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**OAU CONFERENCE OF AFRICAN
MINISTERS OF HEALTH
Sixth Ordinary Session
17 - 21 October 1999
Cairo, Egypt**

CAMH/18 (VI)

**REHABILITATION AND DEVELOPMENT OF
AFRICAN HEALTH INFRASTRUCTURE**

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Executive Summary

Health For All through Primary Health Care remains the main goal and leading strategy of health development in Africa in the coming years. To achieve this goal, the majority of African countries are reforming their health systems and services to strengthen their capacity to provide equitable access to quality care for all populations and thus to reduce on a sustainable basis the most common causes of morbidity and mortality.

Health infrastructure providing a material framework and a foundation for delivery of health care is a strategic asset of the health system which has a critical impact on health services access, quality, cost-effectiveness, organizational efficiency, clinical efficacy and health outcomes. It consumes a bulk of country health budgets, and African governments are heavily involved in building, equipping, operating and maintaining health facilities. However, in many instances, their potential benefits are not fully utilized. Moreover, growing populations, often unbalanced distribution of existing facilities, rapid development and transfer of technology combined with scarcity of available resources, extremely high infrastructure costs, and bewildering array of choices of equipment and other technologies offered at the market make the challenge facing health sector in most African countries immense.

Realizing that good management of health infrastructure is critically important to the success of health system reform, Ministries of Health in many African countries have embarked on a serious action to develop comprehensive programmes for strengthening their capacity for rational and effective planning, acquisition, management and utilization of infrastructure and technologies. These efforts are being extensively supported by WHO in collaboration with other partners through a variety of activities at country, regional and global levels including advocacy, normative work and direct country support. The major thrust of these efforts is promotion of a regional approach to health infrastructure and technology development in Africa. Individually, few Member States, if any, have the resources and know-how to succeed in this venture. But taken as a whole, Africa has virtually all knowledge, skills and other prerequisites.

Priority interventions outlined in the Regional Strategies proposed this year by the WHO Regional Offices for Africa and Eastern Mediterranean address the development of national infrastructure and technology policies as integral part of health policy, institutionalization of infrastructure and technology planning and management throughout all levels of the health system, comprehensive human resources development, strategic macro technology assessment and operational research, and improved access to information.

A critical point for the success of these initiatives and efforts is the need to promote and create partnerships between governments, NGOs, financial institutions, private sector, industry, bilateral and multilateral agencies, consumer groups and the community, and mobilize effectively all internal and external resources. Even at this time of scarcity, resources for health infrastructure and technology activities are available for well delineated and coordinated programmes, which should be mobilized if rational and effective infrastructure planning, development and management is to become a reality in Africa.

Introduction

Health infrastructure is commonly viewed as a broad umbrella term encompassing health care facilities with their utilities and plant, medical and hospital equipment, and logistic support systems. It is a major strategic asset of health systems which has a critical impact on health services access, quality, cost-effectiveness, organizational efficiency, clinical efficacy and health outcomes. Infrastructure, in fact, provides a material framework and a foundation for delivery of health care. The state of infrastructure is among the prime determinants of the overall health system performance. Unless it is rationally planned, properly designed and constructed, adequately equipped and well maintained, health care delivery is seriously impaired and scarce resources wasted.

Infrastructure development and operation consumes a bulk of country health budgets, and African governments are heavily involved in building, equipping and maintaining health facilities. However, in most instances, potential benefits of available and newly introduced facilities and technologies are not fully utilized. Growing populations, often unbalanced distribution of existing facilities, and rapid development and transfer of technology place health authorities under a heavy political and professional internal pressure and external market pressure to expand infrastructure and import new technologies. Scarcity of available resources and low purchasing power, extremely high infrastructure costs, particularly in poorer countries with low population densities, and bewildering array of choices of equipment and other technologies offered at the market make the challenge facing health sector in most of the African countries immense.

Realizing that good management of health infrastructure is critically important to health system reform being planned and implemented across the continent, Ministries of Health in many African countries are working on this. In the recent years, WHO has been heavily involved in supporting countries in their efforts to strengthen national capacities for better needs assessment, planning, acquisition, management and utilization of infrastructure and technologies. Extensive work of the WHO Regional Offices for Africa and Eastern Mediterranean was focused on analyzing country situations, bringing these issues on the agenda of policy meetings including those of the Regional Committees, developing relevant Regional Policies and Strategies, and producing various tools to facilitate the process at country level. Important contributions were also provided by other pertinent UN agencies, development banks, intergovernmental and nongovernmental organizations and bilateral donors.

