



**UNITED NATIONS**  
**ECONOMIC AND SOCIAL COUNCIL**

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56295  
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Distr.: GENERAL

E/ECA/PSD.8/24  
8 February 1994

Original : ENGLISH

**ECONOMIC COMMISSION FOR AFRICA**

**Eighth Session of the Joint Conference  
of African Planners, Statisticians and  
Demographers**

**Addis Ababa, 21-26 March 1994**

**DEVELOPMENT INFORMATION MANAGEMENT ISSUES IN AFRICA**

## Summary

1. This paper attempts to address some of the major problems associated with the management of information systems and services in Africa. These problems hamper the smooth management of information systems and services for the development of Africa, and need to be addressed as soon as possible by the African countries.

## Introduction

2. Africa's development planning efforts have for too long been hampered by the lack of reliable basic data and information, numerical as well as non-numerical. For long, many African countries have groped in the dark due to an inadequate information base. "There has been too much of planning without facts and too much of policy making by hunches and intuition"<sup>1</sup>. In regard to the sharing of information, African states have continued to live in a state of isolation from one another; resulting in less knowledge about each other than they know about the countries of the North. Needless to say that the outside world knows more, much more, about Africa than Africans themselves know about each other.
3. While substantial progress has been made in the collection, analysis, storage, retrieval and dissemination of statistical data, very little was done in the field of non-numerical data until the last few years. For economic survival, Africa requires various types of information for development planning and for Science and technology development. Development planning is an activity in which planners and decision makers develop policies, programmes, and projects which are aimed at improving the quality of life of people within any given country. Such an activity involves the identification of options and the strategies for achieving development, as well as the selection of the best option and strategy based on available information. Data and information thus constitute a very important factor in socio-economic development planning exercises.
4. Africa's information needs for socio-economic development planning fall into two broad categories. The first category comprises "socio-economic data/information which are strategic to plan development and execution". The data and information which make up this category consist of those facts and figures about the human, infrastructural, financial, mineral and other resources needed as input for meaningful planning efforts on the one hand, and the political and economic conditions which are critical to planning on the other" (Adeyemi 1988).

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<sup>1</sup>. Adebayo Adedeji. Towards a dynamic African Economy, Selected Speeches and Lectures, 1975-1986. Frank Cass and Co. Ltd., London, 1989. P.561.

5. Another major category of Africa's information and data needs for socio-economic development is in the area of science and technology information. In this respect, it is important to note that the formulation and implementation of projects and programmes designed to guarantee adequate food, shelter, health facilities, education and employment opportunities for the population of any given economy carry a high incidence of the products of science and technology. Africa's information needs in this area comprise the identification of the "Science and technology resources (which can be utilized) for raising African standards of living and for relieving misery in the rural areas", (Adeyemi 1988).

#### THE STATUS OF INFORMATION INFRASTRUCTURE IN AFRICA.

6. Over the past several years, the realization that the organization of information systems and centres could make a substantial contribution to overall development efforts has induced African countries, individually and collectively, to express their desire to strengthen the mechanisms for information gathering, processing and dissemination.
7. The major obstacles to the efficient delivery of information in Africa today include the absence and, in some cases, the ineffectiveness of legislation in this area, the low priority given to (or the exclusion of) information services and programmes in national development perspectives; the scarcity of human, financial, and material resources, and the use of outdated information gathering, processing, storage and dissemination techniques. In addition a serious gap exists in the availability of trained information specialists. The sheer inadequacy of training facilities, the traditional library science approach adopted by most schools of library and information science; the severe shortage of middle level technicians, the low status accorded to information practitioners; and the paucity of training institutions in modern information handling techniques are some of the contributing factors.
8. The emerging advanced information systems and the structural changes taking place in Africa signal the coming of the "information society". These events focus attention on the role which information activities can play in modern economic development and subsequently on the need to create appropriate institutions for the transfer of information. In particular, the dissemination of scientific and technological information is being conceived of as a vital element in promoting the technological change crucial to socio-economic growth. For this reason, advanced systems for information retrieval utilising large scale data bases are being set up in African countries.

