



UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

51640374
Distr.
LIMITED

E/CN.14/HUS/53
4 February 1981

Original: FRENCH

ECONOMIC COMMISSION FOR AFRICA

Meeting of Experts on the regionalization
of the "Centre de la Construction et
du Logement" Cacadavelli Lome, Togo

Lome, Togo, 13 - 17 April 1981

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ESTABLISHMENT OF A SUBREGIONAL CENTRE FOR RESEARCH
ON BUILDING AND BUILDING MATERIALS IN THE WEST
AFRICAN SUBREGION: DRAFT PROJECT PREPARED
BY ECA ON THE REGIONALIZATION OF THE "CENTRE
DE LA CONSTRUCTION ET DU LOGEMENT"
(CACAVELLI, LOME)

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I. INTRODUCTION

1. The building materials and construction industries sector is an essential part of a country's economic and social development programmes. The African region, like others, must cope with an increasing demand for construction and consequently for building materials in both urban and rural areas. In spite of efforts and progress made by individual countries, the region as a whole is obliged to import building materials as well as building technology and services from abroad, which constitutes a heavy burden on the economies of several countries. The chronic shortage of basic materials is in some countries cause for constant concern. It is understandable that in those countries authorities accord increasingly high priority to the over-all development of the building and building materials industries sector.

2. Various studies conducted by ECA, as well as field missions and meetings of African experts recently organized by ECA, have pointed to specific fields which need special attention, in particular research on building and building materials. The guidelines on which such research should be based were defined at the Meeting of the Directors of African Building and Building Materials Research Institutes, organized by ECA at Bujumbura, Burundi, in April/May 1980. Participants at the meeting underscored the need to organize research on a subregional basis.

3. The proposal contained in this document involves the establishment of a centre for research on building and building materials in the West African subregion.

4. It calls for the transformation of the national Cacavelli construction and housing centre at Lome, Togo, into a multinational centre to serve as a subregional institution.

II. FUNCTIONS OF THE CENTRE

5. The Centre will be expected to meet the needs of the subregion with respect to the building materials and construction industries. Currently, the national institutions except to some extent the "Centre de la Construction et du Logement" Cacavelli, in the subregion are not able to play this role efficiently and thoroughly, nor will they be in a position to do so in the near future. The Centre would not undertake any activity which might duplicate the work done in national institutions. Rather it would lend support to the national bodies by giving them the necessary technical assistance to carry out their research work expeditiously and to broaden their experience in research on building and building materials. It would thus, be necessary to maintain special links with the national research centres and laboratories on building and building materials.

6. Because of these major functions, the Centre should become the focal point for the subregion as far as advanced research and the development and transfer of technology are concerned. It should pay particular attention to the development and popularization of appropriate technologies with respect to local materials, locally available resources and the updating of traditional methods of materials production and utilization, as well as the promotion of small and medium enterprises. To that end it should also undertake activities in the field, such as the building of pilot projects or the implementation of demonstration projects. In that regard, it should effectively serve as a consultant, whose research and opinion assist the competent authorities in taking rapid and economic decision on national and multinational projects.

7. To fill the current void, the Centre will play an important role in the collection, processing and dissemination of information on technology relating to building and building materials and as a data bank or main documentation unit for the subregion.

8. It should be a training centre for cadres, technicians and assistants interested in the development of the building and building materials industries (Producers, users of materials, building technicians, managers, etc.).

III. OBJECTIVES

9. The principal objective of the Centre is to help to develop and strengthen the capacity to produce and utilize building materials, as well as building services, in the subregion as a result of the development and application of appropriate technologies through basic and applied research. The subregion could therefore rapidly become self-sufficient in the sector and be in a position to complete its economic and social development programmes without facing the current difficulties and delays caused by a shortage of building materials and services.

10. To that end, the objectives and terms of reference of the Centre will be to:

- (a) Study the needs of the subregion with respect to building (urban and rural) and related programmes; identify the technological problems in the field of building and building materials; define the measures needed to promote the development of raw materials, and the production of building materials and services;
- (b) Study existing or planned materials and services in each country related to research on building and building materials; evaluate needs and gaps in the area; formulate proposals aimed at strengthening the methods and services likely to facilitate the implementation of new programmes in relation to the measures listed in subparagraph (a) above;
- (c) Assist member countries in setting up national research laboratories and centres or modernizing existing ones;
- (d) Undertake basic and applied research with a view to developing new, appropriate and low-cost technologies which would:
 - (i) Take advantage of the subregion's raw materials;
 - (ii) Produce building materials for urban as well as rural areas;
 - (iii) Improve building systems and technologies;
- (e) Help to train scientists and technicians in research on building and building materials by providing them with the necessary materials and appropriate training programmes;
- (f) Keep abreast of the recent advances in appropriate technology in building and building materials in Africa and elsewhere; assist countries of the subregion by giving them such information and by organizing technical meetings and seminars bringing together specialists from the subregion and other areas;
- (g) Assist countries of the subregion in maximizing the production of materials in existing plants by dispensing advice on the technical upgrading of processing procedures and plants;

