PAD

Protocols for the Appraisal of

PHYSICAL ASSETS MANAGEMENT
IN HEALTH SERVICES IN DEVELOPING ECONOMIES

by

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CONTENTS

3 1. INTRODUCTION &

ACKNOWLEDGEMENTS

Health Care Technology Management in Developing Countries still remains a challenge, although a number of commendable efforts can be observed in some countries. However, measuring the state of development in this field is difficult and is frequently based on subjective views.

This document suggests an easy-to-use and more objective method. It is intended for the use of any personnel involved in relevant feasibility studies, in monitoring and evaluation of maintenance programmes and in planning systems for physical assets management. The main target group comprises hospital or biomedical engineers, technologists as well as technicians in management positions or working as consultants.

The method presented in this paper has evolved from a number of studies carried out in Africa and Asia. It will nevertheless need further refinement and differentiation. Therefore comments and additional suggestions are most welcome.

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4 2. SUMMARY

This paper presents a semi-quantitative and quick method of appraising the management of physical assets in health care (PAD). The method is composed of standardised sets of check lists for the various management areas, which have been compiled on the basis of existing sources supplemented by newly developed parts. PAD has mainly been developed from an approach used in Nepal in 1994 [1] and in Malawi in 1994 [2], which analyses organisational structures as well as technical conditions at health facility level.

The check lists are accompanied by evaluation keys which define the quality of the different elements to be looked at, using a "good-fair-poor" rating system. In addition, guidelines are offered for the interpretation of results.

The method is designed to describe system effects rather than single technological indicators, and is thus suitable for assessing mid- to long-term changes, taking into account the overall development in managing health care delivery. It can be used in the absence of information systems for physical asset management, but has its limitations, particularly in the area of financial effects or implications.

3. THE SCOPE OF THE PAD METHOD

Nobody will dispute the need for developing maintenance information systems as a basis for planning and justification of funds to be allocated. But what can be done if a situation must be evaluated where hard data are scant or non-existent? A typical case is a developing country where attention has only recently been focused on the management of physical assets in health care. By applying PAD as suggested here, a rapid appraisal can be carried-out for e.g. 20 rural health facilities and local, regional and central health administrations within 2 to 4 weeks, depending on geography and season. The results can also serve as a baseline for measuring project progress after several years, something which could not be done satisfactorily in the past. What does PAD look into?

General Health Structures

The survey starts with a brief and general overview of the health structures (administrative characteristics, number and nature of health facilities, demographic data, the role of NGOs and donors etc.). It analyses the relevant structures at central level and goes into more detail at regional and district level using, for instance, elements of Kielmann's, Janovsky's and Annett's "Assessing District Health Needs, Services and Systems" [3].

Relevant Management Structures at all Levels

It then deals with a wide spectrum of elements of technological management, from the general policies and administrative structures down to the activities and procedures at district level. This includes the collection of information on the private sector and on relevant training opportunities within the country studied. For appraising the maintenance structures, a slightly modified WHO Check List is used [4]. Due to the nature of the method and the usual lack of hard data, the exact economic impact of maintenance activities cannot be assessed using PAD. For this, a good maintenance information system must be in place.

Condition of Physical Assets

Finally, the effects of the management system surveyed are assessed, using standardised appraisal forms for the condition of buildings, utilities, hygiene and medical equipment. For the evaluation essentially a semi-quantitative rating system ("good-fair-poor") is used. This may seem to be a rather coarse method, but more refined ways would require excessive time and resources, considering the objectives of such surveys.

4. THE ELEMENTS OF THE PAD METHOD

4.1 Appraisal of Framework Conditions

4.1.1 General Health Structures

Planning, managing and operating physical assets in health care depend on

- the government's health policy, health priorities
- the number and kind of health facilities
- their utilisation
- their administration
- manpower development
- donor involvement.

The Check List No.1 (refer to Annex 1) with its interpretation sheet is designed to compile such information relevant for describing the characteristics of the structural and administrative environment in which management of physical assets has to take place. It gives first ideas of the potentials and obstacles within the system.

