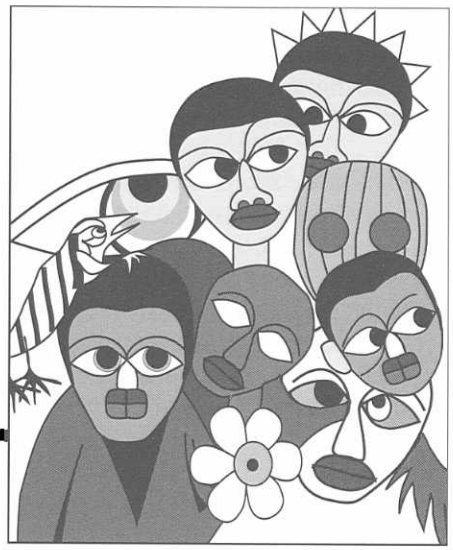


2. PROJECT INCEPTION

HEALTH POLICIES: GOALS AND OPTIONS

Rational planning for health facilities requires rational planning for health services, since the facilities exist only to support the delivery of these services. Many countries are now reassessing the adequacy of health services and determining which services should be publicly provided. The current extreme constraints on public resources demand such an evaluation. This is normally done in three phases. First one calculates the burden of disease in a country, by estimating which diseases as the main causes for morbidity and mortality cause the most loss of disability-adjusted life years (DALYs). Secondly one assesses the cost-effectiveness of health interventions which can address these causes of loss in DALYs. In a conventional cost-effectiveness analysis the economic cost of an intervention is divided by an estimate of its health effects. In a third phase, the most cost-effective interventions are packaged in the best way for their efficient and effective delivery. The packaging of services itself has often a great impact on their costs. Normally services are packaged in three levels of care The first level covers a basic package of promotive, preventive and curative services. The second level serves as the first referral mechanism and the third level deals with more sophisticated mainly curative services.

Of course, cost-effectiveness alone cannot be allowed to dictate the package of services. Government is responsible for ensuring that services are equally available to the population. Diseases which disproportionally affect the poor have to be addressed. Of course, the issue of affordability has to be considered. Each health intervention will require institutional and logistical support, trained staff and supplies. In times of constraint difficult choices must be made about which services can and which services can not be provided through the public sector. There is the key question of how close to the population can services be provided? Only when such decisions on services and their delivery systems have been made, can Governments start the rational planning of facilities

HEALTH INFRASTRUCTURE : BUILDINGS, INSTALLATIONS AND EQUIPMENT

Although the quality of staff and management and the availability of drugs and consumables are important, the physical environment in which health care activities take place also has direct influence on the quality and efficiency of service. Buildings influence the extent and quality of services which can be provided just as much as fixing their location. A health centre, a rural hospital or a teaching hospital: the type and kind of institution influences the activity which can be accomplished there.

The network of health posts, health centres, rural and district hospitals, and provincial and central hospitals usually represents an impressive investment in buildings, plant and equipment. But even now in most countries the distribution of these different types of institution, and the level of resources which they consume, does not reflect international public health and political opinion of what is appropriate.

There are too many beds in the large hospitals and they consume too large a proportion of resources. Despite the 1977 Alma Ata Declaration of Health for All based on primary health care, most agencies and donors have refused to invest in the secondary and tertiary institutions and little attempt has been made to improve efficiency or to realign the activities to reflect the Declaration

Networks of primary level facilities, clinics and health centres are rapidly being extended. Compared with hospitals their running costs are very low. However, they are difficult to staff particularly when situated in very remote locations and patients often by-pass them in favour of hospitals.

In most major health development projects, considerable resources are invested in construction, as a means to establish a health infrastructure which will provide an appropriate basis for promotive, preventive and curative interventions.

OVERVIEW OF WHAT IS AVAILABLE

When discussing investment programmes for upgrading and building new facilities, it is difficult for Ministries and donors to set reasonable priorities They know too little about the extent and condition of individual facilities and understand too little of the effects that improved quality and changes to buildings and installations will have on future recurrent expenditure.

Many health Ministries have no detailed inventory of the country's health facilities, though they probably have adequate data from which to compile one. Only relatively simple information is required:

- Name of institution;
- Location,
- Catchment population,
- Date of construction;
- Date of most recent refurbishment;
- Number of beds, if possible in the different categories:
  — male, female, maternity, paediatric;
- Number of out-patient consultation rooms;
- Number of major and minor operating theatres;
- Numbers of staff houses in different categories;
- Availability of mains electricity;
- Fuel used in the kitchen

This information provides a useful basis for discussing and setting priorities.

When decisions are being made concerning individual facilities, these data need to be supplemented by on-site-collected observations. The example of a survey of existing conditions which is shown in Appendix D is the result of a four-hour inspection of a provincial hospital in Zimbabwe Eventually all institutions in Zimbabwe will be documented in this way. In Namibia the Ministry of Health (with a little support from the World Bank) in a concentrated programme carried out a comprehensive visual registration of all its health facilities in approximately 6 months

ASSESSMENT OF NEEDS

Similarly too little seems to be known about the factors —such as the frequency with which the population visit health facilities, the services they require when they arrive there and the capacity of individual staff members or items of equipment to satisfy their requirements— which should influence the size and distribution of services at the various facilities. Any discrepancy between the services which are available and those which should be available should be established.

