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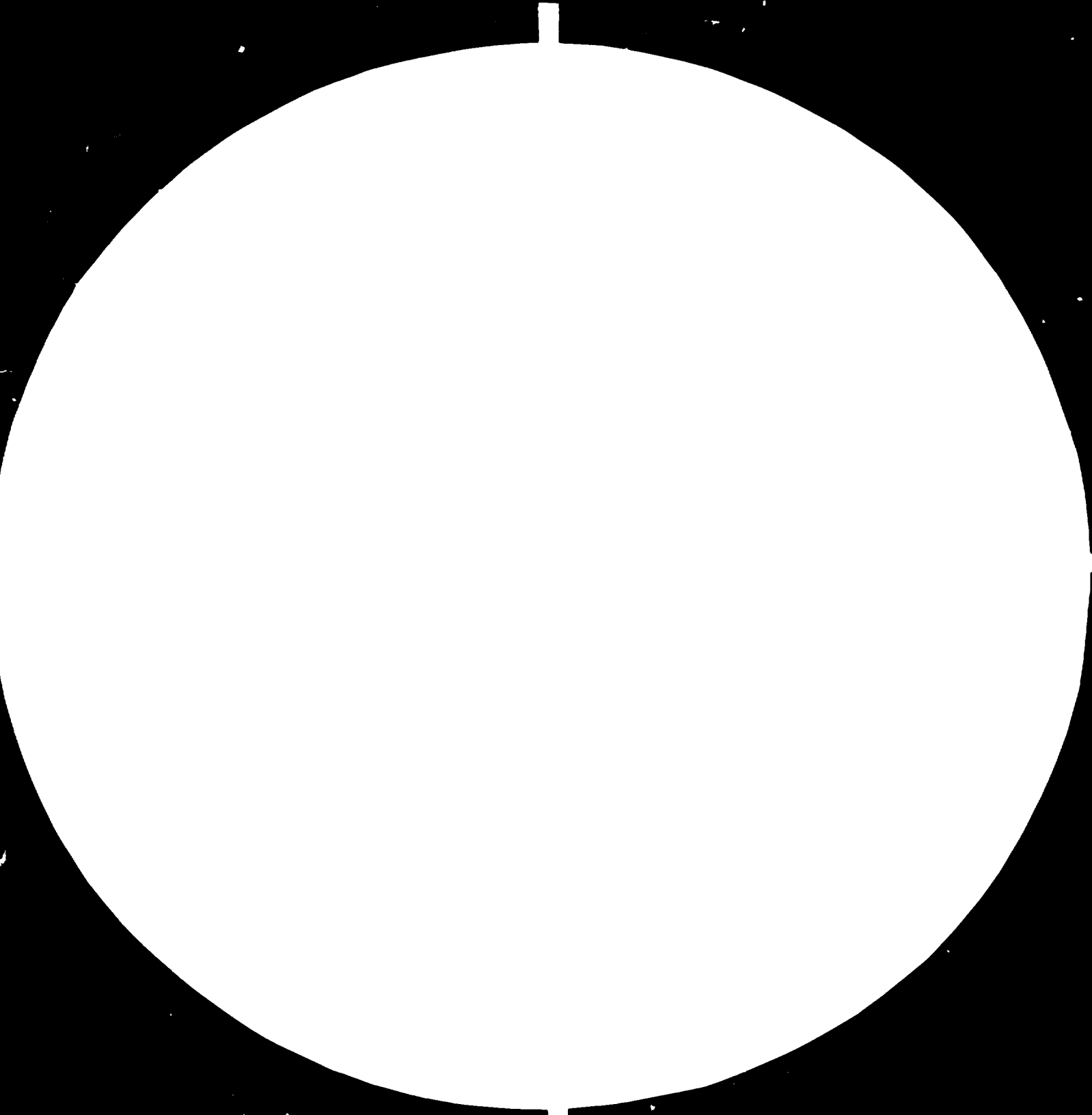
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8 August 1980

(R) INSTALLATION OF ONAREST EQUIPMENT*.

DP/CMR/79/006

(Follow-up of Project TF/CMR/75/002)

*Phytochemistry laboratory for CENTRE D'ETUDES DES PLANTES
MEDICINALES - CEPM, at Yaounde, Cameroon

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

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This report has not been cleared with the United Nations Industrial
Development Organization (UNIDO) which does not therefore necessarily
share the views presented.

Report Structure

To facilitate future follow up, this report will cover all facets of this project as defined by the job contract i.e. the installation of the instruments in this laboratory.

