SANITATION SUBSIDIES IN PERSPECTIVE: HOW TO INCREASE THE EFFECTIVENESS OF SANITATION SUBSIDIES IN SOUTH AFRICA

Report to the
WATER RESEARCH COMMISSION

by

Melanie Wilkinson, Darian Pearce, Stanley Sharaunga, John Flanagan and Thandi Magagula
Sustento Development Services

WRC Report No 2136/1/14
ISBN 978-1-4312-0545-5

April 2014

Obtainable from

Water Research Commission
Private Bag X03
Gezina, 0031

orders@wrc.org.za or download from www.wrc.org.za

This report forms part of a series of two reports. The other report is *Towards the Effective Use of Sanitation Subsidies: A guide* (WRC Report No. TT 592/14)

EXECUTIVE SUMMARY

It is widely acknowledged that hygienic sanitation is necessary to sustain human life and to ensure good health and human dignity. As a result, the South African Government has committed itself to universal access to sanitation. As part of this commitment, poor households[1] are provided various sanitation subsidies to gain access to a basic level of sanitation service. A sanitation subsidy can be defined *as any financial support offered to a household to meet national sanitation policy objectives*.

The two key mechanisms of provision of subsidised sanitation services to poor households in South Africa are those that provide a sanitation facility directly to a household (household subsidy) and provision of sanitation facilities as part of a subsidised housing service (housing subsidy). These sanitation subsidies stem largely from public funds, but may also flow from donor inputs. It is important to note that in the sanitation sector not all subsidies are for the cost of the sanitation infrastructure (i.e. toilet facility), but may include financial assistance for a range of activities including project management and health and hygiene awareness and promotion.

South Africa has been providing poor households with this sanitation subsidy for many years. At the same time a number of perceptions have evolved in the sector related to these subsidised sanitation services, including:

- That despite industry and governmental guidelines recommending a ceiling amount per household for the provision of a basic sanitation service, perceptions are that capital and institutional social development (ISD) costs of provision of basic sanitation services are much higher than this recommended unit cost.
- There is a growing perception that the capital cost for construction of a basic sanitation facility in the past 10 years has been unreasonably high.
- There are perceptions in the sector that some households have benefited from more than one subsidy.

The question thus remains: is the sanitation sector effective and responsible in their use of public funds and if not, how can the sector become effective and responsible in their use of the sanitation subsidy? This became the research question of this WRC commissioned study.

The purpose of this study was to investigate sanitation subsidies in South Africa, including economic and social cost issues, to determine overlaps and gaps of sources of the subsidy and to determine

[1] Households with household income below R2 300 per month (Treasury, 2013).

what constitutes effective/responsible use of subsidies. The key purpose of the study was to develop a guideline for future sanitation subsidy policy formulation and interventions.

Outcomes of the study indicate that:

- The full supply costs of provision of subsidised sanitation facility range from R22 800 for a ventilated improved pit (VIP) latrine facility to R46 400 for a septic tank system (adjusted to 2012 prices).
- The environmental and health impact costs of an incorrectly constructed, operated and maintained facility increases the unit cost of a subsidised VIP toilet to R33 800, a 32% increase in unit cost. Similarly, urine diversion (UD) toilet costs increase to R38 300 (29%) and the unit cost increase of septic tanks increased to R57 300 (19%).
- The right of access to sanitation, unlike other basic services such as water, housing and electricity, is not an explicit, but implied, right in the South African Constitution.
- The Water Service Act (Act No. 108 of 1997), the principal policy regulating water service provision in South Africa, does however, legitimizes the right of all South Africans to basic sanitation.
- The Constitutional right to housing does include the right of access to a sanitation service as part of housing according to the Constitutional Court decision on the Grootboom case.
- Despite this relatively strong legislated framework that underpins provision of basic sanitation service in South Africa, there is still general confusion in the interpretation and implementation of the framework at various levels of government, including:
    - Financing of operation and maintenance of sanitation services.
    - Who is targeted by the policy; i.e. all or the poor.
    - Few norms, standards and guidelines are provided on the economic efficiency.
    - At a municipal level, this lack of clarity in policy has led to confusion in the implementation of sanitation initiatives.

Perhaps the key conclusion which can be drawn from the study was that the provision of sanitation services utilising subsidies may be one of the most difficult regulatory environments in which to operate in South Africa, largely due to the lack of clarity and often conflicting legislation, policies and strategies from national to local government levels. To meet their Constitutional mandates and be able to deliver effective and responsible basic sanitation services to all South African all sectors of government need to understand the interactions, overlaps, gaps and conflicts in subsidised sanitation-related policies, processes and procedures.

The financial component of the basic sanitation service sector would benefit significantly from a set of guidelines which could bring all these confusing and contradictory policy documents and instruments under a single set of guideline, bringing together water services, housing, indigent, municipal and financial requirements of the subsidised sanitation sector. These guidelines could provide significant support to the sector, at a national, provincial and local government level.

ACKNOWLEDGEMENTS

The authors would like to thank the Reference Group of the WRC Project K5/2136 for the assistance and the constructive discussions during the duration of the project, as well as the role players who attended and participated in the workshops held in the course of the project.

Mr JN Bhagwan (Chairman)	Water Research Commission
Ms M Wilkinson (PL)	Sustento Development Services
Mr D Pearce	Sustento Development Services
Prof S Hosking	Nelson Mandela Metropolitan University
Dr N Mjoli	Hlathi Development Services
Ms L Dunker	CSIR
Ms Julie du Pisani	Innodev
Ms B Maposa	CSIR
Mr I Pearson	WATSUP Development
Ms M Mangqalaza	Dept. of Human Settlements
Mr J Crafford	Prime Africa Consultants
Ms G Matsebe	CSIR
Mr M Bannister	DWAF
Mr S Sharaunga	Sustento Development Services
Mr J Flanagan	Sustento Development Services
Ms T Magagula	Sustento Development Services

Attendees of the Sanitation Subsidy workshop:

Mr J Archer	National Treasury
Mr M Khan	National Treasury
Mr I Mahomedall	National Treasury
Mr G Gardner	National Treasury
Ms M Lipholo	PDNA
Mr R Jerrek	Cemforce
Mr T Modau	Mvula Trust
Mr J Rust	Envirosan
Mr B Lewis	Envirosan
Mr O Farrow	Envirosan
Mr T Krause	Envirosan
Mr A de Villiers	Cemforce

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

BNG	Breaking New Ground
CIP	Comprehensive Infrastructure Plans
CoGTA	Department of Cooperative Governance and Traditional Affairs
DBSA	Development Bank of Southern Africa
DHS	Department of Human Settlements
DLA	Department of Land Affairs
DH	Department of Housing
DoH	Department of Health
DORA	Division of Revenue Act
dplg	Department of Provincial and Local Government
DWA	Department of Water Affairs
EPHP	Enhanced People's Housing Process
EPWP	Expanded Public Works Program
FBS	Free Basic Services
FBSan	Free Basic Sanitation
FLISP	Finance Linked Individual Subsidy Programme
GEAR	Government's Growth, Employment and Re-distribution Strategy
H&HE	Health and Hygiene
HDA	Housing Development Agency
HH	Households
IDP	Integrated Development Plan
IGRFA	The Intergovernmental Relations Framework Act, 2005 (Act 13 of 2005)
ISRDP	Integrated Sustainable Rural Development Programme
LES	Local Equitable Share
MDGs	Millennium Development Goals
MHDP	Municipal Housing Development Plans
MI	Mortgage insurance
MIG	Municipal Infrastructure Grant
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NDHS	National Department of Human Settlements
NHBRC	National Housing Builders Registration Council
NHFC	National Housing Finance Corporation
NHP	National Housing Programme
NPM	New Public Management
NSDP	National Spatial Development Perspective
NSPU	National Sanitation Programme Unit
NUSP	National Upgrading Support Programme
O&M	Operation and maintenance
PGDS	Provincial Growth & Development Strategy
PMU	Programme Management Unit
RDP	Reconstruction and Development Programme
SALGA	South African Local Government Association
SHA	Social Housing Associations
SHI	Social Housing Institutions
SHRA	Social Housing Regulatory Authority
SLA	Service Level Agreement
SOEs	State Owned Enterprises
UISP	Upgrading informal settlements programme
URP	Urban Renewal Programme
VIP	Ventilated Improved Pit toilet
WASH	Water, Sanitation and Hygiene
WSAs	Water Services Authority
WSDPs	Water Services Development Plan

CHAPTER 1: INTRODUCTION

The South African Government has committed itself to universal access to sanitation by 2014. As part of this commitment, the government provides various sanitation subsidies to assist the poor (household expenditure <R2300 per month) to gain access to a basic level of sanitation service; i.e. in the case of basic sanitation, at least a Ventilated Improve Pit (VIP) toilet (DWAF, 2003; dplg, 2005a; Treasury, 2013).

These sanitation subsidies are provided by various funding mechanisms across a number of governmental departments. However, the key funding mechanisms are those which subsidise sanitation facility provision directly to households and those which provide sanitation facilities as part of a subsidised housing service.

One of the rights enshrined in the Constitution is the right "… to access to adequate housing." Housing is one of the biggest challenges in South Africa in the delivery of services to the public. Together with bulk infrastructure and socioeconomic services, housing is increasingly becoming a key government programme for the delivery of integrated development to South Africa's communities. The government is assisting the population through different housing programmes.

The household sanitation subsidy is administered by local government using various sources of funding, chiefly the Municipal Infrastructure Grant (MIG) and the Local Equitable Share funding stream. The housing subsidy on the other hand, can be administered by local government if the municipality is accredited to administer these programmes. Generally, housing subsidies are administered by the provincial departments responsible for human settlements.

There are generally four types of on-site sanitation facilities provided through the household and housing subsidised sanitation (hereafter referred to collectively as subsidised sanitation) processes in South Africa; namely:

- **VIP toilets (single or double)** which operate on the premise of a dry system, where the excreta is collected in a pit below the toilet. Organic matter accumulates in the pit while the liquid component percolates into the substrate where it is 'treated' through a biological process. Pits need to be emptied, generally by the municipality, after a number of years of use (generally 5-8 years).
- **Urine Diversion (UD) toilets** which operates on the premise of a dry system, separating urine and faeces at the toilet seat. Urine is generally collected in a soakaway pit and 'treated' through a biological process, while faeces are collected in a vault and after a period of dehydration and sanitisation, the dried faecal matter is emptied from the vault and buried or burned.

- **Wet on-site digesters** including Low-flow on-site (LOFLOS) systems Aqua-privies or Pour Flush toilets. These systems are rarely provided in South Africa and operate on the permis of waterborne sanitation systems, but using minimal water for operation. Excreta are contained in a sealed pit, conservancy tank and soakaway. These pit or conservancy tanks require emptying at some point in time.
- **Full flush toilets with septic tank and soak-away** which operates with the premise of using water to operate the toilet, however, the sewage is not transported to a wastewater treatment plant via the municipal sewerage but rather contained and treated in a septic tank and soakaway. Again, conservancy tanks require emptying at some point in time.

Regulation of provision of basic sanitation services is the responsibility of the Minster of Water Affairs (and thus the Department of Water Affairs - DWA), while some programme implementation roles can be by other government departments (Department of Human Settlements; CoGTA; Public Works) and actual delivery of the service is the responsibility of local government. This has led to a lack of clarity as to how the household sanitation subsidy processes and procedures in the country, particularly as to how household sanitation is integrated into the National Housing Programme subsidy processes.

A number of perceptions within the sanitation service delivery sector which underpin the motivation for this research:

- Despite industry and governmental guidelines recommending a ceiling amount per household for the provision of a basic sanitation service, perceptions are that capital and institutional social development (ISD) costs of provision of basic sanitation services are much higher than this recommended unit cost.
- There is a growing perception that the capital cost for construction of a basic sanitation facility in the past 10 years has been unreasonably high.
- There are perceptions in the sector that some households have benefited from more than one subsidy.
- There is also a growing perception within the public sector and the sanitation sector that the sanitation subsidy provided to poor households is not being effectively and responsibly applied.

The question thus remains, is the sanitation sector effective and responsible in their use of public funds and if not, how can the research improve this effectiveness and efficiency?

1.1 RESEARCH OBJECTIVE AND AIMS

The overarching objective of this research is to *investigate the sanitation-related subsidies in South Africa, including economic and social cost issues, to determine overlaps and gaps of sources (MIG, Housing, Equitable Share) of subsidy and to determine what constitutes effective/responsible use of*

subsidies, with the key purpose to develop a guideline to guide future sanitation subsidy policy and interventions.

The aims of the research were to:

1. Investigate the changes, over time, of the full cost of constructing sanitation facilities.
2. Investigate the factors that have induced changes in the full supply cost of providing sanitation facilities.
3. Critically evaluate the extent to which application of the sanitation subsidies have been modified to respond to the changes in the full supply cost of constructing sanitation facilities.
4. Investigate overlaps and gaps between the various sanitation-related subsidy policies and processes.
5. Identify and expand the criteria, qualitative and quantitative, that would serve to define the parameters of what constitutes an effective and responsible use of sanitation subsidies.
6. To develop recommendations/guidelines on how to align sanitation-related subsidy policies and processes.

