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GUIDELINES
FOR COUNTRY SITUATION ANALYSIS
ON MANAGEMENT, MAINTENANCE AND REPAIR
OF HEALTH CARE EQUIPMENT



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1. Introduction

The aim of these guidelines is to facilitate a common approach for the reporting of country situations by survey teams supported by external or local consultants. They are not intended to restrict survey teams in adopting their own approach to the surveys and adapting them to country specific situations and needs but merely to ensure that a common system is followed during the surveys. This will eventually allow WHO to easily extract information for purposes of comparison between different countries.

The purpose of the surveys is to investigate country situations within the framework of the objectives of the WHO Global Action Plan on Management, Maintenance and Repair of Health Care Equipment (WHO/SHS/NHP/87.8), by covering three main areas of interest:

- Promotion of awareness, policy formulation and information support;
- Strengthening of national health care technical services;
- Manpower development.

The Plan objectives aim to provide appropriate stimulus and inputs at national, as well as regional and global levels, in order to facilitate the necessary changes and promote the required awareness pertaining to the management, maintenance and repair of health care equipment. Of particular interest is policy formulation, planning, national health care technical services infrastructure, information exchange related to equipment, data and manufacturer details as well as manpower development covering the necessary levels of personnel training, both technical and user.

The main objectives of the Plan may be summarized as:

- Formulation and adoption of policies, strategies and approaches related to health care equipment, as part of the overall national health policy.
- Establishment of national central information systems capable of receiving, assimilating and disseminating technical information to the health sector.
- Strengthening of national health care technical services infrastructure and establishment of central and district hospital based maintenance workshops.
- Training of national staff from technical manager to engineer and technician levels as well as users.
- Establishment and/or strengthening of national training centres and their use, if appropriate, for intercountry needs.
- Strengthening of mechanisms for exchange of information, sharing of experiences, expertise and training facilities at intercountry, subregional, regional and interregional levels.

Detailed guidelines for the above objectives are contained in the report of the WHO Interregional Meeting on the Maintenance and Repair of Health Care Equipment held in Nicosia, Cyprus, 24-28 November 1986 (WHO/SHS/NHP/87.5). This report and the WHO Global Action Plan should, with the terms of reference of the assignments, be provided to each survey team. The present document also contains, as Annex 10, guidelines on information required to assess intercountry training centres which would also be useful as well for assessing the intercountry capabilities of national training establishments.

2. Strategy and approach

The present survey forms part of the WHO Global Action Plan, which is designed to establish common, coordinated action in the field of management, maintenance and repair of health care equipment. It is intended to accommodate all aspects of this multidisciplinary programme which aims to overcome four major obstacles confronting developing countries.

- (a) Lack of organizational policy: At present inadequate awareness of the magnitude of the problem and limited expertise prevent the necessary policy-formulation, planning, funding and identification of all the necessary components that constitute the essential inputs.
- (b) Ineffective health care technical services: The infrastructure, organizational capability, expertise, incentives, training, funding and collaboration with other health sector services are lacking to such a degree as to render the technical services ineffective and inefficient.
- (c) Manpower development and training: Lack of career structures, staff development and appropriate manpower training within ministries of health inhibit human resources from fulfilling their mission.
- (d) Lack of information support: Insufficient technical information exchange within the health sector and from external inputs concerning particularly equipment specifications, tenders, spare parts, manufacturers, technical manuals and data sheets, hinder the updating of technical knowhow and implementation of appropriate action.

The goal of the survey is that it should form the vehicle by which countries would be assisted in assessing their situation, extracting the necessary data and information, promoting appropriate policies, planning, organizational restructuring and strengthening of training opportunities with the major focus on a problem solving approach. Emphasis should be directed, particularly, at identifying national institutions requiring technical and financial support in order to strengthen the related national policies, organizational infrastructure of HCTS, training capabilities and intersectoral collaboration.

In promoting the objectives of the WHO Global Action on Management, Maintenance and Repair of Health Care Equipment, it is envisaged that the WHO representative (WR) will play a key role in developing awareness with the national authorities, and by mutual agreement coordinate inputs by the various agencies in order to plan comprehensive common action.

3. Promotion of awareness, policy formulation and information exchange

It is essential that decision and policy-makers in ministries of health should be aware of the various managerial, technical and financial aspects related to the management of health care equipment. It is therefore necessary to raise understanding of the essential inputs and organizational interrelationships constituting this highly interacting, interdisciplinary problem.

