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PROGRAMMES FOR IMPROVING AND DEVELOPING TRAINING FACILITIES IN THE FIELD OF HUMAN SETTLEMENTS IN AFRICA

PART I: TRAINING IN THE FIELD OF PHYSICAL PLANNING IN AFRICA

I. INTRODUCTION

1. The first meeting of the Joint Intergovernmental Regional Committee on Human Settlements and Environment which was held in Addis Ababa, Ethiopia from 28 June to 2 July 1982, highlighted the important role that physical planning was expected to play in national development. It emerged at the meeting that a number of countries in Africa did not have the necessary expertise to develop and implement national physical planning policies. The meeting was of the view that technical assistance at the regional level should accordingly be focused on this problem in order to help those countries that had no technical expertise to formulate national physical planning policies in the foreseeable future. It felt that particular stress should be laid on the training of staff in physical planning.

2. In many countries the view was gaining ground that economic and social planning should be integrated with physical planning if balanced development was to be achieved. However, this view implied that most planning services and approaches should be recognized. It also meant that the specialized approach had to give way to an interdisciplinary approach in the recruitment of staff for integrated development planning services.

3. The objective of physical planning was to make the optimum use of space to satisfy the needs of all the people. In Africa, the priority needs currently felt by States was for a better balance in the use of national space, a better distribution of the benefits of human endeavour in the world at large among the people of each country.

4. The priority objectives of physical planning should be the following:

- A better distribution by activity of the population throughout the national space;
- Organization of national space and activities to mitigate disparities between regions in the same country;
- Securing the future through protection of the environment and rational exploitation of fungible resources;
- Organization of production activities in order to reduce dependence on the outside world.

5. Physical planning avoids wide disparities occuring between regions, urban and rural areas and anarchy in the distribution of facilities, housing, infrastructures and population. It seeks, in this wise, to order economic and social development.

6. African countries are becoming increasingly aware of the importance of physical planning because nearly all of them are faced with serious interregional imbalances. For a long time, the siting of development projects seldom took into account the balanced distribution of activities on national territory. However, the rural-urban drift and the over-population of the towns (in particular national capitals) have combined to give pause to African States and make them ask themselves questions about the future. Sometimes, the States set themselves ambitious objectives such as the construction of new capitals, the development of new land and the resettlement of people from areas considered over-populated in sparsely-populated areas. Most often, the results achieved fall far short of the hopes expressed. These failures sometimes result from factors beyond the control of the country. Other failures, are on the other hand endogenous and should be analyzed objectively, understood and corrected as soon as possible if they are not to compromise the speed at which Africa should develop economically and socially. The most important of these negative factors are the poor organization of the physical planning sector and its inadequacy in the quantity and quality of staff. This paper will pinpoint a number of the problems and propose some interim solutions.

II. THE ROLE OF PHYSICAL PLANNING IN DEVELOPMENT

7. In the developing countries, generally, differences in the level of development between regions and the backwardness of certain regions as compared to others within the same country have served as a basis, if not a pretext, for many projects. Often, no workable regional studies happen to have been prepared. Space does not appear to have the same economic and social value everywhere. The possible combinations of factors, costs and reluctance vary from place to place in the same country. Most African countries have therefore had to prepare economic and social development plans as a means of reducing this gap, promoting speedy industrialization and diversifying their economy.

8. Economic and social development plans have the aim of expanding national economies, increasing incomes and living standards and creating jobs in all sectors of the economy.

9. Major communications infrastructures, transport networks, public facilities and industries come into being as these objectives are achieved and contribute to opening up peripheral regions through the establishment of appropriate services.

10. At the same time as economic development and higher standards of living are achieved, spontaneous migration begins and intensifies. Towns develop as a result of urbanization, creating problems of space organization because of the need to build houses for people, establish communication channels, transport water supply, sewage, electricity and telephone and other networks.

11. Such major economic changes will create great imbalances between regions, towns and villages and anarchy in the distribution of facilities, housing infrastructures and population if no deliberate effort is made to bring in some order.

12. Physical planning should be introduced into this process in order to find workable solutions in the organization of economic space. In this way, physical planning becomes a tool for organizing economic and social development. By seeking the best possible adaptation of society and economies to space, it shapes the image of the country and becomes the long-term spatial manifestation of a country's development effort.

13. For a long time, human settlements in Africa have been subjected to development efforts more than they have genuinely been associated with those efforts. The combined efforts of the Joint Intergovernmental Regional Committee on Human Settlements and Environment, in implementation of the principles and guidelines defined in the Lagos Plan of Action, has resulted in a redefinition of space organization objectives. Among the priority areas that require immediate action in Africa, the Lagos Plan of Action provides for better planning of towns and villages in terms of space allocation for facilities and the preparation of rural development projects using appropriate technology to stem the rural-urban drift.

14. It might be asked whether the current organization of the physical planning sector is adequate for the attainment of the objectives set forth in the Lagos Plan of Action. If it does not, the question then becomes one of identifying the impediments and finding out how they can be removed.

III. ORGANIZATION OF THE PHYSICAL PLANNING SECTOR

15. In Africa, the first physical planning policies date back to the years immediately following independence. Those policies had less to do with genuine physical planning than with investment specifically made for reasons of political expediency. The investments were most often allocated to urban areas and seldom to villages. It might have been forgotten that human settlements were an integral part of physical planning and (as indicated in the preceding chapter) that space organization was crucial to development. While those activities made it possible to absorb part of the population, they were not enough to integrate all the people in terms of organizing them and spreading them out over the entire territory.

16. Generally, the physical planning sector in Africa is inadequately organized because physical planning is a new subject of which countries have little experience. Staff in most of the countries are few in number and insufficiently trained.

17. When considering the staffing of physical planning organizations in Africa, the main questions that need to be settled are the number and calibre of staff, not to mention their experience and training without which development cannot be achieved. Obviously, the human qualities and the manner in which such staff are trained are another important consideration.

