Health Care Technology Policy

His Majesty's Government
Ministry of Health & Population
Nepal

Kathmandu, 2006

Year of Printing: March 2006

Information concerning this document can be obtained from;

Ministry of Health
Ramshah Path
Kathmandu
Nepal
Phone: 01-4223580

This document is published with financial support from the GTZ-Health Sector Support Programme.

Printed at: Format Printing Press Pvt. Ltd.

Unofficial Translation

2062/07/29

FOREWORD

With the aim of providing access to quality health services to all in the country, the Ministry of Health and Population has given priority to preparing and reviewing relevant health policies and guidelines as and when they are necessary.

In this context, realizing the need for a Health Care Technology Policy (HCTP) as utmost important to implement the health services in an effective way, the Ministry of Health and Population submitted a policy document to the cabinet for its approval. The policy was approved on 2060/11/11. The Health Care Technology Policy was felt necessary as there was a growing confusion and discord among users over the proper choice of health infrastructures (Buildings & Equipments) for an overall use of Healthcare Technology.

This Health Care Technology Policy in general will remain as a guideline for operation and utilization of Health Care Technologies. I believe that on the basis of this policy, it will lead to formulate further policies, guidelines and work plans that will be required for Physical Assets Management in health care services. I am also fully convinced that it will be given a full support and be implemented by all stakeholders in health sector.

I would like to thank all governmental, non-governmental and international agencies and especially, GTZ- Health Sector Support Programme for their cooperation in preparing this policy document. Lastly, I hope that all who are involved in the health sector will extend their cooperation and coordination for the effective utilization and implementation of this policy.

Ramchandra Man Singh
Secretary
Ministry of Health and Population

2062/06/3

PREFACE

There is a need for a national policy to promote and regulate appropriate technology, equipment, buildings, supportive services, and other physical assets for health services. Such a policy should improve procurement procedures and the utilization of services, and be both cost-effective and accessible to the whole population. In this context, HMG, Ministry of Health and Population approved a Health Care Technology Policy on 2060/11/11 and has brought the policy into action. The policy was developed in line with the basic principles of the World Health Organization and was adopted in accordance to our national need.

The Health Care Technology Policy has made an attempt to formulate policy guidelines on physical infrastructure, which are essential to provide health services to the public. In considering the ever changing nature of health technology the policy makes provision for the updating and changing of content. In recent years, the diversification and modernization of health technologies, drugs, equipments and buildings and other supportive services, have taken place. For developing countries such as Nepal the main challenges lie in the proper management, repair & maintenance, renovation and rehabilitation of varied equipment and buildings. In tackling these problems in an effective way it is imperative to have the implementation of Health Care Technology Policy.

This policy has taken into account almost all infrastructures in the health sector. Based on this policy, all other policies, guidelines and work plans such as repair and maintenance, development of a standard list of essential equipment, medical waste management, infection prevention, standardization in the construction of health facilities can be formulated and implemented. This policy also acknowledges the importance and necessity of private sector, NGOs, INGOs and multilateral organizations in physical assets management including repair and maintenance. To attain the goal as envisioned by National Health Policy the co-operation and concerted efforts of all the stakeholders is needed to implement the Health Care Technology Policy. I have every belief that the Health Care Technology Policy will help to achieve this goal.

I express my commitment that the HMG, MOHP/DHS is fully prepared to implement and formulate further policies, guidelines and work plans that might be required to support this programme in future. I thank the GTZ- Health Sector Support Programme for their technical and financial support in drafting this policy. Lastly, I believe that all national international and private sectors who are involved in the health sector will extend their cooperation and coordination for the successful implementation of this policy.