9. African countries are now finding themselves in a situation where the importance of information as a resource for technological development must be recognized, but simultaneously with a feeling that the gap with regard to access to such information is constantly widening. On the one hand, this feeling is leading to a new emphasis on support to information activities as a national priority. On the other hand, the urgency of the situation is encouraging decision-makers in developing countries to review the current infrastructure for international as well as national flow of information, with the objective of enhancing this flow of information in mind. Finally, decision-makers in developing countries are being encouraged to consider the introduction of information technology on a large scale, since such technology has become the backbone of modern information retrieval. Ideally, all three actions outlined above would do much to improve the situation of African countries.

#### DEVELOPMENT INFORMATION MANAGEMENT ISSUES IN AFRICA

10. Information and documentation systems and centres in Africa are continuing to grow, and the need for these services to be improved and strengthened is beginning to be felt very much. However, the introduction of further expansion of information and documentation services in Africa is beset by a number of management issues, the most important of which can be summarised as follows:

a) Personnel

11. One of the major stumbling blocks in the effective management of information and documentation services in Africa has been partly a result of the lack of training institutions in Africa. The type of training that has been offered in Africa has been mostly at diploma and certificate level. A study carried out by the Pan African Development Information Systems (PADIS) of the United Nations Economic Commission for Africa in 1988 on the available training facilities for information and documentation personnel in Africa, revealed the following:

- a. Many universities in Africa did not offer library and information studies as part of their curriculum, and those that offered it, put more emphasis on the traditional librarianship and archival studies:
- b. Most universities that offered Library Studies did so only up to diploma level;
- c. Despite the recent trends towards regionalisation, the data obtained showed that most universities were financing their Library Schools from their national budgets.

12. The ECA/PADIS study, particularly in the area of competent manpower for information technology handling and use and the management of information services and systems, provided additional justification of the need to embark on a conscious and sustained effort to develop a corp of skilled manpower for information and documentation work in the region. The need for human resource development in the information sciences at the national and regional level led to the setting up of faculties of Information Science at Moi University in Kenya, at the University of Botswana and elsewhere as well as the regional information science schools at the Universities of Ibadan and Addis Ababa.
13. The shortage of specialized local trained information personnel is a particularly striking obstacle to the rapid development and effectiveness of information and documentation services in Africa. This situation is generally affected by the general absence of systematic plans for organized training of information and documentation personnel, and the rather low status given by governments in Africa to librarianship, documentation and information science. Support is required from African countries in terms of strengthening national information and documentation capabilities.
14. In Africa now, many documentation and information services remain understaffed, and highly dependent on expatriate personnel. Further, local personnel tend to be trained through fellowships granted by external donors which are hardly sufficient to close the gap between supply and demand in the information and documentation area. In addition, such fellowships are in general granted for in-service training only, and seldom for training within Africa.
15. The availability of training programmes for initial higher qualifications or for extending knowledge in the field of information science and documentation is limited. When training exists, it is mainly traditional and oriented towards librarianship at the expense of more modern information science skills, e.g., on-line retrieval, systems management, subject specialisation, etc.
16. Nevertheless, it appears that while the shortage of qualified staff is recognized, lack of funds prevent the governments from giving the required assistance in this area. For example very few schools have been established in Africa to train people in this area at a higher level. In addition, low salaries and poor status prevent the recruitment of enough qualified people. As a result, the possibilities of setting up local basic courses in information science vary from country to country with some countries having an edge over others. In view of such conditions, the regionalisation of training courses seems to be a sensible solution.

17. Recent trends show that the need for well qualified personnel in the information and documentation sector has led many governments into setting up national and regional information and documentation training schools, as cited in paragraph 12.

b) Finance

18. The severely limited financial means of most documentation and information systems and services in Africa is self-evident. The problem is made worse by the exchange control regulations which prevail in many countries and the relatively high cost of journals, books and information services purchased from industrialised countries.

19. Access to international data bases or networks is also proving a very expensive affair. Firstly, the cost of a search-especially interactive searches will usually exceed the economic capabilities of individual researchers. The total cost of such database searches include both access fees of various kinds (e.g. subscription rate, hourly rates, on-line or off-line print) and telecommunication costs, which in the case of most African countries requiring intercontinental linkages are prohibitive.