The method applied to address the above objectives was to take a 4 Step approach to the research. These steps include:

- Step 1: Investigation of the historic and present economic and social cost of subsidised sanitation facilities. In this step the actual historical and present cost of sanitation facilities constructed from MIG and Housing grants was to be captured and documented.
- Step 2: Assessment of the drivers of change in economic and social cost of subsidised sanitation facilities. In this step the perceived 'drivers' of the changes in economic and socials costs of subsidised sanitation facilities was to be determined. Drivers could include such issues as competition for materials with other construction projects; unrealistic demand-driven increase in material costs; high growth in labour cost; poor understanding of sanitation service provision.
- Step 3: Investigation of the overlaps and gaps of sanitation-related subsidy policies and processes. In this step subsidised sanitation policies and procedures was to be reviewed to determine overlap, gaps and conflicts in these.
- Step 4: Determine what constitutes effective and responsible use of sanitation subsidy, which will include determining what 'effective' and 'responsible' use of sanitation subsidy is and applying the principles of effective and responsible use of sanitation subsidy to develop guide for MIG/Housing subsidies in South Africa.

1.1.1 Limitations and considerations

The research was conducted with the following considerations:

- The sanitation subsidises which will be investigated will be limited to MIG, Local Government Equitable Share and Housing subsidies/grant initiatives in South Africa;
- The research will be limited to sanitation which is provided as a basic level of service. In South Africa, municipalities are providing as a basic level of sanitation service, a facility that use **on-site methods of storage with or without treatment** which includes system where the waste is stored on-site with or without treatment, before release into the environment. Examples in South Africa are VIP; UD; LOFLOS and septic tanks systems. Despite the COGTA Industry Guidelines stating that *the use of MIG funds for alternative higher level sanitation systems including waterborne sanitation is permissible provided that the sanitation scheme can be defined as providing a basic sanitation facility that is appropriate (and sustainable) for the selected community,* this research was limited to subsidies for on-site systems only, thus excluding flush toilets connected to municipal wastewater sewerage systems;
- The research will focus on capturing capital and full cost of these sanitation services; and
- The research will focus on reaching consensus on what constitutes 'effective/responsible' use of a sanitation subsidy/grant.

1.2 PURPOSE OF THE REPORT

This report is a compilation of the research which was utilised to develop the WRC Report: TOWARDS THE EFFECTIVE USE OF SANITATION SUBSIDIES: A GUIDE, the final outcome of the research project entitled *sanitation-related subsidies in South Africa, including economic and social cost issues, to determine overlaps and gaps of sources (MIG, Housing, Equitable Share) of subsidy and to determine what constitutes effective/responsible use of subsidies.* Since the Guide was developed with a focus on assisting the sector in ensuring effective and responsible provision of subsidised sanitation in the country, this Guide were able to include only a limited amount of the most applicable research which was conducted for this assignment. As a result, there is a need to capture all other technical inputs from the research into a document, which can then re-enforce, support and provide additional information to the users of the Guide. This report thus includes these technical outputs of the research.

This report includes the following sections:

- Chapter 1: Provides the background and introduction to the study and report
- Chapter 2: An overview of the literature related to key concepts of subsidised sanitation
- Chapter 3: A review of the policies and legislation which govern the subsidised sanitation sector in South Africa
- Chapter 4: A Review of municipal policies which govern the subsidised sanitation sector in South Africa

- Chapter 5: A review of the financial policy and mechanisms which govern the subsidised sanitation sector in South Africa
- Chapter 6: An estimate of the full cost of subsidised sanitation sector in South Africa
- Chapter 7: Perceptions and actual drivers of changes in subsidised sanitation in South Africa
- Chapter 8: Provides a summary of the gaps and challenges in the subsidised sanitation sector of South Africa.

CHAPTER 2: LITERATURE REVIEW

The need for universal access to improved sanitation is widely recognised. The motivation for improved access to this service is often based on three arguments of (Evans et al., 2009):

(1) the environmental concerns of the direct and indirect negative effects of poor sanitation or open defecation ecosystems and the services which they provide. Contamination of water resources and soils by untreated waste can limit their safety and sustainability. It can also result in environmental degradation;

(2) the social and public health benefit of investing in sanitation has been shown to have significant benefit to school attendance, especially for girls, improvement in individual and household health and increased security, particularly for women. These benefits, along with improvements in dignity and comfort are felt by all members of society but particularly women and children;

(3) the political objectives which governments have committed to in a number of international poverty reduction initiatives, including the Millennium Development Goals, regional commitments such as the eThekwini Declaration in Sub Saharan Africa and national Poverty Reduction Strategic Plans.

However, how a country addresses the need for universal access to sanitation, whether this commitment is driven by environmental, society or political imperatives, can vary significantly.

Kaufmann-Hayoz et al. (2001) distinguishes between five types of policy instruments that can be applied towards achieving sustainable development and which are also relevant to designing and implementing sanitation policies (Table 1); namely:

(1) Command and control instruments: regulatory instruments that apply legal prescriptive to direct the options available for policy or intervention by constraining, sanctioning and excluding certain behaviours and conduct;
(2) Economic instruments: having the primary purpose to increase efficiency which might relate to one or many of the following (1) efficient allocation of resource between firms; (2) efficient allocation between consumers: and (3) efficient combination of products in the economy as a whole;
(3) Service and infrastructure instruments: goal-directed instruments with the purpose of promoting desirable and excluding undesirable behaviours. Instruments can be attraction-based (i.e. provision of sanitation infrastructure) or repulsion-based (i.e. reduced/withdrawal of services to promote ecological desirable behaviour);

(4) Collaborative agreement instruments: formal (legal) or non-legally binding commitments with the purpose of promoting positive behaviours and actions in a sector;
(5) Communication and diffusion instruments: have the purpose of influencing internal conditions such as goals, knowledge and behaviours.

Although the sanitation sector in South Africa makes use of all these instruments in addressing their commitment to universal access to sanitation, of particular interest to this research are the economic instruments. These national economic instruments are used to drive the municipal infrastructure/service and communication instruments of the sanitation sector, i.e. the subsidy is provided for the provision of sanitation facility; hygiene awareness and promotion and in some cases, operation and maintenance.

Table 1: A typology of policy instruments for sustainable development (taken from Kaufmann-Hayoz et al., 2001).

COMMAND AND CONTROL INSTRUMENTS	ECONOMIC INSTRUMENTS	SERVICE AND INFRASTRUCTURE INSTRUMENTS	COLLABORATIVE AGREEMENTS	COMMUNICATION AND DIFFUSION INSTRUMENTS
Emission standards	**Subsidies**	**Service instruments**	**Public-private agreements**	Communication instruments without a direct request
best available technology	grants	offering or improving ecologically sound products	agreements on prepaid disposal fees on specific product groups	presenting facts
prescriptive technology standard	tax allowances	withdrawing environmentally undesirable products	agreements on consumption goals or standards	presenting options
	soft loans	offering or improving services that allow or facilitate ecologically sound action	formal agreements with individual companies	presenting appraisals, goals, and norms
	guarantees	reducing services that allow or facilitate environmentally undesirable action		providing experience of reality
	compensation for foregoing use of the resource			presenting model behaviour
				giving feedback and enabling selffeedback
Licensing	**Incentive taxes**	**Infrastructure instruments**	**Certifications and labels**	**Communication instruments with a direct request**
licence to construct	taxes on energy/resources	offering or improving infrastructure that allows or facilitates ecologically sound action	with legal compliance	persuading about facts
licence to operate	taxes on emissions	dismantling or degrading infrastructure that hinders or inhibits ecologically sound action	without legal compliance	persuading about options
licence to sell	taxes on products/processes			persuading about goals, appraisals, and norms
Liability regulations1	**Charges**			sending appeals
strict liability	one-time charge for connection to services			presenting prompts and reminders
reversal of the burden of proof	recurrent charges for use			stimulating self-commitment
compulsory third party liability insurance	charges on advantages (value-added contribution)			
	prepaid disposal fees			
Product standards and regulations for the use of pollutant substances	**Market creation**			**Diffusion instruments**
restriction, rationing, or prohibition	tradable allowances or permits			establishing direct personal contact
product standards	joint implementation			establishing contact via person-to-person media
Zoning	**Incentives as parts of action campaigns2**			establishing contact via mass media
land use regulations	rewards			
water protection areas	lotteries			
nature conservation zones	contests/benchmarking			
	discounts			
Environmental quality standards (impact thresholds and standards)	**Deposit-refund systems**			

2.1 DEFINING SANITATION SUBSIDIES IN SOUTH AFRICA

Very often, when sanitation specialists and non-specialist begin discussions on 'subsidised sanitation' the first questions asked are usually, 'what is subsidised sanitation' and 'does this really exist in South Africa'. To lend clarity to this issue, the research begins by defining a subsidy and a sanitation subsidy and how these relate to government supported sanitation initiatives in South Africa.

2.1.1 What is a Subsidy

Defining a subsidy is not a straightforward proposition (Srivastava et al., 2001). The Oxford Dictionary defines a subsidy as "a sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low". However, as the box below shows, the term 'subsidy' has different meanings and definitions. The research support the use of Evans et al. (2009) definition of a subsidy as *a form of financial assistance paid to an individual, a business or an economic sector in order to achieve certain policy objectives* (Evans et al., 2009). Thus, any financial support offered to a household to meet national policy objectives (i.e. poverty alleviation, sanitation service access, water service access, housing, energy access, etc.) can be defined as a subsidy (Evans et al., 2009).

A subsidy has also been defined as:

- Monetary assistance granted by a government to a person or group in support of an enterprise regarded as being in the public interest.
- Financial assistance given by one person or government to another.
- A direct financial aid furnished by a government to a private industrial undertaking, charity organisation, or the like.
- A sum paid, often in accordance with a treaty, by one government to another to secure some service in return.
- A grant or contribution of money.

Subsidies constitute an important fiscal instrument as they inject money into circulation, unlike taxes, which reduce disposable income (Srivastava et al., 2001). Provided that the subsidy is designed and administered responsibly, subsidies can have significant impacts on augmenting the welfare of a society as the benefits extend beyond the immediate beneficiary to being shared by the present and future larger population (Srivastava et al., 2001). Subsidies are also used with redistributive objectives, particularly for ensuring minimum consumption levels of food and other basic needs (Srivastava et al., 2001). Conversely, subsidies can be extremely costly to the funder and to beneficiaries if they are poorly designed and inefficiently administered (Srivastava et al., 2001).

2.1.2 What is a Sanitation Subsidy

Based on the above definition of a subsidy, a sanitation subsidy was any financial support offered to a household to meet the national sanitation policy objectives. These sanitation subsidies stem largely from public funds, but may also flow from donor inputs.

To understand sanitation subsidies, it is necessary to place them in the context of the patterns of financial assistance offered to the sector as this financial assistance does not only include subsidies (Evans et al., 2009). This financial assistance may also be provided to the sanitation sector:

- To create and facilitate the enabling environment required for an effective sanitation sector. Financial assistance may support policy development, capacity building, knowledge sharing and coordination;
- For activities which target changing individual households, schools and clinic hygiene behaviours, including hygiene promotion, awareness and educations initiatives, handwashing campaigns and development of curricula and promotion materials, etc.;
- To cover sanitation marketing costs such as market assessment, promotion of demand, community-led total sanitation initiatives and supply-side interventions to stimulate supply;
- To cover the cost of public infrastructure and services (including both capital and operational costs) of, for example, schools, public toilets, shared network services; and
- Cost of private infrastructure and services (capital and operational costs) of household sanitation.

Based on the most urgent need, funding should be made available for some, or all of, these financial requirements of the sanitation sector. This research focuses on the use of sanitation subsidies to meet some of the above mentioned financial needs of the sector.

There are many different ways to classify subsidies, for example, by using the purpose of the subsidy to classify them, the recipients, the source of the funds for the subsidy (government, consumer, general tax revenues) or means of distributing the subsidy. Evans et al. (2009) categorise sanitation subsidies based on the intended purpose of the subsidy (Table 2).

However, perhaps the most crucial element related to subsidising in the sanitation sector is the financing required for the long-term, or lifespan of, sanitation service provision, i.e. if the focus of subsidises is on household sanitation, then the challenge is to ensure that finance is available for the operation and maintenance of these. Understanding these key needs of the sanitation sector, sanitation and economic policymakers should be in a position to design a subsidy programme that reaches the intended beneficiaries, provides them with the level of financial support that is necessary, meets the overall budgetary restrictions, and does not waste an excessive amount of funding on administrative costs (Gómez-Lobo et al., 2000).

