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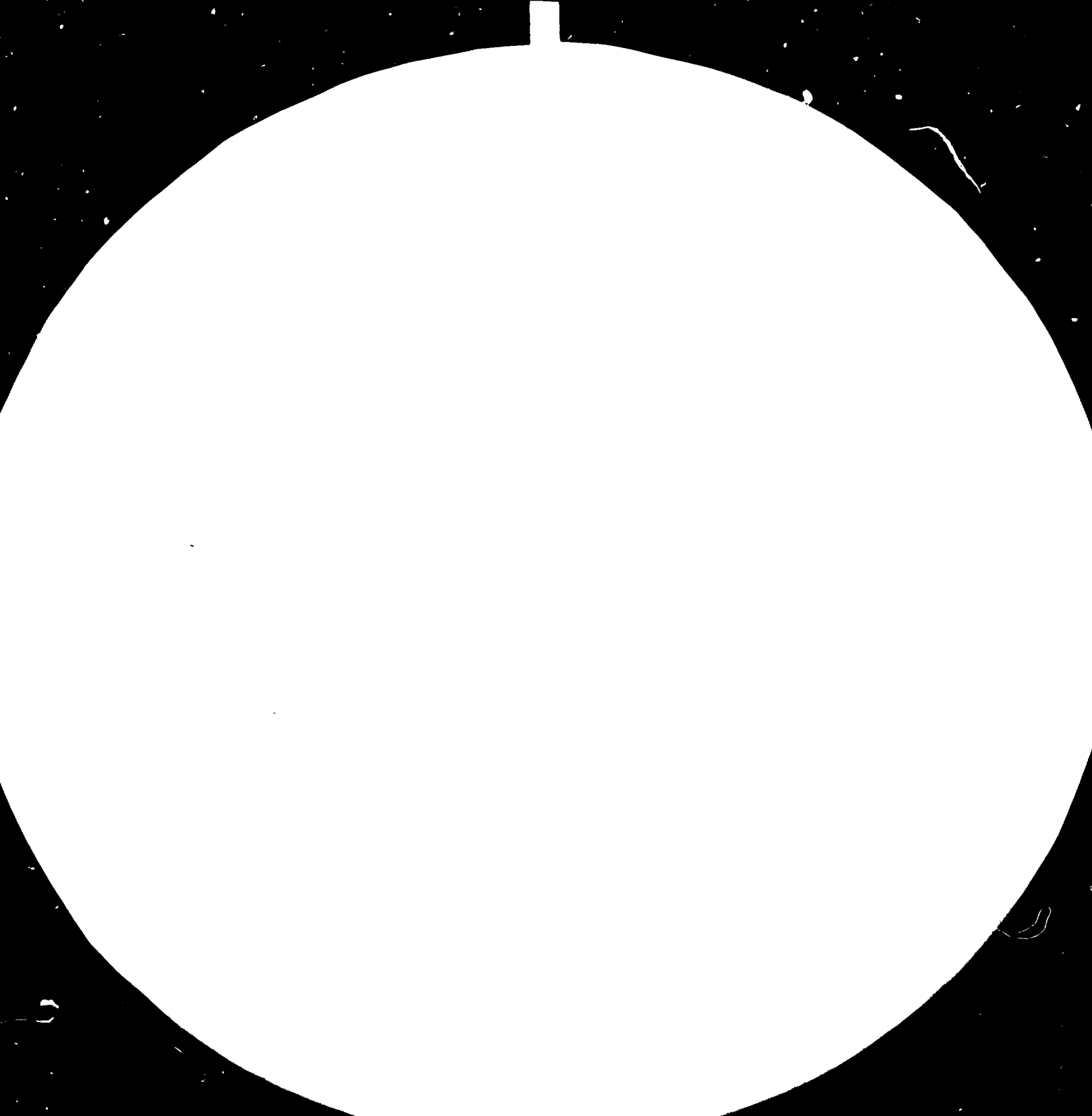
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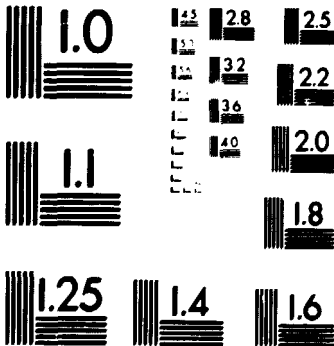
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Angola.

FOOD PROCESSING REHABILITATION AND EXPANSION PROGRAMME.

