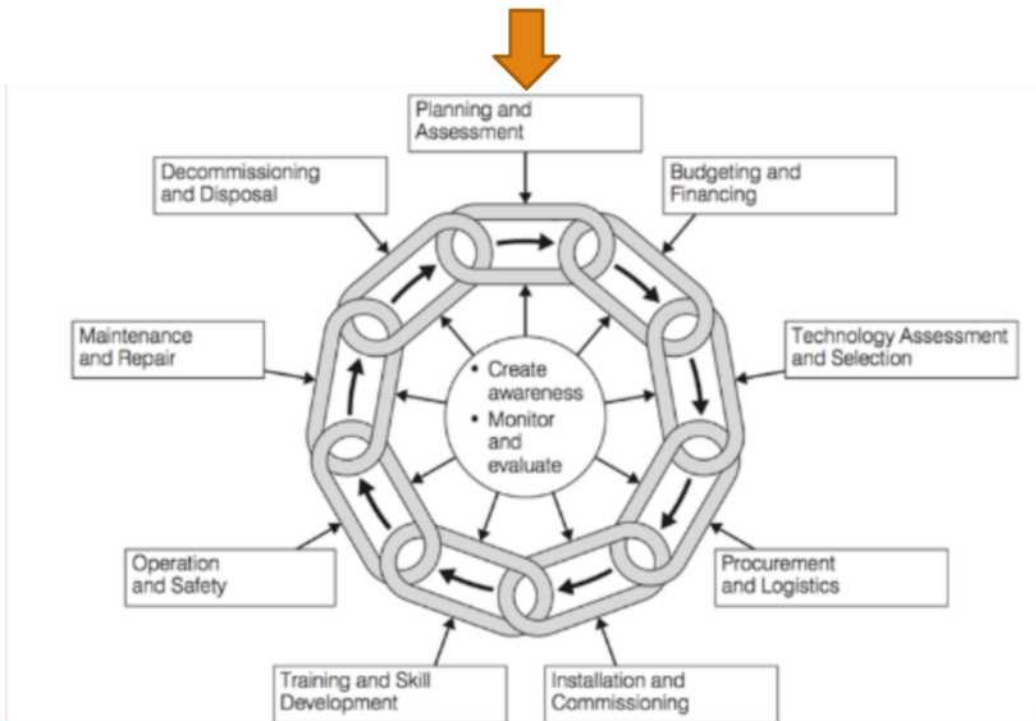


Planning for medical equipment

- Use the Hospital planning cycle
- Identifying equipment planning stake holders
- Identifying equipment standard list for each level of health facility.
- Identifying the level of facility



Unit B 9.2 Planning for medical equipment

Module 279 09 B Medical Equipment Management and Maintenance

intro: Planning is important !

It is common in developing countries to find:

- considerable cuts are made in **recurrent expenditures**
- funds for **salaries** are often protected
- money for **other costs** is frequently limited. For example, fuel is often not available
- there is no guarantee that the recurrent costs required for new services will be provided sufficiently to run the equipment properly



There is little use in allocating a large proportion of the health budget to salaries, if the staff do not have the necessary tools to work with.