Staffing needs

18. African countries should integrate plans for physical development into the plans for economic and social development. This can be done only if particular stress is laid on the training of the necessary personnel to design and implement those plans. African countries suffer from a substantial deficit of physical and urban planners. A study carried out in 1970 in Commonwealth countries revealed that on average, there are only five such experts per million inhabitants. Of these experts, 57.8 per cent could be found in the United Kingdom, 0.2 per cent in Sri Lanka, 0.6 per cent in Nigeria and 0.7 per cent in Zambia. On the basis of economic growth, Professor Vagale estimates deamnd trends at 7.5 to 10 per cent per year. In 1982-1983, ECA conducted a survey of training needs concerning urban and physical planners. The results are tabulated as follows:

Country	Population estimate 1980	Population growth rate	Current staff strength	Projected staff needs by the year 2000
Lesotho	1.2 million	2.5%/year	9	80
Zimbabwe	7.5 million	3.5%/ "	30	110
Guinea	5.18 million	2.8%/ "	-	-
Zambia	5.67 "	3.1 " "	34	450
Swaziland	495,000	2.8 " "	-	-
Uganda	12.6 million	2.8 " "	2	384
Malawi	6.05 "	2.9 " "	23	118
Kenya	16.3 "	3.8 " "	3	450
Tanzania	18.1 "	3.3 " "	184	1 080
Mozambique	12.13 "	3.6 " "	3	120 (5 years)
Mauritius	826,200	2.16" "	2	-
Ethiopia	38.7 million	2.8 " "	4	78 (5 years)
Total	119.75 million		294	2 092

19. In a study he carried out in 1979, Professor Vagale estimated that the East and Southern African subregion needed 898 physical and urban planners in 1980 while Africa as a whole needed 3,024.

20. Expressed country needs for physical planning and urban planners indicate to what extent African officials have become aware of the role and place of physical planning in economic and social development. Rapid population growth in African countries has combined with the difficulty of checking the growth of major towns and the need for harmonious national development to make African officials attach greater importance to physical planning.

21. Training policies should adequately reflect the changing society as evidenced not only by population, urbanization, and migration, but also by technology and the widening level of economic growth. What the region requires are programmes which bear directly on local problems.

22. In the latter regard, one cannot be over optimistic that the course content, text books, training materials and equipment used in formal academic programmes would change over night to achieve the said objective. Africa is a net importer, not only of construction equipment, machinery and materials, but also of text books, training materials and personnel. This position is most likely to remain unchanged for some time. It could be concluded therefore, that for the foreseeable future, a practical approach to orienting training programmes to bear directly on local problems, would be short course for practicing personnel. This has several advantages among which the following are of relevance:

- The participants would have relevant field experience and problems to which they would be exploring possible solutions.

- Case studies would be selected from the local environment to test the relevance of theories.

- Since technology is continuously changing, participants would be exposed to new machines, equipments, materials and tools.

- A forum is created for the exchange of ideas and experience.

23. It should be noted that human settlements cover a wide field and most of the personnel engaged in the sector may have had no relevant training.

24. From the above, it could be stated that the African region requires an additional level of training which should be a necessary complement to formal education that leads to the award of certificates, diplomas or degrees. This level of training should address itself to experienced technicians, professionals and other personnel engaged in the human settlements sector. Such a training programme should therefore concentrate on a specific objective, i.e. narrowing the gap between formal classroom education, which although very necessary to provide theoretical theoretical/technical background, could at the same time be irrelevant to local conditions since most text books, training materials and even case studies might be based on experiences from the developed countries.

25. The following table taken from the 1982-1983 ECA survey indicates where national physical and urban planning experts in some African countries have been trained.

Country	Africa	Other regions
Ethiopia	-	Italy, France, United Kingdom, Hungary, Bulgaria, Cuba, USSR
Lesotho	-	Candada, United Kingdom, Australia
Zimbabwe	Zimbabwe	United Kingdom
Guinea	-	Eastern countries
Zambia	-	United Kingdom, Australia, Canada, United States of America, New Zealand
Swaziland	Kenya	United States of America, Australia
Uganda	Kenya	Poland, Commonwealth countries
Malawi	Kenya	United Kingdom, Australia, United States of America, New Zealand, Poland
Kenya	Kenya	United Kingdom, United States of America, Poland
Tanzania	Tanzania, Kenya	United Kingdom, United States of America, India, Canada, Australia, Poland, the Netherlands
Mozambique	-	Cuba, Portugal, Italy, German democratic Republic
Mauritius	-	France, United Kingdom

IV. THE IMPORTANCE OF TRAINING

26. Physical planning is a relatively new discipline. In developing countries, physical planners often use techniques and strategies designed for developed economies and unsuited to the economic and social conditions of their countries. Highly qualified and trained graduates of higher educational institutions in developed countries therefore need to come down to earth and get to grips with conditions prevailing in Africa in order to adapt their expertise and approaches to the specific problems of their developing countries. This also applies to the most experienced experts who come from developed countries to assist developing countries.

27. As noted in the preceding chapter, the demand for physical and urban planners in Africa far exceeds the supply. And yet this is the type of personnel whose numbers should be increased constantly. For physical and other plans to be implemented effectively, sufficient numbers of competent and trained physical planners are required.

28. Since the university training prior to entry on duty is generally theoretical, practical experience and familiarization with conditions prevailing in various development sectors of the country would have to be acquired. Beginners should be given practical training through organized field visits to developing areas and be taught to put into practice the techniques of physical planning.

29. Physical planners should be capable of initiating new ideas and innovating techniques to solve the specific problems with which they are called upon to deal. Introductory courses, workshops and organized visits to other countries, all provide physical planners with so many opportunities to acquire this orientation.