20. PADIS has launched a project of building capacity and infrastructure in electronic communication for African countries. This project will facilitate electronic communication, thus enhancing inter-African communication in all sectors in the future. The PADISnet project is one of the major attempts to connect computers in Africa electronically. PADISnet provides public online access to the databases maintained on its HP3000 mini-computer. It is anticipated that this project will facilitate full internet connectivity for all African countries, and facilitate African access to international networks and databases.

21. It should, however, not be thought that if financial problem are solved the others will fade into insignificance. Even in some countries with financial means, where spectacular steps have been taken in recent years to advance information and documentation development, there are still organizational and technical problems.

c. Technical

22. The technical problems in Africa are mostly associated with low levels of telecommunications technology, and the phenomenon that many international communications linkages are designed to serve users in industrialized countries. Although quite a few African countries have established one or several linkages with international satellite communications systems, the local telecommunication

systems are frequently fraught with technical problems. The result is that, at best, there will be one communications mode in the country, but the establishment of a decentralized network for access to international communications through this mode is very difficult.

d. Organization

23. Many information centres in Africa are not coordinated from one single point. This uncoordinated piecemeal development of government institutions and frequent reorganization in many African countries has resulted in duplication of effort and dissipation of resources. The "coordination of all services involved in the provision of information" as laid down in UNESCO's National Information System (NATIS) guidelines proves extremely difficult when information dissemination is the task of so many different ministries and departments.

24. In Africa today each country is trying to develop its own information systems, which to some extent is leading to proliferation of uncoordinated and unharmonized information systems. This in the long run will make exchange of information very difficult. Such a situation is curtailing technology transfer and its sustenance with regard to information systems. The problem of compatibility is presently being addressed in Africa by PADIS and UNESCO, among others. PADIS has established a Standing Committee on Harmonization and Standardization of Information and Documentation Systems at Subregional and Regional Institutions in Africa to promote the use of compatible standards for information processing and exchange.

e. Legal

25. Most of the scientific and technological information which is generated in the formal, public research and development systems of industrialized countries is freely available to users in Africa, under specific cost structures. But a significant portion of the information which is potentially interesting to African countries is protected by various kinds of legal provisions. One of the systems which could offer information but under strict conditions regarding propriety is the patent information system. Patents represent a rich source of technical information, but the use of this information is usually circumscribed by the need to enter into a licensing agreement with the owner of the patent.

26. Similarly, the diffusion of information in Africa may be limited by copyright provisions. The problem of copyright has become especially significant lately precisely because of new information technologies; access to photocopying equipment in industrialized countries tends to reduce the economic returns on

commercial publishing with the result that prices on books and periodicals have gone up. The increased cost of printed matter has hit African countries very hard, and local possibilities of extensive photocopying are not within reach at present. Copyright is also having a negative influence on the international flow of information from the view point of African countries in the sense that much of the information which is important and which occasionally originates in Africa itself (e.g. scientific articles, abstracts, data on geological structures etc.), may in fact be issued by various private or public institutions in industrialized countries and subsequently protected by copyright provisions from widespread dissemination in Africa.

f. **Political**

27. Due to the situation where an apparently increasing number of information sources are considered strategically important for national defense or economic interests, this information tends to become increasingly difficult to access from many African countries. One aspect of this trend is that there exists political tension between the superpowers which promotes a more widespread use of secrecy and other means of protecting sensitive data. However, with the end of cold-war this situation is drastically changing.

28. This enlarged realm of protection reaches not only the information directly related to military projects, where the need for secrecy is quite understandable but in addition affects the flow of information which is only marginally related to the defense sector, e.g., the results of research associated with advanced computer systems.

g. **Economic Interests**

29. Economic interests are also a major problem in managing information systems and centres in Africa. There also tend to give rise to protective measures and secrecy. In the case of large transnational firms - which incidentally account for at least one third of the global financial resources for R & D. Most of the information which originates in the research and development firms is naturally considered an economic asset and therefore not publicly disclosed. In the case of countries where most economic activities are controlled by the State, constraints on the flow of information arise primarily on account of the strategic role which nearly all economic activities occupy in the defence systems of these States.