To assist ministries in this field, the relevant personnel should be able to produce or assess various forms of technical and other information, whether of a managerial, health or technical nature. Presently at country level the major problem facing health administrators, technical managers, engineers, technical and operating personnel is either the unavailability nationally of information and data related to management, maintenance and repair of health care equipment or the inexperience of national staff in assessing and utilizing it. Internationally a substantial amount of information is already available. It is, however, either not reaching personnel at country level or is in such a form that prevailing country expertise and experience renders it incomprehensible.

Information concerning manufacturers, technical data, spare parts, guidelines on equipment safety and hazards available in developed countries should be channeled through a national central information point. This should be capable of collating, assimilating, evaluating and disseminating the information to the health sector. The availability of technical means needed for such a centre, including computer data banks, should be investigated in order to facilitate the work of such an information centre. The infrastructure in the expertise and facilities required to run such a centre, as well as a suitable location, should be identified.

4. Strengthening of national health care technical services

There should exist under the Ministry of Health the Health Care Technical Services, charged with carrying out the management and technical functions associated with the maintenance and repair of health care equipment. The reality in many countries is that health care technical services do not exist as an organized and recognized infrastructure and where existing are often lacking effective policy backing, funding, experienced personnel and facilities.

The inadequacy in maintenance workshops, tools, inventory control, spare parts, logistics and communications support all inhibit the effective and efficient work of health care technical services. As a consequence lack of the means and back-up to keep equipment in good operational order hinders the quality of the health service standard being offered. This situation is at its worst in rural or remote areas removed from central access and support.

The specialist, higher-qualified personnel needed should be situated at provincial or central level affording the district level specialist support. Such central workshops should usually be located at or very near a large central hospital. Action concerning national health care technical services is aimed at district and provincial/central levels.

It is therefore imperative to strengthen and support, primarily at district level, pilot hospital maintenance and repair workshops in order to commence the build-up of national health care technical services at near base-level. At the district level small clinics linked to a workshop can best be given technical and logistics support.

5. Manpower development

Manpower development should encompass all the categories of personnel involved with equipment, including technical managers, engineers, technicians, users and operators. The means should exist whereby training is planned well in advance and funding provisions should be available and foreseen at the planning stage.

At the national level the expertise should be available to identify and formulate the correct criteria for trainee selection as well as the suitability of the training to be offered. Local training facilities should exist in order to cater for at least the lower level training. Hence suitably qualified staff and facilities should be available to plan and execute local training.

In order to enhance and update training capabilities, there should be information exchange between any national training institutions available. Links with regional training centres should be encouraged and strengthened.

6. Purpose of the survey

The major aims of the survey are to:

- Investigate the present situation concerning the mechanisms in determining the required policy formulation, planning, funding, procurement strategy, coordination and liaison within the health sector and intersectorally in order to satisfy needs related to management, maintenance and repair of health care equipment.
- Ascertain the present situation concerning the collation, assimilation and dissemination of the necessary technical and other information related to health care equipment.
- Determine the necessary requirements in order to strengthen the mechanisms needed to promote awareness, effective policy formulation and information support.
- Identify a suitable institution for assuming the role of a central information centre and determine its major inputs.
- Investigate the present situation concerning the existing infrastructure organization and effectiveness of the national HCTS.
- Assess the needs in staff, facilities and equipment required to render the HCTS more effective and efficient.
- Determine the availability and the effectiveness of inventories, spare parts, standardization, technical library, dissemination of technical information and logistics support.
- Assess local market expertise, manufacturers' input to service and training, and technical and spare parts support available to the health sector.
- Determine the needs in staff, facilities and infrastructure, assess location and logistic support required by central and district workshops.
- Identify suitable hospitals for establishing or strengthening district workshops and determining their major inputs.

- Identify the necessary training requirements of the technical and user staff in order to satisfy existing and planned equipment needs.
- Investigate and determine the available potential of local technical training institutions in providing training support in the field of maintenance and repair within national capabilities.
- Evaluate existing maintenance and repair training centre staff, facilities, syllabi and equipment and assess their long-term role.
- Identify a suitable institution for establishing or strengthening a national training centre, determine its major inputs and potential use for intercountry needs.
- Advise the health authorities on the possibilities for further improvements.
- Form a basis for a countrywide programme coordinating inputs by the various agencies and its progressive expansion.