Planning is important to make the most of your assets

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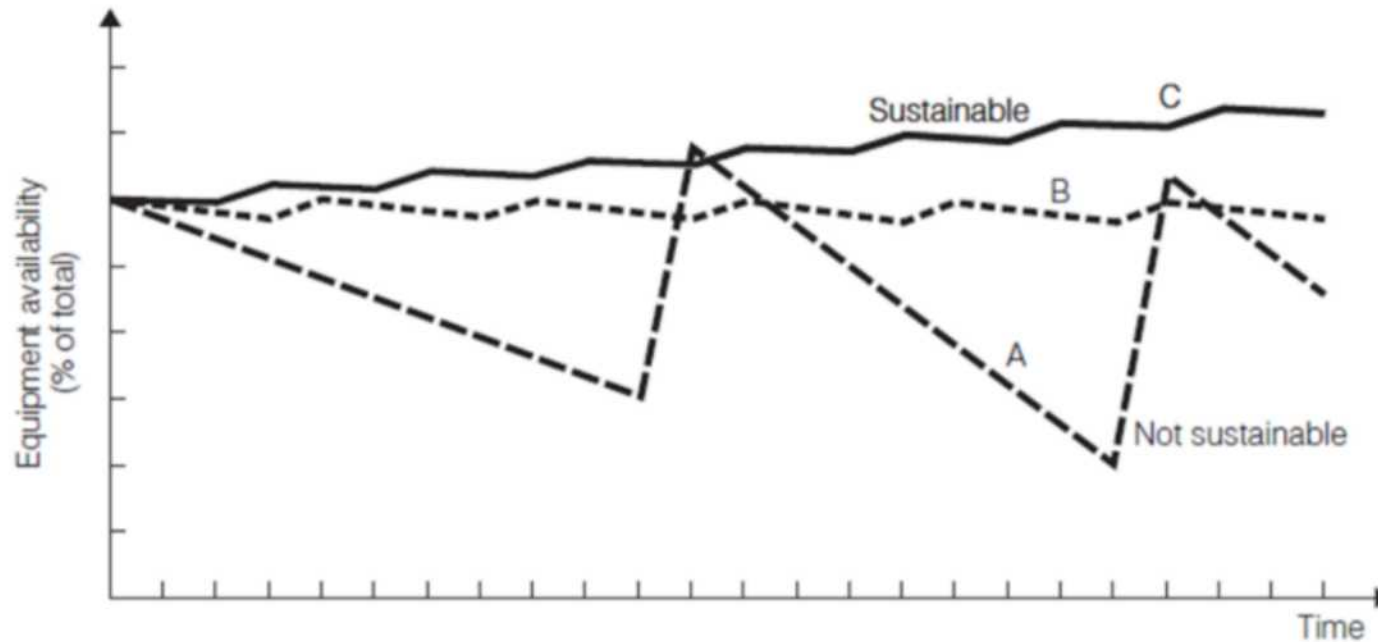
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Country Experience

Planners often fail to realise that equipment operating costs have a much greater financial impact than the initial procurement cost, and can account for anything from 5% to 100% of the procurement cost per year. For example, health staff in Germany discovered that an infusion pump which cost US \$24,000 to run over its 10-year lifetime, mainly due to the cost of the continuous supply of infusion sets required. However, many health service providers have not calculated and budgeted for the real operating requirements of their equipment.

intro: Planning is important !



Curve A: Crisis Management:

- ◆ major periodic injections of new equipment
- ◆ poor preservation of existing stock