Information is also needed on the rate of admissions of in-patients, the average length of stay of in-patients in the different wards, and the acceptable bed-occupancy rate

This information, examples of which are shown from Mozambique and Zimbabwe in the Appendix, is easy to gather from available statistics and on-site observations.

CAPITAL INVESTMENT POLICIES AND RECURRENT COSTS IMPLICATIONS

As a rule it is easier to raise the finance to pay for the construction of new health institutions, than it is to pay the annual running costs. The rule of thumb used in many countries is that for every 1000 dollars spent in capital investment, 200 to 300 dollars must be found annually to pay for recurrent costs.

It is often argued that investing in high-quality building construction and finishes reduces maintenance costs, but in the long term the differences are usually not significant.

In health budgets, staff is a major cost component, and there is often a direct relationship between the space provided in a facility and the number of staff employed there. In modern district hospitals, the kitchen may be four times larger than those built 20 years ago for a similar hospital, and for the same number of beds employ four times the number of kitchen staff.

Clearly then the recurrent cost implications of capital investments in health infrastructure are critical and one should make every effort to keep space provisions and cost norms reasonable.

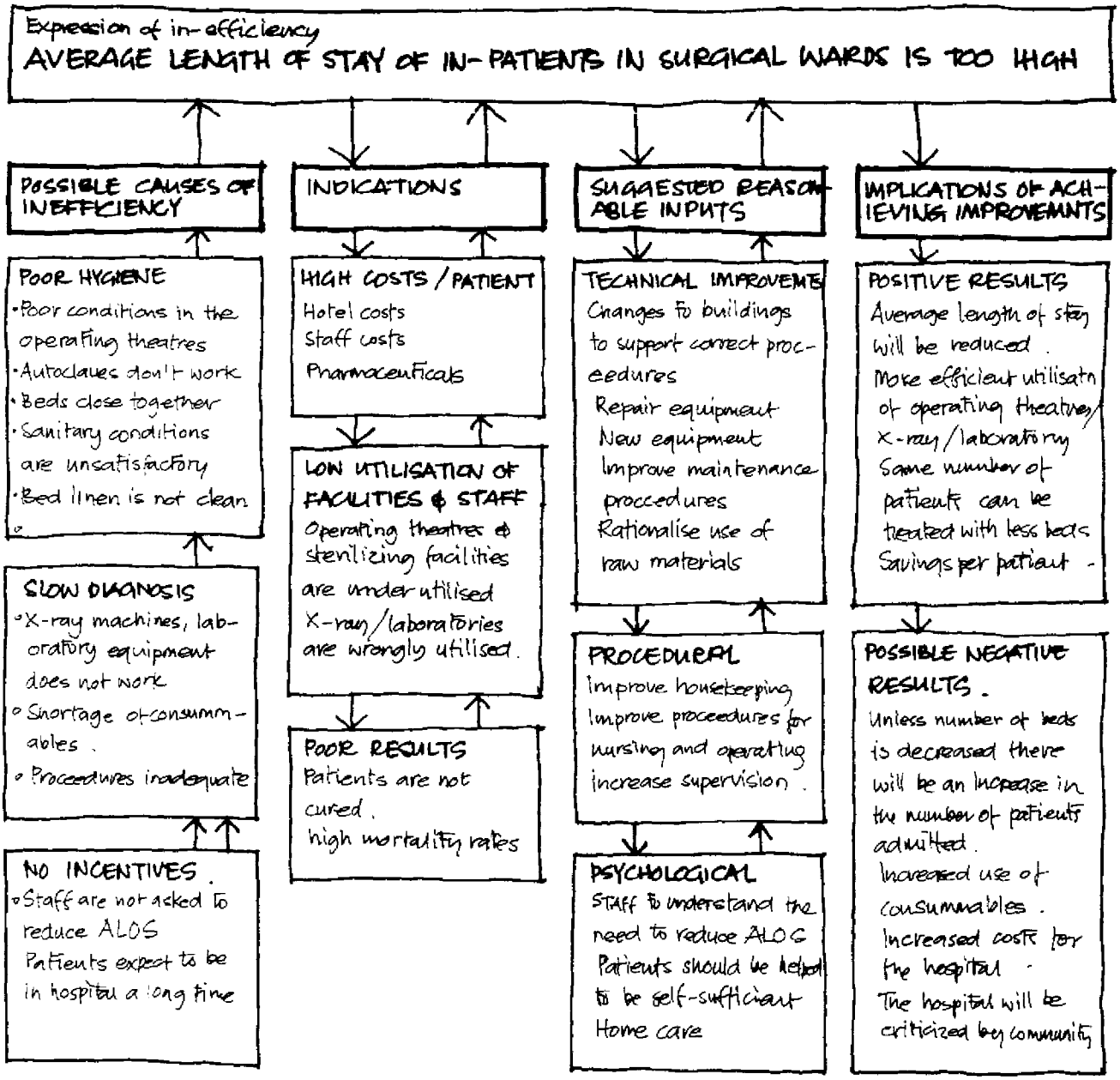
PERCEIVED CAUSES AND GOALS

When working with existing institutions, it is usually not possible to solve problems of inefficiency and poor quality by capital investments alone If any procedural, management, and supply problems are not also resolved, the hoped-for results from improving the structures will not be attained.