Dr. Bishnu Prasad Pandit
Director General
Department of Health Services

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Abbreviations

DDC	District Development Committee
DHS	Department of Health Services
EHCTP	Essential Health Care Technology Package
GOs	Governmental Organisations
GTZ	German Technical Cooperation
HCT	Health Care Technology
HRD	Human Resource Development
LMD	Logistics Management Division
MoH	Ministry of Health
NGOs	Non Governmental Organisations
PAM	Physical Assets Management
WHO	World Health Organisation

1. Introduction

Three meetings were held in 2000 to discuss the framework for the National Health Care Technology Policy (HCT). The first draft was formulated based on a WHO policy paper developed in South Africa[1] and Geneva[2]. During the fourth meeting on February 2001 it was decided to invite more stakeholders under the Ministry of Health and Population in order to receive their feedback on the document and to make it as comprehensive as possible and adapt it to the Nepalese context. The private sector was also invited to participate in the meeting. World Health Organisation (WHO) and GTZ-Physical Assets Management Project (PAMP) were invited as participants throughout the process. The fifth meeting of the steering committee held on April 5, 2001, with minor suggestions agreed to proceed for its final approval.

The main objectives of these meetings were to reach a consensus among all the professional staff involved in order to achieve a positive and prior acceptance of the document from the key representatives of HMG/Ministry of Health and Population.

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[1] SA HCT Policy, 1999, Dr Peter Heimann, Deputy Director Medical Research Council, Tygerberg, S. Africa

[2] Dr. Andrei Issakov, Team Co-ordinator FSP/OHS, WHO Geneva

2. Background

Currently Nepal's health system is burdened with a high mortality rate for infants and women and the epidemiological data in general is not satisfactory. The availability of health services is not well developed especially in remote areas and the substantial lack of qualified staff further aggravates an already stressed and over burdened situation. Hospitals at all levels are faced with huge demands in terms of curative care; however, they lack necessary resources to comply with these increasing demands. In this situation efficient use of all available resources is both vital and crucial in order that an effective response is made available within the healthcare system.

Health Care Technology (HCT) includes (i) medical devices, (ii) supportive systems in the delivery of healthcare, (iii) utilities and (iv) infrastructures (annex -1). The successful use of appropriate technology as an important asset for the successful delivery of healthcare services must include the development of an organisational and management system. Investments in medical equipment continue to rise tremendously due to the demands made by the increased needs of the population. An appropriate equipment / facility management system is essential to increase the return on such investments.

The HCT policy helps to improve the overall system and the HCT life cycle in the areas of planning, procurement and implementation of equipment. The document provides a logical framework to assist national stakeholders to use HCT in the most effective and economical way. Furthermore, it improves the quality of services and paves the way for appropriate human resource development (HRD) and management with guidelines and regulations, which promote standardisation and safety of health facilities and equipment. Supportive systems such as the supply of consumables & working facilities, safety management, energy supply and waste disposal can also be approached in a more structured way.

Though HCT includes quite a number of areas within the health service, this document will basically deal with medical equipments.

3. Situation Analysis

The situation with regard to Health Care Technology can be described as far from satisfactory due to the inefficient use of equipment and facilities leading to rising costs in an already over burdened budget situation. Need assessment is not well structured thus no proper planning is undertaken. Due to the absence of data on equipment within the public health system, procurements are often made in an unscientific and ad-hoc manner resulting in the import of wide variety of equipments. Studies carried out in 8 hospitals under the MoH presented a glaring example of equipment diversity. Seven different models of centrifuges, six models of x-ray machines, suction machines and oxygen concentrators were found in use in these hospitals. Likewise, other medical equipments such as infant incubators, water baths, steam sterilizers, and ECG machines were also found to be of different makes and models (Annex-2). It was also observed that expensive equipment like audiometers, mobile x-ray machines were not installed and commissioned even after more than 2 years of their receipt at the facilities. This naturally affects in an adverse manner any attempt for their maintenance and management including human resource development, development of inventory systems for spares and consumables, etc.

The division responsible for HCT management viz., Logistics Management Division (LMD) under the Department of Health Services (DHS) lacks the expertise to adequately plan, procure and commission equipment. Substantial delays (frequently involving months) occur from the time requests are submitted and actions taken for new equipment or maintenance and repair activities by regional and district facilities. Many of the drawbacks can be attributed to the improper storage and manipulation of sensitive equipment due to (i) high rotation of qualified staff between facilities, (ii) lack of competent personnel to operate devices, (iii) in-adaptable equipment delivered for the purpose originally planned and (iv) a heavily centralised administration, (v) lack of clear legislative and policy strategy.