7. Programme of work

Before the survey, these Guidelines should be sent by the WHO Regional Office to the WHO Representative (WR). The Ministry of Health and the WR will jointly identify local expertise to comprise the survey team, with external consultants when needed. Background information and the programme of work should be prepared according to each country-specific situation. Levels of action by the survey team will cover:

7.1 WHO

- To mutually clarify with the WR the details of the assignment and discuss the programme of work and necessary administrative arrangements.
- To discuss information available to the WR on the overall situation with management, maintenance and repair of health care equipment, related ongoing and planned multilateral and bilateral assistance projects, etc.
- To set the framework, after completion of the survey, for the follow-up action according to its findings.

7.2 Ministry of Health

- To brief ministry officials on the purpose of the survey and on the overall WHO initiative in this field.
- To discuss the programme of work.
- To be briefed on the structure of the health sector both public and private.
- To enquire into the overall picture of the existing situation with management, maintenance and repair of health care equipment including mechanisms for policy formulation, planning, budgeting, procurement strategies, organization and management of HCTS, training capabilities, related available and planned multilateral and bilateral assistance, future plans, etc.

- To present, after the completion of the survey, to ministry officials its findings and discuss possible ways for improvements and set the framework for future joint action.

7.3 UNDP, UNICEF, World Bank, UNIDO, ILO, and other UN specialized agencies concerned

- To brief representatives of agencies on the purpose of the survey and on the overall WHO initiative.
- To be briefed on related ongoing and planned projects.
- To determine prospects for future collaboration and joint activities.

7.4 Bilateral assistance agencies representatives, if any

- To brief the interested parties on the purpose of the survey and on the overall WHO initiative with a view to possible collaboration.

7.5 Central medical stores

- To enquire into new and old stored equipment, library of technical manuals, the procedure followed for the supply of new equipment and for the distribution of equipment to health facilities.

7.6 Central maintenance department

- To enquire into the existing situation including facilities and manpower.
- To assess the needs for further development;

7.7 Typical health care facilities (central/provincial hospital, district hospital, primary health centre)

- To determine an overall picture of the existing situation in the various types of health establishments and particularly to ascertain the maintenance facilities available.
- To obtain an inventory on the conditions of plant and equipment.
- To assess the needs for further development.
- To identify suitable hospitals for establishing or strengthening district maintenance workshops and to determine their major inputs.

7.8 Meeting with trainees who attended formal training

- To discuss their work environment, problems, supervised training, salaries, etc.

7.9 Local technical training institutes (basic, medium, high level)

- To ascertain the various levels of technical education existing in the country from vocational school to university level.
- To enquire into the syllabii and examinations, to obtain copies for relevant subjects.
- To enquire on the students' prospects for employment and expected salaries.

- To determine possible cooperation of vocational training institutes for existing hospital craftsmen and the manufacturing of simple spare parts.
- To assess the capability of the training institutes to serve intercountry needs and the required inputs for their strengthening.

7.10 Health manpower institute (medical school, nursing school, paramedical school)

- To ascertain the syllabus content of the training programmes for medical personnel with regard to the proper operation and care of equipment.
- To enquire into the availability of the formal training for medical and paramedical personnel on the proper operation and care of equipment.
- To enquire into the availability of in-service seminars/workshops for medical and paramedical personnel.
- To identify ways for possible improvements.

7.11 NGOs and private sector health facilities

- To determine the existing maintenance facilities offered by NGOs and private health sector including availability of spare parts and consumables.

7.12 Other health facilities

- To enquire into the mechanisms of providing maintenance and repair services to medical research institutes and medical schools, if any.

7.13 Local market

- To enquire into the availability of facilities and mechanisms for providing service including maintenance, repair and supply of basic consumables as well as training for the local staff by manufacturers' service centres, specialized servicing companies and/or their local agents.

7.14 Other ministries (public works, labour, education, trade, etc.)

- To determine the involvement of other sectors in related activities and the extent of collaboration with the health sector.
- To ascertain other issues such as local safety regulations for hospital plants, engineering and technical training, purchasing procedures, customs regulations, transport and distribution systems, salary scale of other sectors' technical civil servants, etc. with relevant authorities according to need.