Table 2: Type of sanitation subsidies, based on the intended purpose of the subsidy (adapted from Evans et al. (2009)).

Mechanism	Description
Subsidies for software	Software activities include: Capacity building and training Development of promotional materials and campaigns Monitoring and evaluation systems and processes Financial management, budgeting and advocacy in national planning processes Recurrent budgets of health extension worker responsible for hygiene behaviour activities Market research and development of sanitation market activities Recurrent budgets for schools sanitation and hygiene programmes
Subsidies for hardware	Provides for provision of sanitation infrastructure
Direct subsidy	Direct payment (cash or vouchers) provided to the households to access sanitation services
Infrastructure subsidy	The use of public funds to construct sanitation infrastructure at a household level Households may be required to contribute additional funds or 'sweat equity' Funds are generally handled by a service provider
Connection subsidy	Subsidy to connect poor households to a sewer system Funds usually handled by a service provider
Operational subsidy	Payment to a service provider to offset some or all of the costs of supplying a service (i.e. payment for operational losses, lowering of tariffs)
Small-scale operator subsidy	Provided to bring down cost of operations of small-scale service providers (i.e. pit emptying operators, latrine building enterprises) Can include subsidy for training and business development (accounting, planning, auditing) May include start-up loans and guarantees to kick-start an enterprise
Cross-subsidisation	Contribution of one group of service users to part of the cost of another group of service users Transfer, through tariffs, from high-volume user to low-volume users
Consumption subsidy (tariffs)	Tariffs for sewer services are kept artificially low Subsidy towards the 'consumption' of the service
Output-based subsidy	Provided to the service provider for services successfully delivered for a pre-agreed period. Requires on good quality verficiation and monitoring system
Regulatory subsidy	Provides preferential legal rights for selected service providers. Tehnical norms and standards and licences allow only selected service providrs to contruct publicly-funded facilities
Subsidized credit	Subsidies and gaurantees provided to micro-financial insitutions which lend money for sanitation investments to households at a reduced interest rate

2.1.2.1 Arguments in Favour of Sanitation Subsidies

The benefits of sanitation service provision are widely acknowledge and recognised. Understanding these, it is necessary to consider how best to ensure that these benefits are realised by all individuals in a country. The rationale used to motivate for the use of sanitation subsidies are varied and may include (Evans et al., 2009):

- **Moral arguments** which argue that it is a **government's moral duty** to provide a minimum set of basic services to vulnerable and disadvantaged citizens to enable them to live healthy and productive lives (i.e. a rights-based argument for basic service provision). The moral-based motivation for subsidised sanitation service provision includes the argument that government has

a duty to promote equity, equal chances and access for all; or to support empowerment of certain disadvantaged groups or people.

- **Economic arguments** that translate the above moral arguments into a set of principles by which subsidies can be designed. This argument assumes that the real value of sanitation services are not recognised by individuals and households and thus, sanitation interventions (including subsidies) need to acknowledge:

    - **Externalities** – markets cannot mediate the implications to society (public good[2]) of sanitation action or inaction. The rationale for sanitation subsidies in the presence of positive externalities can be advocated because the societal benefits would require higher levels of consumption than what would be obtained on the basis of private benefits only (Srivastava et al., 2001). Since the provision of universal sanitation benefits society as a whole, it is a public good; and
    - **Lack of information** – individuals may not fully understand or appreciate the value of improved sanitation, particularly positive health and environmental impacts, and therefore tend not to prioritise investment in sanitation. However, as mentioned in the bullet above, investments in sanitation have high levels of societal benefit. This implies that low levels of sanitation coverage are a merit[3] good where the benefits exceed the value placed on it by individual households. The public sector therefore has an interest in changing individual choices to increase the level of investment in sanitation and move society towards universal sanitation. Some policy makers argue that subsidies will offset these effects and ramp up the rate of investment in a sector with significant and important benefits for everyone. Subsidies can provide the necessary correctives in such cases.

- **Redistribution arguments** advocate subsidies to meet redistributive objectives, especially to ensure minimum level of service to sections of society.

2.1.2.2 Arguments against Sanitation Subsidies

According to Evans et al. (2009) there are essentially two arguments against sanitation subsidies, namely that a subsidy can have:

---

[2] A public good is one that, if consumed by one person, can still be consumed by other people (Evans et al., 2009)

[3] Merit goods are goods that society thinks everyone ought to have regardless of whether they are wanted by each individual (Evans et al., 2009)

- **A negative effect on the viability of the sector as a whole**. At sector level, the use of subsidies can both constrain and distort the provision of services. For example, a focus on stringent design requirements and prescriptive subsidy amounts can lead to many subsidised latrines being unnecessarily expensive and can stifle local innovation in the sector. In addition to raising costs, the delivery of infrastructure, operational and regulatory subsidies all have the effect of 'crowding out' other sources of funding. Subsidies can also distort the behaviour of private sector providers (who may focus for example on producing standard latrines called for by a government programme rather than on innovation).
- **Can have unexpected consequences on household and community behaviours and outcomes**. As well as distorting the national programme, the delivery of a subsidy can have unintended consequences at a household and community level. Poor targeting of subsidies may result in the 'wrong' (wealthy) households benefiting from the subsidy and fewer needy households benefiting. Subsidies may also result in the 'wrong' type of services being subsidised (i.e. expensive infrastructure such as waterborne systems). In a subsidised service provision environment, dependency may become the norm and communities or households cease to make independent investment decisions, preferring to wait for pubic funded services. Subsidies can also inflate perception of demand for the service as the service is available without the household or community necessarily truly wanting it. When subsidies are associated with one particular type of good, having a short-term delivery focus may result in poor operation and maintenance of the service, i.e. provision of waterborne systems in water scarce areas or provision of VIP units without considering pit emptying needs or contamination of groundwater.

At the same time, there is an argument that subsidies can engender resource use inefficiencies and financially weaken utilities, which hobble efforts to expand and improve services (Komives et al., 2005; Srivastava et al., 2001). In recent years, the phenomenon of environmentally harmful subsidies has been widely recognised in the literature. There is considerable international concern about environmentally harmful subsidies.

2.1.3 Subsidies: Implications in a General Equilibrium Framework

The provision of a subsidy induces its own costs and thus, subsidies should be considered in a macro and general equilibrium framework. Provision of subsidies is not a 'free' exercise as these have to be financed through tax. The introduction of a subsidy in the sanitation sector will thus affect other sectors (Srivastava et al., 2001). Every increase in taxes to provide these subsidies would thus involve a welfare loss, which needs to be matched by the welfare gain through the subsidy. As long as the subsidy-induced welfare gain is more than the tax-induced welfare loss, subsidisation may be recommended. But it is important that the welfare and efficiency losses associated with the cost of financing the subsidies are taken into account. The degree and volume of subsidisation must, therefore, take into account not only the first-round effects of subsidies affecting the subsidised sector but also the second and subsequent round effects.

Understanding the above mentioned key needs of the sanitation sector, sanitation and economic policymakers should be in a position to design a subsidy programme that reaches the intended beneficiaries, provides them with the level of financial support that is necessary, meets the overall budgetary restrictions, and does not waste an excessive amount of funding on administrative costs (Gómez-Lobo et al., 2000).

2.2 INTERNATIONAL SANITATION SUBSIDY EXPERIENCE

Although limited, there are a number of countries across the world that also follow a sanitation subsidy approach to delivery of sanitation services. In this section, some of these countries approaches are reviewed, which may provide some guidance and knowledge for subsidised sanitation services provision in South Africa in the future, in particular to address some of the difficulties and gaps highlighted in the previous sections of this report.

A study by Trémolet et al. (2010) reviewed on-site sanitation financing in six countries by examining:

- the financing sources (who pays); and
- the financing approaches:
    - What share is paid by each source, and how?
    - What public funding mechanisms are used, including hardware subsidies, software support, or facilitated access to credit?

Countries included in the review were Vietnam, Bangladesh, India, Senegal, Ecuador and Mozambique. Table 3 below shows details of each of the subsidy schemes included in the review (Trémolet et al., 2010). Broadly, the countries fitted into three categories of sanitation subsidy approaches, with Vietnam, Bangladesh, and India requiring households to invest in the sanitation hardware and public support provided for the promotion and creation of demand for sanitation, i.e. hardware subsidies were limited. These case studies effectively focus on the sanitation components, which are not a key focus of the South African capital sanitation subsidy. Mozambique provided partial hardware subsidies to local suppliers to build improved latrines as well as software subsidies. Senegal and Ecuador on the other hand, like South Africa, provided substantial public support, primarily in the form of hardware subsidies.

Table 3: Case studies of household sanitation and financing approaches included in the Trémolet et al. (2010) review of subsidised sanitation in six countries (taken from Trémolet et al. (2010)).

Country, project, areas, level of service, population that adopt sanitation, study period	Financing approach
Vietnam: Sanitation Revolving Fund (SRF) – Urban areas • **Mostly bathroom and septic tanks** • **194,000 people** • **20012 to 2008**	• Software support for sanitation promotion and hygiene education • Facilitated access to credit via sanitation revolving fund • Subsidized interest loan for hardware construction (accounting about 3% of hardware cost) • Public funds = 7% of total of sanitation adoption
India, Maharashtra: Total Sanitation Campaign (TSC) – rural areas • **Improved latrines** • **21,200,000 people** • **July 2000 to November 2008**	• Software support for community mobilization, including outcome-based financial rewards to villages reaching Open Defecation Free(ODF) status to be spent on sanitation investments • Outcome-based hardware subsidies for below- poverty households (covering about 22% of hardware cost for beneficiaries) • Access to credit in some districts only • Public fund = 9% of total cost of sanitation
Bangladesh: Dishari (based community Led Total Sanitation) rural areas • **Basic latrines** • **1,631,000 people** • **2004 to 2008**	• Software support for community mobilization, sanitation promotion, local government strengthening, including outcome based financial rewards to villages which are 100% sanitized. Rewards come with no strings attached and do not necessarily need to be spent on sanitation • Up-front-in – kind hardware subsidies targeted on the poorest (covering about 42% of hardware cost beneficiaries) • Public funds = 31% of total cost of sanitation adoption
Mozambique: Improved Latrines Program (PLM)-urban areas • **Improved latrines** • **1,888,000 people** • **2001 to 2006**	• Software support for sanitation promotion establishment of local workshops building slabs and latrines • Out-based subsidies to local sanitation providers for each slab or latrine sold (intend to cover 40% to 60% of hardware cost) • Public funds = 58% of total cost of sanitation adoption (estimated)
Ecuador : PRAUAS – rural areas • **Sanitation units (toilet, septic tank, sink, shower)** • **143,000 people** • **2001 to 2006**	• Software support to strengthening municipality to work in sanitation, for technical designs and monitoring • Up-front fixed hardware subsidies (covering about 60%of hardware cost) provided to communities • Public Funds = 85 of total cost of sanitation adoption
Senegal: PAQPUD – urban areas • **Range of options: improved latrines to septic tanks** • **411,000 people** • **2002 to 2005 (not including extensions via GPOBA)**	• Software support for sanitation promotion, includes hygiene promotion and education, community organisation, technical support • Output-based hardware subsidies to local sanitation providers for each sanitation solution built (covering about 75% of hardware costs) • Limited schemes to facilitate access to credit • Public funds = 89% of total cost of sanitation adoption

Trémolet et al. (2010) provided a summary of the evaluation of the six country subsidy programmes, shown in Table 4 below.

Table 4: Summary Evaluation of the six country subsidy programmes review by Trémolet et al. (2010) (taken from Trémolet et al. (2010))

Evaluation criteria	Bangladesh	Ecuador	India (Maharashtra)	Mozambique	Senegal	Vietnam
Impact on sustainable access	Substantial and rapid increase in coverage, mostly sustained	Substantial increase in coverage with good evidence of use	Very rapid increase in coverage with some cases of relapse)	Rapid increase in coverage only when software support was also provided	Speed of coverage increased when required households contribution was reduced	Repaid extension of coverage
Costs	Basic sanitation costs reasonable when compared to household income (3 to 4%)	Comprehensive sanitation solutions: costly but meet existing demand	Improved sanitation, household invest based on when they can afford	Affordable basic sanitation solutions, reduced demand when incomes grow	Comprehensive sanitation solutions but expensive by both national and international standards	Cost moderate compared to other programmes but high when compared to household income
Effectiveness in use of public funds	High leverage	Low leverage	High leverage	Medium lavage	Low leverage	Very high leverage
Poverty targeting	Effective targeting through community involvement	Geographical targeting reached intended recipients	Means-tested targeting effective although some are excluded	Self-selection via level of service, with limited inclusion errors	Geographical targeting reached intended recipients	Effective targeting although lowest income excluded
Financial sustainability	Sustainable as long as public sector continues to contribute	Highly dependent on external finance	Low demand on external public funds	Dependent on external financing	Highly dependent on external financing	Financially sustainable
Scalability	Scale-up achievable at a reasonable cost	Scale-up could be achieved given relatively high national income	Has been scaled up at federal level	Was scaled up in major urban centres, further scale-up unlikely	Scale-up has been achieved in country	
Summary evaluation	Efficient use of public funds for rural setting with strong demand for low-cost solutions	Only useful for countries willing and able to fund high levels of service	Efficient use of public funds, which are provided on an outcome basis	Efficient use of public funds with simple and effective targeting	Limited use: high demand on public funds and limited leverage	Very efficient use of limited public funds but may be hard to replicate

Key messages provided by the Trémolet et al. (2010) review was the following:

- Public financing for “software” has a significant role to play in creating demand for improved sanitation and changing community and household behaviours.
- Project designers should look beyond the semantics of simplistic “subsidy vs. no subsidy” debates to define an appropriate level and form of public investment in sanitation. Answers to basic financial questions—“Who pays for what, when, and how?”—can determine the extent to which projects can replicate, expand sanitation, be sustainable, and meet household needs.
- The different financing strategies adopted had a profound influence on equity, scale, sustainability, level of service and cost.
- Households are key investors in on-site sanitation and project design and implementation needs to maximise their involvement.
- **Hardware subsidies played a critical role in all six case studies,** but these subsidies should be provided on an output basis rather than (as in South African) input basis. This stimulates demand and leverages private investment**.**
- approaches must be targeted to the specific country.
- Well-targeted hardware subsidies can provide a critical safety net for the poor. Such subsidies should not be used as a substitute for hardware investments by households.
- All countries included a publicly funded software component.

