REPUBLIC OF BOTSWANA

MINISTRY OF LOCAL GOVERNMENT AND LANDS

SANITATION SECTOR MANAGEMENT STUDY

FINAL REPORT, NOVEMBER 1987

CONSULTANTS:

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THE WORLD BANK -
UNITED NATIONS DEVELOPMENT PROGRAMME

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A B B R E V I A T I O N S

BD	- Buildings Department
BP	- Botswana Polytechnic
BWC	- Botswana Water Corporation
DC	- District Council
DTRP	- Department of Town and Regional Planning
DWA	- Department of Water Affairs
GOB	- Government of the Republic of Botswana
IBRD	- World Bank
IDWSSD	- International Drinking Water Supply and Sanitation Decade
MFDP	- Ministry of Finance and Development Planning
MLGL	- Ministry of Local Government and Lands
MMRWA	- Ministry of Mineral Resources and Water Affairs
MOA	- Ministry of Agriculture
MOE	- Ministry of Education
MOH	- Ministry of Health
MWC	- Ministry of Works and Communications
NDP	- National Development Plan
O&M	- Operation and Maintenance
TC	- Town Council
TOR	- Terms of Reference
ULGS	- Department of Unified Local Government Service
VTC	- Vocational Training Centre
WAB	- Water Apportionment Board
WUC	- Water Utilities Corporation

EXECUTIVE SUMMARY

Sanitation development for urban and rural dwellers, industrial and commercial enterprises as well as for public and private institutions has become an important undertaking in Botswana. No sanitation sector policy has, however, been officially adopted to guide the efforts of installing, operating and maintaining the required facilities. The situation in Botswana is characterized by high coverage of improved sanitation in the five major urban towns, limited provision of services in the major villages and rather poor over-all standard of sanitation in rural areas.

It is the Town and District Councils which have the statutory responsibility for sanitation. They receive finances through the Ministry of Local Government and Lands in the form of loans and development grants respectively for implementation. In addition the Ministry of Mineral Resources and Water Affairs is responsible for water pollution control, the Ministry of Health for water quality surveillance and general health aspects, and the Ministry of Works and Communication for sanitation facilities serving government institutions. Institutional sanitation has in several cases caused problems of considerable public concern.

After having reviewed alternative options for organization of Sanitation Sector administration it is recommended for the short term that:

- the statutory responsibility will continue to rest with the Town and District Councils,
- Ministry of Local Government and Lands will continue to have the overall responsibility for financing of sector development,
- Ministry of Mineral Resources and Water Affairs represented by Department of Water Affairs should be the technically competent authority for sanitation.

This reorganization proposal will leave the Ministry of Local Government and Lands to look after the sector policy formulation and financial aspects. A relatively minor strengthening of the Department of Water Affairs will be required to develop the technical capacity.

The water sector administration is currently also under review and a preliminary proposal has been made for the creation of a national water supply parastatal organization. Such a parastatal could be extended to cover sanitation as well. In any case the decisions made on water sector administration will influence strongly the recommendations for long term organizational development of the Sanitation Sector. When the final report of the Water Sector Administration Study has been completed, the present Report should be reviewed carefully with a view to harmonize the respective conclusions where appropriate.

No development plan exists for the Sanitation Sector at present. It is therefore difficult to project the future strength of the sector organization. Based on present situation and conceivable pattern of future sanitation development the following is concluded with regard to manpower development:

- Total manpower requirement amounts to one per about 1,200 persons served for waterborne sewerage and one per about 2,000 served for on-site disposal.

- Managerial and supervisory functions must be strengthened, primarily through local recruitment and training.

- Due to similarities in technical subjects training for the water supply and sanitation sectors can be combined to a great extent at all levels.

It is an urgent need for recognition of the sanitation (sub-)sector. Fortunately the sector problems have not yet reached proportions which would make it difficult to catch up within a relatively short time. The main areas of improvement to be addressed by a streamlined sector organization are:

- Provide for more comprehensive planning to address future sanitation requirements.

- Develop machinery for better coordination, in particular pooling of resources which are already available within government.

- Draw up realistic plans for organization of urban sanitation to maintain the present high level of coverage.

- Develop the organizational structure required to address sanitation problems in the Districts.

- Provide a system for back-up services to the decentralized O&M organizations.

- Develop sector support services consistent with projected needs of the Sanitation Sector.

- Draw up short term action plan to rectify most urgent health hazard/water pollution problems.

1. INTRODUCTION

1.1 SCOPE OF THE STUDY

It has for some time been obvious that the organizational structure of the Sanitation Sector in Botswana has not been developed to meet the various needs of a rapidly growing nation. On this background Ministry of Local Government and Lands (MLGL) drew up a Terms of Reference (TOR) which in broad terms requires the consultant to:

- examine existing administrative structures, including financial and legislative aspects,
- document current and future resources allocated for the sector,
- outline alternative organizational structures with indications of associated resources, and make recommendations,
- review the need for professional manpower and analyze the corresponding training requirements.

The depth of study has naturally been dictated by the time and budget available for it.

1.2 THE CONSULTANCY

The present consultancy on Sanitation Sector Management has been commissioned after lengthly discussions between the Government of Botswana (GOB), UNDP, World Bank and other donors interested in the water supply and sanitation sector development in Botswana. It was the World Bank with funding provided by UNDP which commissioned HIFAB International AS of Norway for the Study. The Terms of Reference is reproduced as Appendix 1 to this Report.

The Study is indeed very limited in terms of time and resources allocated for it as can be seen below.

The team has comprised of:
- Mr. T. Lium, Sanitary Engineer
- Mr. B. Sedin, Economist/Planner

Mr. Lium stayed in Botswana for almost five weeks (18 January - 19 February 1987) and was joined by Mr. Sedin for one week (7 - 14 February 1987). For final drafting of the report a further two man-weeks in the home office were allowed for in the contract.

A list of people met and of main reference documents used in the course of the Study have been included in Appendix 6 and Appendix 7 respectively.

1.3 THE WATER SECTOR ADMINISTRATION STUDY

A much more extensive management study on the water sector has been going on while the sanitation sector management was looked into. The consultants for the water sector study, WLPU Consultants Ltd. submitted their Phase 1 Draft Report (ref. 3) during the first week of HIFAB's assignment in Botswana. This report contains a substantial amount of factual information which has been very useful for the present Sanitation Sector Study.

Meetings have been held with WLPU Consultants, and they kindly agreed that their report could be used as a reference document. The present report will therefore make references to the above Phase 1 Draft Report, and generally assume that the content of it is known to the readers of this report.

There are many areas of obvious need for interfacing of the water supply and sanitation sectors. Therefore it is unfortunate that the two studies were not carried out fully coordinated under one TOR, but it is equally fortunate that the Sanitation Sector Study is timed to coincide with WLPU Consultant's Phase 1 Draft Report. Thus, it is possible to feed the sanitation sector requirements into the continued discussions on water (and sanitation) sector administration. Hopefully this will enable GOB to overview the whole sector when decisions are due to be taken.

1.4 INTRODUCTORY COMMENTS MADE BY THE MINISTRY OF FINANCE AND DEVELOPMENT PLANNING (MFDP)

MFDP expressed the following in a savingram to MLGL on 20 June 1986 immediately after the request for UNDP financing had been approved and passed on:

i) government itself should have been able to work out the coordination machinery among concerned departments

ii) grandiose institutional arrangements with heavy manpower and financial implications are not affordable.

The Consultant agrees to the sentiments of MFDP's concern. The first item is indicative of a lack of clear distribution of sector responsibilities. The danger expressed under ii) could become a reality if the present situation is allowed to continue unchecked for another few years.

A review of the current situation seem to suggest that some reorganization together with pooling and vitalization of available resources would go a long way towards satisfactory sector administration. Another question is whether the current investment level is adequate for environmental protection including water pollution abatement and control of hazards to public health.

1.5 ACKNOWLEDGEMENTS

It has been a pleasure for HIFAB to carry out this assignment for GOB, and MLGL in particular, under the contract with World Bank. The open, frank and constructive athmosphere prevailing among civil servants and others concerned with sector development is indeed commendable. This was further demonstrated during the one day workshop held on 12 February 1987 where the Consultant received valuable critisism and proposals from an interested audience. The proceedings of this workshop has been documented in Appendix 5.

1.6 REPORT LAY-OUT

The present Report is organized in a straight forward manner. The first chapters give an inventory of current Sanitation Sector administration and identifies organizational shortcomings. Thereafter the framework for rational administration is drawn up in terms of sector objectives, future service levels and corresponding tasks to be undertaken. Finally organizational options are proposed and evaluated, leading up the Consultant's recommendations. These comprise of proposals for organizational structures, procedural improvements, enforcement of legislation, and manpower development. Supporting information is presented in a number of appendices to the Report.

2. SANITATION SECTOR OBJECTIVES

2.1 BOTSWANA'S NATIONAL DEVELOPMENT POLICY

The four main planning objectives are set out in Chapter 3 (3.18) of the current National Development Plan (NDP), ref. 2:

- Rapid economic growth
- Social justice
- Economic independence
- Sustained development

These will apply as overall objectives also for sanitation development.

2.2 SANITATION SECTOR POLICY

No specific policy has been formulated for sanitation improvement, but an outline can be deduced from other sector policies (e.g. health, water, housing, etc.). These other policies clearly assume that the needs will be met.

One of the explicit objectives of NDP VI is to ensure that the goal of improved health is achieved. Adequate supply of water for drinking, personal hygiene and other domestic purposes, and adequate means of waste disposal are pointed out as important measures (ref. p. 207 of NDP VI). Moreover, according to the National Policy on Housing (Government Paper No. 2 of 1981), the long-term goal is to ensure "safe and sanitary housing for everyone".

The explisit policy objectives of the sanitation sector would be to:

- improve public health

- protect against pollution of water resources

- provide sanitation infrastructure

Considering the scarcity of water resources in Botswana it is likely that

- conservation of water

should be included as a fourth specific sector objective.

The lack of an expressed sector policy is bound to hamper sanitation development in several ways. Effects on sector administration will be referred to in this Report.

3. CATEGORIES OF SANITATION FACILITIES

3.1 GENERAL

Sanitation facilities provide for environmentally safe disposal of waste water and/or human wastes (in particular excreta). Refuse (or solid waste) is not considered in the present study. In order to analyze organizational requirements it is important to define broadly the categories of sanitation facilities to be financed, constructed and maintained in Botswana.

3.2 WATERBORNE, CONVENTIONAL SEWERAGE

Reticulated system of sewerage pipelines connecting discharge from individual plots to a centralized treatment and disposal system, often via pumping stations. Pollution may be caused by partially treated point discharges and by leaking sewers. Widely used in the major towns, in a few major villages, for larger institutions (e.g. schools, hospitals, etc.) and for industrial sites. The system is characterized by high capital costs (in particular) and high operational costs.

3.3 WATERBORNE, ON-SITE DISPOSAL

Sewage passing through a septic tank and being disposed of by soakage into ground. Presence of water as transport medium increases risk of groundwater pollution. Previously much used in urban areas, and being used for smaller institutions, high/medium cost housing, etc. where waterborne sewerage is not available. The system is characterized by high/medium capital costs and high operational costs.

3.4 LOW-COST, ON-SITE DISPOSAL

Based on provision of pit latrine as receptacle for excreta, urine, etc. Risk of groundwater pollution moderate, but can only be disregarded on basis of geological investigations. Widely used for low-cost housing in major towns and in villages. Offers the only viable improved sanitation for majority of urban low-cost and village/rural dwellings in forseable future unless substantial subsidies are provided. Characterized by low capital costs and medium/low operational costs.

3.5 DIFFERENCES IN ORGANIZATIONAL REQUIREMENTS

For conventional, waterborne sanitation there is hardly any alternative to having an appointed agency responsible for each scheme/town, or whatever boundary is practicable. For

on-site sanitation in rural areas and smaller villages the responsibility for both construction and maintenance is likely to remain with the individual plot-owner, although a certain amount of government support can be envisaged.

On-site sanitation in towns and larger villages lend itself to both options; installation and servicing by the appointed government agency, or individual owner responsibility (relying on private or public sector assistance).

On-site sanitation to be undertaken on individual basis will be relatively more dependent on communication support, demonstration projects and promotional efforts. These could viably be linked with other extension services to the same target areas.

The differences in characteristics and requirements of the respective sanitation options must be kept in mind throughout the dicussions on sector administration. Obviously many aspects of off-site and on-site sanitation are not compatible from an administration/organization point of view. This is particularly true when also the differences between urban and rural sanitation are taken into account.

4. PRESENT SANITATION/SEWERAGE SERVICES

4.1 MLGL HQ

All public sanitation/sewerage services (except when related to institutional development undertaken by Buildings Department) fall under the portefolio of the MLGL. The Town and District Councils present their project and/or funding proposals through MLGL to MFDP for approval. MLGL will make approved finances available to the councils and supervise the implementation process until installations are handed over to the local authorities. For Town Councils the financing is provided as a loan from the central government whereas District Councils receive deficit grants to cover the costs.

Within the Ministry's technical unit there are only two sanitation specialists; the Senior Public Health Engineer and his counterpart with professional qualifications in Public Health. The Senior Engineer in charge of the unit also takes active part within his available time. Execution of the implementation tasks relies on extensive use of consultants and contractors with the MLGL staff as supervisors.

4.2 TOWN COUNCILS

Waterborne sewerage has been installed in all five major towns, employing waste stabilization ponds for treatment. Plots not connected to these sewerage systems are mainly using on-site low-cost sanitation (approved latrines). The sanitation coverage in towns is high with generally 90 - 100% being served.

A breakdown showing the indicative number of people presently served by the two types of sanitation is given below:

	Population 1986	Waterborne Sewerage	On-Site Sanitation
Gaborone	96,000	50,000	45,000
Francistown	40,000	10,000	25,000
Lobatse	24,000	5,000	12,000
Selebi Phikwe	35,000	10,000	25,000
Jwaneng	9,000	3,000	6,000

Table 4.1, Present Sanitation Services in Urban Towns.

(Source: Estimates based on data collected by MLGL)

(Back-log in sanitation coverage appears to exist for Francistown and Lobatse)

Design and construction of the facilities are generally carried out under supervision of MLGL, and handed over to the Town Councils for O&M after commissioning.

