



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

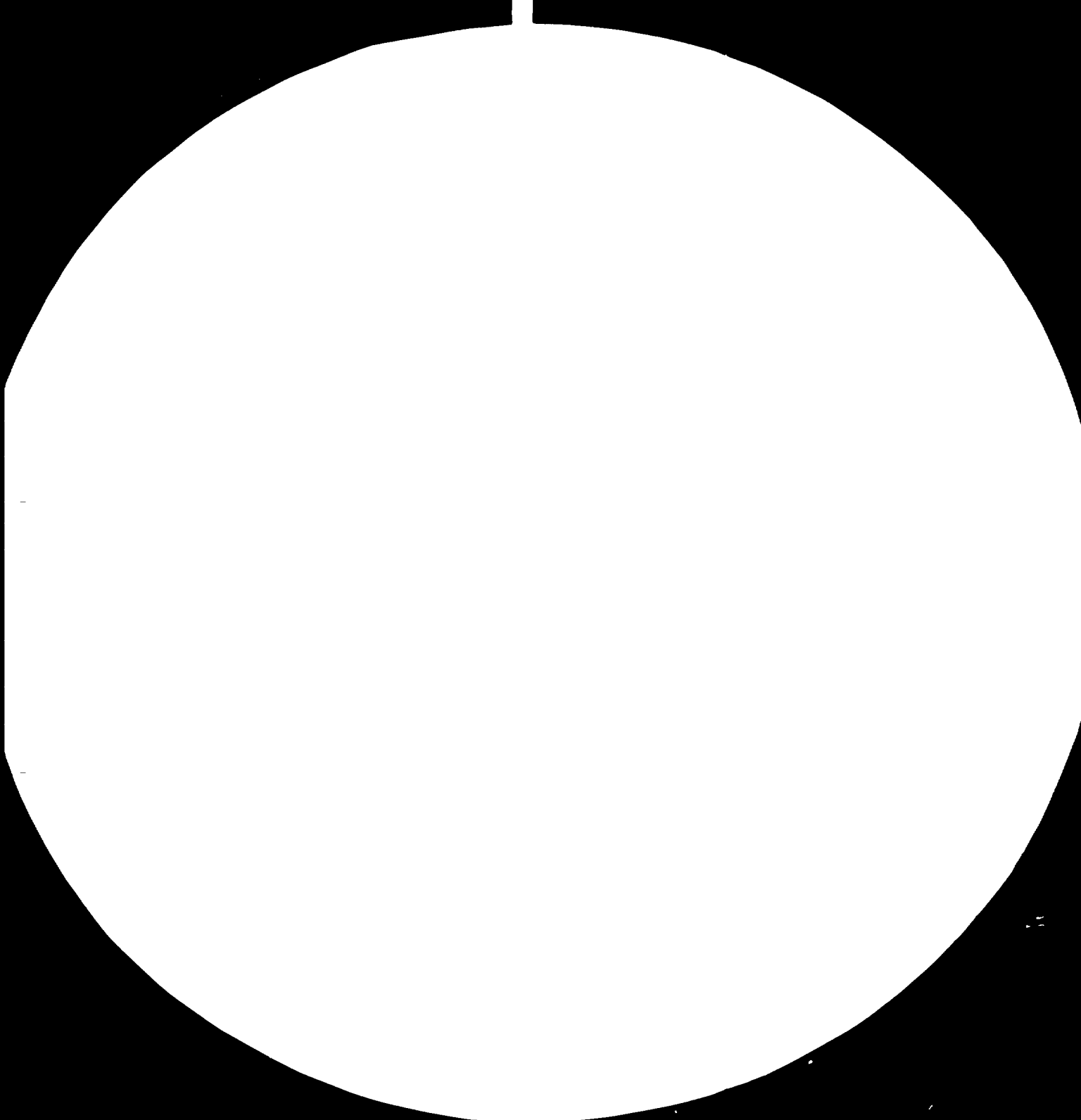
FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org



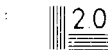
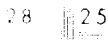


Figure 1. Resolution test targets used to determine the resolution of the system. The resolution of the system is defined as the resolution of the target that is most clearly resolved.

11670

CONSOLIDATION OF THE MEXICAN INSTITUTE
FOR ASSISTANCE TO THE INDUSTRY

DP/MEX/79/011

MEXICO .