Where some wards have a consistent and unacceptably high occupancy rate, perhaps it may be considered that the overcrowding can be resolved by constructing new wards. However, it is important to investigate the reasons for overcrowding. Length of stay of patients may be too long because of factors such as poor staff procedures, poor hygienic conditions, unavailable or non-functioning equipment, shortage of pharmaceuticals, or bad sanitary conditions Or the number of patients may be too high because preventive programmes have failed. The important point is that the cause must be identified and understood.

In many cases, dealing with these problems appropriately could significantly reduce the length of stay or the number of patients, and so resolve the overcrowding. This would be a more economical solution than building a new ward block.

Illustration of relationship between problems and different types of causes (Country X)



POSSIBLE IMPACTS OF CIVIL WORKS ACTIVITIES

Capital investment programmes in health facilities always raise expectations of widespread improvements Whether work is carried out on existing facilities or whether completely new institutions are being constructed, people will expect the newly-completed facility to have better accommodation and better quality finishes, fittings and equipment than the older facility. They may also assume improvements to transport and communications.

Health staff will find a new facility attractive as a place to work in It will probably attract more experienced staff to work there. Staff may stay longer in post and take fewer days sick-leave. The staff may become highly motivated and the levels of efficiency may improve.

IMPROVEMENTS IN QUALITY AND EFFICIENCY

The local community will automatically give the new facility higher status than the facility it replaced or other neighbouring facilities. This will almost certainly result in increased patient demand. The number of patient visits will rise and, at lower- level facilities, the number of patients who would normally bypass the local clinic to be admitted at higher level facilities will decrease. Given the expected improvements in quality of staff, referral to higher level facilities will probably be reduced.

Increased reliability of equipment and improved efficiency will probably lead to higher levels of production with marginal health benefits, such as higher number of laboratory tests and more X-rays per patient. Where there are beds, the average length of stay for each in-patient may be reduced, but this may only provide the extra capacity required for the increased number of admissions

INCREASED RUNNING COSTS

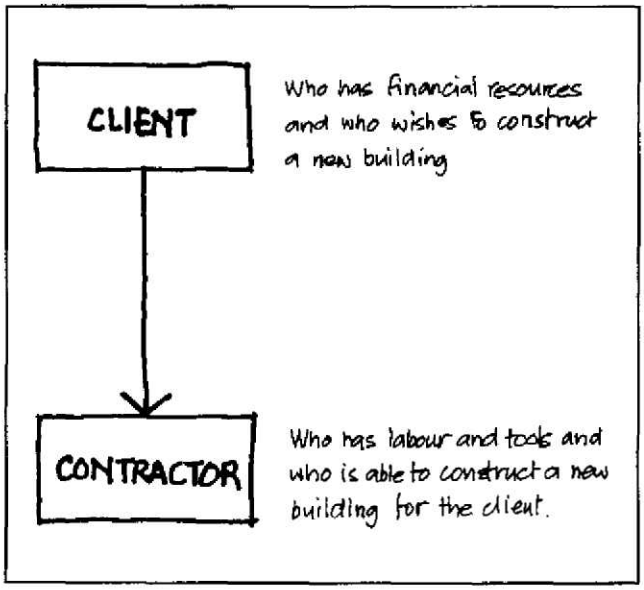
Generally all parties —governments, donors, health staff, local population— will be well satisfied with the improvements which are achieved in quality and efficiency in the completed facility. However, as levels of efficiency (output) improve, the institution will be more expensive to run. More patients means more pharmaceuticals, more consumables, more staff, and more energy. These items on annual recurrent budgets are usually those which the government is left to finance alone

Certainly when planning new construction and capital investment projects in the health sector it is normal to focus on the benefits which will be achieved as a result of improvements to quality and efficiency in services. However, in most cases these benefits will entail extra costs.

The client must decide whether to dimension the institutions so that these expected increases in demand can be comfortably accommodated. The implication here is that recurrent costs requirement will increase substantially· the client may consider this acceptable. But it may be more realistic to calculate the numbers of beds, consultation rooms, and delivery bays to be provided and at the same time introduce guidelines for staff to try to restrict the new demand to a realistic volume.

3. PROJECT ORGANISATION

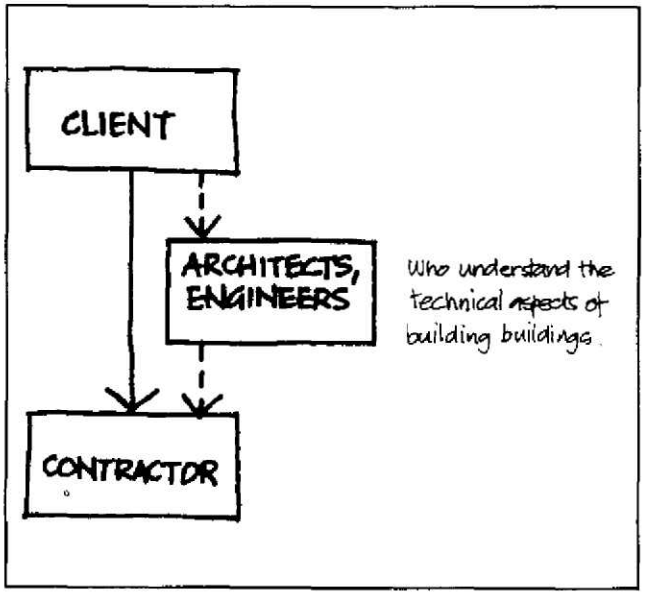
There are two essential parties in most civil works projects. A client who has money and who wishes to construct a new building and a contractor who on payment is willing to supply the new building.