Each of the Town Councils have a section under their Town Engineer being responsible for O&M of the sewerage and sanitation schemes. The staffing levels are as follows:

	No. of supervisory staff	No. of Industrial Class Staff	Ratio staff: no. served
Gaborone	7	90	1: 980
Francistown	1	18	1: 1,840
Lobatse	1	14	1: 1,130
Selebi Phikwe	5	20	1: 1,400
Jwaneng	1	21	1: 410

Table 4.2, Town Council Staff for Sanitation

(Source: Data collected by MLGL)

The number of supervisory staff is strikingly low (except for Selebi Phikwe), whereas numbers of industrial class staff seem reasonable for all but Jwaneng where the number seems too high.

The tasks comprise of pit/septic tank emptying with vacuum trucks and O&M of pipelines, pumping stations, treatment works, etc. Typical staffing levels are to be analyzed and applied to estimate future manpower requirements, ref. chapter 13.

4.3 DISTRICT COUNCILS

Except for waterborne sewerage serving institutions (schools, hospitals, prisons, etc.) built by the government, sanitation in the districts is restricted to on-site disposal.

The institutional schemes which number about 50 throughout Botswana, mainly located within major villages, are poorly maintained and often identified as a cause of health hazards or water pollution. Building Department of MWC is responsible for their construction and maintenance.

Studies have shown that sanitation coverage in major villages is low, typically ranging about 30 - 40%. In minor villages/rural areas the coverage is even lower (virtually down to 0%), pointing at the lack of a "sanitation culture" in Botswana.

Most of the existing latrines within the districts are non-emptiable (i.e. unlined pits with relatively dry contents) thus also reducing the present need for councils to operate vacuum tankers. This potential saving may, however, be offset by higher water development costs if groundwater pollution is caused.

Councils being autonomous bodies do not have a standardized organization chart. Most of them have, however, a works department, a water supply unit and a department for health and sanitation (including refuse collection as a major task). To indicate the order of magnitude of councils' staffing strength in fields related to sanitation, the following figures are quoted from ref. 6 (establishments in all nine District Councils combined):

- Senior Admin., Planning, Finance	:	257 posts
- Senior Works and Technical	:	117 "
- Technical and Artisan	:	224 "
- Health and Sanitation Technicians	:	114 "
- Health, Sanitation and Abattoir Workers	:	538 "
- Water Artisans, incl. Pumpers	:	784 "

Table 4.3, District Council Staff Related to Sanitation

In all categories except for the latter two which are industrial class, the rate of vacancy is consistently at about 25%.

Generally the District Council staffing has increased considerably over the last few years. According to ref. 6 the growth has been 155% since 1978. This growth has been supported with various training programmes for the qualified/skilled staff categories.

4.4 SANITATION SECTOR INVESTMENTS

Investments in sanitation are allocated through the MLGL and appear in this Ministry's capital expenditure budget in NDP VI. The total list of so-called LG-projects with a sanitation component is reproduced in Appendix 2.

The total allocation for the sector is P41 mill. for the period 1985/86 - 1990/91. In addition project agreements have been concluded with donors for an additional P6 mill. for sanitation components under other ministries' votes, thus raising the total to P47 mill. The effect of ministerial budget ceilings on these increases is not known.

The investments can be grouped under headings relating them to urban, rural and general projects respectively.

	Per Year (avg)	NDP VI period
- Urban	P 4.4 mill.	P 26.19 mill.
- Rural, incl. major villages	P 2.1 mill.	P 12.51 mill.
- General expenditure	P 1.4 mill.	P 8.62 mill.
Totals	P 7.9 mill.	P 47.32 mill.

Table 4.4, Scheduled Sanitation Investments

Investments in urban sanitation is more than twice the investment level for rural (incl. major villages). Most of the general expenditure goes towards upgrading of toilet facilities for primary schools throughout the country.

When comparing investments in the urban and rural sanitation sectors, it must be observed that only about 1/5 of Botswana's population are urban dwellers. Moreover, the coverage is already very high as commented upon above whereas a substantial back-log exists in major villages/ rural areas.

4.5 DONOR ASSISTANCE

A schedule of donor assistance to projects/programmes with relevance to sanitation has been included as Appendix 3. It has been extracted from UNDP's 1985 review, ref. 7. Two recently negotiated agreements with KFW of Germany and SIDA of Sweden have been added.

The major observation to be made is that donor assistance to specific sanitation programmes is virtually negligible. However, money for sanitation, in particular urban, is made available from donors and other financing agencies as part of integrated urban development or housing programmes.

The significant donor assistance towards specific sanitation activities comprise of:

- Public Health Engineer for MLGL, by UNDP/IBRD. Including funds for fellowships, etc. USD 536,000 (1980-88).

- Rural Sanitation, by UNICEF/Netherlands. Ongoing Self-Help Environmental Sanitation Project for construction of VIP latrines in Kweneng, Kgatleng, Southern and Central Districts. USD 580,000 (1984-88).

A contribution of P28 mill. from KFW of Germany for major village water supply has been granted on the condition that 20%, or P5.6 mill., is spent on improvement of sanitation. KFW has further stated intentions to proceed with a second phase of this programme which has not yet started.

The above described situation is unusual. In particular after the onset of the International Drinking Water Supply and Sanitation Decade (IDWSSD) most countries have several donor assisted sanitation programmes and also several combined water supply programmes with a specified sanitation compound.

4.6 STATUS OF SANITATION SECTOR

4.6.1 Planning

Systematic assessment of needs and allocation of resources for sanitations is not undertaken in Botswana at present. No ministry is assigned this responsibility although MLGL is closest through its role as a parent ministry for local authorities.

MOH and MMRWA may come into the picture based on their responsibilities for public health and water resources respectively.

The lack of consistent overall planning reflects the lack of recognition of the sanitation sector in Botswana. The subsequent sections 4.6.2 - 5 illustrates various aspects of shortcomings in sector planning.

4.6.2 Urban Development

Urban development including provision of infrastructure has been a well organized process given resources to match the rapidly growing needs. Provision of sanitation facilities (waterborne sewerage and low-cost sanitation) has been made as part of housing/urban development programmes and the back-log in physical terms is very small. The implication in longer term (maintenance, rehabilitation, augmentation, manpower, equipment, etc.) have, however, not been looked into in a systematic fashion.

4.6.3 Allocation of Investments

The financial resources spent on sanitation are channelled with about 2/3 to the urban sector, ref. the schedule of investments during NDP VI. Considering that only about 1/5 of Botswana's population currently lives in the major towns, this bias can be questioned. The absence of planning information makes it difficult to assess what the correct distribution would be.

4.6.4 Sanitation Back-log

Whereas the (major) urban sector is taken well care of, there must exist a considerable back-log in the provision of improved sanitation for major and minor villages and for

rural areas. Studies carried out seem to suggest that only 1/3 of households even in relatively well developed major villages enjoy improved sanitation. The public health and pollutional implications of this situation have not been systematically assessed.

4.6.5 Policies and Strategies

Due to the implied high level of ambition, Botswana decided to maintain a reluctant approach in respect of the sanitation component of the International Drinking Water Supply and Sanitation Decade (IDWSSD). The information exchange system set up under IDWSSD has helped many countries in developing their first set of planning data for the sanitation sector. As stated already, Botswana has not developed policies and strategies for sanitation, thus leaving the ongoing sector activities without guidance and yardsticks.

4.7 CHALLENGES FOR SANITATION SECTOR ADMINISTRATION

Judging from the present sector status the following points would seem to be among the major challenges for a future sector administration:

- obtain recognition of the sanitation sector,
- develop sector policy and strategies compatible with national development policies,
- establish a system for national and decentralized sanitation planning,
- prepare realistic programmes for adequate coverage of improved sanitation,
- prepare plans for consolidating the high level of coverage in major urban towns,
- develop the required organizational structures for extension of sanitation services to new groups.

5. EXISTING SECTOR RESPONSIBILITIES

The responsibilities and roles of the various authorities involved in the sanitation sector are set out below. The information is mostly factual, but also assessments are made where it is found appropriate.

5.1 MINISTRY OF LOCAL GOVERNMENT AND LANDS (MLGL)

5.1.1 Headquarters

- Overall responsibility for local authorities, i.e. town and district councils.
- Providing finances for council projects, notably sanitation/sewerage.
- Providing technical assistance to councils: Technical Unit in charge of design and construction of sanitation, sewerage and general engineering advice.
- Various planning and monitoring tasks in respect of local authorities, but not specifically for sanitation.

5.1.2 Department of Town and Regional Planning (DTRP)

- Preparing development plans, including infrastructure requirements.
- Powers to lay down requirements in respect of i.a sanitation within planning areas, and to enforce these as condition for issuance of planning permits (ref. also role of Town and Country Planning Board).

5.1.3 Department of Local Government Audit

- Auditing of all councils' accounts, including revenue/expenditure relevant to sanitation.

5.1.4 Department of Unified Local Government Service (ULGS)

- Recruitment of staff for councils; previously professional/sub-professional staff, but recently also Industrial Class staff.
- Deployment of staff, institutional training (scholarships) and in-service training; little or no training of particular relevance to sanitation.

5.1.5 Town Councils

- Statutory responsibility for provision of sanitation services.
- Town Engineer's Department with specific unit for sewerage and sanitation.
- All new installations provided by MLGL and taken over for operation and maintenance by Town Council.
- The costs of new construction are covered by MLGL as a loan to the Council.
- O&M costs are the responsibility of the Council.
- Revenue to meet cost recovery requirements arises from service charge on plots.
- Running of primary health care services is administered by the Council.

5.1.6 District Councils

- Statutory responsibility for provision of sanitation services.
- Each District Council has a unit dealing with i.a "sanitation", which incorporates also refuse collection.
- Weak legal basis for raising revenue, thus relying on "deficit grants" from MLGL.
- Substantial growth has occurred in council capacity and capability over the last 10 years.
- Regional health teams for primary health care (which includes sanitation) recently transferred to district councils.

5.2 MINISTRY OF MINERAL RESOURCES AND WATER AFFAIRS (MMRWA)

5.2.1 Headquarters

- Planning and administrative duties which indirectly relate to sanitation (ref. DWA and WAB).

5.2.2 Department of Water Affairs (DWA)

- Technical arm of MRWA and secretariate funtion to WAB.
- Pollution control specific area of responsibility, placed within DWA's O&M Division; advising WAB through Director/ DWA.

- Assigned responsibility for design and construction of sewerage in the Districts (ref. decision by MFDP in 1980); never assumed due to non-approval of pre-requisite staff increases.

5.2.3 Department of Geological Survey (DGS)

- Specific responsibility for control and advice concerning groundwater pollution.

- Permanent membership on WAB.

5.2.4 Water Apportionment Board (WAB)

- Statutory responsibility for granting of water rights and to ensure protection against pollution of water resources.

- Potential powers to enforce pollution control has not been fully utilized.

5.3 MINISTRY OF WORKS AND COMMUNICATIONS (MWC)

Buildings Department

- On behalf of MWC responsible for design, construction and maintenance of all government buildings/institutions, incl. provision of necessary infrastructure.

- Buildings Department operates and maintains a number of small sewerage projects for government schools, hospitals, prisons, etc.

- The maintenance service is based on maintenance depots spread throughout Botswana.

5.4 MINISTRY OF HEALTH (MOH)

- MOH has statutory responsibility for enforcement of the Public Health Act.

- Health Officers are empowered to inspect all premises, both public and private, to ensure that basic sanitary requirements are complied with.

- MOH is in overall charge of health services although Regional Health Teams providing primary health care are now functionally under the Local Authorities.

- Responsible for training of Health Assistants and other cadres required for primary health care, incl. on-site sanitation development.

- Overviewing and compiling statistics of public health status which would form part of sanitation planning data.

- Statutory responsibility for the hygienic requirements of water supplies, although DWA is in practice carrying out sampling and analyses.

5.5 MINISTRY OF FINANCE AND DEVELOPMENT PLANNING (MFDP)

- Responsible for overall national planning.

- Assessing presented sanitation requirements within framework of agreed national policies.

5.6 MINISTRY OF EDUCATION (MOE)

- Responsible for technical education, both at professional and sub-professional levels.

- Both University of Botswana and Botswana Polytechnic fall under MOE's portefolio.

5.7 MINISTRY OF LABOUR AND HOME AFFAIRS

Department of Labour

- With the assistance of a National Board of Apprenticeship and Industrial Training responsible for maintaining the trade testing system (apprenticeable and designated trades).

- Relevant designated trades of direct relevance to sanitation/sewerage include bricklayer/blocklayer/plasterer and plumber/pipe fitter.

5.8 COORDINATION BETWEEN MINISTRIES

An Interministerial Water and Sanitation Committee has been in existence since 1981. It is according to its TOR non executive and has no powers to direct a ministry to take any course of action. MLGL, MMRWA, DWA, MFDP, MWC, MOA and MOH are the permanent members. The Committee ceased to meet in 1983 and is thus dormant.

For specific projects (e.g. design of new treatment plants, sewerage feasibility studies, etc.) interministerial reference groups are established on an ad hoc basis. The purpose is to ensure that all relevant aspects are addressed and that the assigned consultants are given appropriate guidance.

In terms of coordination it is relevant to point out the advantage of Botswana's small and efficient civil service. Most senior officers working in related fields know each other personally and ad hoc coordination as well as informal consultations are thereby eased. As the Sanitation Sector grows such informal coordination will inevitably become inadequate.

5.9 LEGISLATION GOVERNING SANITATION

For further details reference is made to the actual text of the respective Acts. Briefly the legal basis for sanitation undertakings is as follows:

- The Water Act empowers the Water Apportionment Board to grant water rights, and through this process to lay down conditions with regard to discharge of effluent.

- In vague terms the Water Act states that pollution of any body of water is prohibited.

- The Public Health Act empowers designated Health Officers to inspect premises and to take legal action against anyone "causing a nuisance", referring specifically to sanitary housing conditions.

- A specific Public Sewers Regulation under the Township Act empowers the Town Councils to demand that plot owners, subject to specified conditions, connect to public sewers.

- The Town and Country Planning Act requires that provision and siting of i.a. sanitation is determined in development plans. The Act facilitates prohibiting, regulating and controlling disposal of sewage as well as other wastes.

The legislation governing water resources and environmental protection has been discussed in a UNDP study on environmental issues (ref. 8) and in a SIDA/FAO report to GOB (ref. 1). Specific proposals contained in the latter is currently being considered for inclusion in new regulations under the present Water Act.