- (h) Help countries to carry out projects on the production and utilization of building materials through methods which were developed by the Centre and tested in pilot plants and demonstration projects conducted by the Centre;
- (i) Provide entrepreneurs with instructions and consultation services by conducting prefeasibility and feasibility studies on their behalf;
- (j) Help countries to rationalize their building practices by revising building codes and regulations and standards for building materials;
- (k) Perform any other function which is requested by participating countries and which contributes to the development of the building and building materials industries through research and development.

IV. ORGANIZATION OF THE CENTRE

11. Initially the Centre will consist of the divisions listed below; changes may be made, if necessary, by the Board of Directors on the proposal of the Executive Director.

Division

Responsibilities

A. Building planning and design

- (a) Study of building programmes and problems
- (b) Building concepts and technology
- (c) Building planning
- (d) Building management and economics
- (e) Building codes and regulations
- (f) Infrastructure
- (g) Building physics
- (h) Housing and planning statistics

B. Building materials

- (a) Study of raw materials
- (b) Production of building materials
- (c) Development of building materials technology (minerals, wood, agricultural waste, iron and steel, plastics and chemicals, etc.)

C. Structures and foundations

- (a) Soil mechanics
- (b) Structural analysis and design
- (c) Technical requirements
- (d) Foundations
- (e) Building technology

D. Quality control and standardization

- (a) Materials testing and evaluation
- (b) Formulation of standards

E. Training

- Training aids and programmes for:
- (a) Research scientists and technicians;
 - (b) Production and building technicians

F. Technical advisory services

- (a) Pilot plants and demonstration projects
- (b) Technical seminars
- (c) Consultancy services
- (d) Links between research and application

G. Information

- (a) Library
- (b) Documentation
- (c) Dissemination

H. Administration

Support services

12. There will be a central planning unit, working with the Executive Director, responsible for:

- (i) Preparing research projects and programmes;
- (ii) Planning and co-ordinating research;
- (iii) Establishing a liaison with member States;

V. RELATIONS WITH NATIONAL RESEARCH LABORATORIES AND CENTRES

13. The establishment of the Centre should not hamper the smooth functioning of existing or planned national research laboratories or centres which work on materials, testing, road construction technology, public works, building research, etc.

14. Close institutional co-operation should be maintained between the Centre and the national research laboratories and centres and should result in the joint formulation of the programmes of the Centre and the national research centres thus allowing a valuable exchange of information and technology and in the implementation of field projects (pilot plants, demonstration projects, etc.) in the member countries. This co-operation should also help to strengthen the activities of the national research laboratories and centres and thus avoid duplication of efforts and activities. Consequently the Centre's research programmes should not be selected until consultations have taken place with the national research laboratories and centres. A permanent mechanism should be provided for that purpose (See paragraph 29).

15. The Centre should regularly organize, in consultation with the national research laboratories and centres, training programmes, retraining courses and seminars for their technical staff.

16. There should be an exchange of research specialists between the Centre and the national research laboratories and centres on specific research areas or for specified periods of time.

17. Information, publications etc. should be circulated regularly among the Centre and the national research laboratories and centres. When possible publications should be produced jointly.

18. The staff of the national research laboratories and centres should have access to the research materials and facilities of the Centre.

19. The Centre and the national research laboratories and centres should work independently; however, their research work and programmes should be complementary in fields where there clearly exists mutual interest. Agreements should be concluded to that effect.

20. During the initial phase, the Centre and the national research laboratories and centres will take action and share responsibilities as described below; the distribution of work may be modified or improved if necessary.

Subregional centre

- (a) Design and promotion of high-level technology related to all types of building materials, building equipment and types of energy used to produce materials;
- (b) Co-ordination, co-operation and exchanges in the field of technology;
- (c) Establishment and utilization of a subregional network for the collection and dissemination of information as part of a regional and interregional information and documentation system;
- (d) Training at the subregional level of building materials research scientists and technicians and of building technicians;
- (e) Training management;
- (f) Rationalization of building codes and regulations;
- (g) Standardization;
- (h) Assistance to countries in promoting national research centres; and standardization centres;
- (i) Consultancy services;
- (j) All other subregional or special research projects.