The quality of equipment is often not in compliance with international safety standards or the quality is so poor that the equipment is often found to be out of order. Furthermore, hazardous dangers (especially in rural and remote areas) are apparent, however, statistics in this area are not yet available. In addition, maintenance and repair (M&R) facilities wherever available at national and regional level, are not utilised as needed. The lack of systematic management, clear job descriptions and properly qualified staff are to be found at all levels.

At the District Health Office and hospital levels, there has been little awareness or understanding developed about M&R. The current attitude both within and outside of the hospital environment depicts a trend of preference for procuring new equipment through the various channels instead of increasing capacities of current equipment with appropriate M&R services. At the national level also, the management of in-house workshops does not really exist and the lack of proper guidance has led to a form of anarchical behaviour amongst the staff. Economical issues are not discussed and the number of obsolete equipment and utilities is on the rise due not only to the age of the equipment itself but also due to its misuse and poor or inexistent preventive and corrective maintenance. A sample survey of various levels of hospitals carried out in 1999 depicts the current status of medical equipment in these hospitals. In three of the divisions (laboratory, x-ray and CSSD) surveyed at Bir Hospital at the central level, upto 75 percent of the equipment need urgent intervention, while only 10 percent of the equipment was fully functional (Annex-3). At the regional and zonal levels, an average of 39 percent of the equipment is functional while 47 percent need maintenance intervention. The rest are either obsolete or need urgent repair (Annex-4). At the district level, 39 percent of the equipment are in a functioning condition while the same percentage of equipment needs intervention. Meanwhile 11 percent are in need of urgent repair and 10 percent equipment are obsolete (Annex-5). Furthermore, none of these hospitals has an appropriate maintenance

management system available and no record can be found to evaluate the cost/benefit of in-house services.

Frequently, outside services are solicited to repair equipment due to the lack of in-house competence. The dependence on such services, even for minor interventions means that hospitals or facilities can be greatly over-charged. Allocation of budget for repair and maintenance has constantly hovered around one percent of the overall health budget while WHO recommends that a minimum of 3-5 percent of the health budget should be allocated for equipment maintenance. There is a lack of sensitisation on the high costs involved in purchasing equipment that is then left unused, and it further highlights the poor level of equipment management that exists in these facilities.

Furthermore, the overlapping of the various divisions involved in the issues of health care technology life cycle management hinders the improvement of the current situation. This has consequences both at the national and the lower levels. The risk management issues involved in the utilisation of equipment must be discussed and the lack of supportive systems i.e. power, waste disposal, working materials etc. which are essential but not yet established at this time needs to be addressed. Moreover, the lack of technical competence cannot be ignored. It is estimated that 60-70% of the equipment and utility breakdown is due to the mishandling of the operators.

A key factor to improve this situation is the formulation and implementation of a sound policy backed by appropriate strategy followed by a series of continuous programs.

4. Objectives

The Objectives of the Health Care Technology Policy are to:

- Promote and regulate appropriate technologies and establish supportive systems within the Kingdom.
- Improve policy planning and procurement procedures for medical devices, utilities and facilities.
- Ensure conditions for appropriate human resource development.
- Improve outcomes of utilisation of equipment and related services.
- Promote economical use of HCT and thereby increase returns on investments.
- Promote good clinical practices including safety aspects and risk management.

5. National HCT Policy

To meet the above objectives following policies will be framed and adopted:

5.1 Appropriate and sustainable organisational structures at all levels of the health system will be established and adequately supported to support health care technology.

5.2 Rational, informed and appropriate strategic planning, macro- and/or micro-assessment of healthcare technologies and their management will be introduced taking into account the general situation of the resources available, system constraints and technology transfer issues.

5.3 Proper and effective selection, procurement and commissioning of healthcare technologies with due consideration to the cost-of-ownership issues, human resource and infrastructural requirements as well as organisational capabilities will be actively encouraged and supported.

5.4 Assets will be utilised effectively and equitably with due consideration to life-cycle costing issues as well as safety net to the poor people.

5.5 Availability of healthcare technology resources will be optimised within the given economic constraints, but adequate stress will be given to ensure sufficient budgetary allocations for technology management and maintenance activities.

5.6 The country's total health care technology resources will be utilised to their fullest capacity through a mutually beneficial arrangement between the public and private sectors.