CHAPTER 3: REVIEW OF POLICIES WHICH GOVERN PROVISION OF ON-SITE SANITATION SERVICE IN SOUTH AFRICA

In this section, water services and housing legislation and policies are reviewed to determine the sanitation subsidy provision described in these documents.

3.1 WATER SERVICES POLICIES GOVERNING SANITATION SERVICES PROVISION IN THE COUNTRY

Sanitation services provision in South Africa is legitimised by the Constitution of the country. Section 152 of the Constitution assigns the responsibility of local *government to, amongst others, (b) ensure the provision of services to communities in a sustainable manner and (d) promote a safe and healthy environment* (South Africa, 1996).

The 1996 White Paper on the Reconstruction and Development Programme (RDP) provided government's vision for the fundamental transformation of South Africa's society and demonstrated the manner in which government would implement and manage processes to achieving this. The RDP identifies the provision of infrastructure for services such as housing, water supply and sanitation as one of the key elements of developing the South African economy along this new path.

The White Paper of Water Supply and Sanitation Policy (1994) followed the RDP of sanitation service provision being sustaining (DWAF, 1994).

The policy further highlights that the source of financing sanitation services should include the following (DWAF, 1994):

- Consumers (households), through their cash contributions and tariff payments;
- Government, at all levels, which can give grants from money it raises from taxes and other sources;
- Loans, which can be obtained from the "money market";
- Donations and cheap or concessional loans may be available from local or foreign sources for some projects;
- Privatisation which can raise funds for service provision in a number of ways.

This 1994 White Paper suggests that services should be self-financed, with the only exception being where poor communities are not able to afford basic services. It provides the first regulator instrument for the use of sanitation subsidies to address the needs of poor communities. The government basic policy framework for subsidised sanitation services outlines these services as:

1. *Government subsidies will be made **available to communities which cannot afford minimum water supply and sanitation services**. Subsidies will only cover the cost of minimum services provision, **not the operating and maintenance costs**.*
2. *Other subsidies provided by the Department of Water Affairs and Forestry for water supply and sanitation provision will be phased out, particularly in respect to operation and maintenance costs, except in cases where subsidies are required in the public interest such as for the protection of the environment.*
3. ***Subsidies will normally be paid to local authorities** or statutory Local Water Committees, rather than direct to a service provider.*
4. ***The amounts of subsidies will be determined locally** by the actual cost of providing basic services.*

Using the above mentioned policy framework this report reviews the intent of the other water services policies in South Africa.

3.1.1 Beneficiaries of Sanitation Subsidy

The White Paper of Water Supply and Sanitation Policy (1994) (DWAF, 1994) clearly indicates the focus of subsidised sanitation services provision would be ***communities which cannot afford minimum water supply and sanitation services.***

This policy if followed by a number of policies and strategy statements related to the beneficiaries of sanitation service. These include:

- 1994 – White Paper on Water Supply and Sanitation: government subsidies will be made available to communities which cannot afford minimum water supply and sanitation services. Subsidies will only be available to cover the cost of minimum services provision and will not cover operating and maintenance costs.
- 1995 – National Sanitation Draft White Paper: poor communities are not able to afford even a basic level of service, in which case government may subsidise the capital cost of basic minimum services.
- 1996 – National Sanitation Policy – Government may support local authorities, for municipal services such as sanitation, with the funds needed to build the basic minimum level of service. For existing rural and urban households the sanitation subsidy will be available through the Municipal Infrastructure Programme or other funds.
- 2001 – White Paper on Basic Household Sanitation: current government policy requires that the **very poor** be given access to a free basic level of service. Under this policy it is clearly important for the municipality to have clear guidance on the minimum technical standards and health and hygiene promotion standards that will satisfy the criteria provided in the definition provided for a basic level of service.

- 2003 – Strategic Framework for Water Services: primary beneficiaries of free basic sanitation services were the **poorest** households, but the long-term goal was to provide free basic sanitation services to **all** households.
- 2005 – National Framework for Municipal Indigent Policies: *the overall objective is to substantially eradicate those elements of poverty over which local government has control by the year 2012. Given the definition of the indigent stated in this policy this implies that all should have access to basic water supply, sanitation, energy and refuse services by this date.*

The difficulty with this beneficiary focus is that there is not a clear indication to a municipality as to what the definition is of 'poor' or even of 'very poor'. Many policies define poor households as those that have a monthly household expenditure below R1100, however this is a figure which was introduced in 1994 and has not been increased since. Similarly, there is no policy indicating the difference between the term 'poor' and 'very poor' or 'poorest' (as used in the 2001 White Paper and 2003 SFWS). The Strategic Framework for Water Services (SFSW) also implies that all household will benefit from free basic sanitation services, which has significant financial implications for municipalities in the country.

Section 104(1) (*l*) of the Municipal Systems Act (2000), requires the Minister for local government to provide for or regulate the development and implementation of an indigent policy (South Africa, 2000). The Department of Provincial and Local Government (dplg) in 2005 published a National Framework for Municipal Indigent Policies so that municipalities could formulate their own indigent policies based in this framework. This Framework provides a basis for the provision of free basic services to the indigent by municipalities and needs to be applied in conjunction with the equitable share policy of National Treasury. Figure 1 shows the relationship between this Framework and the free basic policies at a national, provincial and municipal level.

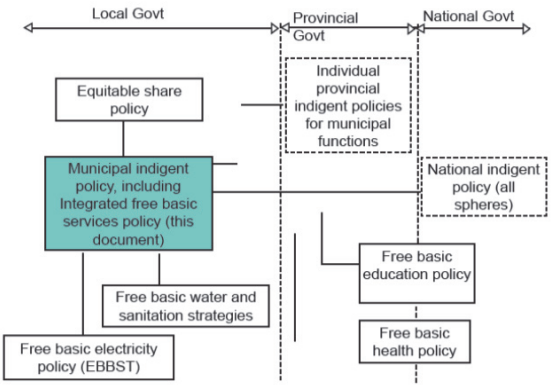


Figure 1: Relationship between the National Framework for Municipal Indigent Policies and Free Basic Services policies (taken from dplg, 2005)

According to the 2005 National Framework for Municipal Indigent Policies, the term 'indigent' means *lacking the necessities of life*. Based on the Constitutional rights of South Africans, the Framework interprets these necessities to include the basic service of:

- sufficient water;
- basic sanitation;
- refuse removal in denser settlements;
- basic energy provision; and
- housing.

It should be noted that the definition of 'indigent' in this Framework specifically excludes a household income condition as is used in the water services document above to delineate poor households. This is of particular interest when determining sanitation backlogs in the country. Applying the above definition for 'indigent' verbatim in order to determine sanitation infrastructure subsidy requirements, can have a significant impact on the financial requirements of municipalities. It would imply that **any** household without access to basic sanitation could be classed as indigent. Using this definition, an analysis of the 2011 Census sanitation services data shown in Table 5 indicates that at least 4.19 million households in South Africa would be classified as indigent (yellow columns). This would imply that the state will need to make provision for an additional 4.19 million capital sanitation subsidises. However, Table 5 also shows that the incomes of these households extend across a range of income groupings, including households in very high income categories (columns highlighted in light yellow in Table 5). If the Framework's definition of indigent is combined with an income level indicator (e.g. R2300[4] per household per month or R27 600 per annum), only approximately 3.48 million households (bright yellow blocks in Table 5) would qualify for this capital subsidy as the remainder have household incomes of > R19 600 per annum, which is generally above the poverty line. Assuming a R7500 subsidy is provided to each household, this would reduce the financial burden on municipalities from approximately R31.4 billion to R26.1 billion, an approximate reduction of R5.33 billion.

[4] DoRA affordability threshold. See following section for description of this threshold

Table 5: Sanitation services per income category as shown by Census 2011 (StatsSA, 2012)

Annual household income	Flush toilet (connected to sewerage system)	Flush toilet (with septic tank)	Pit toilet with ventilation (VIP)	Pit toilet without ventilation	Chemical toilet	Bucket toilet	None	Other	TOTAL
No income	1121814	56389	198342	460991	69550	68051	147437	54963	**2177538**
R 1 - R 4800	250050	14013	83666	178563	24567	20687	57304	19905	**648754**
R 4801 - R 9600	377518	21911	148597	313249	40148	29872	101695	33373	**1066364**
R 9601 - R 19 600	1008067	65178	313165	666436	81767	62186	202442	76000	**2475240**
R 19 601 - R 38 200	1337038	78462	297272	646119	81423	69482	159223	71575	**2740596**
R 38 201 - R 76 400	1216800	62221	132000	311872	38523	33400	53913	30508	**1879235**
R 76 401 - R 153 800	1047159	51125	56426	131002	14624	9565	14960	10796	**1335657**
R 153 801 - R 307 600	902317	44739	24489	53488	6099	2775	6651	4733	**1045292**
R 307 601 - R 614 400	618194	30061	8969	18122	2869	1230	3427	2493	**685364**
R 614 001 - R 1 228 800	250837	12184	1348	2637	446	228	686	568	**268934**
R 1 228 801 - R 2	71598	3809	1041	2024	410	217	487	310	**79896**
R 2 457 601 or more	40913	2347	774	1549	277	155	359	219	**46593**
Unspecified	619	40	14	16	2	-	7	2	**700**
Total	**8242924**	**442481**	**1266102**	**2786068**	**360703**	**297847**	**748592**	**305444**	**14450161**

In 2009, the Free Basic Sanitation (FBSan) Implementation Strategy was published. Most municipalities target free basic sanitation (FBS) (including FBSan, when it is provided) through the indigent policy and indigent register which is administered by the municipality (Tissington, 2011).

Despite the term 'indigent' being introduced in this policy in 2000, the 2001 White Paper on Household Sanitation and the SFWS of 2003 continue to use the broad terms of 'poor' and 'very poor' when discussing sanitation subsidy beneficiaries.

Government's conditional grants for subsidised sanitation can only be used for infrastructure for basic levels of service (Mjoli & Bhagwan, 2009). However, as shown above, there are policy gaps when it comes to the meaning and interpretation of what a basic level of sanitation is by municipalities. There is a need for national standards for minimum acceptable levels of a basic sanitation services that meet the requirements of constitutional right to an environment that is not harmful to the health of all people. Municipal by-laws should include all aspects of a basic sanitation service as stated in the policy definition of a basic sanitation service, such as Health and Hygiene (H&HE), grey water management in dense urban informal settlements, refuse removal, etc. There are also no policy provisions for the conditional grants to support the operation and maintenance of VIP latrines and other on-site sanitation technologies.

3.1.2 Costs Covered by the Sanitation Subsidy

According to the White Paper of Water Supply and Sanitation Policy (1994) the cost of a sanitation system is made up of three basic components (DWAF, 1994):

- Capital costs: the money required to build the sanitation facility.
- Operation and maintenance costs: the costs of keeping the services running (also known as "recurrent costs').

- Replacement costs: the money required to replace the infrastructure once it reaches the end of its useful life

At the time, the new Government subsidy scheme for the provision of basic water and sanitation services had not been finalised but the 1994 White Paper did indicate that the basic policy framework would, while focusing on providing subsidies to communities who cannot afford a minimum sanitation services, will only *be available to cover the cost of minimum services provision and will not cover operating and maintenance costs* (DWAF, 1994). These subsidies would be paid to local authorities or statutory Local Water Committees, the amounts of which will be determined locally based on the actual cost of providing this basic service.

