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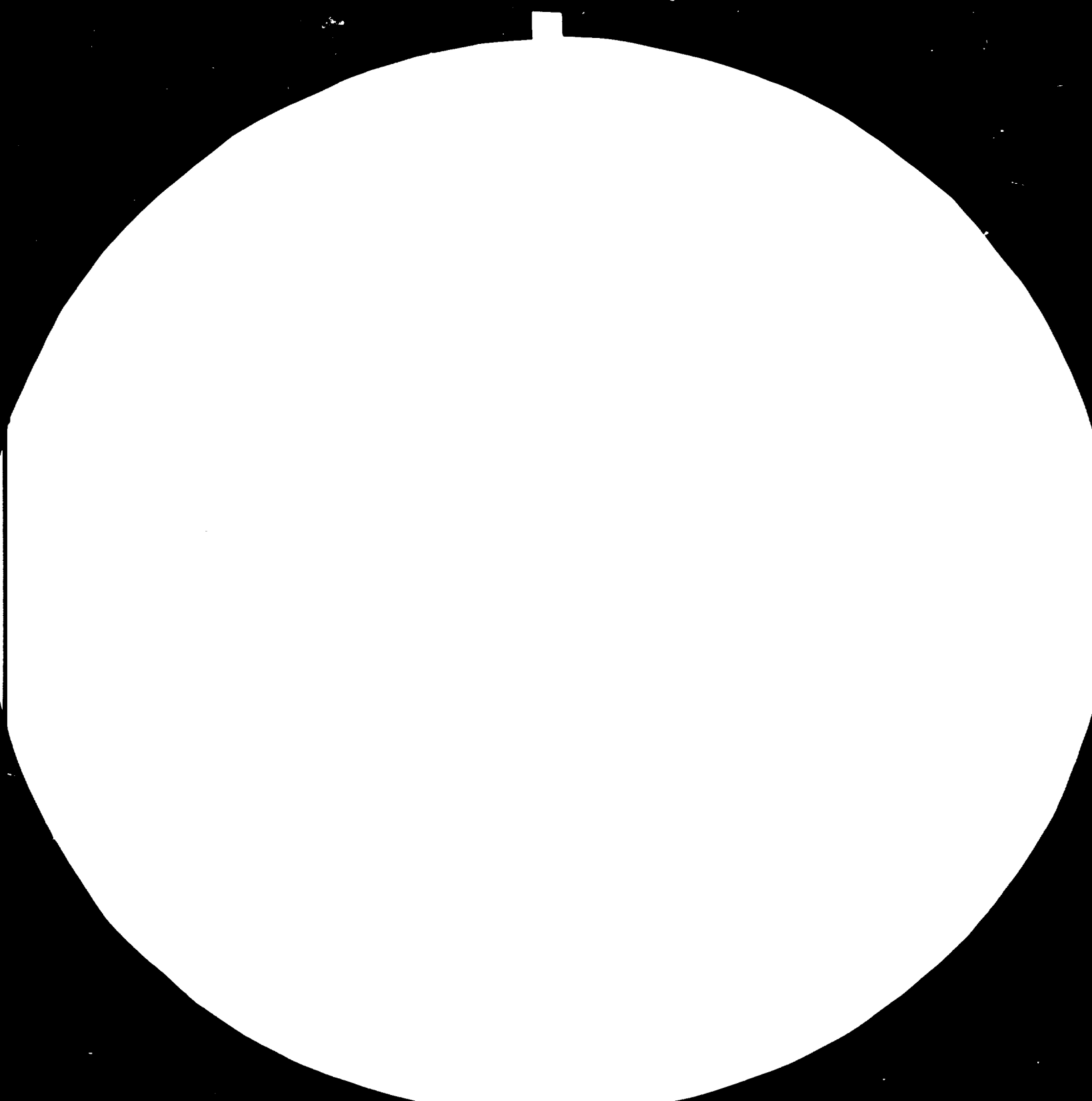
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-
STANDARD REFERENCE MATERIAL 1963-A
CONTAINS TWO TEST CHARTS NBS 1951

14062

Vietnam.

CALIBRATION AND QUALITY CONTROL CENTRE

FOR ELECTRONIC PRODUCTION.

DP/VIE/80/047

VIET NAM

Terminal report *

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

Based on the work of J. Szafraniec,
expert in calibration and quality control
of electronic industry

United Nations Industrial Development Organization
Vienna

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SUMMARY

This report is relating to strengthen quality control at plants of electronic industry and thus to increase their outputs through establishment of a Calibration and Quality Control Centre for the electronic products.