It has been thus structured in six brief sections:

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Section I

Purpose of Mission

From the Terms of Reference (DP/CMR/79/006) and the briefing on 23 July 1980 at UNIDO in Vienna, the mission can be succinctly split into four paragraphs:

- (a) Establish the status of the instruments as to their physical conditions, supervise the unpacking, establish list of contents of what was received and report on the status of all equipment and install them.
- (b) Check room environmental conditions for the equipment supplied and report on modifications needed for the sensitive equipment of Perkin-Elmer, Pye-Unicam and Varian. (The last lot not to be installed).
- (c) Interview and brief the two candidates due to be sent to Cyprus for training.
- (d) Time and conditions permitting, to undertake all necessary steps related to this mission to accelerate room environmental conditions and install the maximum amount of equipment which can safely be done by the expert's own background experience.

Section II

Equipment and Laboratory Facilities (as found)

Equipment

All 19 cases/boxes were stored in the empty and locked chemical room* of the present wing of the CEPM (ex-ONAREST) laboratory.

The packings, showing signs of severe transit sufferings, were (listed by degree of visual appearance):

The Pye-Unicam IR Spectrotometer - bound box containing the basic unit was open, full of dirt, dust, sand, leaves and the top sunk in (probably underwent rain, water or similar treatment).

The box of accessories showed less severe signs and was sealed with fresh self-adhesive tape across its length only.

The Schmidt and Haensch Polarimeter - cardboard box only was found in similar conditions. Internal instrument wrapping was good and its appearance was unaltered.

Varian Gas Chromatograph Model 3700 Main Unit - reinforced cardboard box was opened. Suffered severely, housing top was all out and at cross purposes, door hinges out, full of dust, spider webs - a spider's heaven.

Of the other Varian boxes, only those for the one recorder wore the original factory sealings and were found in reasonably good conditions, though transit stress was apparent.

The Atomic Absorption basic unit, though still in its plastic wrapping, had spots of fungus - the signs of enclosed humidity.

Sartorius Balances - boxes were in good condition and original seals intact.

* Room 4 on Annex I

Emco basic lathe was in its original wooden case, well-preserved. Two cardboard boxes with accessories showed good appearance despite external signs of humidity during transit (presently dry due to recent storage in a dry storage room just prior to being transported to this last laboratory space).

The two cardboard boxes supposedly containing the Metrix equipment showed sunken and dusty appearance. The actual Metrix boxes, when detected, showed signs of long outside storage; the wooden box containing the 201C Oscilloscope was intact but the cardboard box one was open, dusty, unsealed and contained only six manuals and a smaller box with the GX229B Generator. The Multimeter was not found.

Rooms

The laboratory for Phyto-Chemistry plan was prepared by Professor Sandberg (see Annex I). There was no plan for the electrics and conflicting verbal statements as to its voltage stability were uttered. Electrics outlet has phase at alternative points.

Room No. 5 is inadequate as it will contain most of the sensitive equipment, while room No. 2 is destined for the heavier equipment such as the lathe (the DTA) and for the general maintenance workshops.

The final plan was drawn up by one of the trainees on the expert's advice (see Annex II).

Tests and steps were undertaken to identify the electric internal wiring and outlets were numbered to this effect to correspond with proper circuit breaker.

Room No. 1 will also need some modifications.

For Room No. 4, no comments except that the exhaust of all sample preparation chemistry should be ensured to be efficient and not to drift into any of the instrument rooms.

A balance room is nowhere foreseen. This is a must.

Section III

Action performed on site

Early morning of 25 July 1980, met Mr P. Willot of UNDP; cross-checked notes and found out that a new set of equipment from Varian - the Gas Chromatograph (GC) was to be installed as well (not on list received with letter of 6 May 1980 from Vienna). Also, there was some doubt if the Metrix equipment was available.

We met, successively, on this morning:

Prof. Josue Kom Mogto, Head of CEPM and identified by Mr Willot as my counterpart;

Mr Nya Ngatchou, Director des Etudes;

Mr Essono,

The meetings were aimed at ensuring the maximum impact to obtain the required and prompt assistance, and clarify the position of one of the trainees. Mr Willot then left and we proceeded to unpack and check the equipment. Prof. Kom Mogto delegated to me Mr Daniel de Patio, Mr Jean Nganhou (trainees), Mr Augustin Ngou, his administrator.

By 2.30 pm, we had the electricians and manpower, and by 4.45 pm, Mr Willot came back for a follow-up. The working hours of CEPM were adopted 8 - 12 am, 2.30 - 6 pm; Saturday 8 - 12 am. By the end of the day the status was as per Annex III.