This technical paper is based on information collected and other outcomes produced in the course of this work. It draws heavily on reports of the Technical Discussions at the 43rd and 44th Sessions of WHO Regional Committee for Africa on Development of District Health Infrastructure, and Selection and Development of Health Technologies at District Level respectively, at the 44th Session of the Regional Committee for Eastern Mediterranean on Appropriate Health Technology, their subsequent Resolutions AFR/RC44/R15 and EM/RC44/R3, Health Technology Policy in the African Region: Horizon 2010, and Eastern Mediterranean Regional Strategy for Appropriate Health Technology which are to be submitted next September to the 49th Session of the WHO Regional Committee for Africa and the 46th Session of the WHO Regional Committee for the Eastern Mediterranean. Information from

relevant chapters of the World Bank's report on Better Health in Africa and the WHO's Third Evaluation of the Implementation of the Health For All Strategy was also used.

Those reports and resolutions stipulate that inappropriate infrastructure expansion and the rate of technology proliferation outpacing the country capacities to effectively absorb and support it have caused serious imbalances in African health systems. The range of key issues to be urgently addressed are identified by countries and include a wide-spread lack of awareness compounded by insufficient evidence for informed decision-making, lack of clear infrastructure policies and their inconsistency with the overall health policy and development plans, inappropriate planning, selection and acquisition strategies and procedures, inadequate financial resources, particularly for recurrent costs, poor institutional basis for health care technical services, lack of qualified human resources for both managerial and technical responsibilities, and a wide diversity of often inappropriate facilities and equipment obtained from uncoordinated technical assistance programmes. The need for a comprehensive approach to strengthening planning and management of health infrastructure and technology as one of the key reform measures needed to achieve health goals in Africa was called for by Member States and is outlined in those documents.

Situation Analysis

During first years of independence, immense efforts were made in African countries for the development of health infrastructure. For the most part, however, governments have made construction of tertiary and other central inpatient facilities their leading infrastructural priority. Despite countries' commitment to primary health care and remarkable achievements in developing peripheral and first referral level facilities in late 1970s-early 1980s, health infrastructure, often too sophisticated and inappropriate, remains largely concentrated in urban areas. It consumes the bulk of health budgets, sometimes as much as 70 per cent of public health expenditure, to the detriment of rural health services which are understaffed, lack basic medical equipment and are poorly maintained. It provides disproportionate benefits to relatively well-to-do urban households, and undertake activities which can be done more appropriately and for the third of the cost at primary care level.

Poor infrastructure planning is evident in the inappropriate location of health facilities due to the lack of proper needs assessment, and uncoordinated interventions of various stakeholders and community initiatives for facilities expansion. Moreover, increasing tendency to transfer responsibilities for development and operation of facilities to local groups and communities often does not match with their capability of handling this properly, and are not supported by any capacity building efforts. Weakness in project design and execution is another manifestation of poor infrastructure planning. Inadequacy, lack of or non-compliance with norms, a wide range of foreign construction standards and methodologies not adapted to the specific local conditions, lead to oversized facilities, substandard construction, and very high unit costs.

But even where facilities are available, physical proximity to them is only the beginning of effective health care coverage and delivery. A facility which lacks basic equipment or the one available does not function properly has little value. Member States are faced with major problems with their health care equipment stemming from inadequate management - ad hoc

acquisition, poor maintenance practice and operating skills, absence of norms and standards, and inadequate budget provision to finance recurrent costs. A common symptom is the lack of health care equipment, particularly at district level in low income countries. But even where the lack of equipment is not so acute, the major part of the inventory, in some cases as much as 75 per cent, is either unusable or not used at any given time.

In addition to these chronic deficiencies, infrastructure development process stagnated in the past 15 years largely due to the global economic recession. Construction of new facilities came almost to a complete halt, and existing ones dilapidated. At the same time, in every country demands on health care system are increasing while costs are on the rise thus widening the gap between needs and resources. When, in the absence of clear policies, resources for infrastructure and equipment are allocated inefficiently and inequitably, or are poorly used, the delivery of health services is severely impaired, and it is unlikely to get adequate health outcomes. Getting more value for money by strengthening policy, planning, standards, and maintenance becomes imperative.

There is generally no policy for the development of physical infrastructure as an integral part of health policy. Facilities and equipment are seldom planned and acquired through a process of careful assessment of health needs and analysis of the technological options and recurrent cost implications. This is generally done on an ad hoc basis driven by demand or vested interests rather than real need and by current availability of resources rather than a long term vision of the total infrastructure life cycle cost because of the absence of appropriate selection procedures and criteria, and procurement strategies. Health facilities planning does not represent a systematic multidisciplinary sequential process beginning with the evaluation of needs and concluding with space design for specific functions and activities. In the majority of countries, health care technical services are not an integral part of the health care system nor is a planned preventive maintenance practice for buildings, physical plant, hospital and medical equipment.