30. Another issue of concern regarding training policies in the African region is that most of the countries still depend upon overseas facilities to train human settlements personnel. An interim report of the UNCHS 1/ indicates that most countries in the Eastern and Southern African subregion do not have formal training facilities for most areas of human settlements sector. The dependance upon training facilities in industrialized countries leaves much to be desired due to:

- irrelevance of syllabus
- inappropriate standards and technology
- neglect of the community within which the trainee would eventually be engaged.

31. Such short-comings render the policy of training professionals abroad quite ineffective. The usual concern of African governments is whether there is sufficient domestic need for the specific skill to warrant the institution of such training programmes. This latter concern spells the role of subregional training facilities.

1/ Survey of Training Needs for the Development and Management of Urban Settlements and the Preparation of a Strategy for Training Support for Countries in the Eastern and Southern Subregion of Africa, UNCHS, January 1983.

32. A further failure with the training policies and programmes (relating to the human settlements sector) in Africa is the absence of any comprehensive programmes which deals with all the major areas of human settlements as a whole. The programmes surveyed indicate a treatment in isolation thus failing to bring to light the vital interrelationship among the various areas of human settlements and hence the effects of one programme on the other.

33. The question arises as to whether the institutions now existing in Africa can make good the staffing deficit and provide the amount of training that the African situation requires.

V. TRAINING PROBLEMS

34. The training of physical planning experts raises serious organizational problems. In certain countries, the lack of highly qualified manpower makes the problem of recruitment more pressing than any other. Even when such manpower is provided under technical assistance, nationals of African countries will have to be trained. It is therefore important to train more nationals as counterparts to take over from expatriate technical assistant personnel.

35. The training of physical planners may be considered from the stand point of financing, organization and administration.

36. The establishment of a national institute for training in physical planning raises comparatively serious financial problems both with regard to setting up and operating the institution. The financial aspect is less significant when the institution happens to be a multinational undertaking which has the added advantage of diversity in its research programmes. The cost of training is even less when carried out under bilateral arrangements in which certain developed countries or specialized United Nations agencies provide fellowships and host African students at their training centres. However, even though such training may be free of charge, it is often unsuited to the social and economic situation in African countries.

37. The main organizational problem is that of working out training programme contents and objectives in order to adapt them to national economic and social conditions. What is more, competent staff must be found to teach theoretical subjects and conduct practical work. Because the number of African experts who can provide such training is small, expatriate staff have to be recruited and they must in turn adapt their teaching methods and manuals to local conditions.

38. At the administrative level, the status of physical planners is crucial if such graduates are to be maintained in the public sector so that they do not drift into other sectors that offer more interesting prospects. Working conditions should provide possibilities for promotion and career development. It might be advisable, as happens in some countries, to give physical planners a special status that goes with appropriate remuneration, responsibility and career development opportunities. Physical planners must be made to feel that they are needed and that they have a role to play in contributing to the national development effort.

39. The aforementioned survey conducted by ECA revealed that there do exist a number of training institutions. Most of them form part of national universities. These institutions often have a limited capacity because they are planned to cover the national needs. However, most of these national institutions received students

from other countries without any registration charges through the bilateral co-operation. In this connection, 52 per cent of the students of Ecole d'Architecture et d'Urbanisme de Dakar, Sénégal in 1984-1985 were foreigners and came from Mauritania, Mali, Guinea, Central African Republic, Niger, Burkina Faso, Burundi, Rwanda, Morocco, Tunisia, Lebanon and France. In Morocco, at least 14 per cent of the students of Institut National d'Aménagement et d'urbanisme de Rabat in 1984-1985 were foreigners and came from Mali, Gabon, Zaire and Tunisia. In Algeria, the Ecole Polytechnique d'Architecture et d'Urbanisme d'Alger received students from Mali, Guinea, Congo, Madagascar, Morocco and Tunisia. In Tunisia, the Institut Technologique d'Art, d'Architecture et d'Urbanisme de Tunis received students from Morocco, Algeria, Cameroon and Côte d'Ivoire. Below is the list of institutions surveyed:

Country	Institutions	Training period
Zimbabwe 1/	University of Zimbabwe (urban planning)	2 years
Zambia 1/	University of Zambia (urban planning)	5 years
Senegal 4/	- E.N.E.A. Collège Aménagement du Territoire	3 "
	- Ecole d'Architecture et d'Urbanisme	6 "
	- Technicien Supérieur d'Urbanisme	2 "
Kenya 1/	University of Nairobi (urban planning)	3 "
Tanzania 1/	ARDHI Institute (physical and urban planning)	3 "
Mozambique 1/	National Directorate of Housing (urban planning)	4 "
Ethiopia 2/	Ecole Technique Supérieure des Municipalités (urban planning	3 "
Algeria 4/	- Université de Constantine (physical planning)	4 "
	- Ecole Polytechnique d'Architecture et d'Urbanisme d'Alger	6 "
Egypt 2/	University of Cairo (urban planning)	4 "
Togo 2/	Ecole Africaine et Mauricienne d'Architecture et Urbanisme	5 "
Tunisia 4/	Institut Technologique d'Art, Architecture et d'Urbanisme	7 "
Ghana 3/	University of Science and Technology, Kumasi (physical planning)	3 "
Nigeria 3/	Ahmadou Bello University, Zaria (urban planning)	4 "
Morocco 4/	Institut National d'Aménagement et d'Urbanisme	2 "

Sources: 1/ Reply to the 1982-1983 ECA questionnaire on appraisal of the needs of the physical planning sector in Africa.

2/ International Handbook of Universities - English edition, 1981.

3/ Commonwealth Universities Yearbook, 1975.

4/ Mission to Morocco, Algeria, Tunisia and Senegal in 1985.