4.1.2 General Structures at Regional and District Level

This part of the survey can best be carried out using "Assessing District Health Needs, Services and Systems" [3] Module 2 (except 2.3.2 and 2.3.3, refer to Annex 2). Important issues are

- Structure of Health Service in the District
- Human Resources and Training
- Supervision
- Management Sub-Systems
- Constraints and Opportunities.

The latter topic covers the analysis and interpretation of findings.

4.2 Appraisal of Physical Assets Management

4.2.1 Management Structures at Central Level

Check List No.3 looks into the management mechanisms as intended and established by the Ministry of Health (or any other top-level institution in health care) which specifically relate to physical assets. Important aspects are:

- Policy, strategies, organisational structures, role of the ministry, responsibilities
- Purchase of physical assets, standardisation
- Inventories, information systems, M&E, supervision
- Funding, budgets, planning of resources, allocation procedures, cost control
- Provision of spare parts and consumables
- Provision of workshops
- Manpower establishment and development incl. hospital technicians/engineers, craftsmen and users
- Role of private firms (distributors, service providers)
- Specific donor activities.

Ideally the ministry takes the position of guiding, supporting and monitoring the activities in physical asset management at facility level. These activities should be embedded in an essentially decentralised system, with emphasis on the district level. Further details on the interpretation are found in Annex 3.

4.2.2 Management Structures at Regional and District Level

For the second part, another WHO Check List has been adopted (refer to Annex 4). It relates to

- Resources of the Maintenance Service
- Organisation of Service
- Opportunities for Improvement.

Here the interpretation of the findings is difficult. In many developing countries economic and/or administrative structures may, as a practical intermediate approach, only allow semi-decentralised systems at regional level without much ministerial support. In any case the financial implications may lead to organising maintenance services like private enterprises,

This means that public health facilities pay for services rendered at cost price or lower, and that fees for other clients contain a certain profit margin. In this way the notoriously difficult establishment of posts for maintenance personnel within the Health Services could be circumvented. If the circumstances surveyed would basically allow such a compromise model to be implemented, the results of this part of the survey should be interpreted as encouraging, even if a further and desirable decentralisation of maintenance services down to the district level seems impossible within the foreseeable future.

4.2.3 Technical Conditions at Facility Level

The Check List No.4, "Health Facility Data Sheet", records the basic data of the health facility investigated. I also assess the transport situation. Refer to Annex 4.

4.2.3.1 Buildings

Check List No.6, "Building Data", rates the conditions of the exterior and interior of the physical structures found, using an evaluation key which defines the specific meanings of good, fair and poor ratings (refer to Annex 6).

4.2.3.2 Utilities and Medical Equipment

Check List No.7, "Equipment/Utility Data Sheet", deals primarily with medical equipment and plants, but can also be used for any other items to be investigated, such as office equipment or means of transport (refer to Annex 7). For each type of item (e.g. blood pressure machines) one separate sheet should be filled.

4.2.3.3 Hygiene and Waste Disposal

Check List No.8, "Hygiene Data", focuses on overall cleanliness, water supply and sewerage and waste disposal (refer to Annex 8). For the water supply, in particular, easy-to-use indicators are difficult to define. The quantity of water supply can roughly be estimated calculating the number of buckets fetched from e.g. a bore hole. The quality theoretically could be assessed with the help of laboratory analyses which generally is not feasible in terms of time and funds. Therefore olfactory and visual indicators are suggested.

5. EVALUATION AND INTERPRETATION OF FINDINGS

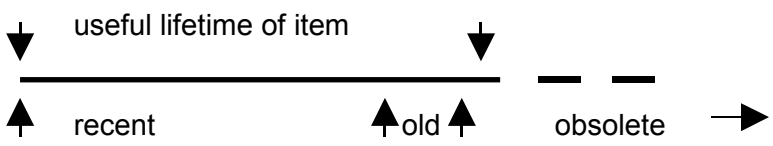
Interpretation of findings in the sections 4.1.1 - 4.2.2 can hardly be standardised in a way which can completely capture the complexity and the wide spectrum of scenarios. Therefore most suggestions consist of brief descriptions of the ideal objectives for each aspect surveyed. The actual findings can then be compared accordingly. The evaluation keys accompanying the appraisal forms for section 4.2.3 define the meaning of the ratings used, "good", "fair" and "poor". It must be kept in mind that **only** the rating "good" refers to a situation or resource which meets the requirements for the services to be rendered.