Main objective of the mission included preparation of draft version of the project document covering as follows:

- determination the number and timing of technical assistance missions by experts,
- number and timing of fellowship missions,
- number and timing of study tours missions,
- type, quantity and technical specification of electronic equipment for the proposed Q.C. Centre,
- type, quantity and technical specification of support equipment for the Q.C. Centre,
- final report

Duration of the mission 4 weeks, extended to 6 weeks.

Duty station - HoChiMinh City with travel to selected 2 electronic plants and Institute for Standarization and Quality Control / Centre III/ in area of HoChiMinh City.

After discussions with the Government officials and electronic industry management in charge of Q.C. service the following findings and recommendations have been made:

- calibration service is not currently existing at the plants,
- internal quality inspection at the plants does not have suitable equipment for calibration of existing test equipment in production lines.

It means that the establishment of calibration and Q.C. Centre is imperative, because these services are presently not available in Viet Nam, yet they are an indispensable feature of any electronic manufacturing industry.

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I. INTRODUCTION

The production of electronic products in Viet Nam is presently affected by two factors, i.e. that of test equipment which is suspected of being inaccurate and hence is holding up production lines and thus output and that of quality of the end-product.

Both these factors can be minimised by cyclic calibration of test equipment while the quality of the end-product is also improved through special tests an electronic as well as mechanical parts of the products.

These services - calibration and quality control in electronic industry are presently not available in Viet Nam.

During a UNDP/UNIDO programming mission to Hanoi in 1980, the Government indicated its desire to have a facility for calibration and Q.C. for the electronic industry established in Viet Nam few years ago.

However, while constraints of various nature prevented the project from being materialized immediately, the stage is now set up for actioning the preparatory assistance phase preceding the full-scale implementation of this project.

UNDP assistance to be provided under the preparatory assistance phase includes the services of an expert to undertake 6 weeks mission to Viet Nam in August 1984 to gather all necessary data for this project implementation.

This assistance is corresponding to the Country Programme for 1982/1986 and to the sub-programme: Industrial Development Support Services / 0510 /. Project number: DP/VIE/80/047.

Duration of the project implementation will be 2 years according to the project document.

Government Implementing Agency for this Project is General Department for Electronics and Informatics in Hanoi and VIETRONINS Research Institute in HochiMinh City where this project is located.

Total contribution by UNDP - US \$ 750 000 and the Government contribution 6.530.000 Dongs.

Purpose of the subject project according to the job description DP/VIE/80/047/11 - 01/31.D.C. was collating data

and elaboration of the framework for the establishment of a Calibration and Quality Control Centre for electronic products.

During the briefing in UNDP Hanoi, duties as well as duty station has been revised and adjusted to the present organization of the electronic industry in Viet Nam.

Duties have been directed on the Project Document formulation while duty station was changed from Hanoi to the HoChiMinh City where electronic industry is mainly located.

Duration of the mission has been extended from 4 to 6 weeks. Development objective of the project is improve quality control at the plants of electronic industry.

Main immediate objective is the establishment of calibration and Q.C. Centre for the electronic products.

II. THE PROJECT

The Project is relating to improve quality control at the plants of electronic industry including six radio-TV assembly and of the passive electronic component plants.

This purpose has been formulated in project document as the development objective of the project.

Immediate objectives of the project are the following:

1. To train qualified national staff in the techniques required for measurements and calibration to be provided by the Calibration and Q.C. Centre as well as in supervision of calibration and quality control at the VIETRONICS plants. This objective will be achieved through the following:

- local staff training in the Centre III previously to fellowship and study tour missions,
- fellowship and study tour missions,
- on-site training with experts

2. To improve the production process at the plants by permanent calibration of the test equipment.

The achievement of this objective will enable to overcome the slowing in production which is being presently the result of lack of calibration and quality control services at the plants.

3. To strengthen the quality control and calibration services at the plants and thus to increase their outputs.

The achievement of this objective will enable to increase techno-economic indices of VIETRONICS - Union and of each individual plant.

4. Establishing and equipping Calibration and Q.C. Centre for the electronic products.

Proposed Centre will consist of six laboratories equipped with the instruments matched to profile of production.

Organization, staff, the scope of activity and the equipment of the Centre is described in the next chapters of the report.

Immediate objectives of the project are subordinate and coherent with the main purpose i.e. improvement quality control at the plants.