The 1995 National Sanitation Draft White Paper, which was the precursor for the formulation of the National Sanitation Policy of 1996, expands these 1994 White Paper cost categories of sanitation to include:

- Capital costs: (1) "On site" components such as the toilets themselves, (2) "Internal infrastructure" such as the sewers in the streets and (3) "Bulk and connector" infrastructure: the outfall sewers and treatment works, where these are required.
- Recurrent costs: include (1) operation and maintenance costs: the costs of keeping the services running, i.e. pipe repair, emptying pits, unblocking sewers and paying for the staff and electricity needed to run treatment works; (2) administration costs: the costs of managing the sanitation system in the long term; (3) programme costs: the health education, training, awareness and other support costs which are an essential part of sanitation provision.
- Replacement costs: the money required to replace pipes, tanks and pits when they reach the end of their useful lives.

The manner, outlined in the 1995 Draft White Paper, of how the sector envisaged these costs to be paid was based on the same principle as that of the White Paper on Water Supply and Sanitation (1994) of sanitation being self-financing at a local and regional level. However, the exception would be where poor communities were not able to afford even a basic level of service, in which case government may subsidise the ***capital cost*** of basic minimum services. Interestingly, applying these cost categories to the provision of a capital subsidy for provision of basic services, local government was able to use this subsidy to provide both on-site and waterborne systems as these fall within the category of capital cost outlined above. This is confusing as the White Paper indicates that the subsidy is only for a basic minimum service, which at the time was a VIP toilet.

Interestingly again, the 1996 National Sanitation Policy is very clear that inter-governmental transfer of funds to subsidise the running cost shortfalls of local authorities, usually stemming from the Local Government Equitable share for Free Basic Services, would not increase in future, and may in fact decrease. Local authorities thus need to make provision for covering recurrent costs, such as

operations, maintenance and loan repayments. As Deliverable 2 of this research showed that to ensure sustainable sanitation services provision (full supply cost of sanitation), the Free Basic Sanitation Service operation and maintenance cost of a toilet for a 30 year life-span of a toilet can be more than double the initial capital cost of the toilet. This has significant financial implications for local authorities in South Africa, as not only does provision have to be made to sustain the operating cost of households that have received sanitation services, but also for those households that will benefit from the capital subsidised sanitation as the country addresses the sanitation backlogs. This is enforced again, 16 years after this policy, by the 2012 Report on the Status of Sanitation Services in South Africa, which states that local government internal funding sources are limited, especially in rural municipalities, severely limiting *many municipalities to raise sufficient revenue to cover both their operating cost as well as their infrastructure needs* (DWA, The Presidency and Department of Human Settlements, 2012). The same report indicated that *as many as 26% (or about 3,2 million) of households are at risk of service failure, 9% (or 1,4 million households) been formal settlements that have no services and the 64% (584 378 households) been informal settlements making use of interim services* (DWA, The Presidency and Department of Human Settlements, 2012).

The Strategic Framework for Water Services focuses on three forms of sanitation subsidisation in the country (DWAF, 2003); namely:

(1) **Infrastructure (hardware) subsidy** (capital subsidy from MIG) from the fiscal budget for the provision of the sanitation facility.

(2) **Software subsidy** (subsidy from MIG) from national government to address health and hygiene promotion.

(3) **Operational subsidy** (Free Basic Sanitation subsidy from LES) from the fiscal budget for the operating and maintenance costs of the service.

The Framework differs with the Policy principle discussed above regarding subsidising Operation and Maintenance (O&M), stating that *if the basic service is to be provided free to the poor then the water services authority must ensure that the costs of providing the service are covered by the local government equitable share (LES) within the water services authority area.* Since the equitable share is an unconditional subsidy provided to municipalities, this statement could be interpreted to imply that government is willing to subsidise some of the operational costs of sanitation provided to poor households. Subsidy arrangements are confirmed by the SFWS and states that *subsidies for free basic sanitation should cover the hygiene promotion costs and the operating costs of providing a basic sanitation service to households. Ideally, the subsidy for operating costs should be calculated as a subsidy per household per month for each settlement type and technology used. This subsidy is then paid to the water services provider or directly to the household. These subsidies should be applied in an equitable and fair manner, both in the present context and over time.* The Framework thus saw a change in government-thinking on the financial support offered for water services. This

make a fourth form of subsidy, namely **cross-subsidisation**, where a Water Services Authority may cross-subsidise basic sanitation services through various sources. Subsidisation of the operations of basic sanitation services may therefore result from national government or through local government financial management systems.

The review above shows that there are gaps in policy with regards to the conditional grants, as it cannot be used to finance the costs of operating infrastructure. While the implementation of new "capital" projects is addressed, this has come at a price of a lack of focus on the far more challenging requirements of the on-going sustainable operation and maintenance of services. Increasingly, maintenance, refurbishment and extension of the capacity of existing sanitation infrastructure have, and are being neglected (DWA et al., 2012). All municipalities surveyed in a study by Still et al. (2009) did not have operation and maintenance (O&M) plans for VIP toilets and had not provided a budget for the emptying of full VIP toilets.

3.1.3 Defining a Subsidised Sanitation Facility or Service

The White Paper of Water Supply and Sanitation Policy (1994) clearly indicated that the government "*may subsidise the cost of construction of **basic minimum service**s but not the operating, maintenance or replacement costs"* (DWAF, 1994). At the time, the White Paper indicated the basic (minimum) level of service to mean *a VIP (Ventilated Improved Pit) latrine (in its various forms, to agreed standards) or its equivalent in terms of cost, robustness, health benefits and environmental impact; together with ongoing exposure to readily understandable information about correct hygiene practices.*

The 1995 National Sanitation White Paper Draft provides the following motivation for a VIP to the minimum accepted level of basic service, *from a public health point of view there is no difference between a well-built, properly maintained VIP latrine and waterborne sewerage, but financially they are very different. Moreover, there are no economic benefits of installing expensive systems such as waterborne sewage, the only added benefit is increased convenience. There is a real risk of incurring economic dis-benefits where low income households cannot afford the running costs of an expensive system and extensive subsidies are needed. Furthermore, where operational costs are not met for lack of consumer payments or ongoing subsidies, environmental problems and clean-up costs may follow.* As a result, there is a strong focus on affordability of sanitation service provision to the households, local authorities and central government.

The term *basic (minimum) service* in this 1994 White Paper and 1995 Draft White Paper could easily be confused with the broader definition of basic service in the SFWS (2003), which is *the provision of a basic sanitation facility which is easily accessible to a household, the sustainable operation of the facility, including the safe removal of human waste and wastewater from the premises where this is appropriate and necessary, and the communication of good sanitation, hygiene and related practices*.

If the above statement of the White Paper of Water Supply and Sanitation Policy (1994) were to be read within the current interpretation of minimum service, it would be interpreted to imply that sanitation subsidies cover the provision of a sanitation facility, the operation of the facility, including pit emptying and sanitation related hygiene education.

The 1995 National Sanitation White Paper Draft informed the development of the 1996 National Sanitation Policy. The 1996 Sanitation Policy provides more policy clarity, specifically on sanitation service provision, broadly addressing urban, rural, rich and poor, sanitation requirements in the country (NSTT, 1996). This 1996 National Sanitation Policy however is not explicit regarding subsidise being available to poor households and in fact reinforces that *the policy principles apply in rich and poor communities, in rural and urban areas, and whether sanitation is for individual households or provided as a system for an entire community.* This could be, incorrectly, interpreted to imply that sanitation subsidies apply to all.

This National Sanitation Policy was followed by the 2001 White Paper on Basic Household Sanitation. Unlike the 1994 and 1996 White Paper, the 2001 White Paper for Basic Household Sanitation does not address sanitation subsidy issues other than in a broad sense. The government is currently reviewing and revising this Basic Household Sanitation policy with the purpose to:

- accommodate aspects to the delivery of sanitation that have arisen due to changes in legislation and the organisation structure of the sanitation sector since 2001, i.e. the Strategic Framework for Water Services (DWAF, 2003); introduction of the MIG; devolving responsibility for implementation to municipalities.
- to address gaps identified by the sector.

The concept document, published the Department of Human Settlements in 2011, suggests that the revised policy needs to focus on establishment of an “enabling regulatory environment including the mechanisms for intervention and ensuring compliance with national norms and standards.”

The Free Basic Sanitation Implementation Strategy adds to the confusion of targeting of sanitation subsidies stating that *it is obvious that an on-site system such as a VIP can be defined as a basic service level for the purpose of a free basic sanitation policy. However, for Water Service Authorities (WSAs) which serve well established urban areas the majority of consumers, including the poor, may have waterborne sanitation. The WSA may then choose to see waterborne sanitation as the 'basic' level of service to be provided free to the poor. But this has major implications for the viability of the service which play themselves out in the urban periphery. As the proportion of consumers in this zone who have waterborne sanitation and are poor increase, the costs increase without a proportional increase in income.*

3.1.4 Subsidies for Progressive Improvement or Upgrade of Sanitation Service

The White Paper of Water Supply and Sanitation Policy (1994) introduces progressive improvement in sanitation, suggesting that government subsidises provision of a basic sanitation service, with upgrades or improvements to this basic level of service being paid for **by the individual**. Thus, government would provide a VIP toilet with the capital subsidy and if a household wish to upgrade or improve this level of service they would be responsible for these costs.

The 1995 National Sanitation Draft White Paper recommends that, based on the Municipal Infrastructure Investment Framework which showed that government cannot immediately embark on a programme to provide full services to all, means need to be devised to prioritise sanitation investments and that subsidies need to be targeted to provision of a basic level of service to all. Limits were set on governments' ability to provide grants and subsidies for services including that:

- local governments will be responsible to finance the upgrading of sanitation services to existing households in their areas;
- grant finance from central government may be made available to assist those areas in which local government cannot achieve a basic level of service for all households (largely confined to upgrading local infrastructure, but with some items of bulk and connector infrastructure, to a basic level only);
- sanitation for beneficiary households could, in terms of national housing policy, be either sewerage provided by the local authority as a trading service, or sanitation provided utilising a portion of the national housing subsidy, (or its equivalent in rural areas) as determined by affordability and financial sustainability, both in capital and recurrent terms; and
- the level of inter-governmental grants made available to subsidise the running costs of municipal services, including sanitation systems, will not be increased and should over time be reduced.

The 1996 National Sanitation Policy does however differ slightly from the previous White Paper in its stance that local authorities are responsible for the extra capital and running costs for poor households wishing for higher level of service than the basic level (NSTT, 1996). This implies that capital and operational subsidies could be utilised to provide higher levels of service, to the cost of the municipality and not the household. This actually contradicts the earlier and later policies and could add significantly to the financial burden of a municipality.

3.1.5 Sanitation subsidies for the rural areas of the country

The White Paper of Water Supply and Sanitation Policy (1994) indicates that the *Department's policy on the financing of water and sanitation in rural areas is that basic minimum services may be*

subsidised by the Government, within the constraints of finances available to the State. The minimum service at the time was the subsidisation of the capital cost of the construction of a VIP toilet.

The 1995 National Sanitation Draft White Paper supported this policy principle, indicating that in the case of rural sanitation subsides; in addition government would allocate a capital subsidy to enable individual householders to improve their domestic sanitation to a basic level (in the absence of a housing or general services subsidy for new or existing households). This subsidy was to be allocated based on the following principles:

- *The capital subsidy be available directly to the individuals who are wishing to improve their sanitation, so that individuals have maximum say over how it is spent.*
- *The subsidy would only be given to those who have agreed to* ***contribute their own resources*** *to sanitation improvement, particularly to the building of toilets. This contribution needs to be made "up front", e.g. by way of a cash deposit or accumulation of building materials.*
- *Subsidies made available to individuals should be linked to and recorded on the National Subsidy Housing Database.*

3.1.6 Sanitation Subsidies for the Urban Areas of the Country

The White Paper of Water Supply and Sanitation Policy (1994) indicates that in urban areas, the cost of internal services and reticulation within a township's boundaries are generally considered to be part of the development costs of the property, and is thus a household responsibility. Since internal services and reticulation remain a household's responsibility, not local government, the White Paper could be read to suggest that subsidised sanitation services to peri-urban households of the country may not be a legitimate use of a subsidy. Additional costs of connector, bulk and treatment services of both water and sanitation, which are a local government responsibility, are also not covered by the housing subsidy.

The Implementation Strategy for Free Basic Sanitation follows a similar argument, stating that where rehabilitation of infrastructure is required (a capital item) it will be provided free except where it is rehabilitation of buildings, pedestals and pipework of 'on site' infrastructure, which will remain the responsibility of the household (DWAF, 2008).

The 1995 National Sanitation Draft White Paper concurs with this and highlights that in urban areas local authorities needed to raise their own finance (i.e. loans, tariffs) to provide sanitation services (i.e. no capital subsidies are provided for). The exception is where central government will assist a local government (1) with a capital grant when a local authority has a disproportionately large sanitation

service backlog and limited funds; and (2) with a subsidy to assist with alleviating a severe environmental problem (not caused by mismanagement or injudicious investments) (DWAF, 1995).

