

The background of the cover features a composite image. The top left shows a water treatment facility with concrete structures and pipes. The right side and bottom right feature a close-up of a waterfall with clear water cascading over rocks. A white rounded rectangle is overlaid on the top left, containing the title and subtitle.

Asset Management

A booklet for councillors



water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA



**Councillor Development Programme
for Water and Sanitation**

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Developed as part of the **Councillor Development Programme**

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What is this booklet about?

The Councillor Development Programme is an initiative led by the Department of Water Affairs and Forestry to empower local government councillors to provide well informed political leadership in the delivery of sustainable water and sanitation services.

To provide this kind of political leadership, it is not necessary that councillors have detailed technical knowledge, but it is crucial that they have a clear understanding of the interconnected nature of all aspects of the water business.

Councillors need to understand the key questions that they should be asking of their officials in order to provide political oversight. They need to understand the importance of budgeting for operating and maintaining their infrastructure. Councillors need to understand the importance of integrated planning for water and sanitation.

In order to achieve the above this series of booklets covers a range of core components of the water business. This one covers asset management. In DWAF this aspect is managed by Water Services Policy and Strategy. The booklets encourage councillors to understand and find out how they can play a role in local government to achieve effective service delivery in the water services sector.



Contents

A parable of asset management.....	4
What are infrastructure assets?	6
What is asset lifecycle management?	7
Why should we use lifecycle management?	8
Some benefits of good asset management	9
What happens if we don't manage infrastructure assets properly?	10
Basic tools and resources for managing infrastructure	12
The roles and responsibilities of councillors.....	15
Key questions for councillors to ask	16



A parable of asset management

This is a children's poem about a kingdom and a missing horseshoe nail. As you read it think about the assets that your municipality has and try to connect this parable with your kingdom.

For want of a nail

For want of a nail the shoe was lost.
For want of a shoe the horse was lost.
For want of a horse the rider was lost.
For want of a rider the battle was lost.
For want of a battle the kingdom was lost.
And all for the want of a horseshoe nail.

This children's poem tells of the importance of maintenance. The poem is about a king who, before an important battle, sent his horse with a groomsman to the blacksmith for shoeing. But the blacksmith had used all the nails shoeing the other horses for battle and was one short. The groomsman told the blacksmith to do as good a job as he could. But the blacksmith warned him that the missing nail may allow the shoe to come off. The king rode into battle not knowing of the missing horseshoe nail. In the midst of the battle he rode toward the enemy. As he approached them the horseshoe came off the horse's hoof causing it to stumble and the king fell to the ground. The enemy was quickly onto him and killed him. The king's troops saw the death, gave up the fight and retreated. The enemy surged into the city and captured the kingdom. The kingdom was lost because of a missing horseshoe nail.



Is this the state of your kingdom — Where are the chlorine tanks?

In total the water services sector has water and sanitation infrastructure with a replacement value of more than two hundred billion Rand. During the next decade it is envisaged that a lot more infrastructure will be provided, yet many water services authorities (WSAs) do very little infrastructure asset management and do not budget sufficiently for it.. So an important challenge to you as a councillor is whether your assets are being properly maintained, to what extent they are being allowed to degenerate, and the impacts of that neglect.

This booklet will touch on these and other issues.



What are infrastructure assets?

A municipality owns many types of assets. These include movable assets such as furniture, cars and computers, and immovable assets like buildings and infrastructure assets. Infrastructure assets are assets that are linked together in a system or network to provide services to communities and/or to provide economic benefits to the municipality for more than 12 months.

A typical municipality owns many types of infrastructure assets, including roads, electricity networks and solid waste landfill sites. In this booklet our focus is on water services infrastructure which includes water assets that we use to obtain water, treat it, store it and distribute it to users. It also includes sanitation assets that we use to collect, treat and dispose of sanitation waste in a safe manner.



What is asset lifecycle management?

Look at the pictures of infrastructure assets on page 6 and at the same time, think of your own municipality's infrastructure assets while you answer these questions:

- Are your assets in good condition now?
- What is being done to make sure your assets stay in good condition?
- If we come back in ten or fifteen years, will your assets still be operational?

We need to look at the entire lifecycle of our assets, from acquiring them, operating and maintaining them, refurbishing them, disposing of them at a fair value and also replacing them where necessary. Dealing with all of these as a whole is called asset lifecycle management.