An alternative solution of strengthening the quality control at the plants such as equipping each plant with suitable instruments and giving them the right of legalization is now beyond the means of this country.

Thus, the best solution is to establish the calibration and quality control Centre / here after called the Centre /.

Additional agreement between the Institute for Standardization and Quality Control / Centre III / in HoChiMinh City and VIETRONINS'S management has been made during my visit to this institute.

Main provisions of this agreement are as follows:

1. The Centre will not be equipped with mechanical standards such as: end and angle gauges, standards of mass, pressure as well as frequency and some electric standards being in use at the above institute.
2. The Centre will perform its supervision and inspection activity in plants of VIETRONICS Union, while the Centre III will carry out official testing and calibration of Centre equipment acting on behalf of General Department for Standardization, Metrology and Quality Control, the head national organization of Viet Nam for this activity.
3. Staff of the Centre assigned to study tour and fellowship missions will be additionally trained on-site in the Centre III, before leaving for training abroad.

For the full-scale implementation of the project, besides provision of the required staff and equipment, technical assistance of foreign experts is necessary as well as suitable organization of the Centre.

All these conditions have been formulated in detail in the project document and will be also considered in next chapters of this report.

III. THE CENTRE

1. Organization of the Centre

The Centre will consist of six laboratories and the electric/electronic workshop for repair and preventive maintenance of equipment of the Centre. As agreed with Director of VIETRONINS, the Centre will have no manager but two departments will be directly subordinated to Director of the Institute who is responsible for quality control in VIETRONICS Union plants.

Both departments / electrical and electronic / will be represented by two engineers having experience in management and supervision of calibration and quality control in plants and who will perform liaison function between the plants and the laboratories of the Centre.

Non-technical staff of the laboratories is not foreseen. The Centre will have the same level of management as other departments of the Institute.

Organization chart of the Centre is shown in the Annex I

2. Staff

The Centre will employ ten engineers and twelve technicians as per Annex I.

The present staff of the VIETRONINS does not comply with needs of the Centre but according to the agreement made between local Institute of Technology, University and the Technical School on the one hand and the VIETRONINS on the other, sufficient staff will be provided up to the end of this year.

Taking into account the fact that the staff of the Centre will mainly consist of no-experienced personnel, necessary training on-site and abroad is required.

3. Scope of activity

Scope of activity of the Centre will be adjusted to the plants needs and will be a subject of special agreement between VIETRONICS-Union, VIETRONINS Institute and the plants, later.

Presently, the scope of activity of each laboratory has been formulated at the project document.

Proposed equipment for the Centre will be sufficient for attesting function of each laboratory and will be adjusted to instrumentation and test equipment of the VIETRONICS -Union plants.

IV. TRAINING

Training is the most important undertaking of this project. For the proper project implementation the following training programme should be performed:

- local staff training including professional and language course before fellowship and study tour missions take place,
- fellowship and study tour missions organized with UNIDO assistance
- on-site training with international experts.

After completion of the local training and fellowship/study tour missions, the local staff assigned to the Centre will be a counterpart to an expert in his respective field.

In this connection fellowship and study tour missions are of great importance for the project.

1. Fellowship missions

As it is stipulated in the project document fellowship programme will cover training adjusted to the scope of each laboratory activity.

Six fellowship missions are foreseen for four months each.

These missions should cover the following calibration and quality control problems:

- calibration methods of test equipment producing radio-TV receivers and passive electronic components,
- quality control and calibration methods being utilized at the plants manufacturing measuring-control apparatus,
- calibration and quality control methods being utilized in similar Centres or at plants having the authorization for a testing.

Fellowship missions are planned for engineers only.

2. Study tour missions

The programme of study tour missions under this project has the following goals:

- for management staff of the Centre assigned to supervision and co-ordination of calibration between VIETRONICS plants and the Centre to obtain necessary knowledge and experience required for their future activity.

Two m/m missions for engineers only are foreseen.

- for management personnel of the higher rank to gain the overall views concerning primarily organization of calibration and quality control services for centres and a plants with the similar profile of activity.

Three m/m missions for the Centre and electronic industry management are foreseen.

V. TECHNICAL ASSISTANCE OF EXPERTS

The technical assistance of international experts for the establishment of the Centre is required for the following reasons:

1. Lack of local staff having professional experience in measurement and calibration of electric/electronic instruments,
2. Equipment of the Centre consists of a wide range of instrumentation usually covering two faculties and several specializations,
3. Lack of experience in use of high quality electric/electronic instruments,
4. Lack of experience in organization, management and supervision activities in calibration and quality inspection in plants,
5. Lack of experience in installation of a sophisticated equipment as well as in assembly of measuring stands.

