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Health care equipment for developing countries The conflict between needs and interests

Matérioels médicaux pour les pays en développement - Le conflit entre besoins et intérêts. Dans la plupart des pays en développement, la situation actuelle des matériels et équipements médicaux ne permet pas de satisfaire les besoins sanitaires fondamentaux. Si l'on fait abstraction des défaillances au niveau de l'entretien, les causes principales du problème se situent dans le choix et la composition peu rationnels des matériels, qu'ils aient été achetés par le pays lui-même ou fournis par des donateurs. Le marché des pays en développement, relativement restreint pour ce qui est des matériels médicaux, n'incite pas les fabricants à développer des technologies appropriées. Afin de remédier à cet état de choses, des efforts de normalisation sont entrepris, à la fois dans les pays en développement et par l'Organisation Mondiale de la Santé (OMS) au niveau international. Pour sa part, la GTZ se propose de réaliser un manuel sur les normes de matériels qui couvrira toute la gamme des équipements jusqu'au second niveau de référence des formations de santé.

1. Introduction

All experts, and in particular health professionals in developing countries, agree that the condition of health facilities and health care equipment is disastrous in the so-called Third World. It remains a miracle, how most of the health institutions in developing countries succeed in maintaining some of their activities, even though up to 80% of their equipment is inoperable. On the whole, the problem lies not in the lack of equipment but in the lack of functioning equipment. Reasons for equipment not working are numerous:

— personnel not adequately trained
— insufficient maintenance
— no consumables, such as chemicals or fuel
— technological environment inadequate
— equipment not or poorly installed
— equipment incompletely procured (accessories, manuals, etc.)
— equipment standard not according to medical and technical requirements (sophistication too high or too low, specifications not met)
— poor quality.

Comprehensive national health care equipment policies which take into account these aspects are as good as non-existent.

A roughly estimated 70% of health care equipment for developing countries is being provided by external sources, such as charitable organisations and in particular by organisations which operate within the framework of technical aid, or rather, technical cooperation.

2. Bi-and multilateral technical and financial cooperation

Technical Aid, or better to say, Technical Cooperation involves national or international bodies of the industrialised part of the world which finance and/or implement among many other things, projects in the field of health care equipment. This equipment is either procured directly by the financing body or by the recipient in the developing country. In either case the process of procurement is only rarely handled in a rational way which would satisfy the real needs of the end users, namely medical doctors, nurses and particularly the needs of the patient. Thus, the wrong equipment is supplied to the wrong places and to the wrong people.

One would assume that the manufacturers and suppliers would have a genuine interest in assisting their customers in the selection process and in logistical questions. In developing countries this is mostly not the case. There, suppliers are usually not encouraged to do more than sell equipment. Further services are regarded as unprofitable in view of the weak financial infrastructure of health services either. Lack of serious and competent competition does not stimulate after-sales-service.

This practice becomes even more understandable when considering that eg. less than 1% of the world's production of medical equipment goes to sub-Saharan countries (excluding the South African Customs Union). Hardly an overly motivating share of the world market. It is therefore also understandable that manufacturers do not see themselves in the position of developing technology appropriate for developing countries.

2.1. The Role and Characteristics of the Donor

Donors find themselves in a dilemma. On the one hand they acknowledge the urgent needs of the developing countries. On the other hand they are more or less strongly tied to national economic interests which in the end materialise in aid tying. This sort of thinking is understandable and would, to some extent, even be acceptable, if it would not lead to serious detrimental effects. It leads, among other things, to a mostly complete lack of coordination between the various donor and thus to duplication of efforts.

A donor organisation is mostly and primarily an administrative body and very often does not posses its own specialist know-how to a sufficient degree. This know-how, in the case of health care equipment selection and supply, is being sought from the eager supplier. But the suppliers in industri-

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che hanno già avuto la dovuta denuncia in vari consessi.
Le soluzioni già messe in atto, che sono quelle che passano attraverso la fornitura di pezzi di ricambio, di manuali di istruzioni per l'uso e la manutenzione, di training del personale, sono risultate necessarie ma non sufficienti.
Anche la caccia alle streghe per trovare i colpevoli del degrado non ha prodotto risultati consistenti.
Quello che invece si deve fare è intervenire, già in fase preventiva, nella definizione dei patti della collaborazione che deve prolungarsi nel tempo al di là della realizzazione dell'opera e dell'avvio.
Una cooperazione attiva quindi che prevede il coinvolgimento di figure omologhe che lavorino direttamente sul campo ed indirettamente sulla formazione professionale svolta anche nei Paesi di origine delle forniture non dimenticando che nell'ambito di un generico gap tecnologico si nasconde anche un differente modo di concepire la cultura medica che va tenuto in debito conto.
Altrimenti il trasferimento di tecnologie rischia di essere vanificato, gratificando in modo effimero solo coloro che sono preposti al taglio del nastro dell'inaugurazione.