Client-contractor organisation

This form of organisation is sufficient for the most simple buildings. Usually, the client appoints architects and engineers to act as his professional and technical representatives for dealing with the contractor.

When building health facilities on a larger scale for governments and donors this relatively simple form of organisation must be substantially expanded.



Client-architect/engineer-contractor organisation)

THE CLIENT ORGANISATION

The client will usually be the Government of the country, which will usually nominate the Ministry of Works or Construction as its representative on building matters, and the Ministry of Health as its representative on health matters. Each of these Ministries will probably have resource problems

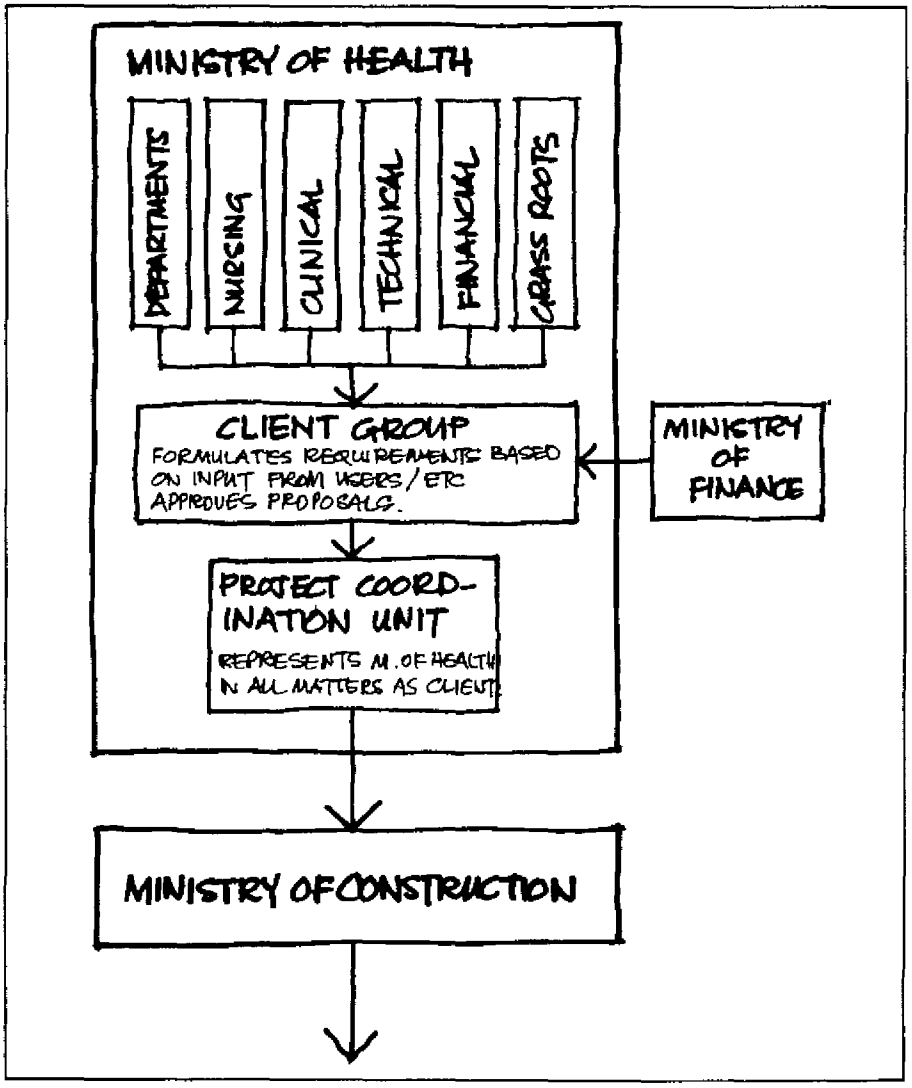
The Ministry of Works may appoint private firms or consortiums of architects and engineers to prepare drawings and contracts and later to supervise the works.

The Ministry of Health will usually consolidate its own expertise by establishing client committees at both Ministry and local level, with competence in medical disciplines as well as in recurrent cost- related matters. These committees may need to refer to external specialist consultants and technicians in dealing with some questions.

Where financing partly or wholly is through donor funding, the donors usually forward their funds directly to Government, either to the Ministry of Health as the user Ministry or the Ministry of Finance. The donors themselves will often require close contact with the client organisation.

Where government financing is involved, the Ministry of Finance may be closely connected to the client team.