A serious problem is the lack of qualified infrastructure planning, management and maintenance personnel in the public sector. As a consequence of the absence of a comprehensive health infrastructure policy, human resources development programmes, where they exist, do not take into account the whole range of required staff for identified current and future needs. Moreover, unattractive career schemes, uncondusive working environment and lack of incentives lead to a high brain drain of technical staff to the private sector or even out of the health system as such. Training, more often than not, involves ad hoc haphazard interventions rather than a well planned skill and career development programmes. The lack of managerial and technical expertise also includes a poor infrastructure planning, technology assessment and equipment management knowledge base among decision makers and health workers at large, as well as a lack of practical know-how on proper technology operation among its users.

Health infrastructure and technology management deals, in large part, with making choices from among a range of alternatives. This requires focused and up-to-date information. Lack of reliable data and evidence-based information is a major impediment to the formulation of clear policies, and the establishment of functional mechanisms for the rational planning, selection, acquisition and management of infrastructure and equipment at central, provincial and district levels. Although information on health infrastructure should be integrated into existing or

planned Health Management Information Systems, this is seldom the case, and when this is done it is often not in a standardized form or is not updated.

At the same time, albeit these chronic and difficult-to-cure problems compounded by more general challenges posed by the overall socio-economic and political environment impinging on sustainability of infrastructure and equipment, many African countries have embarked on a serious action to remedy the situation. Now, governments across Africa not only acknowledge the problem like it used to be several years ago but demonstrate a growing awareness of measures to be taken and strong commitment to develop comprehensive programmes for improving planning, acquisition and utilization of infrastructure and technology. These efforts are being supported by a more coordinated than ever before international assistance from a variety of organizations. WHO is playing a leading role in these developments by ensuring effective advocacy, normative functions and direct country support from the regional as well as global levels.

Required Priority Interventions

At country level, it is necessary to embark upon advocacy vis à vis policy makers and health officials to further strengthen political will to include health infrastructure in the list of national policy priorities, and to identify and mobilize institutional partners so as to benefit from their support. This political will should lead to the establishment of appropriate mechanisms and tools for the development, implementation, monitoring and evaluation of health infrastructure and technology policy as part and parcel of the overall health policy.

All countries need to have an explicit policy on health infrastructure and technology spreading throughout all levels of a national health system. It should be consistent with country's needs, priorities and resources, and targeted to the solution of health problems of the population. It should cover and integrate needs assessment and planning procedures, selection and procurement strategies, regulations, norms and standards on quality, safety and efficiency, adequate budget and infrastructure provision for maintenance and repair, manpower development process, information support system and many other factors.

Adequate structures should be created and capacities developed for institutionalized infrastructure planning and management. Within countries, this institutionalized health care technical service should cover all levels of the health system starting from a strong decision-making department at a central level and extending as a referral-based network down to district level.

An objective situation analysis of infrastructure, equipment, and related support systems, structures and procedures is an essential step in the development and implementation of such a policy. A national expert committee should be in charge of this, assisted, if necessary, by external support. The situation analysis should lead to recommendations that take into account the epidemiological profile, and the available human, material and financial resources of the country.

Norms and standards for infrastructure, equipment and procedures are a necessity and should

be in accordance with reform approaches for a rational use of resources. At country level, it will be advisable to establish mechanisms for identifying resources and types of infrastructure and equipment needed at each level of the health system; develop norms and quality standards applicable to both the public and private sectors; prepare a timeframe and identify support needed to achieve those standards taking into account the current situation and resources available.

The situation should be changed when only construction or purchasing cost of infrastructure and equipment, which is just the small portion of their total life-cycle costs, are taken into account by those involved in planning, selection and procurement. Recurrent cost implications should be fully appreciated, and adequate budget provision ensured for facilities and equipment operation, maintenance, spare parts, training, etc. Certain budgetary allocation and utilization procedures need to be decentralized, and cost recovery mechanisms considered to partly finance maintenance service at facility level. Cost-effective allocations of financial resources for equipment maintenance tend to be those that give priority to in-house service for routine planned preventive and simple corrective maintenance rather than contracting out, and for infrastructure development to rehabilitation over new investment and to health centres and district hospitals instead of tertiary facilities.

Measures should be taken to improve the collection, analysis and use of information on infrastructure and equipment to ensure evidence-based decision-making and effective management. This should include profiles and maps indicating existing and operational health institutions, available personnel, epidemiological data, and equipment locations. Procedures for facilities technical audit should be developed; services for the collection, processing and dissemination of data and information should be strengthened; management of information should be decentralized to the peripheral level for planning and monitoring purposes, and information should flow in both directions - from the periphery to the centre and vice-versa as well as adequately used at all levels of the system; information on health infrastructure and equipment including information on norms and standards should be integrated into National Health Management Information Systems.