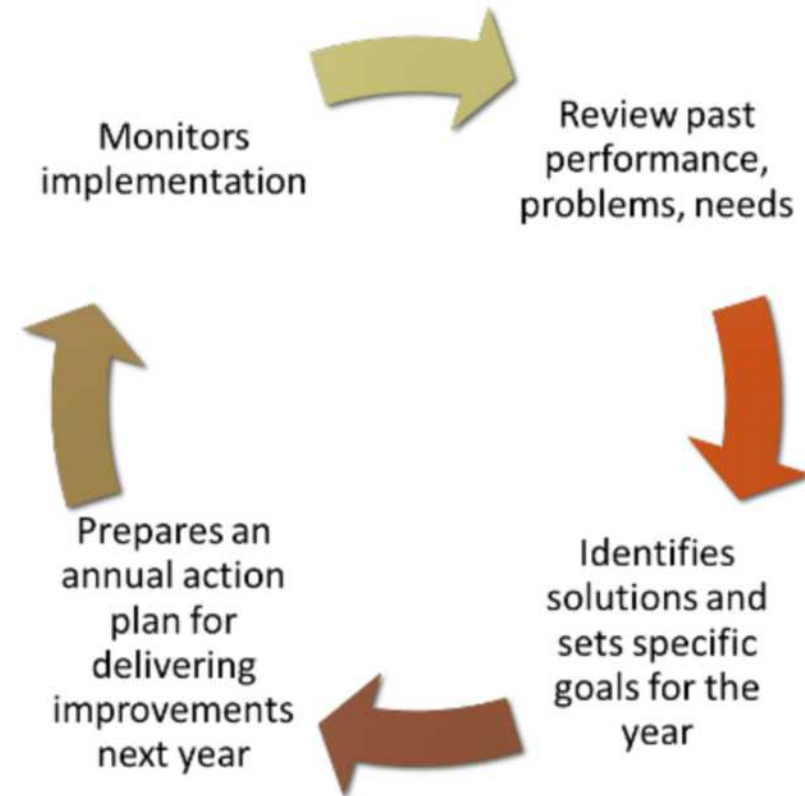
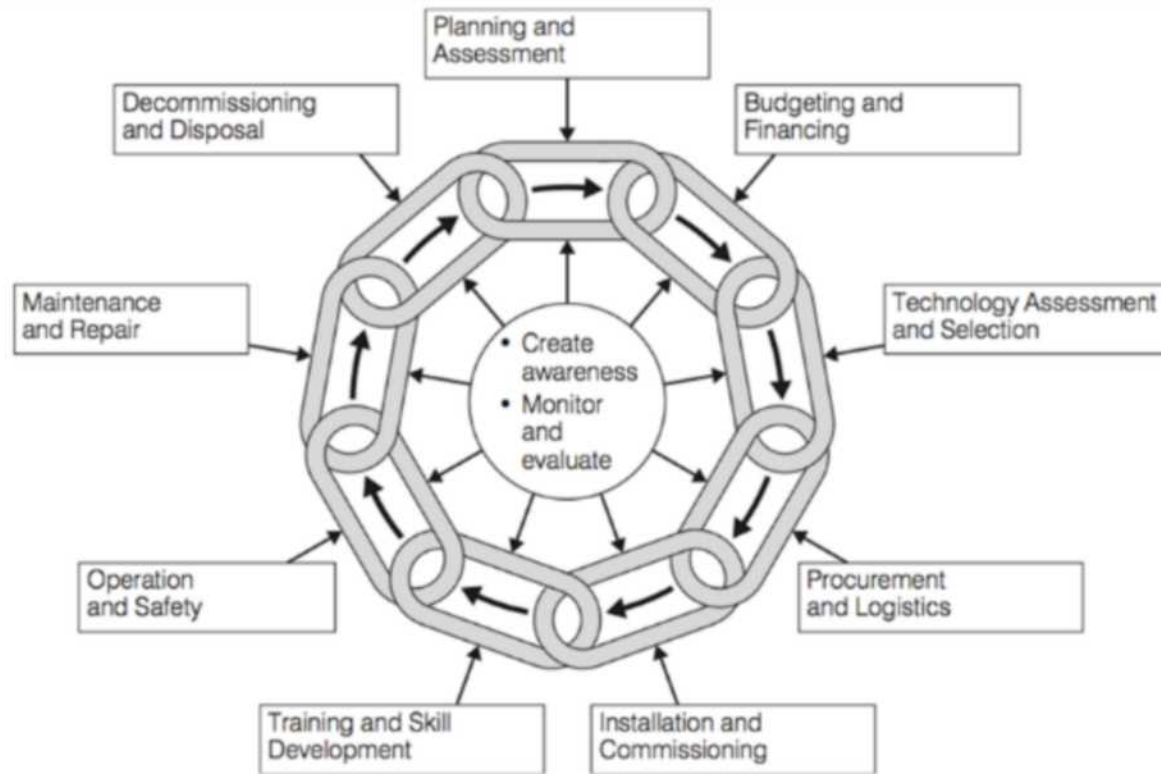
Curve B: Stable Healthcare Technology Management:

- ◆ preservation (maintenance) of equipment
- ◆ regular planned replacement

Curve C: Good Healthcare Technology Management:

- ◆ preservation of equipment
- ◆ regular planned replacement
- ◆ improved performance through internal learning process

Use the hospital Planning Cycle



Be aware when is the best time to bring up an issue !

Who will do the Equipment Planning?

Medical Equipment Management Organization

(Government, Provincial, District, Hospital level)

Medical Equipment Management Committee

(hospital level)

The Zambia-wide organization that manages the equipment, including central, regional and facility levels. It regularly considers all equipment-related matters, and ensures decisions are made that are appropriate to the health system as a whole.