Asset lifecycle management in its complete sense requires us to:

- Consult communities, businesses and other stakeholders on their needs
- Look at the best ways in which we can respond to the community's need for services, for example:
 - Build new infrastructure
 - Better operate and maintain infrastructure assets
 - Refurbish or upgrade assets (making them able to deliver more, for longer)
 - Dispose of assets (stop using them, and where possible, sell them off)
- Make sure that the services we offer are
 - financially sustainable (that we can afford to pay for them)
 - environmentally sustainable (that we do not damage the natural environment, or deplete or pollute our natural water resources)
- Sometimes we do not have enough money to build new assets, or there is not enough water available. Then we have to practice demand management. This is where we encourage consumers to reduce consumption of water.

Buying new things is exciting — we all love to go shopping for new things! If this characterises your council, then you might have a big problem. But did you know that for every rand you spend on new infrastructure, you need almost four more rands to cover operational (which includes maintenance and personnel costs) and refurbishment costs. If your budget is low on the latter items, you may be facing major challenges in the future.



Why should we use lifecycle management?

As councillors, you are expected to make budget decisions. You must therefore know why certain actions and budget allocations are necessary. Different types of infrastructure spending activities are indicated in the following table, but first it is important to understand the difference between capital budget spending and operating budget spending.

Capital expenditure refers to new asset creation (investments in community wealth). Examples of capital investment include building new infrastructure or buildings, buying cars or upgrading existing assets.

Operating expenditure is the expenses that we incur to run the day-to-day operations of the municipality. Examples of operating expenditure include staff salaries, buying water, the cost of chemicals to treat water, fixing leaking water pipes and blocked sewer pipes, and removing sewerage waste.

This table shows the four main stages of infrastructure asset lifecycle management and the reasons why we do what we do at each stage.

Infrastructure management lifecycle actions

Action	Reason
Infrastructure creation (building new assets)	<ul style="list-style-type: none">■ To extend service delivery to new areas■ To replace infrastructure that can no longer be repaired or has become obsolete
Operations and maintenance	<ul style="list-style-type: none">■ To make sure that people receive safe water that will not make them sick■ To repair water leaks that cost Council money and that waste scarce water■ To fix sanitation blockages, and to remove sanitation waste — to make sure that we have a healthy environment■ To make sure that natural water resources such as rivers are not polluted
Refurbishment or upgrading	<ul style="list-style-type: none">■ To improve the condition of assets that often cause service delivery failures■ To improve the ability of assets to deliver services or to extend its life span (often a cheaper way than to build new assets)
Disposal	<ul style="list-style-type: none">■ To get rid of assets that cannot economically provide services any more■ Sometimes we cannot sell decommissioned assets (like a reservoir). We then simply have to make that asset safe so that people or animals will not be hurt

Some benefits of good asset management

Properly designed and well-managed infrastructure assets support:

Social and economic benefits

- Social stability, public health and dignity
- Local economic development, as businesses are attracted to areas with good infrastructure

Environmental benefits

- Untreated wastewater is less likely to escape into natural bodies of water and cause pollution
- Flooding from dam failure is less likely
- Leakages causing massive wastage of water is less likely

Legal compliance

The Municipal Finance Management Act (and other Acts, national strategies and guidelines) require municipalities to maintain and safeguard assets.

Protection of community wealth

Infrastructure assets are the most expensive assets that a municipality owns. If we don't manage them well the community wealth that we've been entrusted with will deplete.



What happens if we don't manage infrastructure assets properly?

There are many negative impacts when we do not properly manage infrastructure. Here are some of them:

- Assets fail, and service delivery failures occur
- Community dissatisfaction and even unrest
- Where water and sanitation assets fail, people often become sick (and even die!) and the environment becomes polluted
- Costly repairs, or if the condition of assets becomes too bad, new assets must be built at great expense
- Businesses do not want to invest in areas with poor infrastructure — so local economic development is reduced

Community wealth is depleted, because the condition of assets becomes worse and so asset values drop. Accountants call this asset impairment. The effect is that the community becomes poorer.

Impacts of high water leakage

In another booklet in this CDP series, *Water Conservation and Water Demand Management* two case studies were described where, for historical reasons, the infrastructure in Emfuleni and Munsieville had been severely neglected. The amount of good quality drinking water that was being lost in those two areas because of leakages was astonishing.