In order to facilitate the process of the survey it would be of assistance to the survey team if background information could be provided by the WR and the Ministry of Health, e.g., country health information profile, country contribution to the Seventh Report of the World Health Situation, Development Bank health sector review, etc. In particular information is required on the following:

Public health sector

- Organization:
organizational charts of the ministry and health services of different levels (national, provincial, district, primary).
- Finances:
budget development, absolute and as a percentage of the national budget
expenditure for the various health care levels, staff, transport, investments, maintenance operating and maintenance budget and the respective budget items
- Facilities:
regional distribution (urban and rural) of health care facilities according to health care level, numbers of beds and patient turnover, other relevant health care facilities, training establishments, maintenance workshops and their equipment
- Staff:
staff categories/job descriptions/income/career structure, paying special attention to technical and administrative professions;
professional organizations
general characteristics of the staff requirement
maintenance staff (structure)
- Procurement and distribution of equipment, apparatus and spare parts:
purchasing organization
import situation
local purchasing possibilities
inspection, storage and distribution system

Private health sector and NGOs

- Structure as regards provider organizations (information on the relative share of the various provider organizations in health care as a whole and tariffs):
private practices and clinics
health services provided by religious organizations and other NGOs
health services provided by industry
health services provided by insurance companies
health services provided by the local authority
traditional health services
- Coordination of these services with the government sector
- Budgetary allocations by the State
- Training capacities of the private sector
- Maintenance capacities of the private sector
- Prospects of developing revenue earning technical services for private sector

After the survey, a consultation involving the survey team, WR, Ministry of Health officials and, if necessary, other sectors, as well as representatives of international organizations and bilateral assistance agencies, will discuss the survey findings with particular focus on identified needs, possible ways for further development and the framework of the required countrywide programme.

8. Findings

8.1 Ministry of health

Policy, planning and information department related to management of equipment

If existing (if not, indicate how affairs managed)

- Location
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Relation to health care technical services, medical staff, finance, central medical stores, customs clearance
- General policy concerning identification of health care equipment needs, planning process, specification of related equipment, procurement strategy, securement of funds, training of users, technical staff, assessment of required facilities, service contracts, installation of equipment, purchase and storing of spare parts, condemning of equipment, hiring technical staff, creation of posts, career structure, reliance on private sector support.
- Mechanisms for collation, assimilation and dissemination of technical information, existence and application of guidelines related to safety, operation, calibration, testing of equipment, , computer data banks for inventory, maintenance procedures, stock control and storing of information on technical specifications, safety and guidelines.

8.2 Central medical stores

- Location
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Logistics support
- Facilities for storing of equipment and spare parts
- Mechanisms for customs clearance
- Transportation
- Purchase of equipment and spares
- Inventory control
- Computer data banks
- Standardization of equipment
- Purchase contract conditions
- Installation and manufacturer training

8.3 Procedure for supply, storage and distribution of equipment and spare parts by:

- a. Ministry of Health
- b. Central medical store
- c. Hospital boards
- d. Other

8.4 Existing hospitals

- Location
- Level of care
- Number of beds
- Availability of maintenance service, storage, etc.

8.5 Central maintenance department

If existing

- Location
- If attached to central hospital, number of beds
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Workshop and other facilities
- Tools and equipment
- Technical manuals and spare parts
- Equipment inventory
- Transport
- Coverage
- Efficiency of the service

8.6 District hospital maintenance workshops

if existing (if not, proposed as a pilot scheme)

- Location
- Main departments and wards
- Number of beds
- Present general condition of hospital
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Workshop facilities
- Tools and equipment
- Technical manuals and spare parts
- Equipment inventory
- Support to primary level
- Efficiency of service

8.7 Medical physics/radiation protection services

If existing

- Location
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Laboratory facilities
- Tools and equipment
- Technical manuals and test procedures
- Dosimetry protocols and reports
- Existence of safety guidelines
- Cover of private sector
- Efficiency of service

8.8 Service for planning and modification of buildings and facilities related to equipment

If existing

- Location
- Administrative organization
- Staff (number, qualifications, experience, career prospects, salaries, etc.)

- Budget
- Participation in policy and planning formulation
- Management control of contracts
- Maintenance of buildings

8.9 Arrangements for maintenance of transport

- Public service
- Existing maintenance project
- Private sector
- Staff (number, qualifications, experience, career prospects, salaries, etc.)
- Budget
- Technical and service manuals
- Inventory control
- Spare parts availability
- Efficiency of service

8.10 Technical support from private sector

- Maintenance facilities
- Supply of spare parts and consumables
- Service contracts

8.11 Outcome of interviews with past trainees who attended formal training

8.12 Constraints on efficiency of maintenance facilities

1. Absence of professional leadership _____
2. Lack of trained staff _____
3. Low salaries _____
4. Unsuitable local training facilities _____
5. Unavailability of petty cash _____
6. Lack of government support _____
7. Lack of transport _____
8. Unavailability of spare parts and basic consumables _____
9. Unsuitable work environment _____
10. Lack of tools and equipment _____
11. Lack of motivation _____
12. Low operator skills _____
13. Lack of specific financial allocation _____
14. Lack of technical manuals _____
15. Unavailability of private sector technical support _____
16. Lack of equipment inventory _____
17. _____
18. _____
19. _____
20. _____

Annexes 1-7 attached may prove useful in collecting the necessary information on the above issues.