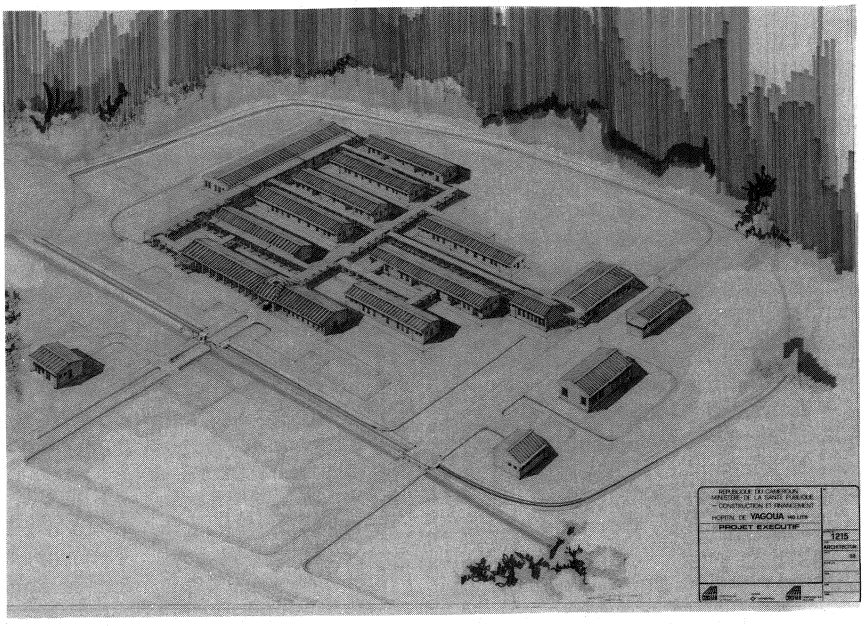

Fig. 10 - Ospedale dipartimentale di Yagoua, Cameroun - Vista assonometrica.

alised countries cannot sufficiently appreciate needs and conditions in developing countries. The equipment reaching such a country does therefore not meet the required, yet often undefined standards.

2.2 The Role and Characteristics of the Recipient

The receiving countries, too, are facing a dilemma. They very well recognize that the equipment in their health facilities is more than inadequate. But they are mostly not in the position of providing adequate equipment specifications or, are too considerate of possible interests of the donor. In addition, the ever explorative mind of medical doctors and their tendency to have only "the best", frequently result in ordering equipment too sophisticated for the tasks to be performed. By the way, there are no indications that this circumstance would only apply to developing countries.
Technically relevant criteria are seldom applied when ordering equipment or when negotiating with a donor. No wonder, knowing that almost no developing country has technically qualified personnel among their health staff. Even where eg. maintenance engineers would be available to the administrators and medical staff in the course of preparing equipment specifications, serious acceptance problems frequently prevent fruitful communication.

3. Donations and second-hand equipment

Much equipment, and especially second-hand equipment, get into developing countries through activities which are labeled charitable. Involved in such activities are mainly three groups.
The first group can be described as well meaning with a professional and appropriate approach. A typical example are the classic religeous mission organisatons. They normally have a very pragmatic approach and at least try to set up technical and financial infrastructures which can safeguard the sustainability of measures in the area of health care equipment. They try to provide relevant training, spare parts and consumables.
The second group is also well meaning but inexperienced. It overlooks essentials, such as health priorities, qualification of users, the technical environment and the financial resources of the recipient in the developing country. Symptomatical for this group are eg. spontaneous donations from or through individuals. In this way many health facilities in developing countries are being furnished with machines which do not work because there is no electricity or with eye-glasses for which individual adaptation is not possible because no ophtalmologist is availabel.
The third and smallest group consists mostly of small firms or agents which consider themselves well meaning, thereby only trying to obscure their bland profit orientation. They collect obsolete equipment from private practices and hospitals and sell it to charitable organisations or gain tax advantages for their clients by exporting these goods as donations. We at GTZ have come across virtual container loads full of technical garbage in some African countries, declared eg. as fully functional hospital furniture.
All groups, including the "big" donor organisations must be aware that supplying equipment which does not meet the up-to-date technical and safety specification of the donating country should be avoided. The blame in case of an accident, for example, with a formally obsolete but otherwise perfectly working X-ray machine, always goes back to the donor and may cause considerable irritation. The logic behind it is clear and basically justified: what is not safe for an industrialised country cannot be safe for a developing country. But safety is a relative term. Sometimes it is surely safer to utilise an "unsafe" instrument than to have none at all.