Technical report: Assistance to the can making and canning industry*

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

Based on the work of D. Reznik, Consultant in the
Production of Metal Packages

002128

United Nations Industrial Development Organization
Vienna

* This document has been reproduced without formal editing.

TABLE OF CONTENTS

	<u>PAGE</u>
SOME CONSIDERATIONS AND RECOMMENDATIONS	1
THE WAY TO REACH CLIENTS AND PROBLEMS	4
SEMINAR IN MAZATLAN	7
CONCLUSION	8

SOME CONSIDERATIONS AND RECOMMENDATIONS

The objects set forth for this one month mission were the same as for the previous mission.

During the eight months between the two missions the metal group has made some advance. They were further trained by two UNIDO experts and had a few more visits to the industry.

The training was based on testing tinplate and cans. In general, it seems to me that some of the important tests were neglected. However, it is not recommended to continue the training in the same manner, which is now excessively academic in nature.

In the future, it is recommended that an industrial problem be chosen and offered to the industry. This problem should include the tests that the industry cannot perform due to lack of knowhow , skilled personel ,time or equipment.

Let us take for example the sulphur staining problem. This subject may include tinplate surface evaluation, such as metallic chromium and its oxides. As long as the team does not have to report reliable results the subject is neglected. If the team will commit itself to provide data to the industry or determine recommendations and standards their approach to the test procedures will change and the training will be faster, more practical and more useful.

When a plan for future activities is considered the people in charge should have in mind the principle of relative advantage. There is no point to offer expertise in testing the seams of a can. The industry will always know this subject better and they will not turn for assistance on this subject. On the other hand, testing passivation film or lacquer adhesion are examples of fruitful subjects to work on.

It is now clear that more thought should be devoted in determining policies and orientation. One may get the feeling that the work program is not based on the final goals. The objective of the team is to assist the industries involved in canning.

It is clear that the team or the group will never be a better canner or a better can maker than the industry and this is not the objective. Also, the task of the team is not to criticize the industries. They should concentrate on fields that are supportive of the specific industry. The services to the canner should be on subjects that are out of the canner's major field and expertise. Also, the team should concentrate on services that the suppliers to the canner cannot, or in practice, do not provide.

Naturally, the subjects to be chosen and offered to the can makers or tinsplate manufacturers should be primarily in the field of food technology and composition, or in highly sophisticated subjects such as analysis demanding expensive or exotic equipment.

In principle LANFI has to identify the gaps between the industries and deal with them. Some examples for such subjects of this nature have been offered and will be mentioned later in this report.

Another subject, though non technical is the policy of the approach and relationship of LANFI and the industry.

There is some confusion in this field. Clear decisions on who is saying what, when and to whom should be made. This is especially necessary when financial and ethical subjects are involved.

The institute and the team has to achieve a reputation as highly professional people - fair and ethical. If one of the industries will be hurt, that could stain the institute's reputation. The team should not use and

carry a governmental label. It is not an official body that controls and criticizes the industry. Reports do not and should not go to governmental bodies.

The government in this case has been financing the training of the group. There is no other way in Mexico to establish an entity that will be able to assist the canning industry. This team should be compared with a university team, which is also in most cases financed or subsidized by the government. Any hard feelings formed in the industry should be immediately discussed and solved. Personal good relations should be formed and, in general, thought should be given to the visit card of the team, its image and to its human relations.

The subject of services fees should be handled with a long-term outlook in mind. An exaggerated overcharge to one company may lead to loss of cooperation with many others.

In principle, the industry which has a problem and calls for assistance should not be charged for the team's training fees. A good criterion may be what would a private expert in this field charge.

It should be borne in mind that for studying a problem the team needs the cooperation of the industry involved. Through solving the problem the team will gain expertise that may be offered later to others who have the same problem.

The team should be exposed to as many problems in the industry as possible. Each project should be considered not only by the financial revenues but also by its contribution to the potential of the team.

THE WAY TO REACH CLIENTS AND PROBLEMS

When the food industry has problems that originate in the lack of know-how or quality control of the supplier, the team should enter into it.

The fact that the problem exists and is known to part of the public is a sign that the industry involved and the supplier, both do not know how to solve the problem and of course prevent it.