In Emfuleni the losses due to leakage alone was 2,8 million litres per hour. That is the equivalent of two Olympic size swimming pools going down the drains every hour. Per household, the losses amounted to 960 litres per household per day! In Munsieville the water losses were about 312 litres per household per day. This is entirely due to poor maintenance and neglect.

The impact of poor asset management in such cases amounts to millions of rands in direct costs that would otherwise be available for other uses, as well as impacts such as low water pressure or environmental impacts on water resources.



Health impacts

To maintain health people need access to water for personal hygiene. When access to water is improved, there is an observable impact on people's ability to maintain cleanliness, and diseases such as diarrhoea begin to decrease. But when poor asset management leads to water shortages, the impact can be severe. Flush toilets don't work when there is no water, and after a few days the health impacts can become serious.

If water purification works don't operate properly, outbreaks of cholera and other serious diseases follow very quickly.

People living with HIV and AIDS need good and easy access to water for cleanliness, for taking medicines, for washing soiled bed linen and for preparing food. People who have been weakened by AIDS need to get to the toilet easily.

Negative health impacts can be avoided if adequate infrastructure is provided and managed properly.



Basic tools and resources for managing infrastructure

Managing infrastructure requires planning, the allocation of resources, and control to ensure that actions are taken according to plan. Some of the basic tools for good infrastructure asset management include:

Infrastructure Asset Management Tools	
Tools	Why?
Infrastructure asset register	<ul style="list-style-type: none">■ To know what assets we have, what they are worth and in what condition they are so that we can manage our service delivery risks and develop proper maintenance budgets and plans■ Because it is a requirement of the Municipal Finance Management Act (MFMA) and of the Occupational Health and Safety Act (OHS Act)■ A municipality without a proper asset register will receive a qualified audit set of financial statements — this will, amongst other, limit a municipality's ability to borrow money
Infrastructure asset management plan	<ul style="list-style-type: none">■ To plan for the creation, operations and maintenance, refurbishment and disposal of assets to meet service delivery needs in the best way (cost effective)■ To prepare an infrastructure lifecycle budget and investment plan■ To prove to internal and external stakeholders our funding needs and our ability to properly manage the infrastructure in our care
Budget provision for infrastructure	<ul style="list-style-type: none">■ To eradicate backlogs■ To provide for operations and maintenance to ensure sustainable service delivery■ To protect the investments that we've made in assets■ To provide for refurbishments to avoid repeated costly repairs and reconstruction of assets

An infrastructure asset register

A comprehensive, up-to-date and accurate asset register:

- is a system for managing assets on behalf of the community
- shows how many assets we have, what their value is, and if they can still provide services.
- is a valuable planning tool.

Clearly there are many benefits in having a good asset register in place. It is a complex tool because of the specialised nature of infrastructure (spread all over the municipality, often underground or in inaccessible places). This means that the assets need to be located with map references, and need to be properly valued and depreciated correctly. When we develop an infrastructure asset register we must record information such as:

- Asset condition
- Asset capacity
- Asset utilisation
- Criticality rating from a risk point of view (how critical would a failure be?)
- Physical characteristics such as materials, units of measurement and how many there are
- Statutory requirements (e.g. compulsory equipment tests such as SANS hydraulic tests)
- Special health and safety requirements

Infrastructure asset management plan

An infrastructure asset management plan is an important tool that allows the municipality to achieve its strategic goals and supports good technical and financial decision-making.

A typical infrastructure asset management plan:

- documents the nature, extent, age, utilisation, condition, performance and value of the infrastructure network;
- identifies existing and proposed levels of service to be achieved over the planning period, as well as any expected changes in demand;
- identifies the life-cycle management needs of the infrastructure (development, renewal, operations and maintenance and any disposal) over the planning period;
- considers institutional requirements;
- assesses capital and operational budget needs and funding implications
- identifies infrastructure asset management improvement needs.

Budget provision for infrastructure

A budget is a statement of the municipality's priorities expressed in financial terms, and serves as a planning and control tool to ensure that the activities of the municipalities are sufficiently funded. A municipality has both a capital expenditure budget (CAPEX budget) and an operational expenditure budget (OPEX budget).



CAPEX refers to new asset creation (e.g. building a new water treatment plant), and infrastructure renewal projects (e.g. rehabilitating the capacity of the sewerage treatment works, or extending its useful life).

OPEX refers to activities that must be funded to ensure that the day-to-day operations of the municipality can continue, for example, staff costs, buying water and chemicals, maintenance and repair costs.