One major thrust is to obtain a critical mass of personnel trained in the different areas of health infrastructure planning and management. Particular attention should be given to training of personnel in facilities planning, and management, maintenance and repair of equipment, as well as for users of equipment in order to improve safety and to reduce breakdowns. Capacity-building in technology assessment also needs priority attention. To strengthen personnel management and facilitate retention of staff, a special effort should be made to offer attractive career prospects to personnel involved in planning, management and maintenance of infrastructure and technology, and to integrate trained health technology and infrastructure personnel into health management at all levels of the system. The identification and strengthening of centres of excellence, a rational fellowships programme and the establishment of training programmes adapted to the regional context should support country actions.

Operational research on infrastructure and technology is part of health system research. Technology assessment should emphasize macro strategic assessments, be linked more with quality and effectiveness than cost containment, be perceived as an essential component of the policy-making process and regulatory role of the Ministries of Health, and be an important field

of regional and international technical cooperation. Each country should identify its own needs and priorities in the area of health technology assessment and operational research, as well as the way of organizing the activity that is most appropriate to its characteristics and strategies for development and health sector reform.

To facilitate communication among health care technical services and ensure adequate information support, networks should be created at national and regional levels using modern communication technologies.

At country level, for developing and implementing health infrastructure policy and plan, a multisectoral approach should be adopted, which brings together all institutional partners concerned in both the public and private sectors - lawmakers, health officials and administrators, architects, engineers, managers of infrastructure and equipment, medical profession, academia, and the community.

There is need to monitor and evaluate the implementation of infrastructure policy and strategy in countries. A national advisory committee, representing the institutional partners should assist the Ministry of Health in regular monitoring and evaluation of the implementation of the process, using well defined indicators, and when necessary, propose adjustments.

Successful implementation of infrastructure policy and strategy depends, among others, on long-term political commitment, establishment of real conditions for ownership of the process within the countries, continued availability of a critical mass of trained management and technical personnel, effective resource mobilization and adequate budget provision.

An enabling environment includes the commitment of Member States and other partners to include health infrastructure as a priority and an integral component into health sector development, based on clear understanding of its central role in improving the health status of the population.

Conclusion

Africa is approaching the 21st century with a cumulative epidemiological disease burden, made up of a continued heavy communicable diseases burden and emerging non-communicable diseases burden. In this context, rational planning and effective utilization of infrastructure and technology to improve equity of access and quality of care needs to be strengthened. To address all the persistent and emerging challenges, there is a need for effective and rational mobilization of all resources and partnerships available at country and regional levels. The development and implementation of a comprehensive health infrastructure and technology policies and plans consistent with the overall health policy is critical, if not decisive, to improve access, quality and sustainability of health care service delivery while ensuring rational use of resources and reducing dependence.

There is a need to change approaches to infrastructure policy and decision making so that, rather than taking action in reaction to pressures, lobbies and emergencies, more rational and sustainable approaches based on objective evidence are used. Improved overall governance

including better accountability of managers, and greater openness and transparency in allocation and use of resources is also the important prerequisite of success.

Partnerships involving *inter alia* government bodies, NGOs, consumers groups, private sector, and industry are of increasing importance to enhance progress. Governments have a pivotal role to play in creating an enabling environment. This includes rational and evidence-based policy making, putting regulatory systems in place, correct fiscal controls, monitoring use and quality, promoting human resource development, and directing research.

The need for a regional approach is underscored for health infrastructure and technology development in Africa. Individually, few Member States, if any, have the resources and know-how to succeed in this venture. But taken as a whole, Africa has virtually all the knowledge, skills and other prerequisites. The African regional health infrastructure policy and implementation strategy should be developed to contribute to the achievement of the regional health objectives by optimizing planning, acquisition, management and use of country infrastructure and technology resources. As called for by the Harare Declaration on Health Care Technology in Africa: Vision 2020 adopted in April 1998 by the First Regional Conference on Health Care Technology, a continent-wide Health Technology Promotion Alliance should be established to support these processes, and WHO should take the lead in this process.

The following principles should guide both national and international action in order to ensure the effective development and implementation of such policy and strategy: (i) to give health infrastructure and technology a high priority as a strategic essential component of the comprehensive development of health systems and assuring improved equitable access of the population to affordable and sustainable quality care; (ii) to plan the introduction of infrastructure and technology, and organize properly their management taking into account the needs and aspirations of the population, the environment and its trends, and available resources; (iii) to systematically give preference to technological options which, for the same life-cycle cost, have proved their effectiveness in the region and other similar situations.

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