Although sector management proposals may require changes in the statutory responsibilities set out in the various Acts, the current legislation is not a major obstacle to enforcement of a sound sanitation policy.

It would, however, be desireable to lay down more precise and objective criteria to guide the judgement of the competent authorities. Presumably this can be done in regulations under the current acts, at least until such time as a more thorough review is required (ref. e.g. implications of Water Sector Administration Study).

5.10 SUMMARY ON RESPONSIBILITIES AND ROLES

It is the Local Authorities which have the statutory responsibility for sanitation at present, with their parent ministry MLGL being partly the source of finance and partly providing technical back stopping. MMRWA (with DWA and WAB) and MOH have statutory responsibilities which potentially are important to the sanitation sector.

The systematic coordination and exchange of information between the various agencies are lacking. The potential strength of properly pooled resources which could be available for the sector has not been fully realized.

6. TASKS FOR SANITATION SECTOR ADMINISTRATION

The specific sanitation sector tasks are summarized below. These are to comply with government procedures regarding overall planning for allocation of financial and manpower resources. Furthermore, the sector will require general administrative support services (e.g. accounting, office and stores management, personnel administration, etc.).

6.1 SECTOR PLANNING

The major planning tasks comprise:

- Needs assessment
- Procedures, guidelines and criteria
- Interministerial coordination
- Legislation and enforcement
- Forward planning and overview
- Budgeting and financial monitoring
- Project assessment and evaluation
- Monitoring and evaluation

These functions can be grouped into three main areas, namely:

- Sector guidance
- Financial planning
- Technical overview

6.2 PROJECT IMPLEMENTATION

The major implementation tasks comprise:

- Project planning and feasibility studies

- Preliminary designs and project plans

- Urban sanitation development (design, tendering, construction, supervision, commissioning)

- Rural sanitation development (promotion, material supply, training, supervision/construction, community education)

- Technical standardization

These functions can be grouped into two distinctly different areas, namely:

- Urban projects
- Rural projects

Although identical technical expertise may be required for certain tasks pertaining to project preparation and technical specifications, the implementation approach will be entirely different.

6.3 OPERATION AND MAINTENANCE (O&M)

The main tasks required to ensure adequate O&M services comprise:

- O&M systems planning
- Design review and O&M advice
- Monitoring, performance assessment and feed-back
- Central O&M support service
- Sanitation inspectorate and pollution control
- Decentralized executive O&M organization

These functions can be grouped according to their location:

- Central O&M services
- Urban O&M organization
- Rural O&M organization

The rural O&M organization will mainly deal with continuing community training, etc. for up-keep of on-site installations. Consideration must also be given to conventional sewerage serving institutions.

6.4 SECTOR SUPPORT SERVICES

The Sanitation Sector will require supporting services for undertaking of specific tasks such as:

- Staff development, incl. training

- Information dissemination (within sector organization, cross-ministerial, to extension staff and local communities)

- Procurement, manufacturing and supply

- Research and technology development

- Urban sanitation [illegible] tendering, construction supervision, [illegible]
- Rural sanitation and/or development promotion, material supply, training, [illegible] community education)
- Technical standardization

These functions can be grouped into two distinctly different areas, namely

- Urban projects
- Rural projects

Although identical technical expertise may be required for certain tasks pertaining to project preparation and technical specifications, the implementation approach will be entirely different.

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- Decentralized executive O&M organization

These functions can be grouped according to their location:

- Central O&M services
- Urban O&M organization
-

[illegible] with continuing
[illegible] complete installa-
[illegible] to conventional
[illegible]

6.4

[illegible] for

[illegible]
local communi-

These functions belong under two groups, namely:

- Administrative services (which indeed also entails further general services)
- Technical services (to be limited as appropriate to planning, implementation and O&M expertise)

6.5 TASKS PRESENTLY PERFORMED

For further identification of gaps, overlaps and possible duplication of efforts in the performance of sector tasks a matrix has been developed, ref. Table 6.1.

It sets out the above conceptualized tasks against the existing major sector agencies. Ministries such as MFDP, MOE, etc. provide relevant services without having executive sector responsibilities and are therefore not included in the matrix.

The task/agency matrix is an attempt to give an overview of priority/lack of priority placed on the respective tasks by the various agencies involved in the sanitation sector. Statutory and/or recognized responsibilities (as it is felt they are viewed by the agencies) have also been indicated.

MAIN TASKS	SUB-TASKS	MLGL				MMRWA		MWC	MOH
		HQS	ULGS	TC'S	DC'S	DWA	WAB	BD	
	NEED ASSESSMENT	÷		0	0				0
	POLICIES AND STRATEGIES	÷							0
	PROCEDURES, GUIDELINES	⊕				÷	0		
	INTERMIN. COORDINATION	+				+			0
	LEGISLATION AND ENFORCEMENT	0				0			0
	FORWARD PLANNING	÷	÷	÷	÷			÷	
	BUDGETING/MONITORING	⊕	+	+	+			+	
	PROJECT EVALUATION	÷							÷
	PROJECT PLANNING	⊕							÷
	PREL. DESIGN/FEASIBILITY STUDIES	⊕		+					
	URBAN IMPLEMENTATION	⊕		+				+	
	RURAL IMPLEMENTATION	⊕			⊕	(⊕)		+	+
	TECHN. STANDARDIZATION	÷						÷	
	O&M SYSTEMS PLANNING	÷		0	0				
	DESIGN REVIEW/O&M ADVICE	÷		⊕					
	MONITORING/ASSESSMENT	÷		⊕	⊕	⊕			0
	CENTRAL O&M SERVICE							÷	
	SANITATION INSPECTORATE					⊕	⊕		⊕
	DECENTRALIZED O&M ORGANIZATION			⊕	⊕			+	
	STAFF DEVELOPMENT	⊕	⊕	+	+				⊕
	INFO DISSEMINATION	÷							⊕
	PROCUREMENT/SUPPLY	⊕		⊕	⊕			+	
	RESEARCH/TECHN. DEVELOPMENT	÷							

0 - Statutory and/or recognized responsibility
+ - Priority task for agency
- - Low priority task

Table 6.1, TASK/AGENCY MATRIX

The following can be observed from the matrix:

6.5.1 Regarding Sector Planning

- MOH has a public health responsibility, but few means to do more than placing documentation before other ministries, in particular MLGL.

- The only planning function undertaken with some strength by MLGL is the budgeting and cost follow-up within the frame-work of NDP and annual budgets.

- MMRWA is in the process of proposing new regulations under the Water Act. This will i.a strengthen WAB's and thereby also DWA's role in pollution control.

6.5.2 Regarding Project Implementation

- Day to day work concerning implementation of approved projects appears to be the main priority within MLGL.

- Implementation of rural projects is a priority for District Councils - to the extent that such projects exist at all.

- Technical standardization which would ease both O&M and future planning/design work is left virtually unattended.

- MWC/Buildings Department is active within their own limited mandate, but receive little guidance from the prime sector agencies.

6.5.3 Regarding O&M

- The only substantial efforts are put in by the Town Councils, and to a much lesser degree by District Councils.

- In practice there is nowhere the councils can turn to get technical advice in O&M matters.

- An independent inspectorate which could police the proper running of sector facilities is not systematized. DWA acts mainly ad hoc in emergencies.

- The councils are almost self reliant in O&M matters, except the financial/manpower support they receive from MLGL.

6.5.4 Regarding Support Services

- The potential for developing adequate manpower for the sector, in particular at sub-professional level and below, seems promising provided the Sanitation Sector be recognized.

- Other support services are lagging behind as a result of the Sector's low general priority. The machinery for procurement and supply does, however, exist as a service to other sectors (e.g. water supply, health, etc.).

6.5.5 Conclusions on Tasks Performed

The sector problems have not yet reached proportions which would make it difficult to catch up within a relatively short time. The main areas of improvement would be:

- Provide for more comprehensive planning to address future sanitation requirements.

- Develop machinery for better coordination, in particular pooling of resources which are already available within government.

- Draw up realistic plans for organization of urban sanitation to maintain the present high level of coverage.

- Develop the organizational structure required to address sanitation problems in the Districts.

- Provide a system for back-up services to the decentralized O&M organizations.

- Develop sector support services consistent with projected needs of the Sanitation Sector.

- Draw up short term action plan to rectify most urgent health hazard/water pollution problems.

7. PROJECTIONS FOR FUTURE SANITATION SECTOR

7.1 GENERAL

Projections for the future growth of the Sanitation Sector in Botswana must be made without specific sector policy, defined strategies and implementation targets. As already stated, no overall sector development plan exists, thus making it difficult to prepare sub-plans for the Sector.

The Sector Administration will depend on:

- development programme to be undertaken
- actual installations to be operated and maintained

In order to establish orders of magnitude projections have been set out for present urban towns, larger major villages and rural areas in the following. As the service level provided for low-cost housing is presently being discussed (in the context of physical planning and housing policy), a high projection has been included for illustration purposes. This high projection is shown for year 2001 both for urban towns and for major villages due to be upgraded before 1991.

7.2 PRESENT URBAN TOWNS

7.2.1 Projections Based on Current Service Level

It is assumed that 65% of urban dwellers will rely on on-site low-cost sanitation in the future and 35% be connected to waterborne sewerage. Combining this conservative assumption (exception made for Gaborone) with population projections the following number of served people are estimated:

	1991		2001	
	Latrine	Sewerage	Latrine	Sewerage
Gaborone *)	70,000	70,000	120,000	130,000
Francistown	40,000	20,000	60,000	40,000
Lobatse	20,000	10,000	25,000	15,000
Selebi Phikwe	35,000	20,000	60,000	30,000
Jwaneng	10,000	5,000	25,000	10,000

*) Figures for Gaborone adjusted as higher proportion of sewerage apply.

Table 7.1, Population Served by Latrine/Sewerage in Present Towns.

Comparing with present service levels (ref. Sect. 4.2), it can be noted that in 15 years time both Francistown and Selebi Phikwe are going to approach the present size of Gaborone in terms of work load on the Town Councils' sewerage departments.

7.2.2 High Projections

A discussion has been initiated with regard to appropriate service level in urban towns. Some claim that the present low cost sanitation services will cause hygienic and pollutional problems in the future if upgrading or redevelopment are going to take place. Provided the necessary policy decisions are made the number of people served by sewerage might increase well above the figures set out in Sect. 7.2.1.

A possible scenario for year 2001 could be a distribution of 20% utilizing latrines and 80% utilizing sewerage. The corresponding numbers of people served are:

	Year 2001	
	Latrine	Sewerage
Gaborone	50,000	200,000
Francistown	20,000	80,000
Lobatse	8,000	32,000
Selebi Phikwe	18,000	72,000
Jwaneng	7,000	28,000

Table 7.2, Sanitation Services in Towns - High Projections for Year 2001

7.3 MAJOR VILLAGES BECOMING TOWNS BEFORE 1991

7.3.1 Conservative Projections

Applying present criteria for upgrading to town status, it is estimated that 10 out of the major villages will have town status before 1991.

For estimates of future sanitation status it has been assumed that:

- improved sanitation coverage will be 50% by 1991 (of which up to 20% could be waterborne, incl. septic tanks).

- improved sanitation coverage by 2001 will be 90%, splitted with 65% latrines and 35% waterborne sewerage.

The order of magnitude of required sanitation sector undertakings can be assumed on the basis of the below estimate.

	1991		2001	
	Latrine	Sewerage**)	Latrine	Sewerage
Serowe	20,000	5,000	45,000	25,000
Mahalapye	15,000	5,000	40,000	20,000
Molepolole	13,000	4,000	35,000	20,000
Kanye	14,000	4,000	35,000	20,000
Mochudi	12,000	3,000	30,000	17,000
Maun	10,000	2,000	25,000	13,000
Palapye	8,000	2,000	20,000	11,000
Ramotswa*)	12,000	3,000	21,000	12,000
Tlokweng	6,000	1,000	13,000	7,000
Mogoditshane	3,000	-	6,000	3,000

*) Assumed coverage 1991: 70%, of which 20% sewerage, implying accellerated development due to specific groundwater pollution problems
**) Mostly by septic tanks

Table 7.3, Population served by Latrines/Sewerage in New Towns (Upgraded Major Villages).

It can be observed that by year 2001 as many as seven of these villages will have sanitary installations of the same or larger magnitude as in Francistown/Selebi Phikwe today.

7.3.2 High Projections

A change in policy governing sanitation development is likely to affect the future implementation of facilities in major villages as well. Considering the rural nature of these villages it is likely that at least 10% will remain unserved by year 2001. If, however, development of improved sanitation, and in particular water-borne sewerage, is assigned higher priority in the future, the situation in year 2001 may become different from the projections given in Sect. 7.3.1.

Assuming 90% improved sanitation coverage in 1991 with equal numbers of people being served by latrines and waterborne sewerage, the following projections apply:

	Year 2001	
	Latrine	Sewerage
Serowe	35,000	35,000
Makelapye	30,000	30,000
Molepolole	27,000	27,000
Kanye	27,000	27,000
Mochudi	23,000	23,000
Maun	19,000	19,000
Palapye	15,000	15,000
Ramotswa	16,000	16,000
Tlokweng	10,000	10,000
Mogoditshane	4,000	4,000

Table 7.4, Sanitation Services in Major Villages - High Projections for Year 2001

7.4 RURAL AREAS

Rural areas are here deemed to include all people who will not be living in present towns or in major villages which are to be upgraded to urban status before 1991. The population of these areas will be distributed among the various districts as follows (ref. 2 and ref. 3 combined):

District	Rural Population 1986	1991	2001
Central	287,000	301,000	327,000
Southern	109,000	119,000	141,000
South East	12,000	14,000	23,000
Kweneng	108,000	126,000	167,000
Kgatleng	26,000	25,000	17,000
North East	42,000	48,000	64,000
North West*)	67,000	71,000	77,000
Ghanzi	22,000	26,000	37,000
Kgalagadi	28,000	34,000	49,000
Total	701,000	764,000	902,000

*) Two districts (Ngamiland and Chobe) combined as they have a joint District Council.

Table 7.5, Estimated Rural Population.

The overwhelming part of the rural population will be located in three districts, namely Central, Southern and Kweneng. It is observed that the clusters of rural population generally coincides with the location of future towns, and that this concentration will be even more pronounced in the future as towns/larger villages are likely to grow at the highest rates.