**h. Cultural**

30. It has become increasingly clear that the way in which scientific research and development is conducted in the western industrialized countries and the priorities which are set for research and development in this cultural context may be alienating many African countries. For this reason, the information generated in industrialized countries and becoming available through international channels may only be indirectly relevant for solutions to the problems facing users in African countries. Given differences in educational standards, the information accessible through international information flows can also be difficult to utilize in Africa. A lack of priorities in research concerning the scientific and technological issues which are vital to the African countries (e.g. diarrhoea), and consequently a relative lack of information on these problems in international networks, will seem to display international information systems as of no significance to Africa. PADIS has been set up to ameliorate this information gap between the industrialised countries and the developing countries of Africa.

**i. Information Technology**

31. The most technologically advanced information technologies and systems are being created in the industrialized countries. Developing countries are making efforts to access these information systems and services. In view of the rapid developments in micro-processor technology, even small institutions can now acquire computerized systems at a cost within their reach. The trend set by the establishment of PADIS suggests that computer applications in library and information work will spread rapidly in Africa.
32. These developments have encouraged some sub-Saharan African countries to introduce computer applications in library and information work. However, information technology has been introduced without specifying national developmental and information needs to be achieved by it. This situation has been further complicated by policy and decision makers who have often concentrated on the procurement of hardware only, without consideration of human resources for software development and/or adaptation, hardware maintenance, and compatibility of the procured information technology. Lack of coordination in the selection and procurement of information technology has reduced the possibility of cooperation needed in the development of national information resources and reduced the chances of cooperative efforts to facilitate information exchange.

j. **Extension Services**

33. **Consideration of the large segment of Africa's population which is unable to read or write, especially in the rural areas, makes the role of the extension service in disseminating information vital. Unfortunately, extension services have tended to be organized along sectoral lines, (agriculture, health, industry, commerce, community development, etc.), without due consideration that the end user of the information is often the same. At times such uncoordinated information may be conflicting and confusing to the recipient. Sometimes target groups are not clearly identified so that information is disseminated which is out of context of the requirements of the target group, e.g. information which is applicable to large scale agricultural production is passed on to small scale operators.**
34. **A number of extension agents have not kept up with technological developments and are no longer able to disseminate up-to-date information. These include those recruited with very little education and those nearing retirement age. In many cases, the target group they are intended to serve is more enlightened than themselves. In addition many of them are not aware of government development policies.**
35. **These problems indicate a need on the part of information system managers for careful identification of target groups, their activities, and the type of required information. This would in turn be used in compiling advisory packages and also in briefing specific extension workers involved. Evaluation and feed-back mechanisms should be established in order to assess the success and impact of developmental information disseminated. This would enable policy makers, planners and researchers to correct and modify their approach in order to meet the requirement of the productive sector.**

**Conclusion**

36. **Meaningful socio-economic development and integration of Africa is almost impossible without a sound information base for planning. By far the major obstacle to information infrastructure building in Africa is the inadequacy of financial and material resources available for information activities. Given the predominant role African Governments play in social and economic life, the low priority they attach to information activities is the major cause of prevailing shortcomings. The situation has been exacerbated by austerity measures enacted as a result of the prevailing economic crisis in the continent.**

37. African countries should give priority to policies in areas which have direct bearing on the capacity of countries in Africa to manage information/information systems. Of immediate concern is the promulgation of information/informatics policies to provide guidance in the planning and implementation of information and documentation programmes. Other areas of immediate concern include computer acquisition and use, human resources development and communications. Human resources development in particular should be given priority by training people in the use of information technology and the application of policies. With the development and advances in the application of new technologies for generating and disseminating socio-economic data/information, training in the use of appropriate information technology is becoming very crucial. However, the success in the implementation of the suggested policy guidelines depends significantly on the political will of each country in Africa, as well as of all of them as a collective entity, in pursuit of socio-economic development and integration of Africa.

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