A ME management committee regularly considers all equipment-related matters, and ensures decisions are made that are appropriate to the hospital. It steers the Med. Equipment Teams on all equipment issues; it prepares annual plans for equipment purchases and prioritizes expenditure across the facility/district as a whole. Its members should include all types of stakeholders that have an important role to play in medical equipment management, such as administrative, medical, finance, supplies, and technical personnel. E.g. head of medical/clinical services, Head of support services, Purchasing and supplies officer, Finance officer, Representatives from both medical equipment and plant maintenance, Representatives of equipment users

Medical Equipment Team / Technologist (ME Team)

Team or Person that carries out equipment management, either with or without the presence of a local workshop. The manager of this team is member (secretary ?) of the ME MC.

Equipment planning stake holders

The Medical Equipment Management Committee holds major stake holders and may **install sub-groups** for specific tasks, such as a **Planning sub-group** !



ME-MC	Planning	Training	Stock	Pricing
General manager	X			
ME manager	X	X	X	X
finance manager	X			
maintenance manager	X	X		X
purchasing manager	X		X	X
nursing services	X	X		
relevant users	X	X	X	
HRM manager		X		
Stores controller			X	

Stock sub-group

evaluates usage rates and recurrent stock requirements for equipment-related consumable items

Pricing sub-group

responsible for developing equipment price lists and stock values



not regular members of ME MC

Exercise: Vision

You are the Principal of NORTEC.

Every 5 years NORTEC makes a strategic plan to establish what the contours for the next 5 years. Such planning starts with making a 'Vision' for the College.

You will have to present this Vision to the next College Board meeting. Now you have collected your team to discuss this vision. Please spend 30 minutes with your team to discuss the next topics:

- what are the new trends in the Zambian society that you expect will influence the activities at NORTEC in the coming 5 year period ?
- To what degree do you expect that the availability of on line study materials ('remote learning') will impact the activities at NORTEC ?
- In relation to those trends: which new courses do you want to start delivering at NORTEC ?
- What do you consider the College main weaknesses and which ones do you urgently want to improve in the coming 5 year period ?

the Vision for the Health Services



A vision must be developed at all levels !

It works best when central levels develop the overall vision first, e.g. for the country.

Regional and Hospital level Equipment Management teams can then fill this in for their domains.

Who is responsible for developing the Vision?

This varies per country, depending on:

- your health service provider
- which level of the health service you work at
- the degree of autonomy of your health facility.

Who?		Takes what action?
Health Management Teams at each level	→	Organize special meetings of different types of staff at each level to discuss the Vision.
HTM Working Group (Section 1.1)	→	Advises the Health Management Team on all technology issues during this process.
Which level?		Takes what action?
Central Level	→	Takes the first step and develops the overall Vision for the direction of the health service as a whole.
Regional/District Level	→	Once this Vision has been completed or updated, takes the second step and defines the services to be provided by individual health facilities. By: - studying the map of facilities for their area - considering how their region/district varies from the norm described by the centre.
Facility Level	→	Once the services have been defined for the district, takes the third step and looks at the possibilities they have for providing the defined services.

HTM Working Group = Medical Equipment Management Committee

the Vision for the Health Services



The Health Equipment Management Organization at each level should organize a series of meetings to discuss the development of the Vision. These meetings should include a cross-section of different types of staff from their level (facility, district/region, or service as a whole).

At these meetings you should discuss:

- the **direction** that the service should be taking
- the **sort of care** that should be provided now and in the future
- the sort of **procedures** that will be carried out
- the type of healthcare **technology** required.

These meetings should take into account:

- healthcare trends, demographic data, epidemiological profiles, priority health problems
- the clinical and referral features of the target area
- the infrastructure, finances, and human resources available
- local strengths and weaknesses
- the support available from external support agencies.

Following these considerations, the Health Management Teams should develop a realistic Vision for the health service in terms of the procedures to be carried out, and produce it as a **formal document**

..and ensure the approved written Vision is used as the basis of subsequent equipment planning and budgeting decisions

Model Equipment List = part of the Vision

- a model equipment list is a list of equipment typically required for each healthcare **procedure**, such as eye-testing, doing fluoroscopic examinations, or for testing blood for malaria
- organized **by room** (such as reception area or treatment room), and **by department**
- developed for every **different level** of healthcare delivery (such as district, regional and central)
- usually made up of **everything including furniture, etc.** in order to be useful for planners, architects, engineers and purchasers

For example, a department could have

- an electric suction pump or a foot-operated one
- a hydraulic operating table or an electrically controlled one
- a computerized laundry system or electro-mechanical machines
- disposable syringes or re-usable/sterilizable ones.