On Saturday 26 July, checked list of equipment - some were missing but received them later from UNDP's files. The room showed voltage varying from 218 VAC to 253 VAC and some sudden peaks of over 10 VAC (short-term measurements made with expert's own tester). Humidity 93% RH.

Monday 28 July, late start due to late arrival of keys and Prof. Kom Mogto who introduced Mr Pani (Financial Director). I requested that he should be at his lab first thing in the morning and last thing in the afternoon for follow-up and assistance.

Administrative difficulties were overcome by Mr Pani who had the authority over the workshop. Things improved since then - went shopping down town for voltage regulators, etc, with Mr Pani's own accountant who speeded up procedures (material received 2 days later).

Tuesday 29 July, mason, electricians briefed and instructed to start modifications. Afternoon, received stabilizers and made preliminary tests on the UV - VIS Spectrophotometer. (Paint spots peel off owing to air bubbles. New air conditioner installed, dehumidifier in room 5 and lathe transferred to its final place. Follow-up on Mr Pani for funds needed for local purchase (shopkeeper preferred cash).

Wednesday 30 July, lathe installed, wired and test runs made. Further tests on the UV - VIS Spectrophotometer with expert's own optical reference standards.

Polarimeter - first tests done and found not working. Adjustments made and instrument reacted. More tests needed.

IR Spectrophotometer found not working; unit opened and found rust, corrosion and inside arm locked for transport; no tag to this effect (NOT IDENTIFIED OUTSIDE OF UNIT, only in manual - insufficient).

Gas Chromatograph was inspected, cleaned and all parts reassembled. Packing list checked.

Masons finally came at 4 pm to start actual work and leave concrete to dry overnight.

Identified two parcels not belonging to CEP! but probably to a project with nuclear instrumentation. A third parcel of U_2O_8 radioactive NBL standard was also identified with a different project number (IAEA).

Thursday 31 July, carpenter for window modifications was located and action requested. Masons at work. Morning used to visit UNDP and trace parcels. Lathe was fully tested and operated.

Administrative - critical problem due to acceptance by Prof. Kom Mogto of all parcels including those due to IAEA project as Metrix and deadend reached. (Report indicates that Prof. Sandberg was committed to all parcels in the lab??). Since it could only be cleared by a systematic investigation, the expert and Mr Willot traced cross-country (Yaounde area) to different laboratories (one and a half days was lost in this exercise). Metrix parcels were found UNDP's own balcony. The IAEA parcels were transferred to UNDP and IRTISS (Mr Melende).

Friday 1 August, slow progress on civil engineering work. IR Spectrophotometer checked and showed severe corrosion signs and optics deterioration. Adjustments were made, cleaned rust and oiled. Time spent in clearing the Metrix question. All instruments transferred to room 4 as room 5 was not ready. UV - VIS Spectrophotometer fully tested and standards and samples run.

Saturday 2 August, work on different systems. Polarimeter tested with sucrose samples 1 - 3 - 5 - 7% and responds. Personally intervened for cheque to obtain new glass for window.

Sunday 3 August, meeting in laboratory to brief trainees and let them run one set of parameters on UV - VIS Spectrophotometer to understand functions. Same for IR system.

Monday 4 August, time spent mainly chasing workers around. Glass windows have been installed and instruments re-transferred to room 5 in the afternoon. Instruments calibrated. Balances, polarimeter and AAS recorder responded okay.

Tuesday 5 August, Prof. Kom Mogto returned from Douala where he went to locate high purity gases - N_2 - H_2 and air.

Electrics in room 5 all re-wired to get phone outlet corrected and place on-line a DYN and TRA voltage regulator - only available locally but inadequate.

AA-175 Spectrophotometer tested and problems found. H₂ channel not working. Output voltage 750 VAC instead of 640 VAC (input line was at 240 VAC).

Afternoon meeting with Prof. Kom Mogto - Mr Willot to recapitulate CEPM objectives for (a) trainees, (b) analytical work, (c) set-up meeting with the Délégué General.*

Door to room 5 received. Gas Chromatograph - initial check-up. Tests of room temperatures 21°C, 62% RH. Air conditioner changed for the third time.

Wednesday 6 August, checked Oscilloscope, signal generator (faulty), recorders and GC.

10 am met with Dr Vroumsia Tchiwayé, the Délégué General, who was very positive and helpful.

11.30 am met Mr Antoine Abondo, Director of the Institute for Medicinal Plants Research.