The number of samples is usually fairly limited. One district hospital, for instance, generally possesses no more than one X-ray unit, many may have none. Considering the number of districts or regions that normally can be investigated during such surveys, an elaborate statistical analysis does not make much sense. Therefore the ratings in section 4.2.3 are accumulated for each category and the rating that occurs most frequently (mode) is marked, for example:

↓ ITEM RATING ->•	good	fair	poor
X-Ray	1	5	2

The interpretation is that out of 8 X-rays only one is able to perform all tasks required at the level of care in question. Five machines are able to provide limited services, or it could be that full services can be performed, but under unsatisfactory safety conditions. Two machines are out of order or are dangerous to use. Ratings can also be accumulated according to certain classifications, e.g. to compare medical equipment and utilities, and to find out which area deserves more attention. Also regions or districts or types of health facilities can be compared in this way.

A further important piece of information for equipment and utilities is their age profile. The rating suggested also uses three values: "recent", "old" and "overaged". The meanings of these terms are explained in the graph below:



The useful lifetime can be defined for each item (equipment, plants, even buildings). If the item is found to be old or obsolete, replacement should be planned for or immediately be provided.

For further details on the interpretation of findings please refer to the relevant annexes.

6. EXPERIENCE AND OUTLOOK TO DATE

WHO and GTZ have been carrying out surveys of different sorts on maintenance and related management subjects in developing countries. The assessment scheme proposed here has evolved from this work over the past 14 years. Experience with earlier versions has already spawned two reports which are more clear and to the point than previous ones regarding the systematisation of the effects of neglecting physical assets.

Yet, the method still cannot propose a practical way of assessing the detrimental financial effects of poor physical assets management. Appropriate tools would be e.g. lists and formulas allowing us to estimate the values of buildings, utilities and equipment. Based on this, and the analysis of technical conditions, capital investment losses could probably be estimated. Users of **PAD** should take this matter up as well, and report their ideas and experience, so that these can be included in the next version.

7. ANNEXES

1. Check List No 1: General Health Structures
   Interpretation of Findings
2. Check List No 2: District Health Management and Support Systems
3. Check List No 3: Management Structures at Central Level
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   - 3.2 Training Institutes
   - 3.3 Interviews with Trainees
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4. Check List No 4: District Maintenance Service
5. Check List No 5: Health Facility Data Sheet
6. Check List No 6: Building Data
   Evaluation Key
7. Check List No 7: Equipment & Utilities Data
   Evaluation Key
8. Check List No 8: Hygiene Data
   Evaluation Key
9. Bibliography

ANNEX 1

Check List No 1: General Health Structures
Interpretation of Findings

Annex 1

CHECK LIST No 1: General Health Structures

Country:	**Date:**
1.1 Health Management Policies (Future Plans)	
Aspect	**Remarks**
1.1.1 Health Targets	targets in conjunction with important mortality/morbidity data
1.1.2 Privatisation of Health	plans relating to substituting or to re-enforcing public health
1.1.3RoleofNGOs	future contributions of churches and other non-profit
1.1.4 Funding, Insurance	rises/cuts in health budget in future, other contributors in
1.1.5 Donors, World Bank	"self-reliance", "structural adjustment", future contributions
1.2 Structure of the Public Health Sector	
Aspect	**Remarks**
1.2.1 Type of Administration	(de-)centralised, role of district, participation of population &
1.2.2 Health Budget (year.....)	total budget planned, actual allocations, major budget items
1.2.3 Financial Structure	gvt. funds, cost recovery, third parties, procedures
1.2.4 No. of Hospitals Central	
Regional	
District	
Other	
1.2.5 No. of Health Centres	}•
1.2.6 No. of Health Posts	}• specify according to tasks
1.2.7 No. of Others	}•
1.2.8 No. of Hospital Beds	total
1.2.9 Utilisation	average occupancy rate, no. of patients seen per time unit
1.2.10 Health Training	medical & nursing schools, specialised training
1.2.11 User Training	describe if existent
1.2.12 In-Service Training	how? by whom? when? what?
1.3 Structure of the Non-Governmental Health Sector	
Aspect	**Remarks**
1.3.1 Type of Administration	degree of (decentralisation, participation of population & staff
1.3.2 Health Budget (year.....)	actual allocations, major budget items
1.3.3 Financial Structure	gvt. funds, cost recovery, third parties, procedures
1.3.4 No. of Hospitals	
1.3.5 No. of Health Centres	
1.3.6 No. of Health Posts	!• specify according to tasks
1.3.7 No. of Others	J
1.3.8 No. of Hospital Beds	total
1.3.9 % of total Health Sector	beds, health facilities, no. of patients per time unit
1.3.10 Relation to Ministry	autonomy, policy, co-ordination, funds, supervision
1.4 Donor Involvement	
Aspect	**Remarks**
1.4.1 Name of Donor	agency, country, name of programme 1}
1.4.2 Type of Assistance	financial aid/technical aid, grant/credit}
1.4.3 Funds total	}specify for each donor
1.4.4 Capital Investment	buildings, utilities, equipment, vehicles}
1.4.5 Maintenance Funds	amount and proposed utilisation }
1.4.6 Location/Coverage	intervention area, facilities covered }