As a councillor, you can look for the following things when evaluating budget submissions:

Things to look for when assessing budget proposals

Budget component	Look at...
Capital budget (CAPEX)	<ul style="list-style-type: none"> ■ Have projects been well-defined, and sources of financing been indicated? ■ Has provision been made for the eradication of backlogs in service delivery? ■ Are capital projects in line with increased service needs? ■ Has provision been made for the renewal or replacement of infrastructure in poor condition?
Operational budget (OPEX)	<ul style="list-style-type: none"> ■ Are staff costs within the guidelines issued by National Treasury? (Ask the CFO to provide you with the guidelines) ■ Are your borrowing levels (from financial institutions) within the guidelines issued by National Treasury? ■ If the municipality treats its own water, has provision been made for chemicals and other treatment costs? ■ If more water will be delivered to communities, is there a sufficient increase in the provisions for buying and treating water? ■ Has provision been made for the maintenance of infrastructure? ■ Has provision been made for asset depreciation?
Sufficient income	<ul style="list-style-type: none"> ■ Are tariffs set at a level that will recover the costs of the water service rendered? ■ Is the provision for bad debt realistic, in light of past trends? ■ Check with the CFO what the impact of outstanding debtors will be on the cash flow of the municipality, and how it will affect the ability of the municipality to spend the budget proposed.



The roles and responsibilities of councillors

As a councillor, you are a custodian of the community's assets, including infrastructure assets. How you manage these assets will affect the quality of life of the community and the financial sustainability of the municipality for many years to come.

The following table describes some of the contributions you can make to ensure effective asset management. It shows you that your role covers various aspects.

The objective...	Your role...
Consult on service delivery needs	<ul style="list-style-type: none">■ Regularly consult with the community and understand their service delivery needs■ Understand what services the municipality can provide sustainably within its financial and administrative abilities■ Educate the community on what is possible when providing services, and what is not possible
Design service packages that are financially sustainable	<ul style="list-style-type: none">■ Insist that officials and consultants develop alternatives for service delivery that show the full lifecycle costs, benefits and disadvantages of service delivery options■ Ensure that communities are able to pay for levels of service higher than free basic services, and that they actually pay for those services■ Make sure that the municipality can afford to build and maintain infrastructure proposed
Budget provision for infrastructure	<ul style="list-style-type: none">■ Provide sufficient budget for operations, maintenance and asset refurbishment to ensure continued service delivery at the levels agreed with the community■ Ensure that tariffs are approved that will ensure that all infrastructure expenditure is covered
Implementation	<ul style="list-style-type: none">■ Check that budgets and infrastructure asset management plans are implemented on time■ Check with members of the community that they indeed receive the service that they were promised■ Do spot checks on infrastructure to see whether they are in good condition, and report assets in bad condition to the municipal manager■ Learn as much as you can about infrastructure asset management — your community depends on you to look after their investments and their well-being!



Key questions for councillors to ask

One of the functions of this booklet is to give you basic knowledge about infrastructure asset management and systems that are used to ensure that assets are properly maintained.

Another function of this booklet is to help you to ask the right questions in order to hold people accountable for the tasks that they perform. Without knowledge and the right questions, you would not be empowered to perform this accountability and oversight role.

This list of questions is not complete, nor can it work for all municipalities. You as a councillor are encouraged to understand your particular situation and to develop questions that apply where you are a councillor.

Some questions

- Is the infrastructure in our municipality being managed properly?
- Do we have an asset register?
- Is it up-to-date?
- Do we know about each and every water services asset?
- Are all assets correctly valued?
- Do we know the condition of our assets?
- Do we have a maintenance plan for our assets so that none of them becomes degraded because of neglect?
- Do we have an infrastructure asset management plan?
- Can we and/or our community members afford this level of service?
- I see we can afford to build this infrastructure, but can we afford to operate it properly, and maintain it? These aspects can often cost 4 rands for every 1 rand spent on infrastructure.
- Have we provided in our budget for refurbishments so that we can extend the operational life of our infrastructure assets?
- Do we have a water conservation and demand management strategy in place? (This topic is covered in more detail in another booklet in this series).



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Publications

Water Services Infrastructure Asset Management (Councillor Induction Edition), DWAF, Pretoria, undated.

Water Services Infrastructure Asset Management Strategy Formulation: Draft Water Services Infrastructure Management Strategy, DWAF, Pretoria, July 2007.