A growing coverage of sanitation can be expected also in these areas, and a modest target would be 50% by 2001. This would imply that coverage in (remaining) major and minor villages at this time has approached 80 - 90%. Although rural sanitation will largely remain a responsibility of the individual household, the relevant authorities will be required to assist in terms of promotional activities, materials supply and presumably credit facilities/ subsidies.

8. OPTIONS FOR SECTOR ADMINISTRATION

8.1 BASIS FOR PROPOSALS

Proposed structures for Sanitation Sector administration must be compared with the

- Sanitation Sector Objectives
- National system for planning, implementation and maintenance of public services
- Magnitude of tasks to be undertaken in the future

Any sector administration must be suited to cost-effective discharge of the services under its responsibility. The existing structures will be taken as a starting point for a planned transition towards a possible alternative organization. Furthermore, the current shortcomings must be addressed as a first priority.

There is also a need to identify the lead agency - the Ministry to be charged not only with the responsibility to coordinate sector participants, but also with the powers to do so.

8.2 LINKAGES TO THE WATER SECTOR

The need for coordination with the Water Sector must be kept in mind throughout this chapter.

This need is self-explanatory as regards waterborne sewerage. For on-site, low cost sanitation the coordination need is not so obvious. However, one aspect of interface remains clear; -where water is particularly scarce or costly the low cost solution offers water saving advantages of considerable magnitude.

The nature of maintenance of water supplies and sanitation installations is similar. An organization set up to operate and maintain water supplies, be it urban or rural, will require mostly the same expertise and kind of equipment for execution of sanitation services (although vacuum tankers for emptying, etc. are sanitation specific requirements).

The main coordination and linkage requirements between the water supply and sanitation subsectors are summarized below.

* Re. conventional water-borne sewerage

- Most of supplied water returned to the sewers (claimed to be only 50% in Gaborone)

- Joint administrative services (e.g. billing) would be cost effective

- Full coordination of design/construction desirable

- Similar engineering skills required (ref. training)

- Nature of O&M undertakings is similar (technical, managerial, routine/periodic/rehabilitation schedules, etc.)

* Re. water supply service level

- Determines available options for sanitation

- Implications of future upgrading/increased density on sanitation requirements

- Sanitation may prove to be critical at specific threshold level (density/water supply/site conditions)

* Re. pollutional aspects

- Independent pollution control authority with powers to enforce legislation is desirable

- Soakage and infiltration problems must be identified; pit latrines, french drains, sewers, ponds, irrigation fields, etc.

- Waste water composition sets limits for available disposal/reuse options

- Localization and siting of waste water facilities must be planned; groundwater, water use/development, flooding

* Re. water conservation

- Waste water reuse options must be identified

- Water saving sanitary installations can be promoted or enforced

8.3 THE COUNCIL OPTION (ALT. A)

The Local Authorities may continue to have the statutory responsibility for sanitation. In line with GOB policy and observed trends the full responsibility for sanitation of any kind should be devolved to the Town and District Councils respectively.

The Councils will continue to develop their units dealing with sanitation (sewerage) assisted by MLGL. MLGL will thereby become (or continue to be) the umbrella ministry with overall responsibility for sanitation. The functions not being attended to at present must be developed soonest.

As an alternative arrangement MLGL may delegate responsibility for certain aspects (notably technical services) to a ministry/department with relevant competence and mode of operation (i.e. MMRWA/DWA).

With continued growth of urban towns, major villages and minor villages as well, there is no doubt that Councils will become increasingly important. In the long term, say 10 - 15 years ahead, it can be expected that Local Authorities are in a position to discharge most of the services with little direct involvement (except financial) of the central government.

In the short term, and for a period as long as necessary, MLGL should provide the required supporting services to the Local Authorities. These services may be organized directly by MLGL or be "sub contracted" to another ministry on agent basis.

This option will be further favoured if a better system for raising Council revenue, in particular in Districts and/or major villages, is introduced. The prospects of achieving self financing sanitation systems, at least of the O&M costs, would thereby improve.

8.4 THE CENTRAL GOVERNMENT OPTION

The overall and executive responsibility for sanitation could be given to one Ministry by transferring the statutory responsibility from Councils to this Ministry. All stages of sanitation development would in this case come under the ministerial portefolio. The services would be discharged to individual users against charges to be determined.

In practical terms the services would be operated by a department under the ministry in charge, much similar to DWA's present role in major village water supply. This Department could be either a new one or an existing one, appropriately strengthened. The Local Authorities would have to exercise their influence through the development planning system and partly through the public health inspectorate.

The major decision would be to decide whether the responsible Ministry should be MMRWA or MLGL. In terms of available Ministerial capacity, competence and infrastructure, MMRWA through DWA would be best placed to take over the operational duties. DWA would require some reinforcement (partly transferred from MLGL and the councils) in terms staff dealing with technical aspects of sanitation/sewerage. In such a set-up the function of MLGL would be that of overall responsibility for Local Authorities' planning.

The experience from other African countries, existing trends of thoughts in the organizational field as well as prevailing political views on the centralization/decentralization issue reduce, however, this option to a theoretical possibility only. This alternative will therefore not be further elaborated upon.

8.5 THE PARASTATAL OPTION (ALT. B)

This option would have the Water Utilities Corporation (WUC) as a model; a self financing parastatal agency under the responsible ministry (in that case MMRWA). A similar option has been proposed (Botswana Water Corporation - BWC) to serve the entire public water supply sector.

The corporation would have to fall under the ministry which is assigned responsibility for Sanitation Sector planning. For this task there are two conceivable alternatives; MLGL and MMRWA. The former would facilitate the closest links to Local Authorities whereas the latter would provide for close coordination with the Water Sector.

The corporation could be envisaged to have alternative mandates, e.g.:

i) Waterborne conventional sewerage in major towns

ii) All sanitation/sewerage in major towns (corresponding to present WUC)

iii) Responsibilities similar to i) or alternatively ii), but to include also all major villages

iv) All sanitation/sewerage in Botswana

It is in principle alternative iv) which corresponds with the proposed BWC (draft phase 1 report, ref. 3).

A corporation will entail a vertical structure being directed by decisions taken by its Chief Executive (or its Board). Even with a regionalization of the organizational structure, the line of command and accountability requirements will imply a centralized nature of decision making. Moreover, mechanisms for provision of subsidised services must be worked out if this is necessary for the corporation to fulfil its mandate.

A corporation being required to operate on a self financing basis will have to be production oriented. However, a monopoly position where the consumers/beneficiaries in principle have to meet the entire costs of operation (as for WUC) does not necessarily ensure cost effective provision of services.

8.6 ZERO OPTION

Before the different improvement alternatives are scrutinized it might be worthwhile considering to which extent the existing system could be streamlined and made to work better, basically through a redeployment of existing resources, improved routines and procedures, etc. The minimal staff of technical expertise available makes any improvement most difficult, but the combination of procedural adjustments, access to limited but crucial consultancy services and closer cooperation with e.g. DWA could yield some positive results that are further explained below:

a) Town and Country Planning Board

New routines should be introduced whereby the Town and Country Planning Board requires that plans and designs for new sewerage facilities are submitted to MLGL for approval. The existing sanitary staff at MLGL would be in a position to scrutinize such schemes without unduly delaying the start of the actual construction.

b) Preparation of a National Water and Sanitation Plan

There are advanced plans for the preparation of a National Water Master Plan at the MMRWA/DWA. The Consultant has been made to understand that DWA would not object to expanding the TOR for the national water plan to include sanitation as well. Such a joint planning exercise covering both the water and sanitation fields would go a long way towards creating a more stable basis for the long term work in the sanitation field. Sanitation Sector policy, implementation strategy, development plan and financial requirements would be the major outputs of this planning exercise.

c) Sewerage Tariff Study

The situation with regard to a number of sanitation and sewerage schemes is unclear or outright unsatisfactory from a self financing point of view. A study covering all financial aspects of sewerage and sanitation schemes would provide much needed clarification in this field. A Terms of Reference for such a study was prepared by IBRD in October 1986. The Consultants feel that the Terms of Reference provide a realistic basis for a possible consultancy input in this field.

Further reference is made to Chapter 11 below on Coordination and Procedural Matters. If staff levels and administrative capacities are too low, more comprehensive coordination procedures between the various sector agencies may just create more frustrations among the involved actors. Improvements within a Zero Option are unlikely to be achieved due to capacity constraints, in particular at the managerial/supervisory levels.

9. QUALITATIVE EVALUATION OF OPTIONS

9.1 ALTERNATIVES TO BE EVALUATED

A multitude of sub-alternatives can be proposed under the two principal options specified above (Alt. A and B), the most interesting ones have been identified for further evaluation.

The alternatives with specific characteristics are as follows (ref. chart attached at end of Chapter 9).

9.1.1 Alt. A - Council Option

- Alt. A.1:

  Town and District Councils fully responsible, and to be supported for further development of capacity. MLGL in overall charge (planning and necessary support to councils). Sanitation "Department" may be required within MLGL in long term, but existing Technical Unit (strengthened) will suffice in short/medium term.

- Alt. A.2:

  As above, but DWA acting as technical agent relieving MLGL of support functions such as design, construction and maintenance support (e.g. pit emptying services in major villages). Overall planning responsibility to remain with MLGL, whereas MMRWA will have technical sector planning responsibility.

9.1.2 Alt. B - Parastatal Option

Wide range of options, mainly due to different characteristics of urban and rural sanitation. In alternative B.1 the overall responsibility rests with MLGL incl. being in charge of the corporation.

Alternative B.2 envisages a situation where the sanitation activities are merged with an already existing water corporation under the MMRWA portefolio. In this alternative all rural sanitation is separated from the corporation ("rural" covering also the least developed major villages). Responsibility will be retained by MLGL/District Councils for rural sanitation.

9.2 EVALUATION OF OPTIONS

The qualitative evaluation is done below by stating the obvious merits/advantages and demerits/disadvantages of each alternative. In addition relevant comments have been made. The implications of the most attractive alternatives have then been discussed and finally a recommendation made.

9.2.1 Alt. 1, Council Option with Town and District Councils fully responsible

Advantages	Disadvantages
- Clear lines of responsibilities, command and communication	- MLGL not set up to provide maintenance support services
- Minimal changes from present formal system, ref. statutoty responsibilities	- Possible need to develop a sanitation department in fu
- In line with policy of devesting central government of responsibility for provision of services	- Difficult for central government to exercise control over expenditure/subsidy input
- In line with current trend of reinforcing capacity and capability of councils	- Scheme of service for council staff not attractive
- Closely linked to national planning system	- Weak linkage to water supply sector with need for interministerial coordination
- Responsive to political influence (elected council)	
- Councils already in charge of primary health care services; essential in particular for rural sanitation	

9.2.2 Alt. A.2, Council Option with DWA as technical agent

Advantages	Disadvantages
- Main reponsibility clearly placed	- Difficult for MLGL/councils to influence DWA priorities
- Services to be solicited from DWA of same nature as their current capabilities	- Demanding in terms of interministerial coordination
- No need for MLGL to develop technical service functions	- Certain cases will fall within the "grey zone" where DWA involvement would be uncertain
- Most advantages of alternative A.1 are retained (e.g. devolvement policy, decentralized planning, primary health care, etc.)	- Funding of support services may not be easy to resolve

Advantages	Disadvantages
- Slight improvement of present linkages to water supply sector (although not formally due to agent role of DWA)	- Increased difficulties of central government's control over expenditure and subsidy
- Better coordination with pollution control and water resources assessment	- Scheme of service for council staff not attractive

9.2.3 Alt. B.1, Parastatal with country wide coverage (MLGL responsible ministry)

Advantages	Disadvantages
- Advantages concerning MLGL as responsible ministry same as set out under Alt. A.1 (e.g. clear lines of responsibilities, close links to central planning systems)	- Parastatal concept contrary to policy of devolving responsibilities to Local Authorities
- Parastatal provides for lesser bureaucracy and more flexible terms of services	- Parastatal may be considered alien at community level, in particular in rural areas
- Parastatal can potentially be formed to discharge services in cost efficient manner	- Unsuitable for promotional tasks required for rural, and to some extent (minor) urban low-cost sanitation
- Provides for good control of subsidy/cost recovery elements	- A separate sanitation corporation not likely to be viable
- Possibility of direct financing outside ordinary budgets	- Lack of coordination with water supply sector
- Well suited to execute new sewerage development	- Slow response to political influence
	- Radical change in statutory responsibility
	- Entirely new system for personnel recruitment, training, etc. to be set up

9.2.4 Alt. B.2, Parastatal Option covering only waterborne sewerage

Advantages	Disadvantages
- Corporation to be assigned responsibility only in areas where it can serve appropriately	- Responsibility for sanitation divided between two ministries
- Advantages of a corporation as set out under Alt. B.1 (e.g. cost efficient discharge of services, minimized bureaucracy, possibility of direct financing, etc.)	- Distinction between urban/rural (delineating corporation responsibility) may become matter of confusion
- Complementary services required for rural sanitation will be available through the councils, but not necessarily for urban sanitation	- Disadvantages concerning corporation as set out under Alt. B.1 will remain, but they will be less severe (e.g. organization unsuitable for community level work, contrary to policy of decentralization/devolvement, radical changes in statutory responsibilities, etc.)
	- Two different schemes of service within the same sector

9.3 COMMENTS ON ALTERNATIVES

Alt. A is a pragmatic way of keeping the changes in the existing system down to a minimum, at the same time as it complies with the policy of devolution. Alt. A.1 is basically a "do nothing" option from an organizational point of view, but aims at strengthening the existing set -up with necessary planning capacity, technical competence and management structure. Alt. A.2 tries to merge the activities in the water supply and sewerage fields which can be combined in a logical and effective manner.

Alt. B provides a more centralized option which offers the advantages of control and accountability to the Ministry in charge. The drawback with the rigid, vertical administrative structure is the poor links to the local communities. This is particularly true for Alt. B.1 whilst in B.2 the District Councils (including the smallest major villages) retain their control and responsibility for rural sanitation.

Considering the high initial costs and lack of flexibility of Alt. B.1 it is decided to disregard this in the further discussions. It is evident that a separate parastatal for sanitation cannot be attractive neither economically nor politically. The parastatal option can only be viable if it can be considered in terms of marginally extending an existing water supply parastatal.