Annex 1

INTERPRETATION OF FINDINGS: No 1. General Health Structures

1.1 Health Management Policies (Future Plans)	
Aspect	**Interpretation***
1.1.1 Health Targets	well defined
1.1.2 Privatisation of Health	equity assured, economy considered
1.1.3RoleofNGOs	integration into public health system
1.1.4 Funding, Insurance	equity assured, comprehensive and transparent system
1.1.5 Donors, World Bank	part & parcel of national health strategy
1.2 Structure of the Public Health Sector	
Aspect	**Interpretation**
1.2.1 Type of Administration	referral system, decentralised, participatory
1.2.2 Health Budget (year.....)	share of total gvt. budget >. 10%
1.2.3 Financial Structure	transparent, minimal delays, participative budget planning, flexible
1.2.4 No. of Hospitals Central	
Regional	
District	
Other	
1.2.5 No. of Health Centres	
1.2.6 No. of Health Posts	
1.2.7 No. of Others	
1.2.8 No. of Hospital Beds	
1.2.9 Utilisation	occupancy rate around 100%
1.2.10 Health Training	
1.2.11 User Training	systematic, relevant
1.2.12 In-Service Training	systematic, regular, relevant
1.3 Structure of the Non-Governmental Health Sector	
Aspect	**Interpretation**
1.3.1 Type of Administration	referral system, decentralised, participatory
1.3.2 Health Budget (year.....)	as contribution quoted in 1.2.2
1.3.3 Financial Structure	transparent, minimal delays, participative budget planning,
1.3.4 No. of Hospitals	
1.3.5 No. of Health Centres	
1.3.6 No. of Health Posts	
1.3.7 No. of Others	
1.3.8 No. of Hospital Beds	
1.3.9 % of total Health Sector	
1.3.10 Relation to Ministry	formal, mutually supportive, co-ordinated, share similar
1.4 Donor Involvement	
Aspect	**Interpretation**
1.4.1 Name of Donor	
1.4.2 Type of Assistance	
1.4.3 Funds total	
1.4.4 Capital Investment	
1.4.5 Maintenance Funds	min. av. 3% of 1.4.4 per year for av. 4 years, utilisation
1.4.6 Location/Coverage	

* Interpretation of findings can hardly be standardised in a way which captures the complexity and the wide spectrum of scenarios. Therefore, most suggestions for interpretation consist of brief descriptions of the ideal objectives for the aspects surveyed.