Elements in the client organisation



The division of responsibility between the different Ministries often causes serious problems. The Ministry of Works will probably have the most direct liaison with the consultants and the contractor. Its usual mandate includes issuing drawings, entering into contracts, carrying out supervision, instructing on changes, and making payments. After handing over completed buildings it is usually the responsibility of the Ministry of Works to protect and maintain them.

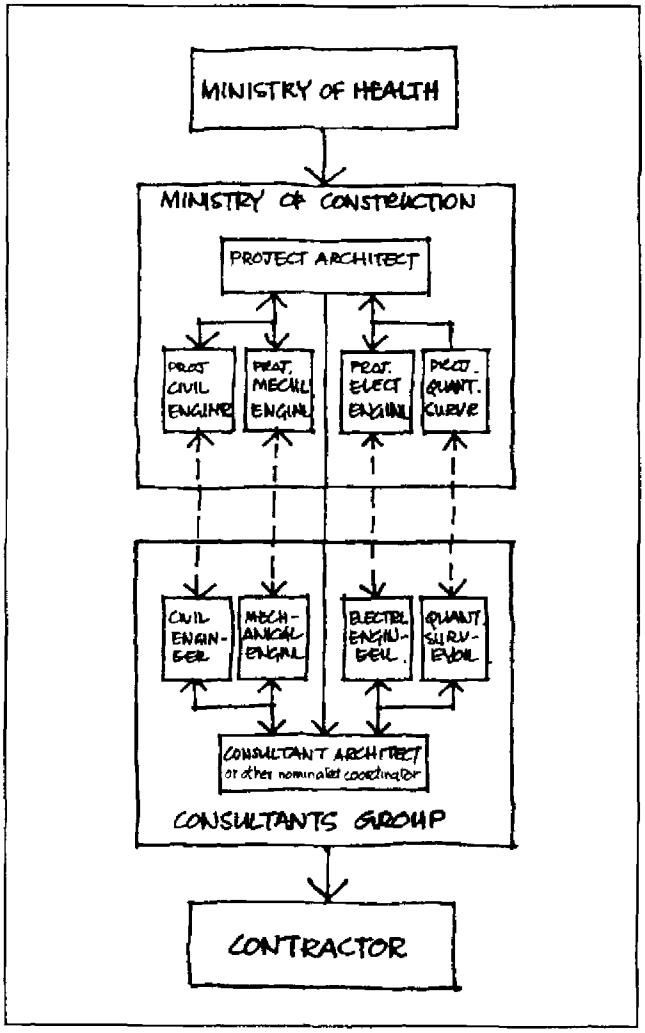
The Ministry of Health will usually be responsible for financing the recurrent costs required for providing the services available through the new buildings from its own budgets, but will have little direct influence on the technical content of the building or on the performance of the contractor.

This difference between Ministries is often the basis for conflicts. What is economical to design, construct and maintain may not always be most economical with regard to the use of health staff and the need for consumables. Where the influence of the Ministry of Health to decide the content and form of the buildings is restricted to the earlier stages of the project, it is important that the Ministry has the techniques and expertise needed to formulate their requirements and approve proposals efficiently.

At the Harare Workshop is was agreed (unanimously) that the Ministry of Health's team should include architects and if necessary other technical consultants. It was also agreed (also unanimously) that responsibility for documentation, contracts and supervising construction should remain with the Construction Ministry

THE CONSULTANT ARCHITECT AND ENGINEERS ORGANISATION

Figure 5: Consultant architects and engineers organisation



Since Ministries of Works or Construction may not have sufficient resources in manpower and expertise to satisfactorily perform design and documentation functions, they tend to appoint private architects and engineering consultants This is usually acceptable, on the important condition that the private firms will not usurp the Ministries 'client' functions.

These technical consultants will usually include architects, landscape architects, mechanical, electrical and civil engineers and quantity surveyors. On larger projects several firms of each type may be collected in different consortiums

Where a number of consultant firms are involved it is important that they be collected within an efficient containing organisation. Usually the architects are leaders of the organisation.

The Ministry of Construction should nominate project architects, engineers and quantity engineers from its own organisation to act as counterparts and to be responsible for the performance of the consultants. There should be no direct dialogue between the consultants and the Health Ministry without the project technicians being present