An interesting possibility under the B schemes is the creation of a joint Water Supply and Sanitation Corporation under the control of MLGL. MMRWA would remain in charge of water resources management, including pollution control, but would not have any operational responsibilities. MOH would establish standards and control developments in the fields of environmental hygiene and health protection. MLGL, through or on behalf of the councils, would shoulder the overall responsibility for discharging the public services according to priorities expressed through the national planning system.

Ideally, a given size of the Sanitation Sector, including existing and planned new developments, would determine the size of the organization required to develop and run the necessary facilities. However, the organization required for adequate sector management will depend on, i.a:

- Degree of decentralization
- Skills of the manpower, in particular at decentralized levels
- Extent to which combination with other services reduces logistics requirements and/or allows for a combined utilization of administrative support services
- Restrictions and limitations on sector activities set by existing laws, by-laws and regulations
- Quality of planning and general management of lead agency

A systematic assessment of the different alternatives must take the above mentioned factors into account together with the effectiveness of the individual alternatives to meet sector objectives.

9.4 IMPLICATIONS OF THE DIFFERENT ALTERNATIVES

Each of the different alternatives will require resources over and above what is provided through the respective agencies dealing with the sanitation sector at present. Among these requirements only the manpower implications are discussed in any depth in this Report. The further detailing, in particular for the recommended alternative should be done in the proposed Water Supply and Sanitation Master Plan.

In spite of this shortcoming it is considered possible to rank the different alternatives and make recommendations, in particular for the short term improvements. For the longer term organizational development will in any case depend substantially on decisions for the water sector.

9.4.1 Alt. A.1

This alternative does not imply any changes in the organizational set-up, but a number of functions within the existing structure must be strengthened:

i) The planning function at MLGL must be strengthened. This could be achieved through:

- the preparation of a National Sanitation Plan (possibly by consultants)

- attaching a Sanitation Engineer to planning functions, at least on part time basis

ii) Town and District Councils must strengthen their supervisory manpower and equipment set-up to be able to handle adequately O&M activities. A total of three sanitary technicians (for Kweneng, Central, and South Eastern Districts) would be required for this purpose.

iii) In order to fill the posts mentioned under ii) above, recruitment and training programmes must be initiated. Most of the necessary training on technician level could be organized at Botswana Polytechnic or through crash courses for already trained water supply technicians.

9.4.2 Alt. A.2

In this alternative the DWA of MMRWA takes over the technical responsibility for the Sanitation Sector. This move will have the following implications:

i) Existing sanitation/sewerage staff within MLGL to be reoriented towards planning tasks (both over-all and support to Council planning).

ii) DWA (or alternatively the BWC) must be given additional staff to take charge of design and construction activities (mainly supervision of consultants and contractors).

These requirements could be summarized as follows:

- One Sanitary Engineer
- Two Sanitary Technicians

The Sanitary Engineer should have 5 - 8 years of water supply and sanitation experience and may thus be difficult to recruit locally. The Sanitary Technicians could be recruited from the ranks of Water Supply Technicians who may be given a short crash-course in Sanitation. Such a course could be organized through Botswana Polytechnic.

iii) Manpower requirements at council level are identical to those for alt. A.1 (see ii) and iii) above).

9.4.3 Alt. B.1

This alternative is no longer considered.

9.4.4 Alt. B.2

This alternative is based on the assumption that urban sanitation activities can be assigned to an already existing water supply corporation (be it WUC or BWC). The costs of such merger would basically consist of the marginal cost of adding the sanitation expertise and capacity to an existing set up. More specifically, this option requires that:

i) Existing sanitation/sewerage staff within MLGL should be reoriented towards planning tasks, in particular for rural sanitation.

ii) MLGL must determine ways and means of providing rural maintenance support to District Councils (notably emptying of septic tanks and pit latrines)

iv) O&M staff to be transferred to the parastatal from Town and (where appropriate) District Councils

iii) The tasks of technical planning, design, construction and O&M in the sanitation/sewerage field must be transferred to the parastatal.

Furthermore, in order to fulfil these new tasks the corporation would require:

- Amendments to existing legislation to facilitate the establishment of the new structure
- Adequate recruitment and training programmes
- The development of a joint water supply and sewerage charging system, in particular billing and revenue collection
- Policy ruling on government subsidies to rural areas, if any

In terms of manpower the merger would result in the following addition of technical staff to deal with urban sanitation within the parastatal:

	Transfers (from MLGL/ Councils)	New Recruitment	Total
Sanitary Engineers	1	2	3
Technicians	12 (approx.)	4	16

Labourers would also be required, ref. present council staff levels.

In addition, certain adminitrative and supporting functions of the parastatal will also have to be marginally reinforced in order to cope with the additional requirements of its new Sanitation Department, e.g. training facilities, personnel administration, transport management, accounting and billing services, etc.

The "transfers" indicate the approximate number of staff already within the present sanitation administration. A possible new parastatal would presumably recruit in the open market, but hopefully attract the qualified council staff becoming redundant after a sector reorganization.

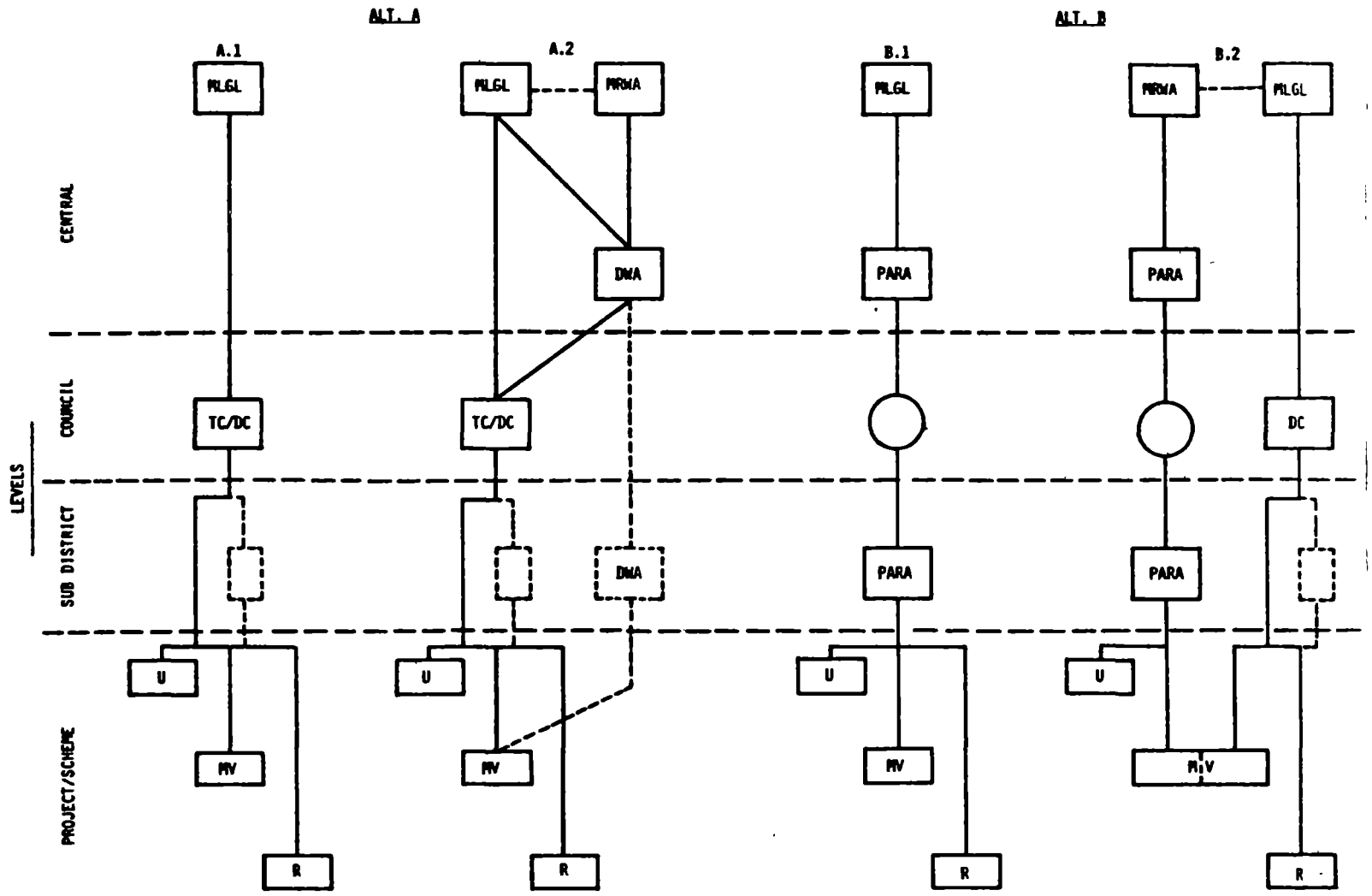

Figure 9.1, Alternative Organizational Structures

10. RECOMMENDATIONS

10.1 MAIN CONSIDERATIONS

In rectifying the present short-comings in the sanitation field in general and sewage disposal systems in particular, there are a number of basic policy issues as well as practical implications to consider:

i) The overall role and responsibilities of MLGL make this ministry less well-placed to be technically responsible for the sanitation/sewerage field. A substantive ministry like the MRWA would be a more natural lead agency in this respect.

ii) The relative weak financial and administrative position of the District Councils would make it necessary for MLGL to retain certain planning and administrative sector support functions (at least for the time being) even if the technical responsibility is moved to another ministry.

iii) Water supply and sanitation/sewerage are two activities which to their nature are best handled at local level, preferably by administrations responsible to locally elected bodies.

iv) Technical know-how, administrative capacity and adequate financial resources which are not available at council level throughout Botswana. The political intentions and long term development trends are, however, favouring stronger and more independent local administrations.

v) The most urgent tasks should be initiated without awaiting a final solution to basic organizational matters. The need for a National Sanitation Plan as well as some urgent problems of sewage treatment and disposal at district level should be attended to without delays.

10.2 THE RECOMMENDED ALTERNATIVE

Taking these factors into account and reviewing the advantages and disadvantages of the different options as well as the identified implications, it is recommended that Alt. A.2 is used as a basis for required adjustments in the organization and management of the Sanitation Sector in Botswana (i.e. the Council option, with DWA as technical agent and MLGL retaining important planning and administrative functions).

This solution would retain and over time strengthen the role of Town and District Councils, improve the planning capacity of MLGL and provide for a rational solution to

the overall technical responsibility in this field (to be taken over by MMRWA through DWA). The required immediate changes in the existing system are relatively modest and the proposed solution is flexible enough to facilitate future adjustments as and when required.

In a longer term perspective, development of water sector administration will influence the sanitation sector as well. The expected rapid growth of urban and semi-urban centres will require a fast expansion of reticulated water supply schemes with a corresponding need for new sanitation/sewerage systems. Should GOB decide that water supply administration is best handled by a national water corporation (which also would take over the responsibility for existing schemes) there would be a case for transferring the sewerage responsibilities to the parastatal. However, if such a development takes place, it is crucial that Town and District Councils are given powers to influence the operations of such a new parastatal. This could be arranged in a number of different ways (through equity, ex-officio positions on the Board of the corporation etc.), but proper arrangements must be clearly elaborated prior to the establishment of such a parastatal.

10.3 DISTRIBUTION OF RESPONSIBILITIES UNDER RECOMMENDED ALTERNATIVE

The recommended organizational set-up offers a clear division of labour and responsibilities concerning the different main tasks of developing and operating sanitation schemes. These main tasks could be summarized broadly as follows:

a) Planning

b) Design/Construction

c) Operation and Maintenance (O&M)

a) Planning

Three parties (Town and District Councils, MLGL, and MRWA through DWA) are involved in the planning phase, but in distinctively different roles. The Town and District Councils identify their needs for sanitation projects, establish priorities and submit the request to MLGL for financing. The MLGL determines which of the proposed sanitation schemes to include in the development plans, taking into account total resources available, national priorities, etc. DWA prepares the technical sector plan based on the project proposals accepted by MLGL and taking into account technical considerations, production capacities and constraints in areas like O&M.

b) Design and Construction

DWA will function as a technical agent providing technical advice in all matters related to the design, construction and O&M of sanitation schemes. These activities could cover responsibilities like hiring of consultants for design work, inviting tenders, supervision of contractors, etc.

c) Operation and Maintenance

These activities are handled locally by the Town and District Councils or by independent organizations designated by the Councils to handle O&M activities. Technical advice may be provided by DWA and financial support (in particular to the Districts) by MLGL.

11. COORDINATION AND PROCEDURAL MATTERS

11.1 INTRODUCTION

As indicated in the above Section under the Zero Option, better coordination and procedures between the various actors in the sector may improve overall performance. In the present situation the manpower levels are, however, so low that the sector may not significantly respond to better coordination and procedures.

Ideally these should lead to better quality of all work tasks, but with no idle capacity (rather over-stretched at senior level) the risk is that a more comprehensive approach to sector problem would instead result in delays and constraints. Thus, pooling of resources may not yield the expected results as the complexity of individual tasks will increase and therefore become more manpower intensive, at least in the short term. In other cases where two agencies are doing identical or interwoven tasks, outright rationalization can of course be achieved (e.g. technical operations of DWA and WUC, intallations for new housing areas by WUC and MLGL/Town Council, etc.).

11.2 SECTOR DEVELOPMENT PLANNING

11.2.1 General Physical Planning

Physical planning is carried out by DTRP based on a procedure of consultations between concerned government bodies. Considering the important status of approved development plans and the present vague statements of sanitation requirements contained in these plans, it is proposed that sanitation be taken better care of by requiring that:

i) all development plans shall be based on a broad plan for sanitation development (incl. both sewerage and on-site disposal) within the designated planning area

ii) the technical responsible agency (proposed to be MMRWA/DWA) shall be informed of applications for planning permits and in the case of major developments require detailed plans to be presented for approval.

Item ii) will take care of future cases to be raised by e.g. MWC/Building Department.

11.2.2 Financial Planning

It is recommended that MLGL shall continue to have the overall responsibility for financial planning in respect of the Sanitation Sector. This tallies with MLGL's role as a parent ministry for the Town and District Councils.

MLGL's role will be to document the need for capital and recurrent funds for sanitation/sewerage and to allocate these to the sector according to defined priorities. It is recommended that a Sanitation Development Committee be formed to advise MLGL on assigning both relative and specific priorities for sanitation development.