The above factors lead to conclusion that technical assistance of foreign experts is necessary for establishment and proper activity of the Centre.

The experts assigned to this project should have suitable qualifications and practical experience in wide range of electric/electronic instruments measurement and calibration.

It means that some of the specialists can provide their services either for electric or electronic laboratories but for electro-acoustics it is not the case.

Taking into account the fact that the local staff that will be appointed to this project will be trained locally in the Centre III as well as abroad / fellowships and study tour missions / before experts arrival, technical assistance of foreign experts should be provided through a short-term missions as formulated in the project document.

VI. EQUIPMENT OF THE CENTRE

As mentioned previously basic equipment has been agreed with the Institute for Standardization and Quality Control. According to project document formulation basic equipment is understood to be a non-expendable equipment while the expendable is considered as the support equipment.

1. Basic equipment

It comprises equipment of each laboratory according to its profile. Basic equipment is adjusted to profile of VIETRONICS-Union plants.

In some cases the range of instrument exceeds the range of the present profile of production but taking into account future programme of production as well as design of new instruments, the proposed equipment is considered to be necessary.

Proposed equipment list includes: basic parameter, error, quantity and price of each item. This will enable easy choice of specific instrument in case if the price of some suppliers is too high or an instrument is under embargo.

Equipment list including 114 items is attached to the project document as the Annex VII.

2. Support equipment

Support equipment includes 30 items of equipment and consists of instrumentation usually expendable after 3-4 years. This does not refer to a microbus which is necessary for the technical staff and equipment transportation to and from the plants where services are provided. All items are flexible matched and can be used in each laboratory.

Support equipment list is attached to the project document as the Annex VIII.

3. Spare parts

Spare parts necessary for repair of the Centre equipment should be specified by manufacturers in value of about 5% for each instruments and for 3 years of exploitation in tropical conditions as formulated in the project document.

List of spare parts will be checked and approved by the CTA.

VII. FINDINGS

During the mission performance including survey at the plants and official visits the following conclusion have been drawn:

1. As described in the project document / background and justification / further development of the electronic industry in Viet Nam is very much depending on solving problems of calibration and quality control.

Presently is the highest time to do it.

2. Without technical assistance from abroad including experts, provision of imported equipment and national staff training, solving calibration and quality control problems by utilization of local recourses of this country is impossible at the present time.

3. The most suitable solution for solving of calibration and quality control problems in electronic industry of the south area is the establishing of the Centre for calibration and quality control in HoChiMinh City provided that, the Centre will be equipped with adequate instruments as well as national staff will be trained abroad and on-site by foreign experts.

4. This Project should have priority for the following reasons:

- the project is four years behind time,
- holding up of production lines is being the result of the lack of calibration and quality control services at the plants which seriously affects production outputs and techno-economic indices of electronic plants.

VIII. RECOMMENDATIONS

The following recommendations should be performed for the project implementation:

1. Repair of building equipped with mains of min. 15 kVA and air-conditioners should be made in accordance with timing of the project document provisions.