40. In the debate concerning the orientation that the training of physical planners should take, some people maintain that specialized training programmes not exceeding one year would be appropriate. This obviously means that trainees should have had some basic training in one of the disciplines essential to physical planning, namely economic and geography. The trainees would then be made to acquire the necessary knowledge that would enable them to analyse economic phenomena in relation to the transformation of space. Other people support the idea of a long training period with a programme spreading over several years and covering theoretical courses and practical work in the field.

41. Whichever principle is adopted, training programmes should be aimed at making students understand the significance of physical planning, the tasks involved and the use of analytical methods in finding practical solutions to problems relating to the harmonious development of specific geographical areas.

42. The content of training programmes will vary in accordance with the specific socio-economic features of each country. However it would be helpful to bear in mind a certain number of basic facts when preparing such programmes.

(a) Training needs vary from country to country in accordance with the specific features each country and the amount of financial resources available;

(b) The content of training courses should take into account the socio-economic situation of the country concerned and its geo-physical features;

(c) Training programmes should be objective and inspired both by the specific requirements of various physical planning disciplines and by the relationship existing among those disciplines. One objective of training courses is to enable physical planners to understand and grasp the interdependence of the various areas of development;

(d) In terms of content and spirit, training courses should take local conditions into account. Case studies, methodologies and research should be designed on the basis of the kind of environment in which students will be operating;

(e) Training programmes should comprise a judicious mixture of theory and practice;

(f) The training should develop team spirit of physical planners and their ability to work with a group because their job involves inputs from experts in various disciplines;

(g) The level of training courses should be the highest possible.

43. Generally, training courses should be designed to give students the knowledge and skills that will enable them to:

(a) Gather and evaluate views on development needs;

(b) Harmonize varying views into acceptable development objectives;

(c) Institute mechanisms for mobilizing people and resources for development projects;

(d) Formulate useful development indicators;

(e) Formulate policy instruments for attaining objectives;

(f) Gain a perception of the dynamics of space organization programmes on the basis of the distribution of activities and human settlements and the relations between them;

(g) Understand the methods that can be used in managing programmes and projects;

(h) Evaluate the progress of programmes, projects and planning as a whole 2/.

44. In every case physical planning staff at all levels should receive periodic training in the form of research institute seminars. Such courses should be specialized and at the same time geared to the needs identified in the profession. To the extent possible, such seminars should be organized subregionally so that they can at the same time provide a forum for the profitable exchange of experiences.

VI. ORGANIZATION OF TRAINING

45. It is obviously difficult, within the currently prevailing economic situation, to propose a formula that would be satisfactory at all levels. The economic situation of African countries, coupled with the financing required to manage and operate higher educational institutions, make it difficult for countries to support such an institution. Generally, there are three ways in which training could be organized:

(a) National institutions could be created. As has just been indicated, the running of such institutions weighs heavily on the budgets of African States. Existing national institutions are maintained with difficulty. The uncertainty as to the profitability of national institutions used to cover the needs of individual countries should also be noted;

(b) Subregional institutions could be created. This solution has the advantage of being profitable to all countries concerned. The management and operating costs are borne by the countries. The organization of training for staff is better planned. This is a desirable solution if countries happen to respect their commitments in managing the institution and all the more important since many subregional institutions are experiencing serious operating difficulties because States fail to honour their commitments;

(c) Staff could be sent outside Africa for training. This is what has been happening in most African countries to date. Some countries outside Africa provide facilities in the form of bilateral technical assistance programmes, fellowships and so on. This is, first of all, a less expensive option but it has the disadvantage of producing physical planners that have been trained in a social, economic and political environment different from that of Africa;

2/ Some of the ideas presented here have been taken from the United Nations publication on training and research questions in regional development (DP/UN/INT-71-400).

(d) The ECA survey also revealed that most national training institutions in Africa accept students from other African countries. Under the circumstances, even if the host country demands some contribution, it is seldom as much as what would have been required under an inter-State institution. The countries of origin are fairly comfortable with this situation but the host countries might find things difficult when they are obliged to expand infrastructures previously designed to meet national needs. The advantage of this approach is that it might lead to the conversion of the institution into an inter-State facility.

Training facilities and curricula

46. Training facilities and curricula relevant to urban planning and housing in the African region are limited and sometimes non-existant either within the country or at the subregional and/or regional levels. As mentioned earlier, most African nations are still largely dependant upon a few developed countries for the training of the necessary professional and para-professional manpower. However, some attempts have been made in the last decade to develop training programmes at the national, subregional and regional levels within Africa.

47. Training and research institutions based in developed countries such as the United Kingdom, France, Germany, Netherlands, Belgium, United States of America and Canada provide a range of long-, medium- and short-term courses in different aspects of human settlements development for trainees from both Anglo-phone and Franco-phone African countries. Similarly training and research institutions based in other developing countries such as India, Thailand, Mexico, Chile and China have also provided opportunities for trainees from Africa as part of technical and educational co-operation agreements between the different developing countries.

48. Training and research institutions based within Africa, such as in Tanzania, Kenya, Nigeria, Ghana, Togo, Senegal, Algeria, Egypt, Zambia and Angola, have also started offering short- and medium-term training courses and developing research capabilities, including information and documentation facilities. Most of these training programmes are relatively at early stages of development and in some cases are being developed jointly with the developed countries, such as the Institute for Housing Studies (IHS) in Tanzania, which is a joint venture of the Government of Tanzania and the Centre for Housing Studies, Boucentrum of the Netherlands.

49. Training courses, workshops and seminars are also being organized by international organizations such as the United Nations Centre for Human Settlements (UNCHS), the Economic Development Institute (EDI) of the World Bank, and other aid agencies such as the United States Agency for International Development (USAID), the Institute of Planning and Economic Development and the Economic Commission for Africa either at an international level and/or at regional and national levels.