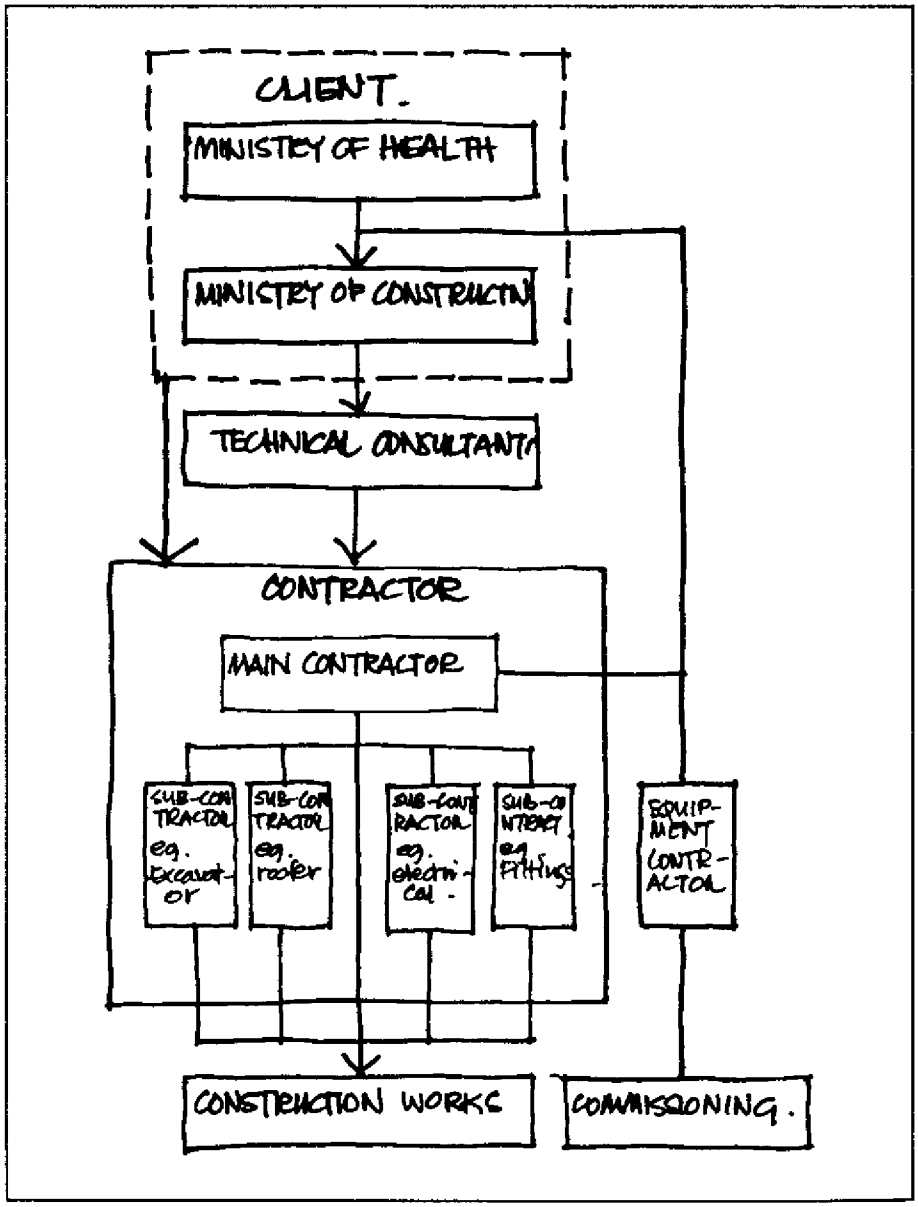
THE CONTRACTOR'S ORGANISATION

The main contractor is responsible for the total undertaking of the project, but may delegate various functions to sub-contractors. The main contractor will provide most of the work-force, the site plant and installations for use during construction and will be directly responsible for matters concerning costs and the programme generally.

Non-specialist subcontractors may be responsible for the completion of specific works which have been delegated by the main contractor For example, where a contract includes both district hospitals and satellite clinics, the sub-contractor may be asked to construct the smaller centres.

Specialist subcontractors include electrical and mechanical specialists as well as roofers and joiners.