The 1996 National Sanitation Policy concurs with the 1995 Draft in that in urban areas the recurrent expenditure (operations, maintenance, replacements, administration, loan repayments) would be financed by current income, comprising consumer charges, local taxes and inter-governmental transfers where they are available and sanitation for new housing will normally be funded through the national housing subsidy scheme, i.e. so separate subsidy for sanitation will be provided to these households.

The 1996 National Sanitation Policy has however seen a significant policy shift in the stance to subsidised sanitation in urban areas in that (NSTT, 1996):

- it does not exclude urban municipalities from having access to grants for capital costs to meet the national basic level of service for sanitation.
- Unlike the 1995 Draft which stipulates local authorities needed to raise their own finance (i.e. loans, tariffs) to provide sanitation services, the 1996 Policy relaxes it stance, making mention of local municipalities financing capital expenditure by borrowing of service providers and some grant finance.
- It makes mention of urban grants being available through the Municipal Infrastructure Programme or other sources and that grants for bulk and connector infrastructure and for rehabilitation and upgrading of sewerage systems will only be available under exceptional circumstances.

The National Sanitation Strategy, published in 2005 to address new development in the sanitation sector since the 2001 Basic Households Sanitation White Paper, states that “informal settlements must not be treated as emergency situations for the purpose of this strategy but should be provided with viable and sustainable solutions. Solutions such as communal facilities and chemical toilets should not be used where the system is expected to have duration of more than one month (DWAF, 2004).

Providing adequate sanitation in growing urban informal settlements poses a specific sanitation challenge. According to a recent report by DWA et al. (2012) this is the single greatest challenge facing the water and sanitation sector in South Africa. The latest data shows that of the one to two million households living in informal settlements in South Africa, the sanitation subsidy challenges in the high density of these settlements, insecurity of tenure and complex community dynamics which make it extremely difficult to plan and implement standard sanitation infrastructure solutions in these areas. There are also gaps in the national policy with regards to guidelines for the provision of basic sanitation services in these dense urban informal settlements. In the context of people living on private land, MIG funding can be used to provide basic services but this is not necessarily applicable to households that do not have security of tenure.

3.1.7 Free Basic Services Subsidy Policies

The Draft White Paper on Water Services (2002) introduces the free basic services concept to the South Africa institutional environment (DWAF, 2002). The free basic sanitation services are expected to be provided for through the equitable share, which had been increased significantly to support this objective. *This is in contradiction with the statement made in previous sanitation policies that the level of inter-governmental grants made available to subsidise the running costs of municipal services, including sanitation systems, will not be increased and should over time be reduced.* The Draft White Paper highlights that government's priority to the municipalities should first provide basic services, using the capital subsidy, to the un-served households before considering an operational subsidy (Free Basic Sanitation) for those who already have a high level of service. The free basic sanitation, according the Draft White Paper, would not subsidise the capital cost of providing basic toilets but rather the emptying of pits and conservancy tanks and a proposed 6kL per month for the cost of operating a flush toilet. The day-to-day operation and maintenance of the facilities remains the responsibility of the householder.

The National Framework for Municipal Indigent Policies (dplg, 2005) concurs with this stating that there are three parts to a well-functioning indigent policy, as shown in Figure 2 below. The figure shows that municipalities should first focus on providing physical access to a sanitation service, using the MIG capital grant; i.e. firstly to provide the sanitation infrastructure. The second step in providing sustainable sanitation service, once sanitation backlogs have been addressed by the municipality, is the provision of resources to ensure properly functional services in the long term, using the Local Equitable Share to assist indigent households with Free Basic Sanitation. Finally, access to the service must be properly targeted, all municipalities have a mix of those who are indigent and those who can afford to pay for the services provided. This requires careful targeting (dplg, undated1).

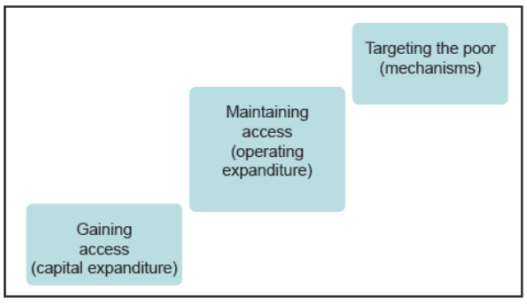


Figure 2: Levels of provision of sanitation service at a municipal level (taken from dplg, undated1).

The Strategic Framework for Water Services (2003), which followed the 2002 Draft White Paper, recommends that subsidisation of sanitation operation cost, should be calculated as a subsidy per households per month for each settlement type and technology used. The subsidy should be paid to

the water service provider or the household (in the form of vouchers). In the case of waterborne systems, operation and maintenance support includes providing water for flushing. It is recommended that 15 litres per person per day should be provided in this regard. For a household of 8 people this will amount to 3 to 4 KL above the quantity provided for in terms of the free basic water; i.e.6 KL. This will be higher in cases where people are suffering from advanced stages of AIDS (DWAF, 2008).

The SFWS also makes the responsibility for developing a subsidy framework that of the water services authorities, based on, but not limited to, the targeting of the poor with subsidies and ensuring that FBS subsidies are sustainable. The SFWS also indicates that *DWAF, in consultation with dplg, will develop practical guidelines for the development of local subsidy policies which facilitate the provision of free basic services, promote sustainable service delivery and assist water services authorities to meet their universal service obligations.*

In March 2009 the FBSan Implementation Strategy was approved by the Minister of Water Affairs. The Strategy was developed to guide WSAs in *providing all citizens with free basic sanitation by 2014* and to implement their own FBSan policies in line with national policy (DWAF, 2009).

The FBSan Implementation Strategy acknowledges the right of all South Africans to a basic level of sanitation service and that those municipalities have an obligation to ensure poor household's right to access these services.

Some of the key subsidy-related components of the Strategy is the following:

- Capital subsidy arrangements for sanitation infrastructure are managed through the MIG, which is allocated annually to municipalities based on a formula.
- The water services authority needs to firstly calculate the total amount of operating subsidy it has available for all basic services and separate this into operating subsidy required for each basic service (including sanitation). Once the total amount of subsidy available for sanitation is calculated the amount per household served can be calculated. If the subsidy amount is insufficient to provide the service free then the water services authority has no choice other than to set up an arrangement whereby it will provide a subsidy to the maximum that is affordable and households will have to pay the balance.
- If a municipality is to select waterborne sanitation as a basic service level in the urban core, this must only be done once financial viability has been tested and if it is certain that the amount of water needed for flushing is available. O&M support from Free Basic Service provision includes providing water for flushing.
- While it remains national policy to provide basic sanitation free to the poor, this is constrained by the financial viability of the water services authorities that are responsible for implementing this policy. There may be situations where such authorities simply do not have access to sufficient subsidy funds to provide a free service, at least in the short to medium term. In such cases the

authority may place a cap on its free basic sanitation grant and require the beneficiaries to contribute in cash or kind.

- While the capital costs of sanitation infrastructure or rehabilitation of infrastructure are provided through other grant, the FBSan policy approaches refer to targeting operating subsidies.
- Poor households living on farms can access capital subsidies for the construction of basic sanitation infrastructure, with the farmer responsible for operating and maintaining this infrastructure, together with the households using the service.
- Where the cost of providing FBSan to the poor exceeds the subsidy amount available, cross-subsidisation should take place, where wealthier users cover all or some of the cost of providing the service to poor users. The cross-subsidy may be substantial in rich municipalities or it may be unviable in poor or rural municipalities, in which case the LES is the only form of financing available to provide FBSan.

3.1.8 Housing Subsidies within Water Service Policies

One of the main gaps in subsidised sanitation policy is the lack of clarity of roles and responsibilities between departments involved in the sanitation services delivery process. From a national and provincial perspective, the responsibility was initially with the Department of Water Affairs and Forestry between 1994 and 2001, then the funding and monitoring function moved to the Department of Provincial and Local Government in 2001 via the conditional grant funding instrument. In 2009 the National Sanitation Programme Unit (NSPU) was moved from DWA to the Department of Human Settlements, with DWA retaining certain responsibilities in the sector including regulation, information management, high level planning and management of the Bulk Infrastructure Grant. At provincial level responsibility for sanitation services provision now rests with the Department of Human Settlements, but with certain links to the Departments of Health, Water Affairs, Education and Public Works. This fragmentation and the lack of a single national body taking the lead in the sector, has resulted in serious challenges in terms of the coordination and upholding of norms and standards (DWA et al., 2012).

The White Paper of Water Supply and Sanitation Policy (1994) states *since sanitation is provided at household level, consistency with urban and rural housing policy is essential, both to ensure consensus on standards and strategies and to avoid double subsidies.* Whether this has occurred in the 20 years of sanitation services delivery remains a question, with perceptions within the sector being that this has not occurred.

Of note is that this Draft White Paper highlights that approval of any subsidies should be linked to the National Housing Subsidy Database to avoid double subsidies and that the way in which subsidies to individuals can be applied will differ in the urban and rural areas. The Draft White Paper clearly stipulated that *no separate subsidy for sanitation will be provided for households where sanitation is covered by the housing subsidy.*

The 1996 National Sanitation Policy has however, differed slightly in its stance in that it indicated a need to develop mechanisms to avoid double subsidies, not just linking household subsidies to National Subsidy Housing Database.

The 2001 White Paper on Basic Household Sanitation included some discussion of the housing subsidy indicating *that the Minister of Housing has prescribed a minimum level for each type of service for subsidy purposes. The minimum level of services prescribed for sanitation is a VIP per household (erf) unless the situation, such as the soil conditions, dictates otherwise. The housing subsidy is targeted at individual households. The subsidy can be utilised to provide houses and, under certain circumstances, a portion of the subsidy amount could be applied to provide internal engineering services.*

The 2002 Issues and Options Discussion Paper: Towards A Water Services White Paper and October Draft White Paper on Water Services, which is the precursors to the 2003 Strategic Framework for Water Services, follows the thread from previous policies of highlighting that *adequate sanitation facilities on housing premises (or sites) are part of the internal services "package" which is provided as part of the "housing package" funded through the housing subsidy.*

Like earlier policies the SFWS (2003) recognises the role of the national Department of Housing in the regulation and management of housing service provision, including sanitation services provision. The SFWS emphasis that the housing subsidy policies, which are aimed at provincial level, needs to recognise the right of water services authorities (municipalities) to determine the service level policies for new housing development, based on what is affordable and sustainable to the municipality in the long term.

3.2 HOUSING POLICIES GOVERNING SANITATION SERVICES PROVISION IN THE COUNTRY

Section 26 of the Constitution of the Republic of South Africa, 1996, enshrines the right of all South Africans to adequate housing, with the state required to develop legal and other measures within available resource to progressively realise this right (South Africa, 1996). Government's human settlement development mandate thus emanates from the Constitution, with the state working progressively towards ensuring this right.

Since 1994, there have been numerous policy and statutory developments in order to give effect to the new approach to housing. These include the following:

- The Housing Amendment Act (1993) (South Africa, 1993).
- The Housing Amendment Act (1994) (South Africa, 1994b).
- The Reconstruction and Development Programme (RDP) of 1994 (discussed in Section 3.1.1. above) (South Africa, 1994a). The recognition of housing as a key and priority component of

the RDP, which initiated the will and fiscal support to launch sustainable housing programmes, as part of the Presidential Lead Projects (see section 3.1.1 above for more details).

- New Housing Policy and Strategy for South Africa: White Paper, 1994 (Department of Housing, 1994).
- The Housing Act, 1997 (Act No. 107 of 1997) (South Africa, 1997).
- Comprehensive Plan for the Development of Sustainable Human Settlements, 2004 (Department of Housing, 2004).
- National Norms and Standards for the Construction of Residential Structures (2009) (Department of Housing, 2009).
- National Housing Code published in 2000 and updated in 2009 (Department of Housing, 2009)
- Social Housing Act (2008) and the Social Housing Regulations of 2012 (South Africa, 2008; Department of Human Settlement, 2012)

3.2.1 Sanitation Subsidies within the Housing Arrangement Act (1993) and Housing Amendment Act (1994)

In November 1993, the Housing Arrangements Act (Act No 155 of 1993) was passed by Parliament, making provision for the amalgamation and joint operation of housing funds and certain housing institutions of the old administrations (South Africa, 1993). The Act was put in place to address immediate housing needs in the country, while the new democratic government continued negotiation on future housing policy for the country.

In March 1994, the *Housing Amendment Act (No 8 of 1994)* was gazetted to extend housing subsidy to individuals in the entire Republic (South Africa, 1994b).