50. Most of the training programmes and courses mentioned above are aimed for professional and para-professional manpower trainig and development. There are limited or no formal on-the-job training programmes for the urban low-income families who are beneficiaries of low-income housing development projects at the local and community levels. However, attempts are being made to promote and implement such training programmes within specific projects, such as the Government of Zimbabwe/ UNCHS Low-income Housing Pilot Projects in Zimbabwe (see Appendix 1.0), the Government of Kenya/USAID Secondary Towns Projects in Kenya, the Government of Zambia/World Bank Squatter Upgrading Projects in Zambia. In addition to these national efforts

several local voluntary organizations (NGO's) have also been involved in on-the-job training, advice and information, such as the Institute for Cultural Affairs in Kenya, International Co-operative Alliance based in Tanzania, ENDA in Senegal and Pan African Institute for Development (PAID) amongst others.

51. From observations of some of the training programmes, including facilities and curricula, being implemented in developed countries and developing countries both with the African region and other regions, it is possible to identify some common issues and trends pertaining to the relevance, adequacy, development, co-operation and duration of programmes. The following is a brief overview scenario of these issues and trends:

(a) Relevance

(i) Very few countries in the region have carried out national training needs surveys, showing the demand and the supply of professional and para-professional manpower in the field of human settlements development;

(ii) Existing courses, both in developed countries and developing countries, are aimed to train high and middle level professionals with limited or no attempt to train the supporting para-professionals and project implementation and management teams;

(iii) Training courses/workshops and on-the-job training of the urban low income families on the housing process in terms of community participation, construction technology, administration and finance are almost non-existant but being carried out in some recent pilot demonstration projects;

(b) Adequacy

(i) Training facilities, in terms of buildings, equipment and transport, trainers as resources persons, finance, etc., within the countries and/or at the sub-regional, regional level, need to be given a higher priority and to be expanded;

(ii) Cost of training in developed countries, even though in most cases supported by fellowships and scholarships, is rapidly increasing and often requires foreign exchange and has resulted in some cases with the under-utilization of the training facilities and courses; and

(iii) On-the-job training through pilot demonstration projects and technical co-operation programmes is extremely limited.

(c) Development

(i) Research and development programmes are not adequately linked and co-ordinated with the training and information programmes at all levels in most countries within the region;

(ii) Re-orientation of trainers and curricula to meet the growing basic needs of the urban low income families in the planning and housing processes is urgently required; and

(iii) Documentation and information dissemination programmes to serve the majority of the people, through mass-media such as radios, TVs, films, newspapers, magazines in local languages and mobile units need to be promoted and expanded.

(d) Co-operation

(i) Co-operation in the area of training urban planners, housing officers and others human settlements personnel within the African countries is at an early stage and needs to be consolidated through subregional and regional programmes;

(ii) Existing subregional organizations and institutions, especially economic co-operation agencies such as SADCC in Southern Africa at the subregional level, the Organization of African Unity (OAU) the Economic Commission for Africa (ECA) at the regional level and the World Bank, USAID, UNCHS, at the international levels, can play a greater role to make effective utilisation of limited resources available for training at the national levels; and

(iii) Co-operation between the institutions in the region and in other developed and developing regions can be increased to train trainers and for the local institutions to eventually become more self-reliant and sufficient.

PART II: TRAINING PROGRAMMES FOR THE PROVISION OF CONSTRUCTION SKILLS 3/

52. It is generally acknowledged that human resources abound in all African countries and yet there is a persistent widening gap between the number of school leavers and those of them gainfully employed. If African countries must make meaningful impact in the development of their economy this situation must be redressed by harnessing their human resources for maximum production.

53. The lack of trained manpower which permits the entire economy has engaged the attention of some governments in recent years. There is a greater realisation that successful implementation of a development plan depends not just on the availability of financial and other capital inputs, but more importantly, on the adequacy of trained manpower, in the various occupations. In fact the experience of most developing countries is that the shortage of skilled and executive manpower could be a crucial constraint in the implementation of development projects.

54. The construction industry, is in a vantage position to lead in the crusade for mobilizing the human resources of each country provided the instruments for achieving this goal is carefully planned and executed. The industry provides the first job contact for the rural migrants to the urban areas. There seems to be no reason why those who show aptitude among them should not be retained into the industry by giving them the necessary training in the available skills. In particular the house building industry alone can offer a lot of employment provided the technology adopted is labour intensive.

55. The Construction Industry of any country straddles the public and private sectors of the economy. This is because most human activities involve a building or structure of one kind or the other. Housing, education, religion, entertainment, sports, agriculture, industry, transport, commerce, governance, etc. in fact all amenities of civilization lay claim on the construction industry.

56. The construction industry is therefore large in size and by its nature attracts very high investment. In addition government - federal, state, local government and parastatals all combined, is the largest customer of the industry, generating capital goods, providing services, etc.

57. The industry provides more than 10 per cent of the formal employment and a good proportion of indirect employment.both within and outside the consuming country. As indicated above, the industry provides the first industrial job experience to migrants from the rural to the urban areas.

58. It contributes considerably to the capital formation and gross domestic product of each country.

3/ KUNLE ADE WAHAB (1983) "Specific Training Programmes for the Provision of construction skills for African Region".

59. In spite of these notable contributions, it is generally believed that, the industry lacks adequate personnel particularly at the skilled operatives level to prosecute the services thrust on it. For example only 67 per cent of the Nigerian Second Development Plan could be realized due essentially to the inadequate capacity of the Nigerian construction industry. It is probable that the situation in other African countries could not be better than the Nigerian experience.

60. To ameliorate the situation and to make the necessary impact, there is a need to boost the training of craftsmen, artisans and supervisory workers in the industry. It is possible that appropriate technologies based on labour intensive operations can have a number of indirect benefits of which the following are the major ones:

- First, it creates a demand for workers in the construction industry, thereby alleviating unemployment; which has become a feature of under-development in the less developing countries.