Equipment Development Plan = an Action Plan

The Healthcare Vision can include an equipment development plan.

This is based on the equipment inventory.

It shows for each (major) piece of equipment what its future / destination is.

The format (next sheet) is completed during the creation of the Vision.

Medical Equipment Development Plan

Name of facility :

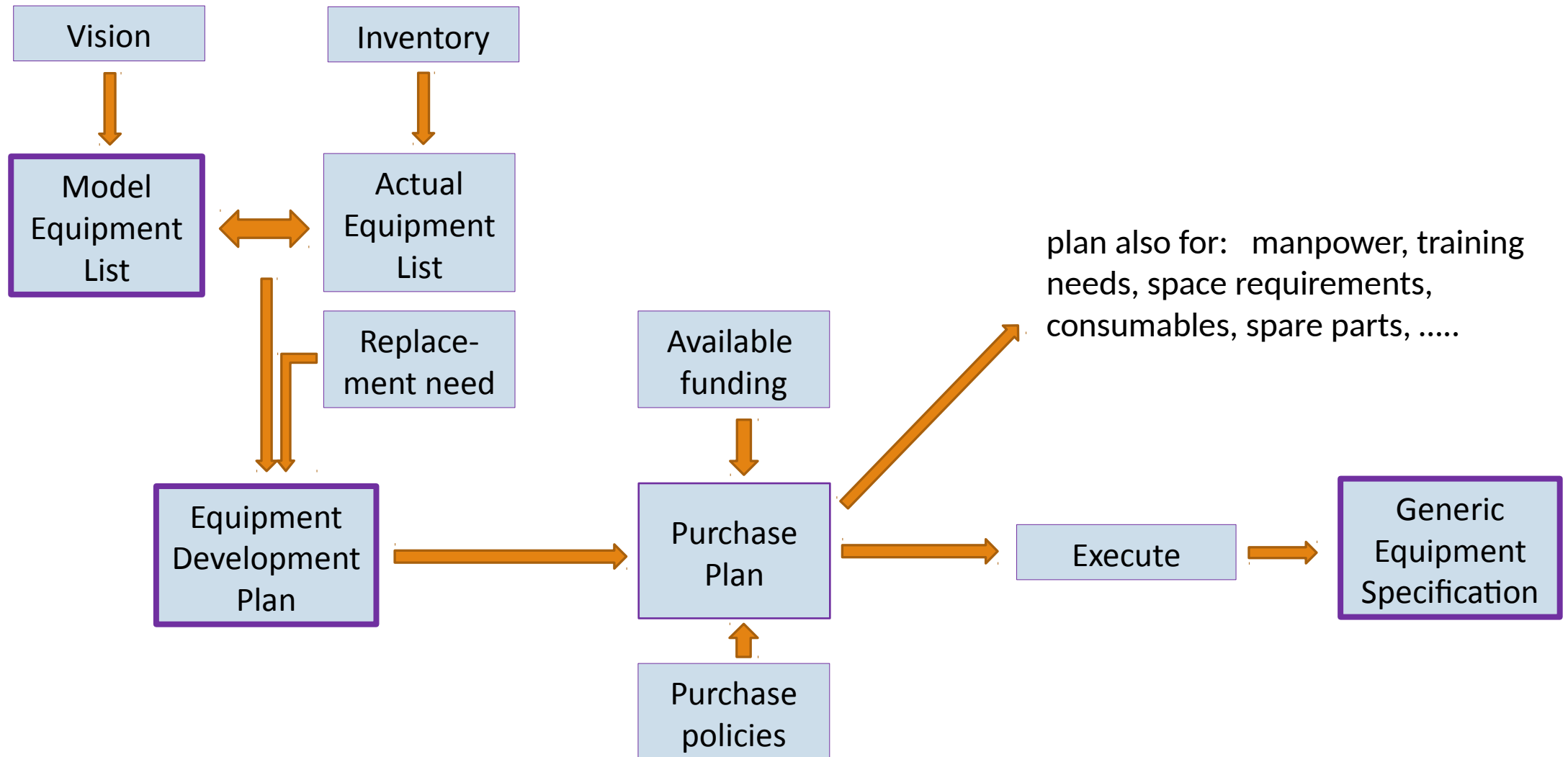
Short term : 1-2 years

Date of draft :