The members of the committee shall include:

- MOH (public health requirements)

- MMRWA/DWA (technical and pollution control requirements)

- Town Councils (represented by one or two)

- District Councils (- " -)

Other government bodies may be coopted as members if required, notably MWC/Buildings Department until a change in their sanitation sector involvement has occurred.

11.3 TECHNICAL PLANNING

11.3.1 Sanitation Assessment as Part of Water Supply Planning

It should be introduced as a matter of principle that all proposals for new construction, rehabilitation or augmentation of water supply schemes shall be accompanied by an assessment of the sanitation requirements. Introducing or substantially increasing access to a plentiful water supply will in itself increase the risk of water pollution, and may even cause health hazards.

This procedure should be introduced by the water supply agencies who will thereby create an early warning system. It has also an inherent monitoring possibility if the procedure is applied to annual estimates for recurrent funds.

11.3.2 Project Planning and Technical Development

Although the prime responsibility for sanitation is proposed to remain with the councils, it is inevitable that the central technical agency (DWA) will continue to play an important role in technical matters.

These may include, i.a:

i) conceptual, technical planning
ii) supervision of project design
iii) supervision of construction
iv) development of technical standards
v) development of suitable sanitation technologies
vi) preparation of technical manuals and guidelines

The interaction between the respective agencies involved in sanitation is important. Operational experience should be fed back to DWA to avoid inappropriate "text-book" technology, and it must be ensured that the technologies take proper account of all aspects relating to public health, pollution control and cost efficiency.

For this purpose a technical committee on sanitation should be established under the chairmanship of DWA. The other membership will be the same as for the above mentioned financial committee, but with individual members more oriented towards technology and community knowledge. MLGL may for instance be represented by a public health engineer (and/or a sociologist) rather than a planning officer. Council representatives should have a specific responsibility for reflecting O&M experiences in the committee's deliberations.

11.4 UMBRELLA MINISTRY

With councils having statutory responsibility for provision of sanitation services, it will be their parent ministry MLGL which must see to it that required financial and technical resources are forthcoming. Moreover, MLGL being responsible for land-use planning and direction of urban development, it follows that other substantive ministries will take their most important directives from MLGL.

MLGL should therefore act as the umbrella ministry for all Sanitation Sector matters. MMRWA will be the competent authority on technical and pollution control matters whereas MOH will be the sector advisor on public health matters.

MLGL provides finances for the council projects according to their assessed priorities. The Ministry has through this responsibility also considerable powers to execute the overall coordination.

12. ENFORCEMENT FOR BETTER SECTOR PERFORMANCE

12.1 PRESENT PRACTICES

The enforcement mechanisms applied to the sanitation sector activities today are weak and not utilized to the extent made possible by existing legislation. Partly the legislation is not specific enough (i.e. lacking detailed regulations) and partly the recent urban development has been too rapid for the enforcement machinery to follow up.

The result is a hollowed set of sector regulations which allow ad hoc actions to be taken in a hap-hazard fashion. This applies to the various specific problems that occur from time to time and not to the general sanitation infrastructure being part of the very orderly urban development.

12.2 ROLES OF VARIOUS AUTHORITIES

12.2.1 Planning Authorities

DTRP, Land Boards and the Town and Country Planning Board should implement adequate procedures to ensure better specialist consultations. Reference is made to Section 11.2.1.

The Town and Country Planning Act contains provisions for strict control at the planning and development stage. The required machinery to make use of this control function should be developed. Two implications can be foreseen:

i) Development planning may take slightly longer time from proposal to approval.

ii) Guidelines and possible manuals to guide Land Boards and their consultative authorities should be prepared.

It is not considered necessary to develop any new regulation under the Act to achieve better planning control and quality.

12.2.2 Pollution Control

WAB has not been very efficient in terms of controlling water pollution. Valuable work has been carried out by DWA's Pollution Control Engineer, but the efforts have not had the necessary legal backing. Pollution Control has therefore mainly been in an advisory capacity.

During a recent review (1983) of domestic water legislation it was proposed to strengthen the authority of WAB substantially. DWA has proposed that specific regulations

to this effect shall be prepared on the basis of the Water Act. This is an important and necessary action to give proper control over the end product of sanitation (and waterborne sewerage in particular).

Under an adequate regulation the WAB with technical assistance from DWA shall have the powers to examine and if necessary modify the details of any proposed waste discharge, including its siting. Effluent standards should be specified as a condition for granting of discharge permits.

Likewise the WAB should be given broad authority to investigate compliance with the terms and conditions of the granted permits. Moreover, all existing waste discharges should within a specified time be required to apply for a permit.

Being linked to the right to abstract water, it naturally follows that the major mechanism of enforcement would be to disconnect the water supply/revoke the water right. Depending on the actual case monetary penalties and/or legal action before court should remain possible courses of action against defaulters.

12.2.3 Sanitation Inspectorate

This role is assigned to MOH under the Public Health Act. Whereas Health Inspectors are active in many other fields, e.g. inspection of abattoirs, restaurants, hotels, schools etc., they have not yet had the capacity to give any considerable attention to individual dwellings. There is a shortfall of Health Inspectors in Botswana which is currently being addressed, ref. training projections in NDP VI.

An active inspectorate is a prerequisite for enforcement of sanitary installations and practices at household/dwelling level. The inspectorate will also act as a link in the monitoring system which will feed information back to the Sanitation Sector planning authority.

12.3 FINANCES TO SUPPORT ENFORCEMENT

The introduction and enforcement of regulations are of little value if the financial means to implement required actions are unavailable. A sound sanitation policy will inevitably imply additional costs, in particular in the short term. These initial costs may be borne either by the individual developers or alternatively by the Government.

In order to continue overall development at the desired pace and simultaneously contain the sanitary situation,

the Government must make adequate finances available. According to present practices MLGL should request these funds from MFDP and make them available to the Councils.

Most likely there will also be a need for credit financing of special pollution abatement to be undertaken by private companies or even households in response to new regulations. Obviously a specific policy with regard to cost recovery and public incitement must be formulated in this respect.

13. OUTLINE OF MANPOWER REQUIREMENTS

13.1 MANPOWER REQUIREMENTS FOR UNIT SIZES

Present manpower levels were given in Sect. 4.2 for the respective Town Councils. The requirements are distinctly different for latrine servicing and for O&M of conventional sewerage. Considering Gaborone as a model (although a shortage of supervisory staff exists), the following staffing levels are proposed to be the basis for projections:

i) Servicing of latrines

- Annually each vacuum tanker can empty 1,500 pit latrines (servicing about 9,000 people)
- The crew of each tanker consists of 4 industrial class staff
- One supervisor/foreman required for each two tankers (1 per 8 workers)
- Maintenance staff of one industrial class staff required for each two tankers
- One "standby" tanker with crew should be included for each five tankers to cover breakdowns, etc.

ii) O&M of Sewerage

- Industrial class staff required is one worker per 1,200 persons served (present level in Gaborone well below one per 1,000)
- One supervisor per 5,000 served (present level one per 10,000 in Gaborone)

iii) Management

- Number of management positions for sanitation is estimated as follows:

One	for upto	25,000	people	served
Two	"	"	75,000	"	"
Three	"	"	200,000	"	"
Four	"	"	400,000	"	"

These broad estimates for unit sizes of a sanitation organization do not cover administrative staff. The figures will reflect two aspects of staffing requirements very clearly:

- Waterborne sewerage is more labour intensive, corresponding to the more extensive agency responsibility for the entire transportation/disposal facility

- Substantial growth in managerial and supervisory staff will be required to maintain good sector performance.

The ensuing staff projections give the levels for three broad categories needed for the decentralized O&M of sanitation schemes. It is envisaged that these O&M duties include repairs, minor extension and rehabilitation works, etc. (waterborne sewerage). In addition there is a need for a central organization for planning, design, construction supervision and other tasks which cannot be assigned to the decentralized levels.

The purpose of these projections is to give a clue to the training required to support adequate sector manpower development.

13.2 PROJECTED STAFF REQUIREMENTS

The above estimates (Sect. 13.1) are applied to compute approximate staffing required for the projected sanitation service levels, ref. Sect. 7.2 and 7.3. The staff estimates are presented for each town, broken down on respective categories (i.e. managers, supervisors and industrial class). Estimates are prepared for each town and major village. A minor saving may occur for major villages if two or more fall under the same District Council also in the future.

13.2.1 Urban Towns

The staffing requirements are computed in Table 13.1. For year 2001 requirements are prepared for both sets of projections.

The table shows that there is no dramatic change to be expected in sanitation staffing for the urban towns. The staffing levels must, however, continue to grow with the urban population to be served. The two different service level projections for year 2001 demonstrate how the number of middle level supervisors and industrial class workers can be expected to grow if more priority is given to waterborne sewerage.

Table 13.1, Sanitation Staff Projections - Urban Towns

Town	Staff Category	Year		
		1991	2001	2001 (high)
Gaborone	Managers	3	4	4
	Supervisors	20	32	45
	Industrial Class	110	200	230
Francistown	Managers	2	3	3
	Supervisors	7	12	44
	Industrial Class	40	77	90
Lobatse	Managers	2	2	2
	Supervisors	4	5	8
	Industrial Class	21	29	37
Selebi Phikwe	Managers	2	3	3
	Supervisors	6	10	16
	Industrial Class	38	65	81
Jwaneng	Managers	1	2	2
	Supervisors	2	4	7
	Industrial Class	11	23	33
Totals:	Managers	10	14	14
	Supervisors	39	63	120
	Industrial Class	220	394	471

13.2.2 Major Villages

Table 13.2 shows the staffing projections for the 10 major villages expected to fulfil the criteria of urban town status by 1991. Both projections are shown for year 2001. Considering the nature of these villages it is not very likely that the high projection will be reached by 2001. Waterborne sewerage will obviously have a prohibitive cost for the majority of people in many of these villages.

The present sanitation sector administration is virtually non-existent at District Council level. Hence, introduction of programmes for improved sanitation coverage will inevitably bring about the need for development of an organization.

As no crash programme efforts can be foreseen or expected, there is reasonable time to plan and develop the organization. It should be noted that the managers, and to some extent the supervisors, can be used also for other tasks during the early stages before sanitation requires their full time attention.

Table 13.2, Sanitation Staff Projections - Major Villages

Town	Staff Category	Year		
		1991	2001	2001 (high)
Serowe	Managers (M)	1	2	2
	Supervisors (S)	3	8	9
	Industrial Class (IC)	19	49	53
Mahalapye	M	1	2	2
	S	2	7	8
	IC	14	43	48
Molepolole	M	1	2	2
	S	2	6	8
	IC	13	39	42
Kanye	M	1	2	2
	S	2	6	8
	IC	13	39	42
Mochudi	M	1	2	2
	S	2	6	7
	IC	13	35	38
Maun	M	1	2	2
	S	2	5	6
	IC	11	29	31
Palapye	M	1	2	2
	S	2	5	5
	IC	7	24	23
Ramotswa	M	1	2	2
	S	2	5	5
	IC	11	25	24
Tlokweng	M	1	1	1
	S	2	3	3
	IC	7	16	18
Mogoditsane	M	1	1	1
	S	1	2	2
	IC	5	9	9
Totals	M	10	18	18
	S	20	53	60
	IC	113	308	329

13.3 COMMENTS WITH REGARD TO RURAL SANITATION

Sanitation for major villages (ref. Sect. 13.2.2) is considered part of rural sanitation at present. Provided the listed major villages continues to be under their respective District Councils as at present, the outlined organization can serve both major village and the true rural sanitation.

Apart from this, the development of rural sanitation will depend much more on the promotional and educational efforts of the Council's health staff. From an organizational point of view these activities will be interwoven with other extension services related to primary health care. No attempt will be made to compute the manpower demands araising from implementation required to meet the service projections set out in Sect. 7.3.

Although certain materials, subsidies and/or credit financing may be organized to support rural sanitation, it is envisaged that both construction and maintenance will remain much more of an individual household responsibility than what is the case with urban sanitation.

13.4 STAFF REQUIREMENTS OF CENTRAL ORGANIZATION

The immediate needs of the central organization were outlined in Sect. 9.4. For continued sanitation development towards the targets indicated in Sect. 7 a conscious staff development effort is required also at central level. The specific requirements of the Sanitation Sector for professionals (meaning: degree holders) and subprofessionals are indicated below. It is assumed that the organizational framework of Alt. 2 applies, and that gneral administrative/supporting functions are taken care of within MMRWA/DWA and MLGL respectively.

		1991		2001		2001 (high)	
		Prof.	Sub-pr.	Prof.	Sub-pr.	Prof.	Sub-pr.
Planning	MMRWA/DWA	1	2	2	3	3	4
	MLGL	2	2	2	2	2	2
Design/ Construction	MMRWA/DWA	3	5	5	10	8	15
	MLGL	1	3	1	3	1	3
O&M	MMRWA	1	3	2	6	2	8
	MLGL	1	2	1	3	1	3
Totals	MMRWA/DWA	5	10	9	19	13	27
	MLGL	4	7	4	8	4	8
Overall totals		9	17	13	27	17	35

Table 13.3, Sanitation Staff in Central Ministries

Considering the envisaged roles of the two ministries the technical expertise will be concentrated in DWA. The planning will be more equally splitted between them with technical planning belonging in MMRWA/DWA and policy/ financial planning belonging in MLGL. MLGL cannot do entirely without technical expertise in their role as parent ministry for the councils, although the sanitation tasks will mainly be carried out by economists, social-anthropologists, etc.

13.5 SUMMARY OF STAFF REQUIREMENTS

The above listed staff requirements can be summarized as follows:

Positions	Year 1991	2001	2001 (high)
Professionals (managers)	15	25	30
Sub-professionals (managers/ supervisors)	24	45	65
Technicians (supervisors)	49	118	169
Industrial Class	333	702	800

Table 13.4, Summary of Staff Requirements

It must be noted that the middle level "supervisors" have been divided into two groups corresponding with higher diploma and ordinary diploma/highest grades of trade testing.

14. TRAINING FOR SANITATION SECTOR

14.1 PRESENT TRAINING OPPORTUNITIES

14.1.1 Botswana Polytechnic (BP)

BP has already conducted various courses for water technicians, mainly in collaboration with DWA. Plans are also at hand to start a degree course in civil engineering. It would be possible to include water/sanitary engineering as a specialisation in such a course.