8.13 Existing training centre

If yes

- Location
- Administrative organization
- Staff (qualifications, experience, career prospects)
- Budget
- Planning and syllabus preparation

- Curriculum and certificates/diploma issued and status nationally/internationally
- Training facilities (laboratories, classrooms, equipment, test instruments, tools, spares)
- Technical library
- Inventory of equipment
- Printing facilities
- Availability of hospital training
- Follow-up of students
- Contacts with other training establishments at home and abroad
- Information exchange
- Suitability of training offered to local needs
- Links with service in hospitals (private and/or public)
- Capability for undertaking appropriate technology projects
- Capability to manufacture basic spare parts
- Capability to act as central information centre on technical and other related information
- Capability to serve intercountry needs

8.14 Other technical training establishments

- Suitability of existing establishments which may host training on maintenance and repair
- Availability of suitable graduates to enter above training
- Availability of higher education courses including university level
- Local capability to set up and run maintenance and repair training courses
- Level for such training courses
- Needs in specialized medical and test equipment

8.15 Training of other health personnel in use and care of equipment

a. Formal programmes (health manpower institute) for

- Radiographers
- Laboratory technicians
- Physiotherapists
- Nurses
- Doctors
- Others

b. In-service seminars/workshops

Annex 8 gives a typical checklist for assessing local training institutions. Annex 10 contains useful information for assessing intercountry capabilities of the training centre.

8.16 International and bilateral assistance

a. WHO

- Maintenance project YES/NO

If yes, details

b. UNDP

- Maintenance project YES/NO

If yes, details

c. World Bank

- Assistance related to maintenance YES/NO

If yes, details

d. UNICEF

- Vehicle maintenance project YES/NO
- Primary health care project YES/NO
 (maintenance component)
- Other related projects

e. Other UN agencies (IAEA, ILO, UNIDO, etc.)

- Maintenance related project YES/NO

If yes, details

f. Bilateral assistance projects
(related to maintenance) YES/NO

- Country/ies
- Project details

g. UN volunteers
(related to maintenance) YES/NO

h. Other

Annex 9 gives guidelines as to the information which may be collected on international and bilateral assistance related to maintenance.

Annex 1

Ministry of Health

Policy, planning and information support

Name and title of senior Ministry official in charge

Name and location of central unit/department/division

Name of Chief Officer

1. Briefing with Ministry officials on purpose of mission and agreement of programme of work.

2. Discussion on overall WHO policy and initiative in this field.

3. Policy, Planning Department related to health care equipment:

- Location.
- Administrative organization and staff structure.
- Liaison with other departments concerned.
- Decision-making procedures, identification of needs, procurement procedures, user and service personnel, training needs.
- Sources of funding (internal, external, donors, etc.).
- Participation in decision-making process of users, service personnel, medical profession, finance and planning departments.
- Status and relationship of HCTS to top Ministry officials and high-level planning and policy decision-making.
- Foreign currency availability and purchase of spares.

4. Structure of public health sector:

- Number of central, provincial and district hospitals (urban and rural), PHC centres and dispensaries.
- Typical number of beds in hospitals at different levels.
- Administrative structure and responsibilities.
- Means of financial support.
- Participation, if any, in decision-making process and training.

5. Private and NGO supported sector:
 - Number of NGO health facilities (hospitals, clinics, etc.).
 - Number of mission health facilities (hospitals, clinics, etc.).
 - Number of private hospitals and clinics.
 - Percentage of total health sector.
 - Relationships to the public health sector.
 - Control by Ministry.
6. National training institutions:
 - Number and type of health sector personnel training.
 - Number and type of technical personnel training.
 - Number and type of user personnel training.
 - Goals and objectives of service and user training institutions and their relationship to hospital (on-the-job) training.
7. Information support system:
 - Equipment inventory control.
 - Central technical information system on equipment manuals, recommended spares, manufacturer information, equipment codes.
 - Availability of computerized data bank system.
 - Location and personnel of central information system.
8. Donor and multilateral support:
 - Information on external support related to maintenance.
 - Policy concerning donors' aid and other details.
9. Health Care Technical Services:
 - Policy and planning for service.
 - Career structures and administration.
 - Availability of facilities, in equipment, tools, workshops, vehicles.
 - Training of personnel, local and external.
 - Future plans.
10. Safety procedures and research activities.