4. User costs

One of the most critical aspects to be observed when ordering equipment is the aspect of after costs. How often it the attempt made to justify donations by arguing that some people would have a nice medical apparatus for free? Most donors obviously do not know that the operating costs amount to between 5 and 100% per year of the procurement costs. An infusion pump operated in Germany, to give a graphic example, will cost after its lifetime all in all more than 45,00 DM, includin 5000 DM purchase cost.
In many developing countries, to illustrate their reality, ordinary disposable infusion sets are "sterilized" by boiling them for re-use because of no funds or no supply.
Many cost factors contribute to the high total costs, the so called user costs. Cast factors are:
— purchase
— transport
— pre-installation site preparations
— installation, calibration
— user training
— personnel (operators)
— operating material (consumables)
— maintenance & spare parts
— energy consumption
— disposal of the equipment and/or of substances produced
— replacement costs.
In developing countries, of course, the population suffers from lack of medical equipment. But by thoughtlessly transferring such equipment, hopes are raised which cannot be sustained. Technology can be a monster, swallowing scarce financial means for often doubtful ends.
Equipment donations may also have adverse effects if they are of a simple nature. Take for example ordinary hospital beds.
Furniture like this can be manufactured by even smaller firms in developing countries themselves for a price, often less than the transport cost. Except for cases of catastrophes, the donation or importation of low tech should be avoided. Instead, local production should be stimulated in order to create labour and to promote self-sufficiency.

5. Equipment requirements and standardization

There is a growing potential of alternative manufacturers in newly industrialised countries, such as Argentina, Brazil and Mexico, to name only a few Latin-American examples. They produce some medical equipment more suitable for rough conditions. But all in all we will have to live with equipment manufactured primarily for industrialized countries.
It is therefore all the more essential for the developing countries, and as well for any donor, to develop rational equipment standards on which agreement can be reached. This sounds very sensible, but is utterly difficult in view of the different interests involved and of the wide spectrum of medical and technological coditions to be met. It is therefore inconceivable to think of a standard list based on specific makes and models, suitable for all developing countries.
GTZ, in cooperation with WHO, takes a different course. In the course of this year a manual will be available, which tries to approach the problem by defining equipment requirements through, first of all, listing the tasks of the health facility to be equipped. The health facilities are divided into four groups:
1. Basic health care facilities, such as health posts of sub-health centres with no in-patient or maternity services
2. Routine health care facilities, such as health centres or sub-district hospitals with up to 75 beds
3. Referral hospitals at district or provincial level with up to 250 beds
4. Highly specialized hospitals, such as university hospitals and medical schools.

For each of these groups the whole possible spectrum of tasks is being listed in a modular format, for example
— internal medicine
— gynecology
— laboratory
— maintenance workshop
etc. Then, corresponding to the various tasks, all the necessary equipment is listed and shortly described. The description does not include a detailed specification. This will be done in a second volume of the handbook to be issued in due course. Volume one also describes in detail the general considerations and criteria when selecting and procuring health care equipment. The manual should be regarded as one approach among several possible. It would hopefully complement other ways of tackling the standardization problem, such as the standard equipment list being prepared by A. Malloupas, also under the auspices of WHO. Should developing countries and donors only succeed in matching equipment with the real requirements at the different levels of health care, the unmanageable variety of equipment would be considerably reduced. Yet, standard lists can only constitute a tool for the decision makers. To make the tool work, the developing countries must gain more self-assurance in claiming their real needs. The donors in the industrialized countries must appreciate the different conditions in health care of developing countries and should acknowledge that their own national interests do not necessarily collide with such needs.

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