BP has a very flexible set-up which can on relatively short notice set up specialized courses and run them for a limited number of batches of students, - preferably at least 15 in each batch. As the "market" for sanitation specialists will remain relatively limited, a course proposal would seem much more attractive if combined with water supply.

It should also be observed that the University of Botswana is not going to give engineering courses as this responsibility has been granted to BP. However, university courses in sciences and mathematics have been used as preselection courses for students applying for overseas training in various fields of engineering.

14.1.2 DWA's Training Section

DWA has since the early 1970's conducted departemental, in-service training for various specialized staff categories. These courses include borehole mechanics, drill rig operators/foremen, pumpers, pipefitters, etc. Various short term promotional and skills improvement courses have been conducted.

With the flexible set-up of DWA's Training Section and the sanitation expertise proposed to be available to serve MLGL/Councils, it seems most feasible to establish also sanitation courses. Subjects such as sewer pipe-laying, sewerline maintenance, sewerage pumping station maintenance, treatment plant maintenance, latrine construction/maintenance, etc. could possibly be taught at DWA. As part of a more comprehensive sanitation staff development plan it should be looked into how the courses could be linked to the national system for trade testing and to a proper scheme of service.

14.1.3 WUC Staff Training

Also WUC is in the process of developing training activities at various levels. A Training Officer has as one of his duties started to organize in-service training for staff upgrading. Again, due to the similarity in water

supply and sewerage technology, the WUC training efforts could be redirected to cover both water supply and sanitation without drastically changing the scope of planned training. The need to coordinate the specialized sector training with that of DWA is also obvious, and may be facilitated as a result of the Water Sector Administration Study.

14.1.4 General Vocational Training

The sanitation/sewerage systems are not characterized by a high demand for traditional skills (mechanics, builders, etc.) for their operation and maintenance. However, the need which exists should easily be met by the increased capacity of vocational training centres (VTCs) in Botswana. With five centres being established at the end of the NDP VI period, the prospects of recruiting the relatively few artisans and craftsmen required both for prime and supporting tasks are good.

14.2 DEVELOPMENT OF IN-COUNTRY TRAINING

Most of the sector's manpower development needs can be met through relatively minor changes to ongoing or planned training activities. It is recommended that training for the water supply and sanitation sectors should be combined wherever possible.

Apart from general vocational training in the 5 VTCs, specialized courses should be established at:

- Botswana Polytechnic; national diploma, higher diploma and degree courses; requirement approx. 20:5:1 of the 3 categories.

- Department of Water Affairs Training School; in-service training, promotional/refresher courses, specialized trades and crafts, organization of on-the-job training, supervision of trainees.

14.3 POSSIBLE TRAINING PROGRAMMES

14.3.1 Professionals

The projections for professionals as summarized in Table 13.4 point out the general need for training/recruitment of one professional for the sanitation sector annually after the initial back-log of about 5 - 10 posts has been filled.

Most of these professionals should be Civil Engineers with a specialization in sanitation (preferably combined with water supply). To fill the initial requirements a batch

of 10 should be recruited for a scholarship programme to be organized, possibly with intake/graduation over 2 or 3 years.

With only one to be recruited annually thereafter it is little scope for separate training of sanitation specialists in Botswana at professional level. However, as much as possible the candidates should take their general civil engineering training locally and take a one year specialization elsewhere. The planned course in civil engineering at the Botswana Polytechnic would be suitable with some adaptation to the sanitation/water supply sector needs.

14.3.2 Sub-professionals and Technicians

Botswana Polytechnic is in a good position to offer courses for these cadres. In addition skilled workers initially trained at the VTCs and having passed the highest grades of trade tests may be assigned to supervisory posts.

A crash programme should be provided to train the initial batch of sub-professionals/technicians required to set up the sanitation sector organization by 1991. A total of about 15 should be trained to higher diploma level, 20 to ordinary diploma level and 20 industrial class workers upgraded within the crash programme. It is assumed that e.g. most of the candidates for higher diploma will be recruited among those already holding ordinary diploma or highest trade test certificate.

After this initial effort the training outputs should be approximately:

Sub-professionals: 2 - 3 per year
Technicians: 10 - 20 per year

Among the technicians about 50% should come from ordinary diploma courses at BP.

The low numbers show that higher diploma training can hardly be conducted each year. For ordinary diploma and promotional training for supervisors it seems justified to plan for one course per year, in particular if the general part is combined with courses in water engineering.

14.3.3 Industrial Class

For skills covered by designated trades the sanitation sector can rely on VTCs. In addition specialized training will have to be organized by the relevant sector agencies both for entry point skills, skills improvement and any form of promotional courses deemed necessary.

The annual new recruitment rate appears to be in the range of 30 - 50 per year. Including in-service training it would be reasonable to assume that some form of training should be delivered to 100 - 200 industrial class workers annually, each attending his/her course for about 4 weeks average. With 4 - 800 course weeks to be conducted for batches ranging in size from 10 - 30 workers, the overall programme will not be too extensive. With access to 1-2 class rooms, simple training workshops and laboratories, training sites, etc. these courses could be conducted one by one in the course of a year.

This specialized sector training programme should be developed at the DWA Training Section, or alternatively as a cooperative effort with one of the VTCs.

14.4 COST OF TRAINING

It is premature to put efforts into the calculation of training costs at this stage, in particular because no sanitation development plan exists. However, the sector requires little manpower which cannot be trained within Botswana.

Scholarships will be required to cover about 30 student years abroad for the initial batch of graduate engineers upto 1991. Later scholarships will be required to cover 3-5 student years annually (each degree student away for 3 years).

The remaining training can be conducted in Botswana provided minor adjustments and extensions are organized at existing training institutions.

Appendix 1

TELEPHONE: 52091/5
TELEGRAMS: MERAFE
REFERENCE:

REPUBLIC OF BOTSWANA

MINISTRY OF LOCAL GOVERNMENT AND LANDS
PRIVATE BAG 006
GABORONE
BOTSWANA

T E R M S O F R E F E R E N C E

for

Consultancy to review existing institutional arrangements relating to the sanitation sector and to propose recommendations for improved management of the sector across interministerial lines.

BACKGROUND

In July 1980 the responsibilities for waterborne sewerage schemes were clarified at a joint interministerial meeting under the chairmanship of the Ministry of Finance and Development Planning. Over the years however it has been difficult to prepare and follow-up well coordinated efficient sanitation sector development and operational plans which would make maximum use of financial and manpower resources that are allocated to a nationwide sanitation plan. Currently several ministries are involved in the planning, design, implementation, and operation & maintenance elements of waterborne sewerage schemes yet there is virtually no coordination amongst these ministries in this regard. Many public health problems have arisen in the country as a result of poor interministerial communications and much money has been wasted as a result of this situation.

At the same time on the rural side, sanitation services to villages has been carried out almost entirely on an individual initiative basis to date with the construction of septic tanks and pit latrines to serve individual households. Since 1980 there have been government programmes ongoing to supply rural areas with ventilated improved pit latrines (VIPs), these programmes however have not been institutionalized as of yet and are currently on a very small scale.

The consultancy proposed calls for a comprehenvive study of the existing manner in which sewerage and sanitation matters are handled and proposed alternative solutions to achieve a more efficient mechanism for planning, designing, implementing, and operating & maintaining sewerage schemes and low cost sanitation programmes.

TERMS OF REFERENCE

The consultant shall address but not necessarily limit himself to the following issues in both the urban and rural areas:

1. Familiarize himself with the present and projected ways in which all sewerage and sanitation matters are handled in Botswana leading to a clear description of the existing structure of administrative arrangements; definitions of responsibilities and authority; funding and financing of sewerage and sanitation projects; and legal framework and legislative aspects of above.

2. Document current and proposed manpower and financial resources allocated to the sanitation sector throughout the country over the next five year period.

3. Propose alternative ways of streamlining the responsibility and administration of all sewerage and sanitation matters. Realistic organizational interfacing and administrative and legal arrangements necessary for maximum benefit should be outlined in detail. Manpower and financial resource implications for all proposed alternatives must be presented. Particular attention should be paid to the phasing of such alternatives and the cost implecations to the Sixth National Development Plan (NDP VI) financial limitations.

4. Review and analyse current professional level manpower resources and those projected to be available in the near future. Propose manpower training requirements which will be needed over a five and fifteen year time horizon for the above proposed organizational / administrative alternatives. Indicate the financial requirements for such training.

CONSULTANCY COMPOSITION

The consultant should be a person with a wide range of Public Health Engineering and/or institutional development experience.

COORDINATION AND REPORTING

The consultant will be based in Gaborone and will work through the Senior Public Health Engineer of the Ministry of Local Government and Lands (MLGL). All administrative support will be the responsibility of the consultant.

The proposed length of time of the consultancy is 7 weeks; five weeks in the field and two weeks for the final write-up. A draft final report shall be presented after completion of the field portion of the consultancy. Government will then consider and comment on the draft report, and the final printed report (50 copies) shall be presented within 6 weeks after the receipt of the comments from MLGL.

J.A. GADEK
SENIOR PUBLIC HEALTH ENGINEER
12 MARCH 1986

SANITATION SECTOR

INVESTMENT SCHEDULE 1985/86 - 1990/91 (Ref. NDP VI)

Sanitation component of integrated projects as identified by MLGL staff, February 1987

LG 13 (81/123) Lobatse Physical Development Sewage treatment works, P 5 mill.

LG 50 (81/143) Kasane-Kazungula Physical Development Serviced plots (220 + 240), P 0.09 mill.

LG 52 (81/145) Jwaneng Physical Development Extension, sewage treatment, P 1 mill.

LG 01 (81/153) Francistown Physical Development (IV). New sewage treatment works, P 5.8 mill.
Serviced plots (3,500+1,000), P 2.9 mill.

LG 57 (81/157) Broadhurst Stage IV.
Services plots (400), P. 0.38 mill.

LG 58 (81/158) Selebi Phikwe Physical Development (II).
Serviced plots (450) and extension of Sewage treatment works, P. 0.4 mill.

LG 59 (81/159) Gaborone West Phase II.
Serviced plots (2,400), P 1.72 mill.

LG 60 (81/160) Gaborone Sewerage.
Sewerage development, incl. treatment, P 8.19 mill.

LG 61 (81/161) Lobatse Physical Development (II).
Serviced plots (1,200), P. 0.8 mill.

LG 09 (81/103) Local Authority Development Grants.
Sewage tankers, etc., P 0.04 mill.

(Pit latrines/toilets constructed 85/86 and 86/87, more allocations will be made.)

LG 17 (81/109) Village Projects.
Small village projects; sanitation, P 0.06 mill.
(only fiscal years 1985/86 and 1986/87)

LG 51 (81/144) Environmental Sanitation Programme.
Low-cost sanitation (pilot), P 2.02 mill.
(Request for P 6.57 mill. for national project will be presented)

LG 04 (81/156) Major Village Infrastructure.
Sewerage systems, P 4.3 mill. (Only studies for Maun, Masunge and Ramotswa, not exceeding P 0.3 mill., identified)

LG 55 (81/840) ULGS Training.
Sewerage/sanitation staff, P 0.13 mill.

LG 20 (81/112) Development of Basic Health Facilities.
Construction of toilets, P 1.18 mill. (20% of total vote)

LG 23/26 (81/114) Primary Schools.
Construction of toilets, P 7.31 mill. (20% of total vote)

Total NDP VI according to list: P 41.35 mill.

Total allocated for above LG votes amounts to P 110 mill. (approx.)

Additional investments due to recent agreements with KFW and SIDA may result in addition of P 6 mill. for the Sanitation Sector, but allocated under MMRWA votes.

Ministry of Health:

MD 32 (111/427) Health Education Programme, i.a promoting improved sanitation

DONOR ASSISTANCE FOR SANITATION

Report on Development Cooperation, Botswana 1985, UNDP December 1986, ref. 7.

The following donor assistance supporting sanitation directly or indirectly was recorded in the UNDP publication (allocations rounded off):

- Sanitation Coordinator, IVS (UK), to serve the Kweneng District Council.

- Public Health Engineer, UNDP/IBRD (BOT/79/003). One post in MLGL and funds for fellowships, etc.
  1980-88: USD 536,000 (grant).

- Community Water Supply and Sanitation, WHO. Training and other sector support.
  1984-85: USD 40,000 (grant).

- Rural Sanitation, UNICEF/Netherlands. VIP latrines in Kweneng, Kgatleng, Southern and Central Districts, incl. materials supplies, equipment, workshops for local staff training, etc.
  1984-88: USD 580,000 (grant).

- 2nd Urban Development Project, IBRD.
  1979- : USD 8,000,000 (loan) of which USD 600,000 was disbursed during 1985.

- District Housing, NORAD.
  1983-85: USD 3,300,000 (grant) of which USD 1,900,000 was disbursed in 1985.

- District Development Support Sector II, SIDA. Various activities aimed at supporting the decentralized administration.
  1979-88: USD 2,100,000 (grant) disbursed in 1985.

- Woodhall II - Lobatse, UK.
  1984-87: USD 1,300,000 (grant).

- Botswana Housing Finance, US commercial banks/US AID guarantee, US AID.
  1985-90: USD 14,000,000 (loan) and USD 200,000 (grant).

- Gaborone West Housing and Facilities, US commercial banks/US AID guarantee, US AID.
  1983-86: USD 15,000,000 (loan) and USD 1,100,000 (grant).

Note: For most of the allocations sanitation expenditure is an insignificant component.

ADDITIONAL DONOR SUPPORT FOR SANITATION, NEGOTIATED AFTER 1985:

- Major Village Water Supply Rehabilitation, KFW (Germany) through DWA. Tentatively 20% out of P 28 mill. allocated for sanitation (i.e. P 5.6 mill.) in Phase 1: Serowe, Palapye, Mahalapye, Tonota/Shase.

  Additional funds are expected for Phase II: Mochudi, Molepolole, Kasane, Kanye.

- Schistosomiasis Control Project - Ngamiland, SIDA. Sanitation as integral measure in pilot projects.
  1987-89: P 0.4 mill. (mainly for sanitation).