National research laboratories and centres

- (a) Materials testing; quality control and standardization;
- (b) Study at the national level of raw materials, building materials, housing needs and building technology based on national priorities;
- (c) Research in appropriate technology to meet local needs (including public works);
- (d) Field technical services, including pilot plants, demonstration and training projects;
- (e) Technical assistance in the planning and improvement of urban and rural human settlements;
- (f) Establishment and operation of a national information and documentation system;

- (g) Elaboration and implementation of national training programmes according to needs;
- (h) Participation in the rationalization of building codes and regulations;
- (i) All other national or special projects.

VI. ESTABLISHMENT AND MANAGEMENT OF THE CENTRE

A. Establishment

21. The Centre will be an autonomous high-level institution for research on building materials and construction.
22. It will be set up jointly by the Governments of West African States which wish to participate. A Protocol will be signed for this purpose by the participating countries. If necessary, financial and technical assistance could be requested from international or regional bodies. In this respect, a project description will be drawn up by the Economic Commission for Africa in accordance with the directives of the participating countries.
23. As concerns plans for the establishment of the Centre, the Governments of participating countries will appoint a Joint Planning Board consisting of high officials from each participating country. The Board will consist of a chairman, a vice-chairman and at least five other members.
24. The Board will be assisted by a project Manager and a group of staff and technical advisers from each of the participating countries and elsewhere who will be responsible for following the day-to-day activities related to plans for the establishment of the Centre.
25. The Board will meet as often as possible and report to participating countries. To that end, the Government of each participating country will establish, in one of its ministries or departments, a mechanism for liaison with the Joint Planning Board which will be responsible for transmitting information.
26. The Joint Planning Board will be responsible for the detailed drafting and implementation of the programme to establish the Centre. It is expected that the Centre will be able to start functioning in 1982. The Joint Planning Board will then be dissolved and its functions assigned to the Centre's Board of Directors.

B. Management

27. Participating countries will appoint a Board of Directors whose functions will be to develop policy and take decisions on all aspects of the Centre's operations. The Board of Directors will consist of a chairman, two vice-chairmen and five or six members selected from participating countries. The Board will meet at least twice a year and will be in constant contact with the national liaison mechanisms referred to in paragraph 25.
28. The Board of Directors will appoint an executive director (high-level research specialist) responsible for implementing the decisions of the Board of Directors. He will act as secretary to the Board of Directors. In addition to research programmes, he will be entrusted with organizing co-operation in research with African and non-African countries. The executive director will be assisted by a deputy and by a team of experts who will head the above-mentioned divisions.

C. Research programming and co-operation

29. In order to help the executive director to establish research programmes and to co-ordinate them with the programmes of the national research laboratories and centres, the Board of Directors will appoint an Advisory Research Committee, consisting of the executive director, the directors of national research laboratories and centres, and, if necessary, experts serving in their personal capacity. The Committee will make suggestions concerning co-operation and help the executive director with respect to the assistance that the Centre is to extend to national research laboratories and centres. The Committee will meet at the least twice a year.

VII. FINANCING OF THE CENTRE

30. The initial investment costs and the annual budget should be calculated separately. So that a decision can be taken on the establishment of the centre, rough budget estimates are given below for information:

- (a) Initial investment costs: Approximately \$US 800,000 (land, roads, water supply, electricity, etc., buildings for laboratory, experimental production unit, library, conference hall, training complex, administrative offices, housing, clinic, restaurant, etc.);
- (b) Annual budget: Approximately \$US 700,000 (staff salaries, documentation, training, maintenance and amortization).

31. Expenditures for the initial investment and annual budget will be shared by participating countries according to a formula they will have adopted, which would take into account financial assistance from other sources.

VIII. EQUIPMENT

32. Decisions concerning necessary equipment will be taken separately based on the needs of each division and of the research programmes selected. Initial equipment costs might total approximately \$US 300,000.

IX. STAFF

33. The Centre will require the following cadres:

- Executive director (1)
- Deputy executive director (1)
- Division chiefs (8)
- Research specialists and assistants (30)
- Training specialists (4)
- Field personnel (6)

34. Furthermore the Centre will use the services of experts from the national research laboratories and centres to carry out particular research projects for specific periods.

35. The Centre will have funds available to organize study tours and training courses for its staff in foreign countries when the need arises.