ANNEX 2

Check List No 2: District Health Management and Support Systems

Module 2: District Health Management and Support Systems

2.1 Physical and institutional infrastructure and resources

- 2.1.1 Catchment area
- 2.1.2 Health facilities
- 2.1.3 Transport
- 2.1.4 Other health care providers

2.2 Human resources and training

- 2.2.1 Staff
- 2.2.2 Working conditions
- 2.2.3 Continuing education
- 2.2.4 Health training facilities

2.3 Support systems

- 2.3.1 Supervision
- |2.3.2] Maintenance and repair [2.3.3] Drugs and supplies

2.4 Management systems

- 2.4.1 Health information
- 2.4.2 Coordination
- 2.4.3 Planning and monitoring systems
- 2.4.4 Budgeting and resource allocation
- 2.4.5 Financing

2.5 Constraints and opportunities

2.6 Suggestions for analysis and interpretation

ANNEX 3

Check List No 3: Management Structures at Central Level

Interpretation of Findings

3.1 Central Maintenance Department
3.2 Training Institutes
3.3 Interviews with Trainees
3.4 Local Market

Annex 3

CHECK LIST No 3: Management Structures at Central Level

Country:	**Date:**

Aspects	**Remarks**
2.1 Type/Structure	service levels, resident and mobile services, degree of (de-)centralisation; for details on a central maintenance dpt use Questionnaire No 3.1*
2.2 Responsibilities	chain of command, responsibilities of administrators, relevant documentation and decrees
2.3 Policy / Strategy	in-house versus external services, corrective versus preventive approach, definition of tasks, relevant documentation and decrees
2.4 Information System/M&E	description of mechanisms and contents, relation to planning
2.5 Supervision	description of mechanisms and contents, relation to manpower development
2.6 Financing/Cost Control	budget planning, participation of recipients, other financial sources, cost control mechanisms and their relation to planning
2.7 Inventories	kind of inventories, levels of inventorisation, role of ministry
2.8 Training (Technicians/ Users)	local/regional/overseas training for maintenance staff, user training (basic and continuous), for details on training facilities use Questionnaire No 3.2* and 3.3*
2.9 Staff	according to service levels: numbers & qualifications, scheme of service/career structure/salary scale, job descriptions, labour market for maintenance personnel (local, national, international), staff fluctuation
2.10 Spare Part Supply	purchase system, local availability, importation mechanisms, ordering procedures, storage, time factor
2.11 Private Services	number, locations and nature of firms and NGOs, experience with contracts, satisfaction, typical cost profiles (service hours, transport, important spare parts); for further details use Questionnaire No 3.4*
2.12 Equip. Purchase/ Standards	degree of (decentralisation, procedures, participation of recipients and technical experts, degree of technical and contractual standardisation
2.13 Donor Activities	co-ordination by ministry; maintenance-relevant activities by donors, inputs, geographical areas
2.14 Professional Society	possibilities of creating one, or description of structure and affiliations of an existing one
2.15 Other Remarks	

* These Questionnaires have been adopted from WHO [4]. They can be used optionally.

Annex 3

INTERPRETATION OF FINIDINGS: Management Structures at Central Level

Aspects	Interpretation *
2.1 Type/Structure	decelitralised, pyramidal, no permanent mobile service
2.2 Responsibilities	defined at each level and known by staff
2.3 Policy / Strategy	defined proportion of in-house and external services, preventive approach, integrated in health management, defined tasks at each level, clear and comprehensive documentation
2.4 Information System / M&E	maintenance information system allows good planning (finances, staff, material etc.), compatible with health management infornmation system or integrated
2.5 Supervision	supervision system defined and organised, linked with health supervision system, technical and psychological support, systematic follow-up of training needs
2.6 Financing/Cost Control	separate budget item for maintenance, cost recovery system contributes >10% of it's total revenue, maintenance staff participate in budget planning, total funds for maintenance >3% of capital cost, cost control system established with periodical analysis (e.g. cost-benefit)
2.7 Inventories	inventory with all relevant information available at all health facilities, up-to-date, only condensed inventories at ministerial level
2.8 Training (Technicians/ Users)	polyvalent maintenance technicians well trained for the practical Tasks (no "white collar" electronics engineers, no semi-skilled "spanner boys"), engineers only as supervisors in regional/central workshops and in managerial position in/for the ministry, adequate and economical courses available in country or region, user training scheme operating, relevant subjects taught during basic training
2.9 Staff	for esch 100 beds 2 trained hospital maintenance technicians are posted (minimum 1 technician per district hospital), one profeissional engineer and min. 2 supportive staff at ministry level, jobdiscriptions/ scheme of service etc. available and adequate, lowstaff fluctuation
2.10 Spare Part Supply	important spare parts available at health facility level or without major delay from higher levels, importation/acquisition takes less than 6 months including ordering, spare part supply system compatible with other supply systems in health services
2.11 Private Services	competent services for sophisticated medical equipment available atacceptable costs and in time, local firms for major repairs of utilities available
2.12 Equip. Purchase/ Standards	decentralised, purchase based on standard specifications and procedures, technicians/users involved in decision-making for new puchases, standardised contract terms, follow-up of the same
2.13 Donor Activities	co-ordination of relevant donor activities by MOM, donors pay a certain percentage of their investment in physical assets into a pool for maintenance purposes
2.14 Professional Society	exist and maintains regular connections to international societies, regul ir national meetings and issuing of a professional magazine
Other Remarks	