11. Future plans concerning policy formulation, planning and manpower development.
12. On completion of mission, presentation and discussion of findings with Ministry officials and interested departments. Identification of framework for future action.

Annex 2

Central medical stores

Senior officer

Stored equipment

new	destination
.....
.....
.....
.....
.....
.....

old	intention
.....
.....
.....
.....
.....
.....

Spare parts

Procedure for payment

Reliance on agents

Manuals available

X-Ray films

Storage

Date

Other

Comments of the senior officer

Remarks

Annex 3

Central Maintenance Department

Name of Head of department

Location of department

1. Present situation

Staff

Number of qualified staff

Number of technicians

Number of craftsmen

Number of unskilled staff

Clerical/administrative staff

Job descriptions for technical staff

Facilities

Number of different workshops

Types of workshops

.....

.....

.....

Number of vehicles

Library of technical manuals

Tools and equipment

.....

.....

2. Assessment of technical staff (with Director of HCTS)

- Qualifications of staff
- Experience
- Motivation and performance
- Training in areas of specialization
- Areas of competence
- Staff turnover

3. Staff viewpoint

- Career prospects
- Salaries
- Incentives
- Job security
- Job satisfaction

4. Future plans

.....

.....

.....

Annex 4

Typical health care facilities

Type of facility:

Primary health centre - district hospital - provincial/central hospital

Name and location of facility

Person contacted

Position

List of equipment — —

Obtained Not available

Consultants should group equipment condition into the following three broad categories:

OK: Working order and regular use

DOWN: Out of order, no consumables, no trained users, not installed

SCRAP: Beyond economic repair or operation

List of main items of medical equipment	Condition of equipment			
	OK	Down	Scrap	Remarks

1. Laboratory equipment

- Microscope
- Balance
- Incubator/Oven
- Centrifuge
- Photometer
- pH-meter
- Refrigerator
- Autoclave
- Water bath
- Mixers
- Dilutors

2. Operating theatre

- Table
- Lights
- Suction
- Diathermy
- Anaesthetic machine
- Ventilator
- Defibrillator
- Instrument sterilizer
- Standby lighting
- Sterilizers
- Medical cases

List of main items of medical equipment	Condition of equipment			
	OK	Down	Scrap	Remarks
<u>3. X-Ray and imaging department</u>				
X-Ray units				
- basic				
- others				
Automatic film processor				
Diagnostic ultrasound				
Complex systems (MRI, CT)				
Therapy units				
<u>4. General medical equipment</u>				
ECG				
EEG				
Infant incubators				
Dialysis systems				
Shortwave diathermy				
Infusion pumps				
Audiometers				
Blood pressure measurement				
Scales				
<u>5. Plant equipment</u>				
Boilers				
Kitchen				
Stand-by generator				
Laundry				
Air conditioning				
Elevators				
Refrigeration				
Water treatment				
<u>6. Utilities</u>				
Electricity supply				
Water supply				
Sewage				

Annex 5

District hospital maintenance section (basic information from
hospital directorate, details from maintenance staff)

1. Present situation

Staff

Salary scale

Workshop facilities

Workshop equipment

Spare parts

Manuals

Transport

Procedure for

Supply of new equipment

Supply of spare parts

Hospital repairs by hospital maintenance section

Hospital repairs by central maintenance department

Hospital repairs by private sector

Petty cash for local purchasing

Cancelling of equipment

Support to primary level

Budget for maintenance allocated for 19../year
expended during 19../year

2. Possibilities for future improvement

Post for staff
Workshops
Equipment for the workshops
Transport
Spare parts
Organization

Comments of workshop manager and technical staff (refer to sections 2, 3,
Annex 3)
.....
.....
.....

Comments of the consultant
.....
.....
.....

Annex 6

Local market

Agents for medical equipment/or specialized servicing companies

Agent
Represents/handler
Supplies
.....
.....

Maintenance facilities

Staff
.....
Trained
.....
Workshop
.....
Spare parts
.....
Delay for despatched spare parts
.....
Service cost
.....
Existing maintenance contracts with the Ministry of Health
.....
.....
Comments of the agent
.....
.....
Geographical coverage
.....