Contractor's organisation



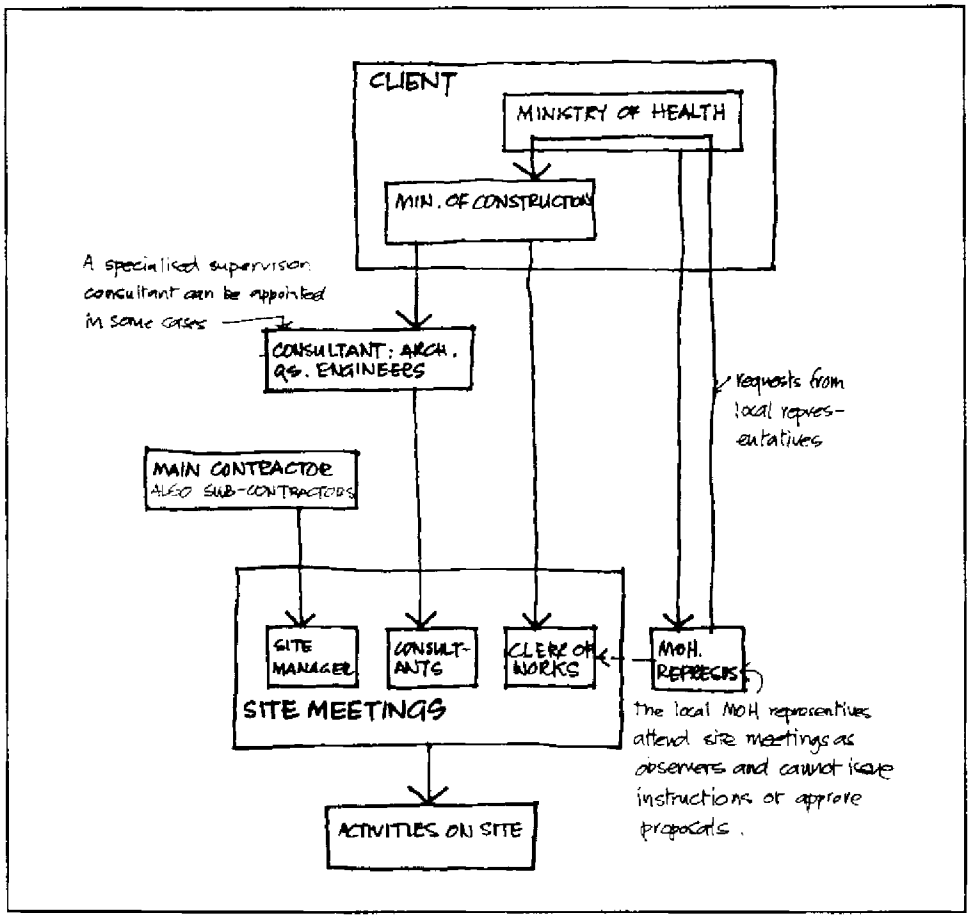
PROJECT MANAGEMENT AND SITE SUPERVISION

The notion of the client employing specialist project management experts to co-ordinate all aspects of project supervision is at present unknown in health projects in the region. The concept is increasingly used in other sectors and other countries where control of costs and quality is given priority, and its introduction to southern Africa is inevitable.

Site supervision is usually carried out by consultants appointed by the Ministry of Works, though support is usually provided by the Ministry's own staff. This is important, particularly in large projects being erected over a large geographical area, where there is a need for an efficient response to costing of variation orders and other instructions.

The Clerk of Works should be permanently on-site as the client's direct representative. He should be appointed by the Ministry of Works and not by the consultant architects, as he is expected to supervise their activities.

Organisation of site supervision



Site meetings should be held regularly and should be attended by representatives of all Ministries and architectural and engineering disciplines. The contractor should also be present Where the contractor is likely to encounter language difficulties, it is important during formulation of contract conditions to insist on the participation of qualified translators.

Local representatives of the Ministry of Health should take part in site meetings as observers only They should not be allowed to issue instructions at any time on behalf of the client Any comments they may wish to make should generally be routed through their parent Ministry. There may be projects where the local health authorities themselves are the client In every case, however, it is important that established lines of authority are followed.

THE PLANNING, DESIGN AND CONSTRUCTION PROCESS

The building process for all types of facilities involves various activities which naturally follow a logical sequence:

PHASE A: INCEPTION

Evaluation of the need for upgrading an existing building or constructing a new building. Preparing the general outline of requirements. Setting up a client organisation for Briefing. Establishing sources of finance.

PHASE B: FEASIBILITY

Providing an appraisal and recommendation to determine the form in which the project is to proceed, ensuring that it is feasible functionally, technically and financially. Carrying out studies of user requirements, site conditions, planning, design and cost as necessary to reach informed decisions.

Considering alternatives and establishing the anticipated recurrent costs implications and requirements of the proposals.

PHASE C: BRIEF

This is the culmination of phases A and B where outline schedules of requirements are handed over to the Ministry of Construction.

PHASE D: OUTLINE PROPOSALS

Determining the general approach to layout, design and construction in order to obtain approval by the client on the outline sketch proposals Developing the client Brief further.

Carrying out studies on user requirements, technical problems, planning, design and costs as necessary to reach decisions. Establishing the norms and standards to be used in the project and preparing key design sheets for the position of all fittings and installations.

PHASE E: SCHEME DESIGN

Completing the Brief and approving proposals including planning arrangement, constructional method, outline specification and cost.

Final development of the Brief, full design of the project by the architect, preliminary design by the engineers, preparation of cost plan and full explanatory report. Submission of proposals for all approvals.

PHASE F: DETAIL DESIGN

Obtaining final decisions on every matter related to design, specification, construction and cost. Designing every part and component of the building including engineering. Completing cost-checking of proposals.

PHASE G: PRODUCTION INFORMATION

Preparing working drawings, schedules and specifications for all buildings, building elements and components. Making final detailed decisions to carry out the work.

PHASE H: BILLS OF QUANTITIES

Preparing and completing all information and arrangements for obtaining tenders. Preparing Bills of Quantities and Tender Documents. Agreeing conditions of contract and form of tendering.

PHASE J: TENDER ACTION

Advertising and short-listing approved tenderers. Distributing tender documents. Holding explanatory meeting with tenderers and issuing answers to tenderers questions. Receiving tenders and evaluating the winning tenderer. Agreeing time schedules and cost plans. Holding contract negotiations and signing contracts.

Tender documents may differ in content depending on the form of contract used, but the substantive content of the phase is essentially the same.

PHASE K: OPERATIONS ON SITE

Handing over the sites to the contractor who will then proceed with construction. Carrying out inspections and site supervision. Approving and paying monthly certificates to contractor. Administering variation orders. Carrying out cost management of the project

PHASE L: COMPLETION

Accepting handing-over of completed buildings. Drawing up list of defects. Commissioning buildings and plant and installing equipment. Cleaning. Opening. Public relations activity. Training staff.

PHASE M: EVALUATION

Analysing the management, construction and performance of the project. Analysing performance records, inspecting the buildings and studying the buildings in use.