- Second, it encourages even development throughout the country since construction activities are nationwide.

- Third, apart from the employment generation on the site of construction activities, subsidiary employment are created in other centres sometimes far away from the site such as contractor's yard, suppliers, manufacturers, designers, town planning offices, etc. and even in other countries which supply goods and services used for construction.

- Fourth and not the least, it encourages more saving capacity and higher living standards among the people.

Current training processes

61. As already mentioned, the capacity of the industry in most developing countries cannot cope with the demand thrust into it. Part of the reasons for this can be traced to the current methods of training in construction skills.

A. Training substitutes of formal nature

62. In recent years however, the various governments have established technical colleges and craft schools for training in many skills particularly those for the construction industry. Both admissions and outturns from these training schools are grossly below the requirements of the construction industry. In Nigeria alone the estimated manpower requirements for the Third National Development Plan (1975-1980) was given as shown in the Table below. Not much of these requirements were unfortunately met.

Estimated Manpower Requirement
by Major Occupational Categories

Category/ level	Type of occupational group	Number	%
Senior professional	Civil Engineers, Surveyors, Architects, etc.	12,000	2.8
Intermediate staff	Foremen, Work Supervisors, Technical Assistants	22,000	5.1
Skilled/ semi-skilled	Masons, Carpenters, Electricians, etc.	245,000	56.6
Other workers	Casual labour, etc.	154,000	35.5
Total		433,000	100.0

Source: Third National Plan 1975-1980, Ibid p. 380

Appraisal of current formal craft training

63. Available evidences suggest that although the theoretical content of these programmes may be satisfactory, the implementation particularly the re-orientation of the trainees to be proud in the use of their hands appears to have been grossly overlooked. This has led to the situation where products of these institutions see themselves not as workers directly contributing to production, but as supervisors of others who have not received their kind of training. This view is of course contrary to the scope and intention of their training. Added to this is the fact that workers in most developing countries are not paid according to the efforts they put in their tasks but more on the qualifications they hold. This fact has tended to dissuade many trainees/aspirants from skilled jobs.

64. Besides, many African countries still ignorantly adhere to the practices from their immediate colonial masters when more suitable programmes which have been successfully tested, abound in other countries of the world.

65. The task before the African Region in providing appropriate training programmes for construction skills has assumed an almost unimaginable proportion. Before attempting a solution however, it is necessary to briefly examine the major elements of building particularly those in demand for the provision of human settlements.

B. Major elements of building

66. In discussing major elements of building with respect to the use and demand of human skills, there is a need to identify those elements that are mostly affected by construction skills. In this connection three major elements which have been exhaustively discussed elsewhere are briefly analyzed below.

(a) The foundation

67. The foundation is a very important aspect of building as the clamour is to build on a solid foundation. There is an adage which translates into the fact that "houses built on sand will eventually fall, except those built on solid rock (proper foundation) which will remain for ever". The materials for foundations are many and varied. They include concrete products, solid stones, timber and even clay bricks/blocks. These materials dectate what type of skilled and unskilled workers to produce and assemble them. In most cases experienced concretor, masons/brick/blocklayers and carpenters assisted by labourers are required.

(b) The walls

68. The materials for walls are many. They include Bamboo, Mangrove, Stems of Wood, Corrugated Iron Sheet, Steel Sheeting, Aluminium Sheeting, Plastics, Mud, Wattle and Daub, Mudbrick, Mudblock, Stabilized mud (landcrete), Burnt Bricks (in clay clamp), Fired Bricks (in kiln), Sandcrete Blocks, Concrete Blocks, Concrete Wall, Stone, Timber.

69. The availability of these materials in particular areas affect the ultimate choice of one over the other. In Nigeria for example, the Ijaw and Urhobo use bamboo and mangrove to build their houses, often elevated on stills to prevent flooding. The coastal people (Itshekiri, Isoko, Ilaje, the Kolabari and the Efiks) adopt the wattle and dub in this waterlogged area. In the rainforest, the Yoruba, Edo, Ibiobio and Igbo use mud wall, mud block, burnt bricks, fired bricks and timber as well as its products for their walls. Across the Niger, particularly where the mud is less waterlogged and more plastic, stronger walls using mud are possible including round buildings with minimal risk of collapse.

(c) The roof

70. When the walls have been completed, the roof is the final element to seal the building against rain and other adverse weather conditions. In many rural areas, houses are regarded as complete after the roofing stage and as soon as the openings have been properly completed to prevent the entry of hostile animals and neighbours they move in.

71. The materials for roofing include thatch, which is largely becoming absolete and mud which is still an adopted solution in many parts of northern Nigeria. Others, such as corrugated iron sheet and asbestos cement have become the vogue even in the rural areas in the last two to three decades.

72. The skilled manpower mostly required for roofing are the carpenters except for mud roof which relies on experienced bricklayers.

C. Philosophy of training programmes

73. Having identified the elements of building and the tradesmen generated by each activity, and having noted earlier the paucity of skilled workers available nationwide, as well as inadequacy of the existing training programmes, it now remains to explore a more appropriate system of training of skilled workers required by the construction industry.

74. The training programmes envisaged in this paper have multifarious purposes.

75. First, they may serve the purpose of increasing the productivity of skilled craftsmen who either possess lower level of craftsmenship or are expected to acquire new methodology capable of increasing manifolds their current level of productivity.

76. Second, they may be designed to upgrade the unskilled workers to a particular trade in which they have hitherto engaged. Naturally these group require a shorter period to acquire the required level of skill.

77. Third, and this is generally the case in the developing countries, they may be an instrument for spreading technological knowhow aimed at the rapid development of a particular sector of the economy. In this case, young school leavers are encouraged to specialize in one key trade which is either in short supply or newly required to service a particular technology.