5.7 Existing legislations, regulations and incentives will be consolidated and new instruments developed where required, to ensure proper acquisition including procurement and commissioning, safe and effective utilisation of healthcare technologies.

5.8 Research leading to improved implementation, monitoring and evaluation of healthcare technology policy and improved management system will be conducted. National self-reliance in identified areas of health technology will be promoted. Appropriate incentives will be provided to encourage the use of indigenous technology for health care.

5.9 An integrated system for appropriate and effective data collection, storage and analysis as well as dissemination of information and knowledge in support of healthcare technology and physical assets will be developed and maintained.

5.10 The Government will recognise and promote the important role of stakeholders including those of the development partners, technical agencies, private sector and NGOs.

5.11 Healthcare Technology Policy will be integrated into other national policies to establish mechanisms for monitoring and evaluation of the performance of healthcare technologies. Strong regulatory mechanisms will be established to ensure the effective implementation of the HCT policies.

6. Strategies

To implement the above policies, following strategies will be adopted:

6.1 Needs assessment, acquisition and utilisation of technology

1.1.1 Essential Health Care Technology Package (EHCTP) will be identified, developed and implemented.

6.1.1.1 Essential Equipment List will be updated and implemented according to the level of health facilities.

6.1.2 Standardisation and harmonisation of HCT will be developed and improved considering high tech, low tech and indigenous technologies.

6.1.3 Systems for inspection and certification will be institutionalised.

6.1.4 Responsibility of supplier/buyer will be extended up to the commissioning of equipment.

6.1.5 Assessment, evaluation and selection of equipment will be based on scientific, technical, human capability, economic criteria and National Health Policy.

6.1.6 Importation of major equipment (MRI, CT Scan, etc.) will be limited within the defined criteria.

6.1.7 Due consideration for cost of ownership issues, human resource and infrastructural requirements, organisational capacity at facility level will be given for selection, procurement and commissioning.

6.1.8 National guidelines for evaluation of HCT will be developed, implemented and strengthened.

6.1.9 When accepting donations, only those meeting the national criteria will be accepted.

6.1.10 Appropriate performance indicators will be developed and implemented to monitor utilisation of the equipment. This will be linked with the performance evaluation of the concerned technicians.

6.1.11 Life cycle cost criteria will be considered in planning, procurement and utilisation of HCT.

6.2 Assets Management

6.2.1 User friendly guidelines and protocols will be developed for the better management of physical assets (building, equipment and utilities)

6.2.2 National HCT maintenance strategy/guidelines will be developed and implemented to improve the status of health facilities.

6.2.3 An inventory system of physical assets (nomenclature and codification) will be developed and implemented.

6.2.4 Practical criteria will be developed for decommissioning of redundant technologies as well as unusable equipment.

6.2.5 Annual financing plans and programs will be formulated and implemented.

6.3 Institutional Management

6.3.1 At the MoH level a multi-sectoral (GOs, NGOs, private sector) advisory committee will be set up to advice on policy updates, strategy development, co-ordination and priority setting of HCT. The body will be headed by the Secretary of MoH (Annex-7).

6.3.2 At the Department of Health Services (DHS) level, a separate unit, as required, will be established with a core group of people working in the area of HCT. This unit will be responsible for planning, programming, budgeting and monitoring of the activities.

6.3.3 A referral system for M&R will be developed and appropriate maintenance and repair workshops will be established in a cost-effective way within the Kingdom.

6.4 Human Resource Management

6.4.1 DHS will make HCT issues a part of its regular training program.

6.4.2 The Government will give top priority to mobilise internal as well as external resources to produce clinical and bio-medical engineers and technicians according to needs.

6.4.3 Adequate provisions will be made for rational management of technical services personnel and their continuing education will be encouraged in order to promote professional efficiency.

6.4.4 Appropriate incentives including career development will be developed and implemented to motivate and retain such technical human resources.

6.4.5 Emphasis will be given for reasonable distribution of persons with such skills to work in the remote and the rural areas.

6.5 Risk and Safety Management

6.5.1 Policy on safe waste disposal of the hospitals will be developed and implemented.

6.5.2 In order to ensure safer working conditions for health professionals and other groups of people (patients and visitors), appropriate procedures and guidelines will be developed, updated, implemented and monitored.