* Interpretation of findings can hardly be standardised in a way which captures the complexity and the wide spectrum of scenarios. Therefore, most suggestions for interpretation consist of brief descriptions of the ideal objectives.

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 specialisation
- Areas of competence
- Staff turnover

3. Staff viewpoint

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

4. Future plans .....

.....
.....

WI10/SHS/NHP/88.

ANNEX 3.1

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 **3.2**

IInformation 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 utilise and improve these training resources can then be identified and new initiatives including co-operative 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 organisation.
- 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).
- Specialised 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 syllabi 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

3.8 Examinations

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

3.9 Organisation and administration

- Centre infrastructure and career prospects
- Relationships to other nstitutions

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 Co-operation 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

WHO/SHS/NHP/88.3
ANNEX **3,3**

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 .....
.....
.....

Local market

Agents for medical equipment/or specialised 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.) .....

nstallation, 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. 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 organisations? YES/NO

ANNEX 4

Check List No 4: District Maintenance Service

ANNEX 4

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 .....
.....
Technical areas serviced (buildings, utilities, medical equipment).....
.....
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

ANNEX 4 2.

2. Possibilities for future improvement

Post for staff .....
Workshops .....
Equipment for the workshops .....
Transport .....
Spare parts .....
Organisation .....

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

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

ANNEX 5

Check List No 5: Health Facility Data Sheet

Annex 5

HEALTH FACILITY DATA SHEET

Location: _____

Name of Facility: _____

Type(District/Regional/Other): _____

No. of Beds: _____ Occupancy Rate: _____

No. Outpatients/day: Population Covered: _____

Units/Tasks:

☐ Female Ward	☐ Male Ward	☐ Ped. Ward	☐ Mental Ward
☐ Casualty	☐ Outpatient	☐ Theatre	☐ Sterilisation
☐ X-Ray	☐ Intensive Care	☐ Maternity	☐ Gynaecology
☐ Pediatry	☐ Laboratory	☐ Physiotherapy	☐ Ophtalmology
☐ Family Planning	☐ Orthopaedics ☐	☐ Pharmacy	☐ Stores
☐ Kitchen	Laundry	☐ Maintenance	☐ Staff Quarters

No. of Cars/Bikes/Bicycles: ____ / ____ /____

Distance (hrs) to next town providing technical goods/services: _____

next higher (supervising) health facility: _____

next health facility providing technical services: _____

capital: _____

Public Transport available? _____

Briefly describe:

Drive & Walk Ways _____

_____

Open Terrain _____

Fences etc. _____

_____

For further Remarks please use back page ==>

ANNEX 6

Check List No 6: Building Data
Evaluation Key

Annex 6

BUILDING DATA

Health Facility: _____ **Date:** / . /

⇓ ROOM	floor	ceiling	roof	walls	window	doors	lighting	sockets	furniture	ventilati	air cond.	taps/sink

'poor' physical facilities do not allow operations as required. Health Services are seriously hampered, the building conditions endanger patients and users

'fair' a state where technical problems limit the range of health services. The health facility can not operate as expected, but some essential services can be provided

'good' a state where the building conditions of the health facility allow all services to be rendered as planned.