3.2.2 Sanitation Subsidies within the New Housing Policy and Strategy for South Africa: White Paper, 1994

The New Housing Policy and Strategy White Paper, which was development in 1994, had the focus of establishing new systems to address South Africa's housing priorities, including means to address the housing backlog in the country (Department of Housing, 1994). The White Paper outlined government policy approaches and intervention to enable the attainment of the country's housing vision and goal, two of which were (1) subsidies and (2) infrastructure, service standards and tariffs (Department of Housing, 1994).

Government committed in this White Paper to provide targeted end-user subsidies as the approach to addressing the housing challenge in the country (Department of Housing, 1994). A capital subsidy

approach, based on subsidy schemes which were already in place, were to be implemented as the national housing programme. The Housing Subsidy Scheme offered subsidies over a range of options: project linked subsidies, individual subsidies, consolidation subsidies, and institutional subsidies (Department of Housing, 1994).

The levels of subsidy available to the end-user would be determined by fiscus constraints, but the White Paper like water services policies indicates that the focus of subsidy interventions would be those most in need and least able to contribute to the costs of their own housing.

The 1994 White Paper clearly indicates that the approach outlined by the policy *applies to the provision of water, sanitation, roads, stormwater drainage and domestic energy to housing developments* (Department of Housing, 1994).

Like the early water service policies, the White Paper has the underlying principle that communities should pay for the operational and maintenance costs of the service provided. Water and sanitation services were not to be provided free.

The White Paper goes on to say that to address the need of destitute households the state would provide a subsidy from the government fiscus or from tariff structures (i.e. tariffs need to be structured to also address this need) (Department of Housing, 1994). The province, as the sphere responsible for housing delivery, was required to define what this category of 'destitute' meant.

The White Paper outlines that external bulk and connector services to residential areas are the responsibility of local government, while internal infrastructure must be provided by developers (Department of Housing, 1994). The White Paper is not prescriptive as to the type of sanitation facility/service to be provided through the housing subsidy.

Effectively the White Paper concurs with early water services policies in that:

- beneficiaries of subsidies would be poor individuals, based on household monthly expenditure;
- operational costs are to the households; and
- internal services will be provided by the developer, i.e. provincial housing department using the capital housing subsidy.

Where this White Paper differs from the early water service policies is:

- provincial departments are responsible for the housing service delivery and thus the housing subsidy; and
- sanitation services provided is not limited to a VIP toilet.

3.2.3 ***Sanitation Subsidies within the Housing Act (1997)***

The Housing Act 107 of 1997 is the primary piece of housing legislation in South Africa, legitimising the policy principles outlined in the White Paper published in 1994. The Housing Act provides for a sustainable housing development process, laying down general principles for housing development in all spheres of government; defining the functions of national, provincial and local governments with regard to housing development; and laying the basis for financing national housing programmes (South Africa, 1997).

Section 14 (9) legalises the consolidation of former subsidy schemes into a national housing programme, phasing out within a year the every housing subsidy granted in terms of (South Africa, 1997):

(i) the Housing Act, 1966;
(ii) the Development and Housing Act, 1985:
(iii) the Housing Act (House of Representatives), 1987:
(iv) the Development Act (House of Representatives), 1987; or
(v) the Housing Development Act (House of Delegates), 1987.

The Act is relevant to sanitation because it specifies sanitation as a fundamental part of the right to adequate housing, in that the Act defines housing development to include *all citizens and permanent residents of the Republic* having *access to potable water, adequate sanitary facilities and domestic energy supply'* (South Africa, 1997).

The 1999 Housing Amendment Act extents the period for phasing out of the subsidy scheme in Section 14 (9) of the Housing Act to one year after the commencement of the 1999 Amendment Act (South Africa, 1999).

Despite the Act clearly defining sanitation services as a legislative requirement in the provision of housing, it was only after a ground-breaking Constitutional Court decision on the Grootboom case that this right was recognised. The court ruled that *the right delineated in section 26(1) is a right of "access to adequate housing" as distinct from the right to adequate housing encapsulated in the Covenant. This difference is significant. It recognises that housing entails more than bricks and mortar. It requires available land, appropriate services such as the provision of water and the removal of sewage and the financing of all of these, including the building of the house itself. For a person to have access to adequate housing all of these conditions need to be met: there must be land, there must be services, there must be a dwelling. Access to land for the purpose of housing is therefore included in the right of access to adequate housing in section 26"* (Constitutional Court of South Africa, 2000). Sanitation is thus included as part of this Constitutional right to adequate housing.

3.2.4 Sanitation Subsidy in the Comprehensive Plan for Sustainable Human Settlement (2004)

Ten years after the introduction of the housing programme in 1994, a comprehensive review of the government supported housing programme was conducted, which led to the Comprehensive Plan for Sustainable Human Settlement commonly referred to as “Breaking New Ground” or “BNG” (DHS, 2009). The BNG document provides an outline of governments plan for the development of sustainable human settlements for the following five years (Department of Housing, 2004). The BNG document focused on sustainable human settlements, while retaining the basic principles of the 1993 Housing White Paper, in (Department of Housing, 2004):

- collapsing the existing 3 subsidy bands, at that time available to households earning below R3500, into a uniform subsidy amount;
- expanding the Department’s mandate to encompass the entire residential housing market, specifically expanding interventions to households with income R3501-R7000;
- shifting the focus to improving the quality of housing and housing environments by integrating communities and settlements; and
- setting new minimum standards for housing products (Department of Housing, 2004; DHS, 2009).

3.2.5 Sanitation Subsidies within the National Norms and Standards for the Construction of Residential Structures (2009)

In 1999 the National Norms and Standards for the Construction of Residential Dwellings were introduced by the Minister of Housing in terms of section 3(2)(a) of the Housing Act. These provided minimum technical specifications including environmentally efficient design proposals.

On 1 April 2007, these standards were revised in the National Norms and Standards in respect of Permanent Residential Structures (National Norms and Standards), which are contained in the 2009 National Housing Code (DHS, 2009b). All stand-alone houses constructed through application of the National Housing Programmes must at least comply with these norms and standards (Tissington, 2011).

According to the Norms and Standards (DHS, 2009b):

- Provision of bulk and connector services by municipalities outside the boundaries of project sites must be financed through internal sources of revenue of municipalities or other resources; i.e. they may not be financed by the Integrated Housing and Human Settlement Development Grant (IHAHSG).

- Provision of internal reticulation services must be funded through alternative funding resources, however, in exceptional circumstances these services may be funded through the provincial annual housing development funding allocated by the Minister.
- The level of the engineering services to be provided is determined by the provisions of the relevant National Housing Programme. In general, all residential properties created through the National Housing Programme must comply with at least a VIP or alternative system agreed to between the community, the municipality and the MEC. The Norms and Standards continue to mention that if a flush toilet is provided, a dual flush toilet cistern must be installed that operates efficiently and safely on a standard flush of 4,5 litres instead of the current norm of 9 litres.

Although the subsidised sanitation policy clearly states that the provision of sanitation services should take into account the growing scarcity of water in South Africa, there is no policy enforcement of the use of water efficient technologies when full waterborne sanitation systems were provided to meet the basic sanitation needs of poor households. This could compromise affordability and long-term sustainability of waterborne sanitation services for poor households.

These Norms and Standards thus also differ from the 1994 Sanitation Policy in that housing should include at a minimum a VIP toilet – funded from external sources and NOT the housing subsidy. These Norms and Standards concur with the 1994 Sanitation Policy in that the housing subsidy can be used, in exceptional circumstances, to provide internal sanitation services (which in many cases was taken to read that this was the norm rather than exceptional circumstances).

3.2.6 Sanitation Subsidies within the National Housing Code published in 2000 and updated in 2009

The National Housing Code, a requirement of the Housing Act (1997), were first published in 2000, with an updated and amended version in 2009. This National Housing Code provides the policy principles, guidelines and norms and standards applicable to the various housing assistance programmes introduced by Government since 1994 (DHS, 2009a; DHS, 2010). The purpose of the National Housing Code is to provide an overview of the various housing subsidy instruments available to assist low income households to access adequate housing in South Africa.

To meet Constitutional housing imperatives, legitimised in the Housing Act of 1997 (Act No 107 of 1997), Government has introduced a Human Settlement Development Grant that provides funding for a suite of housing programmes to provide poor households with access to adequate housing. In line with meeting the access requirements, the Human Settlement Development Grant funds the following housing programmes (summarised from DHS, 2009a):

Table 6: Current National Housing Programmes funded by government Human Settlement Development Grant.

	Programme	Description
1	**Integrated Residential Development Programme**	**Purpose:** to integrate low income settlements on the urban periphery into the larger human settlements. **Provides for:** the acquisition of land for low, middle and high income housing (including servicing of stands) and for a variety of land uses including commercial, recreational, schools and clinics. **Available to:** individuals via projects
2	**Upgrading of Informal Settlements**	**Purpose:** upgrade the living conditions of people living in informal settlements **Provides for:** provides secure tenure and access to basic services and housing by *in situ* upgrading of informal settlements, which may require residents to be relocated if the conditions are not suitable for this upgrading. Only financing the creation of serviced stands, with beneficiaries required to apply for housing construction assistance through the other National Housing Programmes (e.g. Individual subsidies, Enhanced People's Housing Process, Social Housing, etc.). **Available to:** individuals via projects
3	**Provision of Social and Economic Facilities**	**Purpose:** to fund primary social and economic amenities, where funding is not available from other sources. The Programme provides assistance to all municipalities which do not have sufficient financial resources to provide such facilities. **Provides for:** where funding is not available from other sources (i.e. municipal funding), capital funding is provided for the (1) medical care facilities; (2) community halls; (3) community park/playground; (3) taxi ranks; (4) sport facilities; (5) informal trading facilities; and (6) basic ablution facilities for the above. Ownership, operation and maintenance of the facilities provided through this programme reside with the municipality. **Available to:** municipalities via projects
4	**Housing Assistance in Emergency Circumstances**	**Purpose:** after the National Disaster Relief Fund renders the first line of Government assistance in emergency situations, this programme can be used for temporary housing for disaster victims until such time as they can be provided with permanent houses. **Provides for:** All affected persons who are affected by the emergency situation and are not in a position to address their own housing emergency can benefit from this programme. **Available to:** municipalities via projects
5	**Social Housing Programme**	**Purpose:** this funding stream is applied to "restructuring zones" which municipalities have identified as areas of economic opportunity and where urban renewal/restructuring impacts can best be achieved. **Provides for:** development of affordable rental in areas where bulk infrastructure (sanitation, water, transport) may be under-utilised. A precondition for receiving the sliding scale capital grants is that social housing institutions need to be accredited and also access own capital contributions. **Available to:** individuals via projects
6	**Institutional Subsidies**	**Purpose:** while the Social Housing Programme focuses mainly on achieving urban integration and upgrading in declared restructuring zones, this programme provides affordable rental accommodation in other parts of settlements. The Programme also provides for the sale of units by the social housing institution after at least four years have lapsed. **Provides for:** provide capital grants to social housing institutions which construct and manage affordable rental units. The Programme also provides for the sale of units by the social housing institution after at least four years have lapsed. **Available to:** beneficiaries then apply to the housing institution to occupy the rental stock.
7	**Community Residential Units Programme**	**Purpose:** since the Social Housing and the Institutional Subsidy Programmes do not provide rental accommodation which is affordable to the very poor (and often informally employed), this programme fills this gap. **Provides for:** secure, stable rental tenure to these lower income persons/households. The grant includes funding for the capital costs of project development and future long-term capital maintenance costs. **Available to:** individuals via projects
8	**Finance Linked Individual Subsidy**	**Purpose:** assistance to qualifying households to acquire an existing house or a vacant serviced residential stand through an approved mortgage loan. These properties are available in the normal secondary housing market or have been developed, as part of