6.5.3 Appropriate safety aspects including radiation and electrical safety measures will be carefully included in the guidelines.

6.6 Financial Management

6.6.1 In order to improve the national budget for M&R, at least 3 percent and 1 percent of initial investment will be allocated in annual health budget for equipment and physical facilities, respectively.

6.6.2 Wherever necessary external resources will be utilised for M&R including development of a concept of basket funding.

6.6.3 Principles of cost recovery mechanisms along with covering cost of replacements and technological up-gradation will be developed and applied.

6.6.4 Local (elected) bodies will be encouraged to allocate a certain portion of their budget for M&R to improve the quality of health services.

6.6.5 A fixed percentage of the total revenue generated by the individual institutions will be allocated for M&R.

6.7 Public-Private Partnership

6.7.1 MoH will enter into partnership with the non-governmental sector with a view to building capacity within the health sector. Basically the area of partnership will include:

- Training related to equipment management
- Cross utilisation and sharing of knowledge
- Out sourcing of services, acquisition and management of equipment
- Leasing/rent with an option to own
- Pay as per use
- Quality assurance programs
- Alternative financing methods

While developing such partnership, proper attention will be given to equity.

6.7.2 Government as well as private institutions will not duplicate the equipment/services where the other sector has proved its competency considering the equity factor.

6.7.3 Appropriate policy incentives will be designed to encourage government, private institutions and NGOs to use indigenous technology.

6.8 Information and Knowledge System (Advocacy)

6.8.1 Efficient and appropriate MIS database (data bank) of HCT will be established, updated and utilised. Environment will be created for data based decision making process.

6.8.2 Information on common "state-of-the arts" for equipment/utilities and "good practice" experiences in use of HCT will be disseminated at all levels concerned.

6.8.3 Appropriate program of advocacy to sensitise politicians, health system planners and decision-makers and health workers at all levels of the health system will be developed and operationalised.

6.8.4 Appropriate data based monitoring and supervision tools will be developed for their cost-effective use as well as to address the incentive issues.

6.9 Legislation

6.9.1 A separate by-law within the present legislative system will be developed for timely procurement of appropriate health care technology.

6.9.2 Strong regulatory mechanisms as well as policy guidelines will be developed for waste management, safety regulations, etc.

6.10 Role of different stakeholders

6.10.1 MoH will invite potential stakeholders (clinicians, researchers, professional groups, and trade and industry people) to participate in the discussion on major HCT issues.

6.10.2 Entire national plans in the area of health, technology, economics and trade will be considered and a proper interface among all government departments and other organisations (whose policies impact on the nation's health) will be considered while making any major decision on HCT.

6.10.3 For the area of needed capacity building, distribution guidelines, setting up of proper information systems and acquisition including procurement, collaboration and co-operation will be explored with the WHO member countries and other international organisations.

6.11 Monitoring and Evaluation

6.11.1 Appropriate supervision and monitoring tools and utilisation system for M&R issues will be developed and institutionalised.

6.12 Decentralisation

6.12.1 Appropriate authority with responsibility will be delegated to the working level for better management of health care technology.

6.12.2 Maintenance and repair budget will be decentralised to the working level of health institutions using the equipment.

6.12.3 Capacity of DDC, Hospital Boards and Co-ordination Committees will be strengthened to ensure better utilisation of HCT.

6.13 Equity and Gender

6.13.1 Access to HCT will be ensured for the whole population irrespective of gender, ethnicity, income level and geographical variations.

6.13.2 Attention will be given to the proper distribution of health care technology in the remote and rural areas of the country as well as to access of poor people to the health care technology.

7 Review of Policy and Strategies

This policy will be reviewed at 5 year intervals.

DEFINITIONS

HEALTH CARE TECHNOLOGY (WHO Definition):

HCT includes drugs devices, medical and surgical procedures, the knowledge associated with these in the prevention, diagnosis and treatment of diseases as well as in rehabilitation, and the organisational and supportive systems (buildings, utilities) within which care is provided.

APPROPRIATE TECHNOLOGY (WHO Statement):

"Technologies which are scientifically valid, socially acceptable and universally available to all individuals and families of the community at a cost that the community and the country can afford at all stages of the country's development for the implementation of primary health care".