Annex 6

EVALUATION KEY: BUILDINGS

Evaluation Iltem	GOOD	FAIR	POOR
FLOOR	Even, smooth surface; easy to clean;	rough surface, some dents; difficult to clean; e.g. crude concrete or planks, some loose or missing tiles	unfinished, uneven surface; adequate cleaning impossible; e.g. shattered concrete and tiles, stamped earth
CELING	tight, even, no discolourations (bat droppings etc.), sturdy (e.g. hardboard)	some holes, dents, discolourations, loose sheets, not sturdy (e.g.	missing sheets, no ceiling at all, exception: very small posts with tidy roof
ROOF	tight, working gutters, clean (no leaves etc.), no water traces within building	gutters defect, debris on roof, some water traces within building	no gutters, obvious leaks, rusty metal, water damages
WALLS	even, smooth surface; easy to clean; e.g. tiles, plaster with (intact) paint coat	rough surface, some dents; difficult to clean; e.g. crude concrete or planks, some loose or missing tiles	unfinished, uneven surface; adequate cleaning impossible; e.g. stamped earth,
WINDOWS	tight fit, panes intact, fittings operating, smooth & finished surface of frame	loose fit, some panes broken or missing, some fittings seized or loose, surface of frame rough	warped frames, most panes broken, missing windows, most fittings unusable, surface unfinished
DOORS	tight fit, fittings/lock operating, smooth & finished surface	loose fit, some fittings/locks seized or loose, surface rough	warped, missing doors, most fittings/ locks unusable, surface unfinished
LIGHTING	natural and artificial light sufficient for tasks to be performed	natural light sufficient for tasks to be performed, artificial light insufficient	natural and artificial light insufficient for tasks to be performed
SOCKETS	sockets intact and sufficient for tasks to be performed	some sockets not intact but sufficient for tasks to be performed	sockets neither intact nor sufficient for tasks to be performed
FURNITURE	furniture intact, adequate and sufficient for tasks to be performed	some furniture not intact but adequate and sufficient for tasks to be performed	furniture neither intact nor adequate nor sufficient for tasks to be performed
VENTILATION	room temperature not higher than outside, little or no dust	room temperature not higher than outside, considerable dust	room temperature higher than outside and/or very dusty
AIR CONDITIONING	equipment properly working and of adequate capacity	equipment working but of inadequate capacity	Equipment not working or to no effect
TAPS/SINKS	taps/sinks intact and sufficient for tasks to be performed	Some taps/sinks not intact but sufficient for tasks to be performed	taps/sinks neither intact nor sufficient for tasks to be performed

ANNEX 7

Check List No 7: Equipment & Utilities Data

Evaluation Key

Annex 7

EQUIPMENT & UTILITY DATA

Health Facility:. _____ **Date:**___ /___ / ___

Type of Equipment/Utility: _____

↓CONDITION / BRAND→					
fully operational					
partially operational					
down (give reason)					
disused (give reason)					
beyond repair					
service availability					
spares availability					
manual availability					
MODE→.					
capacity					
age					

Remarks:

"poor" the equipment is not operational, incomplete or not safe for use. It could cause harm to patients and equipment users. The equipment cannot be used any longer. It requires repair or replacement. '

far" has been defined as a state where problems limit the application of the equipment. The equipment can not operate as expected and safety is not completely guaranteed for patients and users but renders some essential services.

'"good" has been defined as a state where the equipment is operational and able to render all expected features. The equipment is complete and safe in its application.

Annex 7

EVALUATION KEY: EQUIPMENT & UTILITIES

CHARACTERISTIC	OPTIONS	VALUATION
fully operational		good
partially operational		fair
down (give reason)	- any reason	poor
disused (give reason)	- useful, but no manual - useful, but no trained staff - useful, but no consumables - useful, butno electricity, water etc. - not useful for task profile	fair fair fair fair poor
beyond repair		poor
service availability	- at hand - to be called, sluggish - poor quality or not available	good fair poor
spare parts availability	- at hand - to be called, sluggish - poor quality or not available	good fair poor
manual availability	- at hand - at hand, but incomplete / wrong language - to be ordered	good fair poor
capacity	- capacity meets demand at any time - capacity meets 50-90% of theoretical demand or exceeds 120% of demand - capacity < 50% of theoretical demand	good fair poor
age	↓ useful lifetime of item ↓ ↑ recent ↑old ↑ oboslete →	recent old (plan for replacement)
	up to useful lifetime minus 1.5 years	
	useful lifetime minus 1.5 years up to useful lifetime minus 0.5 years	
	≥ useful lifetime minus 0.5 years	obsolete (re place now)