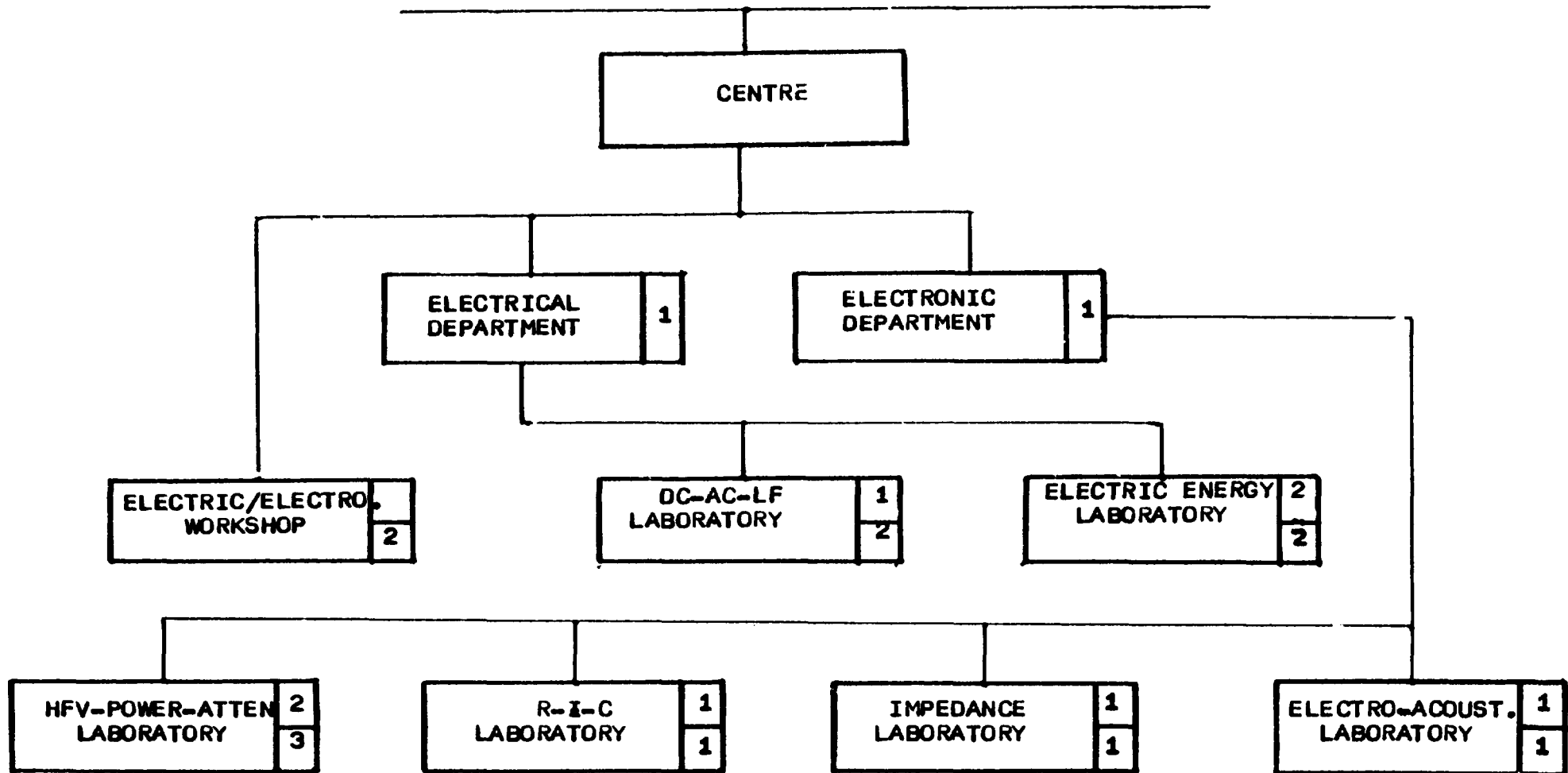
This recommendation is relating to VIETRONINS

2. National staff assigned to the project should be available and trained intensively before experts arrival.

This recommendation relates to VIETRONINS

3. Necessary Government inputs should be provided for purchase of furniture and locally available equipment for the laboratories and the workshop before basic and support equipment will be delivered.

VIETRONINS DIRECTOR



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|---|
| X |
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 - ENGINEERS
- | |
|---|
| X |
|---|

 - TECHNICIANS

Organization chart and Staff
proposed for

Calibration and Quality Control Centre for the electronic industry in HoChiMinh
/ Scope of activity of each laboratory is given in Annex II of the Project Doc./

ANNEX II

List of persons associated with the project document formulation
/ official visits /

1. TRINH DONG A - Director General Department of Electronics
Dr.ing. and Informatics - Hanoi
2. NGUYEN XUAN QUYNH - Deputy Director General Department of
Assistant Professor Electronics and Informatics - Hanoi
3. CEKIERA - Chief Technical Adviser to General Department
Dr. ing. for Standarization, Metrology and Quality
Control, Centre III
4. NGUYEN HUU THIEN - Director of the Centre III, HoChiMinh City
Dr. ing.
5. NGUYEN HUY SAN - Director Vietronins / counterpart /
Dr.ing. HoChiMinh City
6. NGUYEN THI THANH TUNG - Deputy Director Vietronins / counterpart /
Ing. HoChiMinh City
7. ~~TO~~ THANH QUY - Director TV Assembly Plant
Ing. HoChiMinh City
8. NGUYEN VAN THUAN - Deputy Director TV Assembly Plant
Ing. HoChiMinh City
9. VO VAN KE - Director Passive Components Plant
Ing. HoChiMinh City