DIVISION OF RESPONSIBILITY DURING THE DIFFERENT PHASES

The responsibility for the individual phases in the process gradually transfers from the client, through consultants over to the contractor. On completion the responsibilities return to the client.

Phase	Title	MOH	MOW	CONS	CONTR
A	Inception	L	S		
B	Feasibility	L	S		
C	Brief	L (1)	L (2)		
D	Outline proposals	A	L	S	
E	Scheme design	A	L	S	
F	Detail Design	A	A	L	
G	Production information		A	L	
H	Bills of Quantities		A	L	
J	Tender action	S	L	S	N
K	Operation on site	O	L	Sup.	(*)
L	Completion	L	S	S	S
M	Appraisal	I	S	S (**)	

The following abbreviations are used:

MOH : Ministry of Health (Client)
MOW : Ministry of Works or Construction (Client)
CONS : Consultant
CONTR : Contractor
L : Leader - responsible for phase
S . Supporting
A : Approval
O : Observer
I : Instigator
N : Negotiator
(*) : Specialists architect and quantity surveyor may be added to the client team
(**) : different consultant

In many agreements made with consulting architects and engineers, fees are paid at the completion of phases D, G/H and L.

PARTICIPATION OF USERS IN THE DESIGN PROCESS

When planning civil works projects, representatives of the 'users' should be closely involved. 'Users' here is often taken to mean 'members of staff', but including representatives of the local population can bring important advantages.

'Users' will be able to provide information on local conditions which cannot be obtained from other sources. They can often explain local variations in utilisation. Why are some days so busy and others so slack? How do distances influence the local population's attitude towards the referral system? When evaluating buildings, users and staff can provide important information on conditions which are perhaps not apparent when surveys are made. They can describe seasonal problems with water supply, say when the drains are likely to overflow, and tell how often the mains electrical supply breaks down.

During the design process they should be asked for their opinions of the proposals being made, for their views of the implications of decisions made The success with which new facilities produce improvements in quality of care, or the success of new programmes often depend on the 'users' knowing the ideas behind the arrangements and content of their new buildings.

To achieve the maximum benefits from involving representatives of the 'users' in the client team we suggest the following pointers:

- The 'users' participation should be systematic. They should be asked to nominate representatives and they should be given ample notice of the meetings when they will be asked questions.
- The 'users' must be clearly told the reasons for their participation. They must understand that their main function is the exchange of information.
- The 'users' must not be asked to undertake tasks outside their competence. They should not be asked to make drawings or sketches; to take measurements; to write reports or to analyse statistics. Their time should be used efficiently.
- The 'users' should be recognised and their participation in the project should be rewarded. They should know that their participation has influenced the results.

In the Zimbabwean Second Family Health Project financed by the World Bank, an impressive collaboration between Ministry of Health staff at central and local levels has been developed Nominated representatives of the 'users' attend regular quarterly review meetings in the capital, Harare, where they present papers on progress in the different components of the project in their district. In these meetings, users are also briefed on the latest developments at the central level.

COMMUNITY-BASED PROJECTS

Many investment projects in the health sector, particularly those in rural areas, are financed directly by non-governmental organisations such as national and international donors, missions, industrial enterprises (and increasingly by the communities themselves).

The Government Ministries involved usually appreciate the contributions made through investments by non-governmental organisations in the health sector. But to prevent the problems of compatibility which often occur with the Ministries' policies, many NGOs and communities need professional and qualified guidance. This can probably best be accomplished by the Ministry of Health drawing clear guidelines for investment projects in the health sector.

The guidelines should identify the types of project which are suitable for community participation This may not always involve the renovation or construction of buildings but can include the procurement of ambulances, equipment and pharmaceutical and other consumable items The preconditions for initiating projects will include forming an organising committee from within the community whose approval will be asked on present and future utilisation and expected recurrent expenditure.

Clear procedures to be followed for undertaking and completing the project should be established, and specifications, norms and standards as well as type plans for standard solutions should be given in the guidelines Specifications can be given for approved vehicles and equipment.

Useful guidelines will include examples of standard forms of contract and agreements, and should describe how these should be administered All aspects of the project should be undertaken in a professional manner and the work should be executed to professional standards.

Clear instructions should be given in the guidelines (perhaps with examples) on the submission of applications. Other useful project information should be included.

A guide-book following these lines has been developed by the Ministry of Health in Mozambique. The present weaknesses in the structure of local communities in the country however, mean that community-based projects in Mozambique are usually implemented under the control of a donor agency.

In Uganda a DANIDA-funded programme has successfully completed the refurbishment of various institutions in projects directly managed by the communities Government and donor have stipulated key conditions which the communities must meet —a locally-elected management committee; production of utilisation and recurrent costs data; adherence to local competitive tendering; procurement of materials undertaken centrally by the project co-ordination group; and use of standard plans and specifications. A full-time buildings engineer is co-opted to this programme which, allowing for the modest total of completed facilities, is considered to be very successful

World Bank experience suggests that direct community participation (not organised through NGOs) can only work if special structures are created in the project design to promote this participation and to make work with the communities a central feature of the project. Ugandan experience supports this assertion.