DP/ANG/82/022

ANGOLA

Technical reports: Activities in the Rehabilitation
and Expansion Programme *

Prepared for the Government of Angola
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Enny T. Martucci, Food Technology Expert

United Nations Industrial Development Organization
Vienna

2878

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TABLE OF CONTENTS

	<u>Page</u>
I. Introduction	2
II. To Increase Sugar Production	2
III. Yeast Production	4
IV. Wheat Flour Storage System	4
V. Laboratory for Grain Quality Control	4
VI. Rehabilitation of Selected Factories	7
VII. Survey of the Food Processing Industry in Angola	8

I. Introduction

The work programme of the Direcção da Industria Alimentar (DNIA) takes into consideration the following aspects:

- To increase sugar production;
- To modify the set-up of one small sugar production factory into a plant to produce alcohol;
- To plan the rehabilitation and modernization of the cereals storage (silos) system in Luanda and Bengo;
- To design a system for grain quality control and to rehabilitate the existing Control and Analytical Laboratory for grains and flour;
- To elaborate studies for the rehabilitation of specific factories particularly the "Empresa de Gordunas Centro" which produces oils and fats;
- To make a survey to serve as a basis for the systematic and continuous gathering of information concerning each one of the established food processing plants under DNIA.

The Expert, under the direction of the UNIDO Chief Technical Adviser assisted DNIA in various duties related to the above terms of reference and the following are the main assessment, conclusions and recommendations concerning this mission.

II. To Increase Sugar Production

The Angolan Government established an emergency plan to solve the most important aspects of the shortage of food in the country. To increase sugar production is one of the points included in this programme.

Various international enterprises already studied the sugar industry of Angola proposing various action programmes for its rehabilitation, modernization and expansion. A UNIDO Expert, Mr. G. Anderle, made an assessment of the various mills recommending short term measures to improve productivity.

It should be pointed out that the Angolan Government made an agreement with Cuba aimed at receiving technical assistance on a bilateral aid programme to implement the complete rehabilitation programme. Therefore, the main tasks concerning the sugar rehabilitation programme are outside the technical assistance to be given by UNIDO. However, the Expert paid attention to two sugar mills, namely;

Herois de Caxito
Amizade Angola Cuba

The first one, Herois de Caxito - because this sugar mill produces molasses used as raw materials for the local production of yeast and, the second, Amizade Angola Cuba, because it is planned to change it into an alcohol production unit.

The Expert made a series of recommendations such as:

- to improve the cutting of the cane sugar;
- to clean and improve the functioning of filters in order to eliminate impurities in the whole sugar production process;
- to follow in a more accurate way all day-by-day operations in order to avoid unnecessary breakdowns which reduce considerably the productivity; and
- as a basic recommendation, the Expert endorses the implementation of the SOPEX Master Plan.

Regarding the "Amizade Angola Cuba" which is supposed to become an alcohol producing plant. This recommendation which was made both by SOPEX and Tate and Lyle, is fully endorsed by the Expert, the agricultural area where the mill is established is limited and could not support a technically and economically viable sugar producing mill. Therefore the plant should be changed into an alcohol producing unit.

III. Yeast Production

The yeast product is also a priority area, as it is essential for bread production. Bread is a basic food in Angola. The production of yeast is related to the rehabilitation of the sugar mill "Herois de Caxito" which produces the needed molasses. However, the actual production of molasses is sufficient for the yeast factory's full operation and, a rehabilitation of the plant is required to produce in a continuous way. Only after the rehabilitation, with the full use of the existing capacity, the programme should be implemented to establish the new factory. The Expert recommends to assign to the FUNDAP team the task of rehabilitating the existing yeast factory.

IV. Wheat Flour Storage System

The DNIA director recommends to change the actual handling of wheat flour in Luanda. Wheat flour is actually packed into sacks for transportation from the flour mills Sagrada Esperança and Kicolo to the bread producing factories. The idea is to introduce a silo system in order to eliminate the use of sacks which are imported and also to simplify the handling in order to reduce wastage and to improve the hygienic condition of flour handling, transportation and storage.

In principle, the Expert supports this approach, however in order to fully support it a more detailed study should be made. The study should take into consideration the possibility of manufacturing in the country the silos and other equipment needed to install the new transportation and storage system.

V. Laboratory for Grain Quality Control

The Expert made an assessment of the existing laboratory for cereals controls. The survey indicates the following state of the existing equipment, instrument, etc.