Middle/long term : 3-5 years

No.	Information of Equipment							Technical team advice		Judgement by MEMC					
	Department/HC/HP	Equipment name	Manufacturer	Model	S/No.	Condition of equipment	Commissioning year (estimate)	Short term action	Middle term action	Short term action			Middle term action		
										Cost	Action decided by MEMC	Expected source of funds	Cost	Action decided by MEMC	Expected source of funds

From Vision to Action Plan



Identifying equipment planning stake holders

the **Medical Equipment Management Committee** may install a sub-groups for making specifications

ME MC	Specification
General manager	
ME manager	X
finance manager	?
maintenance manager	X
purchasing manager	X
nursing services	?
relevant users	X
HRM manager	
Stores controller	?

Specification sub-group

Maybe, generic equipment specifications have already been developed/collected at country level.

It is important to build up a database of generic equipment specifications that can be used at facility level.

Exercise: Plan

You are yourself and keen to complete the current term at NORTEC successfully.

In order to make it more certain that you will finish all your studies in time, you want to make a plan for the next phase. This plan shows per day how many hours you will study each module of your course, from today onwards until the start of the midterm tests.

Please spend 20 minutes to make this plan.



Development of generic equipment specifications

Generic means a 'type' of thing, or a 'class' of item or object

A clear generic equipment specification includes:

- a detailed description of the equipment
- the 'package of inputs' needed to keep the equipment going through its lifetime
- the quantities required.
- 'various'

What is included in a Generic Equipment Specifications

Detailed description

of the equipment

- what it is used for
- what it should do
- what features
- preferences in case of alternatives
- expected performance / output
- accessories with technical details

the 'package of inputs'

needed to keep the equipment going through its lifetime

- accessories
- consumables
- spare parts
- manuals
- warranty
- delivery specs
- insurance

Quantities

required

Various

- site preparation details
- installation
- commissioning
- acceptance
- training of users and maintainers
- maintenance contract

Exercise: Generic Equipment Specification

You are the head of the BMET section of a major Zambian Hospital.

The cardiology department in your hospital needs a new ECG machine (teams #1) and a Blood pressure machine (teams #2). The Medical Equipment Management Committee has decided that there is now money available for this and wants to start purchasing activities.

The Chairman of the Medical Equipment Management committee asks you to make a Generic Equipment Specification for these equipment units.

Please spend 20 minutes with a 4 person team to make the outlines of the requested specification (choose 1 of the mentioned units)

Did you know?

Many countries suffer from using poor equipment specifications. Common mistakes include:

- ◆ **the product description is too short**, providing an insufficient description of what is required. For example, a specification which says: 'Please supply one autoclave' is useless. It gives no details at all about the type of unit, what needs to be autoclaved, its size, or how it will be powered (by electricity or kerosene). Many different sorts of autoclaves could be supplied, most of which will be unsuitable.
- ◆ **the product description is too rigid**. If the description provided is not general enough, this can be very limiting. For example, a specification which states: 'Please supply one X-ray machine like a Siemens model Unistat 11' is so specific that most suppliers (other than Siemens) cannot help. The only exception to this rule would be if you actually wanted to buy a particular make and model of machine (for example, if you have standardized to it – *Section 4.4*).
- ◆ **the product description reduces your options**, by providing a description of particular equipment rather than the function you require. For example, a specification which states: 'Please supply one peristaltic pump for diffusion' means that all you will be offered is peristaltic pumps. If instead you say you want to undertake infusion with the best available pump, you widen the choice of different available pumps that suppliers can offer.

