has risen noticeably in recent years and there is a continuing upward trend.

The oils most used for food purposes include soya, maize and sesame, and an impressive increase has been observable in the last ten years.

VEGETABLE OIL PRODUCTION STATISTICS
(in tonnes)

	Mixed	Sesame	Rape	Rice	Soya	Maize
1969	26 947	1 542	11 001	9 958	418	---
1970	22 636	2 277	8 845	8 093	202	---
1971	37 351	3 168	11 521	13 934	---	---
1972	33 166	3 613	8 851	6 563	953	---
1973	36 700	4 009	9 494	6 489	189	---
1974	43 673	3 794	11 926	8 254	3 292	2 031
1975	40 708	4 477	11 140	3 413	5 681	2 590
1976	49 983	4 908	11 390	6 799	16 784	3 535
1977	55 317	5 713	11 913	6 558	18 528	3 614
1978	79 880	6 600	7 490	14 530	28 630	4 200
1979	120 180	10 260	9 430	16 670	59 360	4 850

This is the picture regarding agro-food production in the Republic of Korea; in general it is discouraging.

A special study on the possible introduction of new crops would be very useful in order to find a satisfactory solution to this problem.

LIST OF FACTORIES PRODUCING VEGETABLE OILS
IN THE REPUBLIC OF KOREA

1. Dong Bang Oil Industrial Co.
Myong-Soo Shin
Office No. 2 Yangpiong-Dong, 4-ga Seoul
Yongdeungpo-cru
Telephone: 65-3611 (5)
Works No. 468, Ni-Dong Jinhae City
Kiong Nam-Do
Telephone: 2161 (3)
2. Cheil Sugar and Oil Co.
Joo-Hjeon Kyong
Office No. 250 Taepyongro 2-ga Seoul
Chung-cru
Telephone: 771-33
Works No. 64 Skin-Heang 3-ga Inchon City
Chung-cru
Kyong gi-Do
Telephone: 3-2601 (4)
3. Sam Yang Oil Co.
Byong-uk Lee
Office No. 51-1 Su-Song-Dong Seoul
Chongro-gu
Telephone: 74-7148
Works No. 45 Handong 7-ga Inchon City
Chung-cru
4. Lotte Samgang Co.
Jang-Soon Yoo
No. 21 Munrae - Dong 6-ga Seoul
Yong Deungo-cru
Telephone: 64-4220 (9)

5. Seoul Oil Co.
Jae-Poong Lee
No. 12 Yang-Pyong-Dong 4-ga
Yong-Deung 90-cru Seoul
Telephone: 63-4181 (3)
6. Sam Yang Oil Chemistry Co.
Yong-Hwan Kim
No. 338 Yang Pyon-Dong 4-ga
Yong-Deung 90-cru Seoul
Telephone: 48-1828 (2937)
7. Kyong Nam Oil Industrial Co.
Sam-Sul Park
No. 256 So-ha-yi So-ha-eub
Kyang gi-Do Shi Heung-Gun
Telephone: 856-0318
8. Il Yang Co.
Man Cryu Park
No. 5-2 Hogal-Dong
Kuong-gi-Do Ann Yang-Dong
Telephone: 2-2140
9. Chung Ang Oil Co.
Yong-Hoe Kim
No. 314 Crusung-Dong
Kyong gi-Do Cheon-Ann City
Telephone: 3659
10. Sam-Yong Industrial Co.
Chong il-Ha
No. 1340-1 Yeolsung-Dong
Yeol bae-eub Dalsung-Crun
Kying-Buk-Do
Telephone: 66-2392
11. Sam-Hwa Oil Paek
No. 86 Cho eub-Dong Pusajin-cru
Kyong Nam-Do Pusan
Telephone: 80-2546197

VISITS TO THE VEGETABLE OIL FACTORIES

1. Kiong Nam Oil Industrial Co.

It is an old factory processing rice residues.

Eight small discontinuous autoclaves, with hexane as a solvent.

Produces low-quality oil, very inefficiently.

A fairly large works.

2. Il Yang Co.

A good factory processing 100 tonnes/24 hours of maize and rape.

It is composed of:

(a) Four continuous presses, for pre-pressing.

(b) Solvent-extraction with 12 autoclaves.

(c) Continuous Sharples refinery.

(d) Continuous deodorization.

The works must be modernized, and there is a possibility of processing soya.