(a) <u>Equipment/Instruments</u>	<u>Status</u>
1. Magnetic Stirring B.T.L.	Not calibrated.
2. Water Bath - 100°C MEMBERT	Good condition.
3. Water Distillator	Electric wireset in bad condition.
4. Refrigerator CETRON	Good condition.
5. Heater Stove for Laboratory Material. HERAEUS HANAU	Electric wireset in bad condition. Controls not working.
6. Heater Stove for Low Temperature Drying H.H.	Good condition.
7. Stainless Steel Heater Stove with Fan - 240°C. M.	Good condition.
8. Heater Stove with Fan H.H.	Controls burnt. Bottom metal plate oxidized.
9. Heater - 1200°C H.H. - KR 170	Controls burnt. Insulation bricks in good condition.
10. Rotating Heater Stove BUHLER, MLI-501	Good condition.
11. Analytic Balance METTLER H10	Needs revision.
12. Balance for Humidity Determination. M. P160	Needs revision.
13. Balance - 200 grams 2402 no. 194571	Good condition.
14. Microscope ZWEISS, 2088569	Lens with stains.

- | | |
|--|--|
| 15. Mass/Hectoliter Determination | Very old model, incomplete. |
| 16. Milling - Homogenization for
Grains and Flours.
PRO-METTER, PMMR | Good condition. |
| 17. Potentiometer
P. -M., PMFM-024 | Very old model. Bad condition. |
| 18. Little Manual Mill | Good condition. |
| 19. Fat Extractor
LAB. CON. CO. -CAT. | Lack of glass spare parts. |
| 20. Fat Extractor-Water Bath
GALLEMKAMP, 9A/140 | Bad condition. |
| 21. Digestor-Nitrogen Determination | Lack of glass ballons and
electric resistances. |
| 22. Distillator - Nitrogen
Determination
BUCHI - CAT. | Lack of glass taps. |
| 23. Mach Colorimeter
D.R.E. LANGE | Very old model, out of
production line. |
| 24. Chopin Alveograph and Mexograph | Needs revision. |
| 25. Kneading through
DIERKS-SOHNE, 000/26 | Good condition. |
| 26. Brabender Mill
QUADRUMAT Sr. - CAT. | Sifts worn out. |
| 27. Fermentograph S.J.A.
CAT. | Very old model. |
| 28. Farinograph Brabender
S.E.W. - CAT. | Very old model. |
| 29. Extensograph Brabender
CAT. | Very old model. |

- The machines no. 27, 28 and 29 need working test.
- In a general way all the machines need external electric wire substitution, as well as the electric wire distribution in the laboratory that needs revision.
- Only a few machines have a catalogue.

(b) <u>Equipment/Instruments</u>	<u>Status</u>
Glass materials and re-agents	Both in shortage.

(c) Personnel	There are six employees
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The above list of machines and instruments indicates that the laboratory was well equipped to work with grains and flour quality control.

DNIA intends its complete rehabilitation in order to accomplish the former tasks.

The laboratory has a work team of six persons not trained in this field, four of them are enrolled in the University - Chemistry Course.

Actually, the wheat grain as well as the flour both imported and locally produced, are not qualitatively controlled. Therefore, the laboratory rehabilitation and the training of its personnel is necessary and a step forward to control and certify the quality of food products in Angola.

VI. Rehabilitation of Selected Factor's

A brief evaluation of the potentiality and constraints to rehabilitate the oils and fats producing plant, "Empresa de Gorduras Centro" located in Benguela was carried out. This enterprise comprises three factories, namely the A.A.A. Edible Oils Refinery; Empal (Margarine) and Barata and Barata (soaps).

There are proposals from consulting firms to rehabilitate the three factories and it is known that UNILEUER also is interested in participating in this programme. Therefore a more detailed study is recommended which should take into consideration the agricultural production of seeds and its various alternatives.

VII. Survey of the Food Processing Industry in Angola

It was planned to carry out a complete survey of the food processing industries under DNIA as one task included in the training programme implemented in 1983 in co-operation with Brazil.

One industry "INDUVE" was selected to test the questionnaire designed for the survey. The Expert assisted in this exercise which, although indicating that the questionnaire should be simplified, the results were positive and of great use both to the enterprise managers and to the DNIA Direction. The whole survey should be carried as soon as possible in order to have a same quantitative basis in making the overall plan for the food industry's rehabilitation and expansion.