Other supply facilities

Raw material:

Metal (sheet, bars, etc.)
Plastic
Fittings (sachets for plumbing, etc.)
Serums
Pipes
Wood
.....

Electric material:

Consumable (fuses, lamps, etc.)
For installation (wire, cables, switches)
Plumbing material (taps, etc.)

Installation, commissioning and warranty

1. Does sales contract normally include installation by your technical staff? YES/NO
2. Do you usually provide training to equipment operation as part of contract? YES/NO
3. Is your warranty period a minimum of one year after installation/commissioning? YES/NO (If better, please provide details)
4. Are fully detailed operational manuals provided with equipment? YES/NO

Maintenance and repair services

1. Is a maintenance manual (including circuit diagrams, circuit description, components list and fault finding procedures) generally made available to purchasers? YES/NO (If YES, is this provided at an additional cost? YES/NO)
2. Is a company engineer/technician normally contactable by telephone to deal with advice on equipment operation and maintenance difficulties? YES/NO
3. Do you advise customers on modifications to equipment found necessary for safety or more effective operation? YES/NO
4. Are you able to provide maintenance (planned preventive) on a contractual basis (e.g., annual fixed sum)? YES/NO
5. Are you able to offer such maintenance services to all regions of the country? YES/NO (state exclusions if NO)
6. Are you willing to offer (free or at a cost) maintenance instructions to Ministry of Health staff to:
 - i. provide 'first-line' maintenance YES/NO
 - ii. provide a complete maintenance service YES/NO

Accessories, spares, replacement parts and consumables

1. Is a price list on these items generally available before purchase? YES/NO
2. Do you provide recommended spares lists? YES/NO
3. Are you generally willing to supply such items direct to Ministry of Health technical services organizations? YES/NO

Annex 7

Interview with trainees who attended formal training

First trainee

Name and location of training centre Period.....
Name of trainee Course
Present occupation
.....
Change in status after course
.....
Comments of the trainee concerning:
his present activities
.....
the training
.....
Comments of the consultant
.....
.....

Second trainee

Name and location of training centre Period.....
Name of trainee Course
Present occupation
.....
Change in the status after the course
.....
Comments of the trainee concerning:
his present activities
.....
the training
.....
Comments of the consultant
.....
.....

Third trainee

Name and location of training centre Period.....
Name of trainee Course
Present occupation
.....
Change in the status after the course
.....
Comments of the trainee concerning:
his present activities
.....
the training
.....
Comments of the consultant
.....
.....

Annex 8

Local training institutes

1. Type of training institution

Name of the institute

Degree of technical training: basic medium high

Duration: _____ _____ _____

Entry procedure

Type of school Duration

Entry examinations

.....

Programmes

Electrical installations

Electromechanic

Mechanic

Carpentry

Masonry

Painting

Vehicles

Refrigeration

Electronics

Note: For institution of higher education, please attach syllabus and examinations

Syllabus: percent practice percent theory

2. Post graduation

Knowledge of languages

Diploma issued after study

Monthly salary expected

Chance of employment

Possibility of collaboration

- vocational training for existing staff

- refresher courses

- specific courses

- manufacturing of spares

Annex 9

International and bilateral assistance

UN Agencies

A. UNDP

Name of representative

UNDP project related to maintenance

Details

Remarks

Other UN programmes related to maintenance

UN

UNICEF

UNIDO

ILO

Others

List of UN volunteers (related to maintenance)

.....

Remarks

B. UNICEF

Name of representative

Activities related to maintenance

Possibility of assistance

- supply of equipment

- supply of cars

Activities concerning the repair of cars and other equipment

.....

Remarks

C. UNIDO

Name of representative
Possibility of assistance for specialized training

Remarks

D. ILO

Name of representative
Training activities related to maintenance

Remarks

E. Other

.....
.....

Bilateral assistance projects

Country
Project details

Country
Project details

NGOs and other assistance

.....
.....

Annex 10

Information required to assess Intercountry Training Centres*

1. Introduction

Assessment of intercountry training centres forms part of the Global Action Plan activities. A common approach to collecting data on centres is proposed which will facilitate analysis and in particular show the strengths and weaknesses of the different institutions and any major areas still requiring development. Also the following guidelines would be useful for identification of the capabilities of the national training institutions to serve intercountry training needs. The optimum ways to utilize and improve these training resources can then be identified and new initiatives including cooperative programmes instituted.