INVENTORY[3]:

A listing of hospital devices that includes (as a minimum), a Device Identification Number, Manufacturer, Model, Serial Number, Description, Acquisition Date, Cost and Location. The Inventory should include ALL devices regardless of source, whether acquired by direct purchase, through the LMD or through a NGO.

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[3] Bob Morrist, Oregon, USA

An Inventory is a dynamic document, it must be continually maintained and updated as new equipment enters the system, is moved or is de-commissioned. Preventive Maintenance and Repair history is linked to the inventory through the Device Identification Number.

MAINTENANCE:

A system of ensuring the continuance of proper functioning and operation of Hospital devices through a combination of "Scheduled" or "Preventive" Maintenance and "Repair" or "Corrective" Maintenance, it requires a system of records and procedures to allow scheduling and performing of Preventive Maintenance. It is a necessary condition that trained human resources, space and test equipment are available.

PREVENTIVE MAINTENANCE:

Maintenance that is performed on a scheduled basis to prevent a predictable failure. It includes changing of wear and tear parts on a regular base. An example would be changing or cleaning the filter on an Oxygen Concentrator every nine months.

REPAIR:

The return to proper function of a non-functioning or partially functioning device. It includes the replacement of parts or elements of it if required. It is also called "Corrective Maintenance" or "Unscheduled Maintenance".

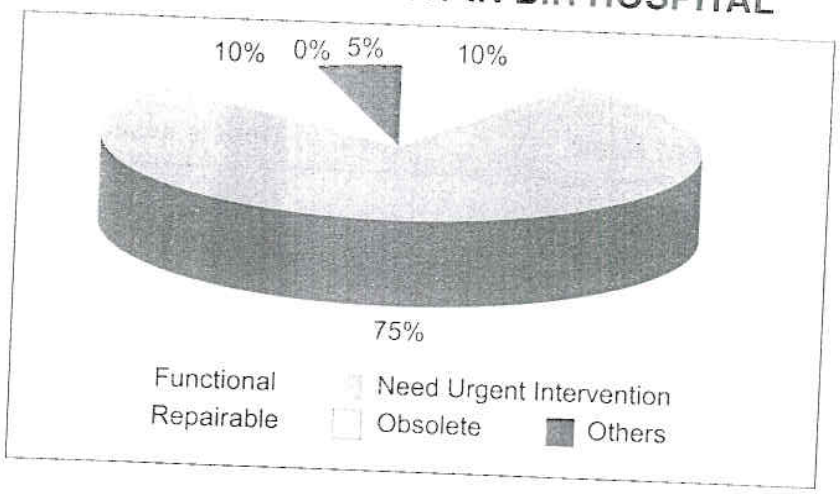
TYPES AND NUMBERS OF MEDICAL EQUIPMENT AVAILABLE IN HOSPITALS

Equipment Name	Number of Models available
X-ray machine	6
Steam Sterilizer	3
Centrifuge	7
Incubator	5
Water Bath	4
Oxygen Concentrator	6
ECG Machine	2
Suction Machine	6

(This statement is based on a study done at Bir Hospital, Kathmandu, Western Regional Hospital, Pokhara, Bheri Zonal Hospital, Nepalgunj, Koshi Zonal Hospital, Biratnagar, Parbat District Hospital, Kusma, Parbat, Dhading District Hospital, Dhading, Baglung District Hospital, Baglung and Bardiya District Hospital, Gulariya, Bardiya)