3. Chiel Sugar and Oil Co.

A new factory set up to process soya beans exclusively.

It consists of:

(a) Buhler seed-preparation.

(b) Continuous solvent-extraction (Extraction-Technique). Designed at present for 300 tonnes/24 hours of soya, but capable of being expanded to 500 tonnes/24 hours in the future.

(c) Silos for 40,000 tonnes of beans.

A completely new factory: more experience of the various operations is needed.

4. Dong Bang Oil Industrial Co.

A very large factory for the processing of 1,500 tonnes/24 hours of soya beans.

It is composed of:

- (a) Four independent Rotocel units (500 tonnes ea.) for solvent-extraction.
- (b) Four corresponding seed-preparation units.
- (c) Multiple silos of extremely large capacity.

The production of textured vegetable protein (TVP) for human consumption is being started.

It is a facility of international level in its structure and organization.

5. Sam-Hwa Oil Paek

A versatile oil mill of high capacity processing linseed, copra, rape and soya.

It is composed of:

- (a) 10,000 tonne silos for seeds.
- (b) Korean and Japanese continuous presses for pre-pressing, capacity 250 tonnes/24 hours.
- (c) Discontinuous extraction with 28 autoclaves in 4 sections, with hexane as a solvent.
- (d) Alfa-Laval refinery with a capacity of 100 tonnes of oil in 24 hours.
- (e) Continuous deodorization.
- (f) Margarine plant.
- (g) Continuous soap-production unit.
- (h) Treatment of glycerines.

It is a factory of great value in view of its flexibility and production range.

COMMENTS

The last four factories visited represent industrial units of considerable value.

With more working experience and some technical adjustments, they could be considered top-category factories.

The first factory is of less significance.

SPECIALIZED ENGINEERING CONCERNS IN THE REPUBLIC OF KOREA

1. Jeil Machine Co.
584-2 Yeon San-Dong, Dong Rai-ku, Busan
(Telephone) 82-7973-6 (Busan)
2. Shina Industries Co.
691-4 Joo Rae-Dong, Puk-ku, Busan
(Telephone) 92-8601 (Busan)
3. Dongil Iron Works Mfg.
748-4 Hak Jang-Dong, Puk-ku, Busan
(Telephone) 93-3377-9 (Busan)
4. Doo San Mfg.
465-2 Byong Jecm-Ri, Dai An-Myeon,
Hwaseong-Kun, Kyong-ki Province
(Telephone) 2-7511-5 (Biong Jeom)

VISITS TO ENGINEERING UNITS SPECIALIZING IN INSTALLATION AND
REPAIR WORK

1. Jeil Machine Co.

A factory with a medium-sized labour force which did all the engineering work for the Dong-Bang factory.

Substantial experience in the construction of oil-making installations.

Very well organized and managed, on a family basis.

Excellent possibilities for co-operation on future projects.

2. Shina Industries Co.

A small, family-managed factory: very active.

It has considerable experience in the construction of oil-making installations and soap factories.

It carried out all the construction work at the Sam Hwa Oil Paek factory, Pusan.

It also has experience in solvent-extraction units, refineries, continuous deodorization and the treatment of glycerines.

Very well equipped to co-operate in major projects in the future.

3. Dongil Iron Works Mfg.

I met the President of the company.

A factory in a poor financial situation.

It produces continuous presses, rolling mills and boilers. Interesting but not of high calibre.

4. Doo San Mfg. Co.

A factory which is very well organized and set up for engineering operations relating to machinery installation and the repair of parts.

Has an essential role to play in the development of the vegetable oils industry in the Republic of Korea and in future co-operation with other countries.

FINAL COMMENTS

The factories producing vegetable oils are operating under very good conditions within the limits of their present possibilities and can adequately meet future development needs.

The four plants visited are highly efficient and well managed.

The engineering units are of medium capacity but quite experienced and well qualified.

Any programme for additional agro-industrial plants can be very satisfactorily implemented in the Republic of Korea. Not only can the country's own needs be met: as activities develop it will be possible to envisage plants for foreign countries.

The quality of work done, the experience acquired and the good organization shown give promise of further development in the future.

What these plants are lacking is contacts with foreign engineering plants and up to date technological know-how; these are deficiencies which it should be possible to remedy quickly in the coming years.

In conclusion, the Republic of Korea is in a position satisfactorily to cope with its own needs and at the same time will gradually be able to participate in international engineering programmes.