2. Purpose of the survey

The major aims of the survey are to:

- Determine the general objectives and terms of reference of the training centre.
- Assess centre infrastructure and administrative organization.
- Assess the suitability of the centre's location related to its general objectives.
- Assess available centre facilities with regard to its training commitments.
- Determine the adequacy of available equipment used in training.
- Assess training staff capability and capacity to deliver the required level of training.
- Assess capacity to develop and produce training materials and teaching aids.
- Identify mechanisms used in determining syllabi and curriculum content.
- Determine the academic level of its graduates and the professional status of its courses.
- Evaluate different methods of student assessment, including entrance examinations.
- Investigate mechanisms used in graduate student follow-up and assessment.

* Could be intercountry, subregional, regional or interregional training centres

- Investigate the centre's relationship to the national health care technical service and medical physics.
- Determine existence of cooperation links with other national, intercountry, regional and interregional training establishments in related fields.
- Determine research and development activities related to appropriate technology projects.
- Determine its suitability to act as a central information system for collating, assimilating and disseminating information to the health sector both nationally and on a regional basis.
- Assess technical library and information inputs to centre.
- Investigate the financial inputs in support of its activities.
- Ascertain student inputs and relationships with sponsoring bodies.
- Assess social conditions, leisure activities and student welfare programme.
- Identify centre's future needs and expectations.

3. Findings

3.1 General objectives of the centre

Determine:

- Availability of terms of reference for its activities.
- Existence of formal agreements with sponsors.
- Long-term expectations and commitments.

3.2 Staff

- Job descriptions.
- Qualifications/Experience (CV).
- Specialized training received, including methodology of teaching.
- Relationships with Health Care Technical Services or private sector.
- Status of staff posts, salary scale.

3.3 Location

- Suitability in achieving objectives.
- Proximity to other training centres, hospitals, Health Care Technical Services.
- Cultural and social context.

3.4 Facilities

- Number of
 - classrooms,
 - laboratories,
 - workshops,
 - offices.
- Availability of residential accommodation.
- Communications, including telex, phone, etc.

3.5 Equipment

- Inventory of medical and plant equipment.
- Tool and test equipment.
- Vehicles.
- Audio-visual aids.
- Reproduction facilities.
- Other

3.6 Development of training materials

- Manuals, lecture notes, transparencies, slides, etc.
- Training kits.

3.7 Development of syllabii and curricula content

Courses may be more than one and preferably should include courses for users as well as technical personnel.

- Aims, objectives and duration of course.
- Professional standing of course graduates, issue of certificates, diploma, attendance and national/international recognition.
- Academic level of graduates (student output).
- Level of student input (intake).
- Guidelines of syllabus content.
- Teaching process.
- Assessment of performance.
- On-the-job training facilities.
- Teaching staff training needs, including equipment and facilities.

3.8 Student catchment

- National
- Regional
- Interregional
- Sponsors
- Formal agreements
- Availability of student data

3.9 Examinations

- Entrance exams
- Pre and post course evaluations
- Continuous assessment
- Practical exams
- Final exams
- Certificate of qualification

3.10 Organization and administration

- Centre infrastructure and career prospects
- Relationships to other institutions

Status of:

- Board of governors
- Academic board
- Disciplinary board
- Syllabus and curriculum committees
- Staff Committee

3.11 Financial support

- Capital investment
- Running costs
- Salaries of instructors
- Tuition fees
- Support of students
- Consultancy fees
- Research and development funding
- Local purchase (petty cash) for spares and materials
- Other income

3.12 Relationship to national Health Care Technical Services

- Involvement in actual maintenance and repair
- Private sector maintenance and repair work
- Advisory service to policy and planning department

3.13 Research and development

- Type of research projects
- Projects completed
- Ongoing projects
- Expected future projects
- Collaborative projects
- Externally funded projects
- Appropriate technology project
- Budget
- Other

3.14 Cooperation with other training centres

- National technical institutes
- National medical, paramedical institutes
- Regional centres
- International professional associations
- Staff exchanges
- Exchange of information

3.15 Technical information

- Technical library
- Service, user manuals, manufacturers' spare parts lists
- Technical data sheets
- Component catalogues

3.16 Social activities and welfare

- Student social and cultural problems
- Accommodation difficulties
- Health insurance cover
- Visas and immigration assistance
- Trips and social contacts with other students

3.17 Views of centre staff

- On their needs, problems, expectations

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