By 5.30 pm, the rooms locked and keys given to Prof. Kom Mogto with instructions not to let anybody in except for finalising civil engineering work re: gas and gas connectors, etc, pending. Only technician Le Patie had instructions to fix three screws to cover the AA 175 system and move compressor below because of noise reduction.

* ONAREST became DGRST (Délégation Generale à la Recherche Scientifique et Technique)

Section IV

The Trainees

1. Daniel Le Patio (22 years old; graduate of the Polytechnic and held several jobs in similar activities of repair and maintenance of electronic systems).

This is a worthwhile candidate who has the ability to listen, absorb and follow instructions; he asks intelligent questions and his logic is good. Good manual ability. Careful approach to problem-solving.

A good investment to train him.

2. Jean Nganhou (27 years old; university graduate; physicist; no previous jobs; no previous experience and little electronics know-how).

Tests have shown that this candidate is unsuitable. Was told no others available but would prefer one having a polytechnic background than strictly academic.

Does not absorb instruction very fast and dexterity is limited. Has shown great interest to learn practical work but may be a slow progressor, although given time, may absorb essentials for his job (could also prove more permanent).

Summary

Trainees can be given the opportunity but clearly stating that quarterly progress reviews will be done on their progress and if they are not performing well, the scholarships be cancelled.

Should there be a new candidate with similar background to Le Patio, then he should get preference over Nganhou.

Section V

Suggested future steps

The essence of this project can be summarised after the meeting with Prof. Kom Mogto and Mr Willot.

(a) For the trainees: To have them primarily trained in maintenance and repair service for this type of equipment and also to assist the analyst in running the tests but not to run analyses themselves.

To set up a timetable of periodic maintenance of each piece of equipment and to fully go through all optics-electronics calibration. This will help keep them 'in training' and prevent instrument breakdown by timely detecting of possible future instrument failure.

Finally, the above to bring them to a category of 'Researcher' instead of low salary scale technicians which should grant them both the economic and technical interests and incentives to remain with the institute.

(b) From project DF/CMR/79/006 and UNDP's letter to the Ministry dated 30 April 1980, and letter of 7 March 1980 (evaluation of project). The phases to follow are:

1. Pre-installation visit by expert (B. Sciffo) to initiate programme.
2. Immediate follow-up by sending an expatriate (Belgian?) associate expert (see letter of 6 March 1980 and cable MISC 450 copies for information available from Ms Tcheknavorian and Prof. Sandberg).
3. Factory experts for final installation of Pye Unicam, Perkin-Elmer and Varian equipment, with trainees in attendance.
4. Trainees to leave for their overseas training.

Expert's comments

The main pivot of the successful implementation of this project will be the local "expert", and as defined by the job description, an "associate expert" will not bear the required authority to keep things moving in Cameroon.

The present counterpart will rely primarily on the expert to initiate and set up analytical methods to start routine analyses to evaluate and exploit the well-known plants (PRIORITY ONE), and thereafter to establish a pattern of routine tests to be performed for basic research of less well-known plants. This can only be done with a full-time, on-the-spot, well-motivated expert for not less than 24 months on the job. He should be briefed, prior to his departure to Yaounde, as to what is expected from him under Priority One so as to allow him to gather all essential reference materials (books, publications, chemicals, etc) in order that he has the means to implement, with the minimum time delay, the programme and prove results in the immediate future.

With the expert's qualifications, a dynamic character would prove helpful to achieve results. He should be asked to be capable of maintaining the equipment but not repair them.

Section VI

Summary

1. A local follow up is needed to ensure that pending action is taken and work completed prior to 30 August 1980.
2. An expert must be located rapidly to be sent with the minimum of delay to Yaounde by 30 September 1980 at the latest.
3. Manufacturers must be advised by the 10 September 1980 of requirements needed from them in the second fortnight of October. They should arrive at one-week intervals i.e. the expert, then Perkin-Elmer, then Pye Unicam, and lastly Varian. This will allow the expert time to absorb all systems new to him.
4. The trainees may then start their training.

All persons concerned with this project in Cameroon have been very co-operative so that we could, in a short time, complete the essential laboratory modifications and operate the lathe, balances, UV - VIS Spectrophotometer, the Polarimeter. For each of the above, operating instructions were drafted and exhibited next to each unit (see enclosures).

The expert will draft the technical letters to be communicated to each manufacturer.

A final letter to CEPF will be sent to confirm pending action needed locally.

The mission is, insofar, completed and I trust that a proper follow up is taken as indicated above.

Section VI

Enclosures

1. Operating instructions (5)
2. Letter to suppliers (4)
3. Checked list of systems and packing list (17)