78. Last, but not least, training schemes may be drawn up for those whose existing skills have become obsolete due to technology change, introduction of mechanization or demise of a particular technique, industry or both.

79. Nelson and Jeams [4/] have suggested elsewhere similar objectives as above for such technical programmes as follows:

(a) "They should provide a labour force which can be easily and effectively organized so that operatives are properly trained to undertake the task required of them to permit work to be carried out quickly to an acceptable standard;

(b) They should permit higher productivity to be achieved in different circumstances by employment of either a small number of trades each performing a wide range of skills or a much longer number of highly specialized occupations;

(c) They must provide operatives with a range of satisfying jobs which employ their ranging abilities, provide the possibility of advancement and opportunity to acquire proper training in new techniques as and when necessary;

(d) They must permit training to be provided economically. Each occupation should be such that training, education and industrial experience can be arranged conveniently".

4/ NELSON P. and JEAMS R.E. "Building occupations and training" Building Research Station current paper No. 25, 1968.

D. A suggested training programme for the construction industry

80. So far this paper has highlighted the existing training framework in the construction industry. The excessive duration of the training schemes as well as their inadequacy, and irrelevance have been noted.

81. In this section attempts are made to provide schemes for the special needs of the construction industry particularly as they relate to human settlements development.

(a) The aims of the scheme

82. The following are the specific objectives of the scheme:

(i) to provide the requisite knowledge and applicable skills which a tradesman requires in the performance of his job;

(ii) to intimate the trainee with a wide knowledge of relevant technology and fundamental principles of his own trade and understands the work and problems of related trades to his own;

(iii) to expose the trainee to tools and machinery used in their trades and to guide them in their use and maintenance;

(iv) to help the trainee to develop systematically into responsible and mature tradesmen with an attitude that would enable them to be proud of their jobs; and

v) to enable the trainee to improve his power of deductive reasoning and appreciate the values of further training, to the extent of being invective in order to contribute to the upligtment of the construction capacity of the nation.

83. The trainees for each of the trades should normally possess the equivalent of three years in a comprehensive secondary school corresponding to the first half of secondary education.

84. In exceptional circumstances those who possess the first school leaving certificate particularly those who have learnt a related trades may be admitted.

85. In addition those who have completed recognized apprenticeship may be given crash training in literacy and provided with improvement course to make them equivalent to the next training module and trade test.

(b) Training modules

86. The period of training for each trade is expected to be 72 weeks devoted for both theoretical and workshop experience.

87. It is recommended that this period be divided into three parts each of which representing a module. At the end of the first module, the successful trainee is deemed to have covered sufficient ground to obtain the trade test III certificate after the appropriate industrial exposure.

88. The second and third modules are equivalent to Trade Test II and I respectively including appropriate industrial exposures.

89. The trade skills that are of primary importance to the construction industry include the following:

1. Brick/Blocklaying and Concreting
2. Carpentary and Joinery
3. Painting and Decorating
4. Plumbing
5. Plastering and Tiling
6. Electrical Installation and Wiring
7. Draftsmanship.

90. It is necessary to emphasize however that the implementation of each module should utilize the general objectives as well as specific objectives of the skill being imparted to the trainees. Demonstrations of the skills with adequate tools and machinery as would be used in practice should be entrenched into the programme. In addition, an insight into the working of these tools and machinery should be given to the trainees who should also be conversant with their regular upkeep, routine maintenance and if practicable servicing guides.

91. The period of practical experience following the formal training in the vocational training centres should be undertaken in the workshops or sites etc. of the sponsor's of the trainee. Where a sponsoring firm has no facility or inadequate facility for this essential part of the training arrangements could be made with the assistance of the vocational training centre to place such trainee in any organization deemed to be capable of providing the practical training required.

E. Other supportive programmes

92. The above suggestions on the Vocational Training Programmes, if meticulously implemented should provide adequate skilled manpower for the construction industry. However, there are other supportive programmes which can still provide additional manpower. These are briefly described below.

(a) Apprenticeship scheme

93. The skilled tradesmen which this system traditionally provides a bulk of those available todate in many African countries. It is probable that apprenticeship training would still be with us for some time to come.

94. It is necessary however that the scheme should attract official government support in regulating its operation.

95. The entry requirements for apprenticeship training should be primary six leaving certificate.

(b) In-company training scheme

96. For a fairly large firm, individual training programme can be set up to provide skilled tradesmen in relation to the projected manpower requirements of the firm.

97. It is suggested that the syllabuses adopted by these firms should be modelled in line with those indicated for the trainees at the Vocational Training Centre in the appendix.

98. A group of firms may jointly run training programmes particularly where each of them cannot run viable programmes of its own. The firms so involved would sponsor youngsters to the training school. The syllabuses should also be modelled in line with those suggested for the Vocational Training Centres.

PART III: MEASURES AND PROPOSALS FOR STRENGTHENING TRAINING FACILITIES

I. Policy, planning and promotion

(i) National training policies and programmes should clearly define the priorities for training of different categories of manpower needed at the community, local and national level to facilitate the implementation of human settlements programmes and projects;

(ii) National urban and regional planning strategies should be comprehensive and action oriented with a view to minimize rural to urban migration and related problems;

(iii) Investigations should be carried out to determine the reasons for the failure of the existing training programmes in the field of human settlements at national, subregional and regional levels with a view to monitoring, analyzing and evaluating these courses so as to improve existing programmes and plan new ones;

(iv) Programmes for the development and production of local building materials for low-cost housing using available raw materials should be promoted and supplemented by the necessary training programmes;

(v) National focal points should be established to co-ordinate the activities of the construction industry in general and those of the training institutions in the industry in particular;

(vi) The active participation of the construction industry in training programmes for construction personnel should be promoted and strengthened;

(vii) Finance for the organization of training courses in the field of human settlements should be mobilized from resources at the national, regional and international levels;