Country Experiences

Examples of the kinds of problems which have arisen in various countries due to poor specifications are:

Equipment that is incompletely procured

- ◆ *Equipment arrives without the necessary accessories*
- ◆ *There is a lack of consumables such as chemicals or fuel*
- ◆ *Instruction manuals are not received or are written in a foreign language*
- ◆ *No local after-sales support is available*

Poor quality equipment

- ◆ *Quality is so poor that a few years after commissioning, much of the equipment falls apart and is hazardous*
- ◆ *Suction machines do not suck*
- ◆ *Heavy workload areas receive lightweight equipment*
- ◆ *Filing cabinets for X-ray film cannot bear the weight of films*
- ◆ *Trolleys are so narrow that the patients fall off them*

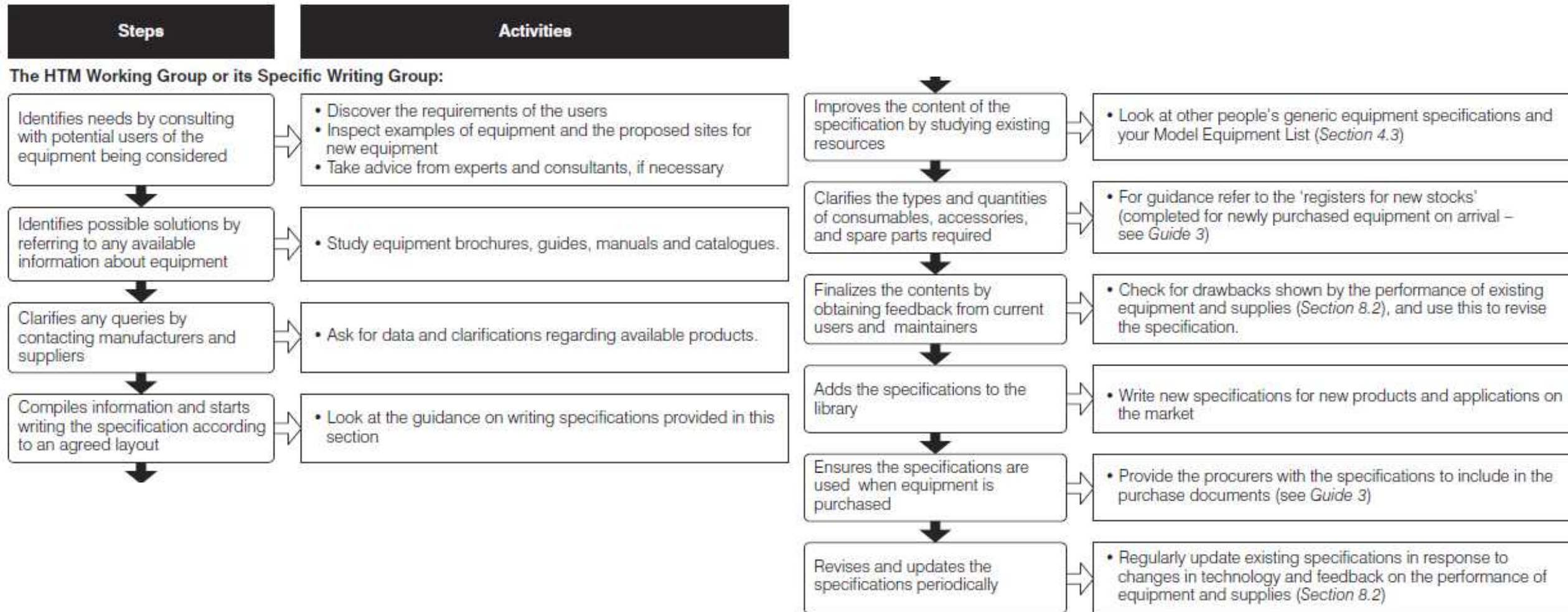
Equipment that does not fit medical and technical requirements

- ◆ *Equipment is technically and/or economically obsolete upon arrival, or soon after its arrival*
- ◆ *Transport incubators are not transportable*
- ◆ *Generators have insufficient capacity to supply the hospital's power requirements*
- ◆ *Taps in the theatre scrub-up rooms are not elbow or foot operated*
- ◆ *Beds cannot be tilted*
- ◆ *Gas gauges are not compatible with local gas fittings*
- ◆ *There are items which no-one knows how to use*

Equipment that cannot be installed

- ◆ *The site is not suitably built or provided with service supplies*
- ◆ *No expertise is available to install or commission the equipment*
- ◆ *Requirements and responsibilities for installation and commissioning are not defined.*

Development of generic equipment specifications



END

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