Draft

Terms of Reference

for

SUPPLEMENTARY STUDIES TO

SANITATION SECTOR MANAGEMENT STUDY

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1. BACKGROUND

In mid-January 1987 a Sanitation Sector Management Study was initiated with UNDP funds and with IBRD as executing Agency. HIFAB International was retained as consultant. During the implementation of this short-term study (8 man-weeks) it became apparent that information on problems created by the lack of adequate sanitation services would be most useful. Such information would make it possible to assess proposed changes in the management system and their costs against actual and potential problems created by inadequate sewerage and sanitation facilities. Neither the Terms of Reference for the Sanitation Sector Management Study nor the funds available for it could accommodate such collection of background information.

MLGL has therefore decided to carry out some supplementary investigations in the form of a desk study and a consultant will be recruited to carry out the work.

2. OBJECTIVES

The study shall collect and present key data and problem cases illustrating the effects of inadequate sanitation in the fields of:

i) Public Health
ii) Pollution of Water Supply Resources

Furthermore, cases of sub-optimal use of existing sewerage facilities shall also be investigated.

3. CONSULTING SERVICES

The work of the Consultant shall cover, but not necessarily be limited to the following activities:

3.1 Based on existing information available at MLGL, DWA, MOH and MWC (Buildings Department), analyze the scope and type of public health effects (including pollution of water supply resources) of inadequate sanitation facilities in the following main areas:

i) Major villages
ii) Sewerage Facilities for Institutions in the Districts
iii) Industrial Discharges (permits, agreements, unauthorized)

3.2 The adequacy of existing physical infrastructure and infrastructural plans in the sanitation area shall be investigated. Cases of deficient utilization of such facilities resulting from poor planning shall be documented.

3.3 Based on the information collected and the analyses carried out under items 3.1 and 3.2 above, a short report shall be prepared to present basically the key data and the problem cases.

3.4 Timing

The above mentioned consulting services shall cover a period not exceeding 4 weeks and shall be initiated on or before 15 March 1987.

Appendix 5

WORKSHOP ON SANITATION SECTOR MANAGEMENT

Gaborone Sun, 12 February 1987.

Called and conducted jointly by Ministry of Local Government and Lands and HIFAB International (Consultants).

1. WORKSHOP OBJECTIVES

The stated objectives of the workshop were two-fold, namely to:

i) confirm that a true picture of the present situation was obtained,

ii) review and possibly reach consensus on the main structure of future Sanitation Sector Management.

The intention of the workshop was thus to provide interaction between the Consultant and the civil servants representing concerned authorities.

2. SCOPE OF WORKSHOP

The workshop reviewed the Sanitation Sector inventories made by the Consultants and commented on them. Furthermore, the audience was invited to review alternative proposals for sector organization and to identify the needs for coordination both between ministries and within MLGL. Both open plenary discussions and group work were employed in this process.

3. PARTICIPANTS

Representatives from a total of five ministries with respective sub-ordinate agencies were invited. The following participants took part, fully or during parts of the workshop:

Name	Ministry/Department/Firm
K. A. Selotlegeng	MLGL
B. M. Mmonatau	Kweneng District Council
E. Marell	DWA
J. O. Krook	DWA
C. Lindblom	MLGL
J. Magibisela	DWA
J. B. Hammond	WLPU Consultants
P. Collins	WUC
J.S.N. Khupe	ULGS/Central District Council
S. G. Oteadisa	DPSM
S. J. Gaffney	Buildings Dept., MWC
B. Bellard	MLGL

Name	Ministry/Department/Firm
M. Jahani	MMRWA (PO)
T. A. Pule	MOH
R. N. Muzila	Gaborone City Council
B. Sedin	HIFAB International
T. Lium	" "
J. A. Gadek	MLGL
AA. Stanley	US (U&IH), MLGL
J. Sibeyia	MOH (partly)

4. PRESENTATIONS AND DISCUSSIONS

The following presentations were made:

- Introduction.
  J. Gadek, MLGL

- Present Sanitation Sector management and performance.
  T. Lium, HIFAB International

- Brief presentation of Water Sector Administration Study.
  J. B. Hammond, WLPU Consultants

- Sanitation Sector relationship to Water Sector.
  T. Lium, HIFAB International

- Future Sanitation Sector management, magnitude of sector tasks, options considered, associated implications.
  T. Lium/B. Sedin, HIFAB International

- Presentation of working groups' findings (2 x 10 mins).
  K. A. Selotlegeng/B. Bellard, both MLGL

- Preliminary Recommendations, comparison with evaluation by workshop.
  B. Sedin, HIFAB International

Discussions, including clarifications were held after each presentation. The major opportunity for in-depth discussions were during a two hours group work session after possible options had been presented by the Consultants.

The workshop was closed well after 5.00 p.m. by Mr. AA. Stanley, Undersecretary/MLGL.

The following points were highlighted during the discussions prior to the working group sessions.

On existing sanitation sector management:

- Procedures applied by Land Boards while allocating sites for institutions (to be built by MWC/Bldg. Dep.) are inadequate.

- Directives required for immediate actions to solve pollutional problems caused by institutions.

- Technical inputs into development plans for (major) villages inadequate, pointing at shortcomings of planning procedures.

- Central government does not liaise properly with Local Authorities during planning/decision stage of new development projects in the districts.

- National development plans are prepared with too little technical input, resulting in inadequate analysis of implications with regard to sanitation.

- MLGL's planning procedures are oriented towards projects, and not (sanitation) sector based.

- Pollution control can only act at the same level as the sanitation sector itself - becoming a problem when sanitation sector is lacking recognition.

- MOH has been divorced from the implementation of sanitation projects, and the monitoring/inspectorate function is also malfunctioning.

On water sector administration and the relationship water supply - sanitation:

- Management of entire water cycle by one body would have numerous advantages.

- The scope for a "happy marriage" would depend on the relative size of the sanitation sector.

- Land tenure procedures as traditionally practised in the districts (incl. major villages) likely to cause obstacles for planned urban type development.

- Councils are likely to oppose any move to take sanitation responsibility away from them.

- It could be scope for merging water supply and sewerage services under town council responsibility in future.

- A practical arrangement of charging for water and sewerage on the same bill could be introduced where applicable (towns).

5. OPTIONS PRESENTED FOR DISCUSSIONS

Two major alternatives were presented by the consultants:

- The Council Option; major objective to achieve a maximum degree of devolution of responsibility to councils.

- The Parastatal Option; major objective to relieve government of responsibility and to allow self-sufficient operations.

Two sub-alternatives were outlined under both these major options:

- MLGL solely responsible in the council option, or alternatively utilizing MMRWA/DWA as an agent for all technical services not covered by the councils themselves.

- Parastatal solely for sanitation to fall under MLGL, or alternatively a water supply and sanitation parastatal under MMRWA with rural sanitation retained under MLGL/councils.

Following comments from the audience it was agreed to include a fifth alternative for discussion, namely a Zero Option. This would assume that no additional resources are likely to become available in the short term, but that improvements are to be achieved mainly through procedural changes and better coordination alone.

In order to structure the ensuing discussions the Consultants proposed the following questions to be discussed:

1. Major advantages/disadvantages of the different alternatives

2. Need for manpower and other resources

3. Re. coordination between Ministries

   i) National Sanitation Development Plan
   ii) Role of MOH (public health aspects)
   iii) Water Apportionment Board (pollution control)

4. Coordination within MLGL

   i) Need for sector planning
   ii) Technical inputs required for town and regional planning activities
   iii) Implications for Unified Local Government Service (or similar department); how to improve recruitment, training, deployment, etc.

6. VIEWS AND COMMENTS BY THE WORKING GROUPS

Group 1, chaired by B. Bellard and notes taken by B. Hammond.

On the presented options (the group concentrated on the Zero option and alternatives A.1 and A.2):

- Better development control (project screening) possible via DTRP through the Town and Country Planning Board, in particular for Zero option.

- The need for placing sanitation responsibilities firmly to avoid current fragmentation is obvious; approval of plans, building maintenance, funds for construction, maintenance organization, equipment for District Councils, sector control and enforcement.

- As a short term measure District Councils should take over sanitation maintenance responsibilities from Buildings Department (Zero option included).

- Experience shows that it is easier to increase staff members of TC/DCs than MLGL.

- DCs should have a joint unit for water supply and sanitation, considerably strengthened to cope effectively.

- Strict line of responsibility is maintained if all sanitation is kept under MLGL/TC/DCs (Option A.1).

- Utilizing DWA as technical agent was favoured due to general availability of expertise, provided adequate priority could be allocated to sanitation.

- In the long term DCs should be responsible for O&M of sanitation.

- The current policy of GOB favours self-funding parastatals, which can conceivably be achieved only for a few sanitation schemes.

- A parastatal organization would lead away from decentralization.

On need for manpower and other resources:

- Regardless of organizational option the availability of manpower and other resources for sanitation must be improved.

On coordination between ministries:

- A National Sanitation Development Plan is urgently required for direction and guidance in the future.

- The important involvement of MOH in development of policies and strategies must be ensured.

- WAB ought to be strengthened in order to assume responsibility for the quality control of water and sewage effluent.

Group 2, chaired by E. Marell and notes taken by K. A. Selotlegeng.

On the presented options (the group concentrated on the parastatal alternatives):

- A new parastatal will be expensive to establish and may be expensive to maintain in the long-run if break-even rates for its services are not affordable to the public.

- Parastatals are best confined to provision of services in urban areas. Fears were expressed that rural sanitation in particular would suffer under a parastatal.

- Among advantages of a parastatal were mentioned:

  Government will be relived of operative service functions; a combined w/s + san parastatal would provide economy of scale benefits; independent of government procedures and regulations, a combined parastatal would ensure coordination of the two sub-sectors; combined parastatal would ensure optimal utilization of technical expertise; attachment of sanitation to the water sector would assist in obtaining higher priority.

- Among possible disadvantages of a combined parastatal were mentioned: sanitation may loose in the competition for funds; it could be difficult for MMRWA and MLGL to sort out priorities right through from the planning stage.

- In spite of some potential disadvantages the group generally agreed that a combined w/s + san parastatal should be favoured, in particular if the size of the sewerage sector is going to expand.

- With regard to the Council Option the group expressed: maximum devolution to District Councils would be achieved; little change in present distribution of responsibilities required; technical planning will remain centralized; water and sanitation will not be linked (unless a devolution strategy is adopted also for the water sector).

On the need for manpower and other resources:

- Combination of water supply and sanitation would lead to effective use of technical expertise and other resources.

On coordination between ministries:

- Clear mandates with reference to sanitation requirements should be given to the respective planning officers.

- The National Water and Sanitation Development Plan will address the issue, if undertaken.

- The role of MOH must be fully recognized; advisory in the planning stage, and that of inspectorate during the operational phase.

7. COMMENTS BY THE CONSULTANTS

The Consultants pointed out the usefulness of such a workshop, in particular because the management study was a short term exercise. Views, comments, conclusions and problems identified were noted for detailed consideration during the final stage of the work. Although the Consultants have responsibility for presenting their own, independent recommendations, the joint workshop effort was considered to contribute towards establishing an important platform for further policy decisions with regard to sector administration and management.

The Consultants' tentative conclusions were that:

- Water supply and sanitation (sewerage in particular) should be viewed together.

- Both are best handled at a decentralized level.

- The technical planning of sanitation/sewerage is best handled by a substantive ministry, in this case MMRWA with DWA as the technical arm.

- MLGL could benefit from being relieved of technical responsibilities and instead serve in an umbrella function with regard to support provided to Town and District Councils, e.g. prioritize between sectors and supervise councils' implementation of overall policies.

- In the long term more and more of the technical and even financial responsibility can be devolved to councils.

- Any short term change of roles should be made with a view to avoid obstructing the possibilities for continued decentralization.

- Maximum flexibility with regard to phased strengthening of the sector administration is achieved by retaining councils in the prime operational role as presently intended.

Therefore, as a preliminary conclusion the Consultants favour the Council Option with DWA as a technical agent. DWA will under the general development planning guidance of MLGL be responsible for technical planning, and it will serve the respective Councils in technical matters as and when required.

8. CLOSING OF WORKSHOP

Mr. A. A. Stanley, Undersecretary in MLGL, closed the workshop and thanked for the participants' dedicated efforts. He further made the observation that sanitation investments had not been viewed as an attractive component of Botswana's rapid

development upto now. However, with continuing urban growth, desire for higher standard of services and growing awareness of problems the national policy has to be developed accordingly.

Gaborone, 15 February 1987

T. Lium, HIFAB International AS

Appendix 6

PEOPLE MET DURING SANITATION SECTOR MANAGEMENT STUDY

MLGL:

A. B. Masalila	Deputy Permanent Secretary
J. Gadek	Sen. Public Health Engineer
K. A. Selotlegeng	- " - (ctp)
C. Lindblom	Sen. Water Engineer

MMRWA:

Dr. T. Kausel	Sen. Planning Officer
M. Jahani	Planning Officer

DWA:

G. Quaraishi	Director DWA
D. Kingston	Deputy Director DWA
J. Krook	Senior Water Engineer (Resources)
S. Child	Principal Hydrologist (Advisor)
B. Andersson	Principal Training Officer
(L. E. Nyberg	former Principal Training Officer)
K. Kariuki	Sen. Water Engineer (O&M)
E. Marell	Sen. Water Engineer (Pollution Control)

Water Utilities Corporation:

G. Walton	Project Engineer

MWC/Buildings Department:

S. J. Gaffney	Principal Architect (contracts)
Mr. Hall	" " (design)

Directorate of Public Service Management:

N. Root	Manpower Planning Advisor
M. M. Oagile	Manpower Planning Officer
S. Otaadisa	Senior Personnel Officer
P. Mauco	Senior Personnel Officer

Ministry of Health:

C. Sharp	Coordinator/Family Health Project (formerly with MLGL)

Ministry of Education:

Dr. P. Jones	Chief Technical Education Officer

Gaborone Town Council:

S. Pathmanathan	Town Engineer

Kweneng District Council:

Mr. Montsho	Chief Technical Officer
Ms. B. Mmonatan	Health Officer (LG 51 Sanitation Project)

UNDP:

S. R. Nhongo	Deputy Resident Representative

WPLU Consulants Ltd.:

Dr. R. J. Laburn

Dr. P. A. Mawer

P. Garratt

NZA Associates (PTY) Ltd. (consultants):

G. C. Neden	Public Health Engineer
B. Egner	Consulting Economist

REFERENCES

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