(viii) To ensure a multi-disciplinary approach to the solution of human settlements problems, the provision of basic sanitary facilities must be accorded equal weight as other basic needs in the field of human settlements;

(ix) Research should be carried out at the national, subregional and regional levels on appropriate basic sanitary facilities in so far as adaptability and acceptability are concerned. Care should be taken not to adapt low-cost human excreta disposal systems which have not been adequately tested for specific local conditions;

(x) Planners and engineers should not be biased in the selection of particular sanitary facilities. Instead selection should be based on scientific analysis of a combination of economic, social, cultural, environmental, technical and financial factors, and then acceptability by the community;

(xi) Machineries should be set up at national, subregional and regional levels for dissemination of information and experiences on basic sanitary mechanisms including low-cost sanitation mechanisms;

(xii) African Governments should introduce sanitary bye-laws at the local level, where they do not already exist, and ensure their effective administration;

(xiii) ECA should compile and publish a directory of training institutions in the field of human settlements indicating the training and research programmes offered and circulate it among the member States of the Commission.

II. Popular housing and urban planning practice

(i) Urban planning in the African context should give consideration to the improvement of popular housing in urban areas rather than advocating for their demolition and should encourage indigenous concepts that reflect the values and social aspirations of the society;

(ii) Urban planning methodologies, building regulations and building bye-laws inherited from the pre-independance era should be reviewed and updated to suit individual social and cultural needs including those of the urban low-income families;

(iii) Training facilities and mechanisms should be geared to serving the basic needs of the urban low-income families living in popular housing settlements in the primary and intermediate cities and towns in order to effectively mobilize their skills and resources;

(iv) Emphasis should be placed on the organization of relevant and adequate short-term courses, workshops and on-the-job training for the beneficiaries of human settlements projects in urban areas, as well as for the middle level personnel involved in project implementation and management;

(v) Training of urban and rural low-income families should be encouraged through aided self-help and co-operative housing schemes in order to develop affordable housing projects.

III. Professional and para-professional skills

(i) The establishment of African training institutions for personnel in the professional category should be given priority attention. In this connection there is need for the evaluation of training needs at both the national and regional levels;

(ii) Training courses offered by institutions in the field of human settlements should reflect and meet the specific needs of Africa;

(iii) Periods of practical training should be integrated into training programmes and teaching should involve specific practical problems, while drawing a balance between theory and practice;

(iv) Africans who undertake their studies in Europe and elsewhere should be encouraged to choose subjects for their theses which concern problems in their countries or in Africa so that maximum benefit would be derived from their training abroad;

(v) Curricula for the training of urban/regional planners should be reviewed and up-dated with the view of making it problem oriented and accommodate concepts of interdisciplinary planning approach reflecting indigenous socio-cultural values and the up-dated planning and building regulations and bye-laws;

(vi) Training programmes need to be aimed to increase productivity of workers, upgrading of skills, and introduce new skills for technological change in the industry. Some of the major objectives proposed are:

(a) provision of requisite knowledge and applicable skills;

(b) Introduction to appropriate technologies relevant to the specific skills;

(c) Exposure to necessary tools, equipment and machinery; and

(d) Continuous training to develop skills and to enhance job satisfaction.

(vii) Apprenticeship programmes, where they exist in the region should be appraised with a view to upgrading and improving these programmes in terms of adequacy, relevance and duration;

(viii) Training of craftsmen and technicians should emphasize the important role played by them in the industry and for them to provide long-term service to the industry;

(ix) Vocational training centres should be established within each country to train masons/bricklayers, carpenters, painters, plumbers, plasterers, electricians and draftsmen;

(x) Tools and equipment for construction technicians and small-scale builders need to be provided with assistance from the Government.

IV. Regional and international co-operation

(i) Regional and international co-operation in the field of human settlements training is essential and should be promoted by African Governments and the Economic Commission for Africa, for implementation within the region;

(ii) Co-operation through student and teacher exchange programmes and the exchange of research information should be promoted;

(iii) African Governments should establish co-operation arrangements with international agencies and seek their support in the areas of research, training and equipment related to human settlements development;

(iv) Training of trainers for human settlements development should be carried out at the regional level with the collaboration of relevant international and overseas training institutions and to strengthen such collaboration where it presently exists.

BIBLIOGRAPHIE

1. Nations Unies : DP/UN/INT-71-400 "Questions de formation et de recherche en matière de développement régional"

2. UNCHS : E/ECA/HRP/TC/84/5 "L'amélioration de la formation en Afrique pour le développement de l'administration des établissements humains"

3. ECLA : E/CEPAL/SES.20/G.11 "Training in the Field of Human Settlements: Analysis of the Present Situation and Proposals for a Regional Programme of Action"

4. Chana, T.S.: "Training for Integrated Co-operative Human Settlements Development in Kenya", Regional Workshop, Nairobi, Kenya, 1981

5. Chana, T.S.: "Popular Housing, Urban Planning Practice and the relevance of Training Facilities and Curricula in the African Context", 1983

6. Adeyeri, J.B.: "The Role of the Construction Industry in National Economic Development" 14th Annual Conference of the Nigerian Institute of Building at Akure, Ondo State on 27 May 1983

7. Wahab, K.A.: "Apprenticeship Training as a Solution to Manpower Problems in the Construction Industry", 1981

8. Nelson, P. & Jean, R.E.: "Building Occupations and Training"

9. ITAC (International Training Advisory Committee for Building and Construction Industry): First and Second Report 1981 and 1982, Industrial Training Fund

10. Ekundayo, A. Adeyemi: "Education of Architecture: A Call of New Directions", 1983

11. Afele, L.K.: "Organization of Training Programmes for the Provision of Skilled Labour for the Construction Industry of Africa", 1984

12. Afele, L.K.: "Enquête globale sur la formation en matière d'établissements humains en Afrique", 1984.