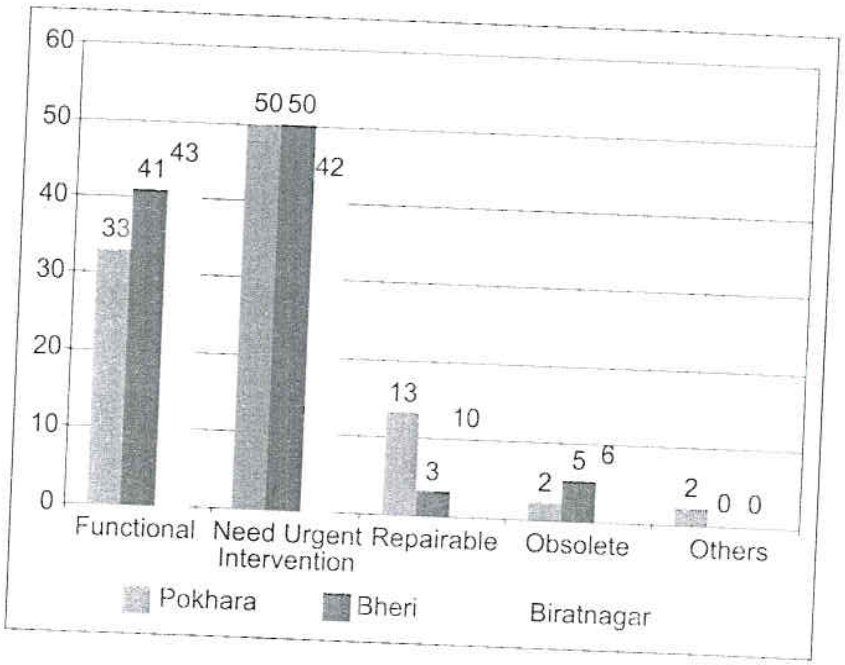
Annex 3

STATUS OF EQUIPMENT IN BIR HOSPITAL

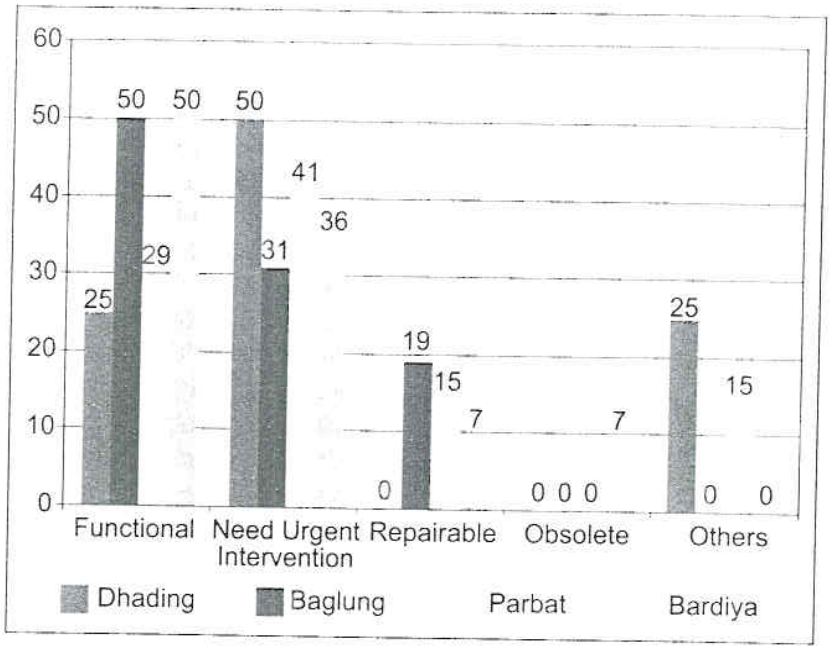


Annex 4

STATUS OF EQUIPMENT IN REGIONAL / ZONAL HOSPITALS



STATUS OF EQUIPMENT IN DISTRICT HOSPITALS



PROPOSED STRUCTURE

Level	Function	Structure
Ministry of Health	Policy Formulation and overall Co-ordination.	Advisory Committee headed by Secretary, Ministry of Health. Other members of the Committee will include representatives from Ministry of Finance, Ministry of Science and Technology, Nepal Medical Association, Institute of Medicine, Association of Private Nursing Homes, Federation of Nepal Chamber of Commerce and Industries, Private Medical Colleges, NGOs, Director General, DHS etc. and others.
Department of Health Services	Planning, Programming, Budgeting, Monitoring and Supervision	One separate section will be established within LMD with the following minimum human resources: 1. Bio-Medical Engineer 2. Civil Engineer 3. Electrical/Electronic Engineer 4. Planning Officer 5. Support Staff (2)
Regional Level	Major Maintenance	Three (3) workshops will be established. One each in Kathmandu, Nepalgunj and Biratnagar
District and Facility Level	Minor Repair	Maintenance workers for minor maintenance will be identified from among the existing staff.