The team should be able to have an access to such a problem. Then, a decision whether to deal with the problem should be made. Next, through contacts with the industries involved it should be determined who is the major counterpart. It should be considered that the best counterpart is the one who has the means to solve the problem. Thus the team will gain more experience, and also will be able to be constructive and not just be criticizing one of the industries involved. This approach may not always be clear, so in every case the situation has to be analysed and strategy should be established.

The approach on the subject of sulphur staining should be as follows.

The party that suffers from this problem is mainly the food industry. The solution depends on the can making industry mainly in respect to the enameling and this is mostly dependant on the tinfoil manufacturer.

In this case the can maker should be approached, preferably through the canner. The can maker should be told about the problem and samples should be submitted. A preproject report should focus on the influence of tinfoil passivation. In this way the can maker will cooperate, supply samples of tinfoil and enamels and form eventually the contacts with the tinfoil manufacturer.

The partners of this project should be well chosen and it will be advantageous to choose a canner and can maker who have good relations, as well

as a can maker who has good contacts and relations with the tinplate manufacturer.

This subject may be combined with tin coating weight reduction in lacquered cans. It should be clearly shown (and it is easy) that tin coating weight has nothing to do with sulphur staining. The economical savings from such a change for the can maker, and possibly for the canner, will justify research.

Another interesting advantage of this approach is the possibility of applying the solutions in the local tinplate industry. This industry is producing mainly low tin-coated tinplate. This is used only for enameled cans. So, as the major factor in quality of tinplate for sulphur staining products or, in general, for lacquered cans is the surface quality, the local tinplate industry may easily achieve a high level and quality. This will not demand changes in production line and equipment.

It seems to me that by the right approach and planning LANFI can solve the problem of sulphur staining for the food industry, by improving the tinplate produced in Mexico.

In order to convince the industries involved to enter into the above joint venture the team should seriously start to study the subject of sulphur staining. This may mean:

1. Studying the passivation layer, controlling all chromium measurement on tinplate and in the lacquer.
2. Studies of sulphur staining phenomenon, by making controlled changes on the tinplate surface and in lacquer application conditions.

3. Develop short tests that are in correlation with the sulphur staining test, like degree of baking and diffusion tests.
4. Show that tin coating weight is not in correlation with sulphur staining.
5. Use the equipment in LANFI to coat different well defined tinfoil with different enamels, different coating weights and baking conditions. Test for off tastes and sulphur staining.
6. Study enamel in particular in respect to off taste and sulphur staining.

It should be borne in mind that the canning industry does not do these experiments nor does the can making industry. So this is an excellent opportunity to gain a relative advantage by filling the gaps.

SEMINAR IN MAZATLAN

A seminar for the fishing industry took place in Mazatlán between the 30th of November and December 4th. LANFI presented a number of talks. It was a good and interesting seminar with participants from many sectors and a wide range of expertise. It proved a good opportunity to become acquainted with the people of this industry, the problems existing, etc. However, bearing in mind the nature of the possibilities of LANFI's engagement and contributions, the above understanding and conclusions were verified.

In a long personal talk with the general manager of Investigación y Desarrollo Industrial of Productos Pesqueros Mexicanos, Ing. Ricardo Osorno Saldaña, he expressed his wish to be assisted in solving some of the can quality problems, such as sulphur staining. It is therefore suggested that Muñoz and Madi will contact him (telephone: 574.87.17 or 584.07.80) and elaborate the possibilities and strategy of cooperation.

In a similar talk with Mr. Carvajal, who is in charge of quality control of all can makers of Zapata group, he confirmed that there is a need for some assistance. He should also be contacted, but in a much more careful way and only after gathering more knowhow and confidence on the subject of sulphur staining and its control on the elimination of the problem.

CONCLUSION

The metal group in LANFI seems to be at the stage of "take off". They will need the guidance of experienced pilots but not so much of school teaching.

This being a critical and sensitive stage, the subject should be dealt with by providing more leadership to determine priorities, orientations and other priorities. Authorities and responsibilities should be made absolutely clear and should be very well defined.

The team should start to initiate. They should try to answer the questions they are asked by planning short, meaningful tests. In this way, the team members will gain confidence and independence.

The inter relationship between the groups and their respective disciplines should be revised. The interdisciplinary approach is the only promising one. The industry has not been using this approach and that is why old problems still exist. Also, this is the reason why LANFI does have an excellent opportunity to enter and fill the gaps. Good luck.