ANNEX 8

Check List No 8: Hygiene Data
Evaluation Key

Annex 8

HYGIENE DATA

ITEM	GOOD	FAIR	POOR	REMARKS
1. Overall Cleanliness				
1.1 wards				
1.2 treatment sections				
1.3 laundry				
1.4 kitchen				
1.5 utility sections				
1.6 administration				
1.7 sanitary facilities				
1.8 terrain, yard(s)				
2. Water Supply & Sewerage				
2.1 quantity				
2.2 quality				
2.3 wastewater disposal				
3. Waste Disposal				
3.1 within buildings				
3.2 outside buildings				
3.3 outside premises				
3.4 dumping site				
4. Other				

•poor' a state where the hygienic situation is unacceptable. Treatment areas and wards are dirty, toilets and sanitary facilities are filthy. The facility is not able to render health services - proper operations are seriously hampered. Cross infections patient/patient or health staff are likely.

“'fair' a state where hygienic problems are visible and restrict the range of health services. The health facility cannot operate as expected but some essential services can be provided.

'”good' a situation where the hygienic conditions of the health facility allow a rendering of all services as expected.

Annex 8

EVALUATION KEY: HYGIENE

ITEM	GOOD	FAIR	POOR
1.1	}		
1.2	}		
1.3	} surfaces clean, little or no dust, no debris	surfaces fairly clean, some dust, patient	surfaces dirty, dust and grit, patient and staff
1.4	} on floor or furniture	induced debris on floor	induced debris on floor and furniture
1.5	}		
1.6	}		
1.7	..if the appraisers would use it	..if the appraisers would use it under precautions	..if the appraisers would never ever use it
1.8	no or only little debris, no faeces	some patient induced debris, no faeces	littered with various debris and/or disposable medical devices and/or drugs and/or faeces
2.1	dispensary >750l/d; health centre (no deliveries) >3000l/d; health centre with deliveries >8000l/d; hospital >80l/patient and staff member/d	dispensary 500-7501/d; health centre (no deliveries) 2000-30001/d; health centre with deliveries 6000-80001/d; hospital 50-801/patient and staff member/d	dispensary <5001/d; health centre (no deliveries) <20001/d; health centre with deliveries <60001/d; hospital <501/patient and staff member/d
2.2	source: deep well, well protected cistern, streams/lakes known to be clean; no discoloration (except for brown tint of unpolluted "black water" in rain forests), no odour, no visible or colloidal sediment; water analysis without negative result, potable	Source: shallow well, protected cisterns, streams/lakes known to be clean; no discoloration (except for brown tint of unpolluted "black water" in rain forests), some sediment and/or slightly milky; water analysis shows bacterial or chemical contamination slightly exceeding national/ WHO standards, potable after boiling	Source: surface water, open cisterns, polluted streams/lakes; visible discolouration (except for brown tint of unpolluted "black water" in rain forests), significant sediments and/or cloudy/muddy; water analysis shows bacterial or chemical contamination significantly exceeding national/WHO standards, not potable
2.3	wastewater treatment, no leaks in piping system, no foul smells of effluents	septic tanks, no leaks in piping system, no foul smells of effluents (overflow)	no treatment, direct release of wastewater into streams, lakes, wadis, open pits
3.1	waste bins in each section, bins not overfilled, sharps are properly separated	waste bins in each section, bins not overfilled, sharps are not properly separated	waste bins not in each section, bins overfilled, sharps are not properly separated
3.2	sufficient waste bins at strategic points, bins not overfilled, no spilled waste	sufficient waste bins at strategic points, some bins overfilled, some spilled waste	insufficient waste bins, most bins overfilled, lots of spilled waste
3.3	no hospital waste visible, in particular in lee	some harmless hospital waste visible	all kinds of hospital waste visible incl. sharps
3.4	professional landfill, properly managed waste pit (protected shaft), properly working incinerator	proper waste pit, but not well managed; open incineration, but controlled	shallow pits or none at all, open and uncontrolled incineration

ANNEX 9

Bibliography

Annex 9

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