	Programme	Description
	Programme	projects not financed through one of the National Housing Programmes. **Provides for:** access to funding for the following two categories; (1) Credit Linked Subsidies for applicants that can afford mortgage loan finance, providing a subsidy that is linked to credit from a financial institution; and (2) Non-Credit Linked Subsidies where the applicant cannot afford mortgage loan finance, the applicant can for a subsidy to acquire an existing house entirely out of the subsidy and may supplement this with other funds that may be available to him or her. Qualifying persons who bought vacant serviced stands may apply for need assistance to construct a house using the Non-Credit Linked Subsidies. **Available to:** individuals via projects
9	**Rural Subsidy: Communal Land Rights**	**Purpose:** applies in areas of the country where communal tenure is the normal, requiring that these tenure rights first be confirmed through the processes prescribed by the Minister of Rural Development and Land Reform. **Provides for:** housing development on communal land registered in the name of the state or which will be held by community members subject to the rules or custom of that community. The housing subsidy may be utilised for (1) the development of internal municipal services where no alternative funds are available, (2) house building, (3) upgrading of existing services where no alternative funding is available, (4) upgrading of existing housing structures or (5) any combination of the said options. **Available to:** approved housing development **project**s and may not be accessed on an individual basis. However, funding can be flexibly applied to meet real needs.
10	**Consolidation Subsidy Programme**	**Purpose:** assists individuals who received services sites from housing schemes instituted before introduction of the White Paper on a New Housing Policy and Strategy for South Africa in December 1994. **Provides for:** The programme provides support to cover the cost of: • compiling a project application; • the registration of the beneficiary for subsidy purposes; • project management and technical advice; and • construction of a house or the upgrading of an existing house. **Available to:** individuals via projects
11	**Enhanced Extended Discount Benefit Scheme**	**Purpose:** support decisions made regarding the transfer of pre-1994 housing stock and are intended to stimulate and facilitate the transfer of public housing stock to qualifying occupants. **Provides for:** occupants of public housing stock the opportunity to secure individual ownership of their housing units. **Available to:** individuals
12	**Rectification Of Certain Residential Properties Created Under The Pre-1994 Housing Dispensation**	**Purpose:** to improve municipal engineering services where inappropriate levels of services are delivered and the renovation and/or upgrading, or the complete reconstruction of dwellings that are severely structurally compromised. **Provides for:** improvement interventions on residential properties created through State housing programme interventions during the pre-1994 housing dispensation that are still in ownership of the public sector institution and/or that were disposed of to beneficiaries. The Programme thus applies to properties currently owned by a municipality and/or provincial government as well as individual persons. **Available to:** individuals via projects
13	**Housing Chapters Of An Integrated Development Plan**	**Purpose:** to assist municipalities to compile the Housing Chapter of IDPs. **Provides for:** assistance to all municipalities which do not have sufficient financial and/or human resources for the undertaking of Housing Chapters of IDPs. **Available to:** municipalities annually
14	**Operational Capital Budget (OPS/CAP)**	**Purpose:** to assist provincial governments to appoint external expertise to supplement the capacity required for housing delivery. **Provides for:** capacity to support the (1) Informal Settlement Upgrading Programme; (2) projects that facilitate the creation of integrated sustainable human settlements; (3) the provision of primary social and economic amenities; and (4) the unblocking of stalled projects **Available to**: provincial governments
15	**Enhanced People' S Housing Process**	**Purpose:** assists households who wish to enhance their houses by actively contributing towards the building of their own homes. **Provides for:** beneficiaries to establish a housing support organisation that will provide them with organisational, technical and administrative assistance. Training and guidance

	Programme	Description
		on how to build houses are also supplied. **Available to:** individuals on a project basis.
16	**Farm Residents Housing Assistance Programme**	**Purpose:** address the wide variety of housing needs of people working and residing on farms by providing a flexible package of housing models to suit the local context. **Provides for:** capital subsidies for the development of engineering services- where no other funding is available, and adequate houses for farm workers and occupiers in a variety of development scenarios. Funding available under the Programme will only be available for the provision of basic water and sanitation services as an option of last resort. Such services must be financed from other funding resources. **Available to:** individuals via the farmer

One major factor linking housing policies is that the provision of access to basic sanitation services is linked to delivery of the national subsidised housing delivery programme, through the Human Settlement Development Grant (NHSS) (Tissington, 2011). This effectively means that the efforts to address sanitation services backlogs may experience the same long delays experienced in housing delivery, with people forced to wait to be allocated a housing subsidy (and a house) before their access to sanitation is improved. In many cases, this delay in sanitation service delivery is linked to the challenge of providing bulk services infrastructure to developments, like the "construction of new water treatment and sewage processes plants, including pipelines to bring fresh and clean water to the people (Tissington, 2011).

3.2.7 Sanitation Subsidies within the Social Housing Act (2008) and the Social Housing Regulations of 2012

The Social Housing Regulations of 2012 give effect to the Social Housing Act (2008) (Act No. 1199 of 2008) (South Africa, 2008; DHS, 2012). The Act focuses on social housing, which is defined as the *rental or co-operative housing option for low to medium income households* and requires the Minister to make regulations prescribing any matter required to be prescribed by regulation under this Act and a code of conduct, the investment criteria and the qualifying criteria for social housing institutions.

The Social Housing Regulations of 2012 have the following sanitation-related inclusions (DHS, 2012):

- 19. (4) The developer or the social housing institution concerned must secure access to bulk services, such as water, electricity and sewerage, and road access to the municipal street network, either by way of a service agreement or *via* written confirmation from the municipality.
- 19. (5) The availability of bulk services as well as the agreed connection points must be recorded.
- 20. (1) In order to comply with the housing criteria, the internal services must be designed and constructed to comply with municipal requirements and must be optimal in terms of upfront capital cost and subsequent maintenance obligations.
- 20. (2) The metering of consumption (water and electricity) must be addressed and implemented to suit both the municipality's and the social housing institution's administrative capacities.

- 20. (4) The design of individual units must comply with the minimum standards laid down in the Housing Code and Building Regulations with respect to unit size, room size and level of finish.

CHAPTER 4: MUNICIPAL SANITATION POLICES AND BY-LAWS

Subsidised sanitation services at a municipal level are impacted on by a number of municipal policies; however the most important of these is the municipality's indigent policy and its sanitation by-laws. If not developed in line with national policies, these policies and by-laws may add to the confusion currently experienced by municipalities in delivery of this service or may even contradict national sanitation services intentions. In this chapter, a review of a few municipalities' indigent policies and by-laws is provided.

4.1 MUNICIPAL INDIGENT POLICY WITHIN THE CONTEXT OF NATIONAL SUBSIDISED SANITATION POLICY

Section 97(1)(c) of the Municipal Systems Act, 2000 (Act no. 32 of 2000) states that a municipality must provide in its debt collection and credit control policy for indigent debtors that consistent with its rates and tariff policies and any national policy on indigents (South Africa, 2000).

In 2005 the dplg conducted a national review of municipal indigent policies, the key subsidised sanitation-related findings included (dplg, 2005d):

- That most municipalities included in the review applied a household income principle to determine indigents. For example, 36% of the sample municipalities indicated that they felt an income of below R1100 was an appropriate criterion to categories indigents. A few municipalities (16%) classified indigent households as having a household's income of below R1500, while 5% used a R500 per month as the indigent household level. Interestingly, at the time, at least 20% of municipalities provided FBS to all households. This means of determining households to qualify for indigent FBS does not follow the recommendations of the National Framework for Municipal Indigent Policies which states that the definition of indigent explicitly excludes a household income condition. This is partly due to the difficulties of measuring income but, more importantly, it relates to the fact that the condition of being indigent is experienced by the lack of these basic goods and services and their cost and the way they are provided in different locations in the country is highly variable (dplg, undated1). However, the Guidelines for the Implementation of Municipal Indigent Policies almost contradict the National Framework for Municipal Indigent Policies in that it goes on to say *in attempting to provide a definition of who is an indigent in this guideline, we have examined the definitions from the FBS sector departments; we have examined research on municipal definitions as well as many other sources. Also conditions vary from municipality to municipality and therefore attempting to develop a uniform single definition for who is an indigent across the country, which can be monitored and compared, proves difficult.*

- DWAF set the qualification for FBW at less than R800 per household
- DPLG set the indigent income threshold per household at R1100 per month (DPLG has indicated that the threshold should be moved to R1600 per month)
- DME state that households consuming less than 150kWh per month could be regarded as poor and be given the 50kWh per month

What characterises an indigent household is not only its income or consumption levels. A combination of criteria makes up the definition of an indigent household that is eligible for FBS (dplg, undated2). Hence, the Guideline recommends that criteria that municipalities should use to define indigent households should include: South African citizenship or someone with refugee status; must be resident in the dwelling; may reside in an informal settlement; can prove they cannot afford to pay for services (i.e. provide UIF card; bank statements, proof of income, letter from employer, etc.); have a combined monthly household income of no higher than R1600; can be a child headed households and household without access to FBS infrastructure should be regarded as indigents (dplg, undated2). This last point reinforces the Census 2011 issue of households with very high monthly household income but lack access to basic services being classed as indigent (see Table 7)

- At least half (50%) of the sampled municipalities indicated that they did not have sufficient finance to support their FBS initiatives (dplg, 2005), this is despite 71% of municipalities believing they would be able to sustain their FBS initiatives.
- Of the budget which municipalities had available for FBS, only 25% of the R3.7 billion at the time would target Free Basic Sanitation, with 56% targeting FBW and the remaining 18% targeting Free Basic Electricity.
- 44% of the sampled municipalities indicated they were rolling out FBSan.
- 32% of municipalities indicated a preference for flush toilets from the provision of FBSan, followed by VIPs (13%) and Septic Tanks Systems (2%).
- 46% of the sampled municipalities relied on the equitable share to provide FBSan, while 4% relied on national grants.
- Many of the municipalities indicated a consistent definition of an indigent household across FBS areas.

A rapid review of municipal indigent grants, shown in Table 7, indicates similar issues with these policies. Most of these policies apply household income as the criteria for determining indigent households; however some of these policies apply the criteria of a household not earning more than two government pensions to be classified as indigent.

These policies also apply criteria such as ownership of a single property, being a South African citizen and must have an account with the particular municipality. What is clear from this review is that there are no consistent criteria applied to determine an indigents list across municipalities in South Africa.

This review also shows that most municipalities make FBSan available through the application of a credit to the indigent household's monthly municipal account. The level of this subsidy is determined by individual municipalities, based on their available resources. Municipalities may also waiver interest on debts of indigents and may also have a policy of not cutting off the service of an indigent household due to non-payment of accounts.

The approaches used by municipalities to target sanitation subsidies to poor households exclude many of the poorest households as the minimum monthly household income criteria applied to compile the indigent register in many municipalities does not allow for multiple families living together in a single household unit. Backyard dwellers were also excluded from qualifying for indigent subsidies as the municipality recognized a stand as one-household-unit only.

According to Tissington et al. (2008), there is also a number of challenges encountered by municipalities in formulating indigent policies and managing indigent registers, including:

- problems with defining the poor and the narrow definition of 'indigent' ;
- ineffectiveness of targeting to reach those in the most need;
- onerous and stigmatising process to apply as an indigent; and
- increased administrative burdens on municipalities.

Despite the existence of a national FBSan policy and an FBSan Implementation Strategy, many municipalities have not implemented FBSan.

In terms of the provision of additional free water for poor households connected to waterborne sanitation, the FBSan Implementation Strategy recommends 15 litres per person per day for flushing; however, given that one flush of the toilet can use up to 8 litres of water, the suggested allocation for waterborne sanitation is insufficient to meet the basic needs of large households.

Table 7: Summary of municipality's indigent policies

	2010	2012	2009	Undate	Undate	Undate	2012
Municipality	MOGALAKWENA MUNICIPALITY: INDIGENT POLICY	Chief Albert Luthuli Municipality	BUFFALO CITY MUNICIPALITY POLICY: INDIGENT SUPPORT	MAFIKENG LOCAL MUNICIPALITY INDIGENT POLICY	MASILONYANA LOCAL MUNICIPALITY INDIGENT POLICY	MOGALE CITY: INDIGENT MANAGEMENT POLICY	UMZIMKHULU MUNICIPALITY Indigent Policy
Criteria for qualification for Indigent Assistance	A private residential household can only be registered or remain registered as indigent if: 1. The total gross monthly income of the household does not exceed two government old age pension or disability grants. 2 No member of member of the household owns other fixed property. 3 If the two pensioners (husband and wife) recieve only a pension and no additional income. 4 The applicant must occupied the premises and it must be in the Mogalakwena area,	In order to qualify as an indigent household, a household shall – (a) have a total income less than R1.500 per month; (b) shall occupy a dwelling that recedes municipal services; (c) no member may own fixed property other than the one in which they reside; and (d) shall comply with any other terms or conditions determined by the council from time to time. In a remote rural community, households may still apply and be registered as an indigent household, although benefits shall be limited to access to free basic water delivered in water tankers.	Indigent households qualify using the following qualification criteria: 1 The combined income of the household (gross household income) does not exceed the poverty threshold value 2 living in a property owned by a member of the household 3 No member of the household may not own any property in addition to this property 4 The household must be a resident of and have a registered account with the Municipality 5 South African citizens or recognised refugees 6 A tenant or occupier can apply for the benefits in respect of the charges he/she is billed	Qualifying as an indigent 1 A household of combined or joint gross income of R1100,00 per month 2 Only registered residential consumers of services delivered by council. 3 Households who formally apply for relief 4 Do not own more than one property 5 Not receiving significant benefits or regular monetary payments. 6 Owners who live on the premises.	In order to qualify as an indigent: 1 the property must predominantly be for private residential, 2 must be the registered owner of the property 3 the total household income must not exceed the joined pensions of the 2 state pensioners excluded from determining household income: - Foster Child Grant, - Child Support Grant, and - Care Dependency Grant. 4 the applicant must not be the registered owner of more than one property; and 5. The total household income must be R1,100-00 to qualify for indigent grant.	Persons who are claiming indigent status: 1 Must be a resident of Mogale City. 2 Must be in possession of a valid South African identity document. 3 earning an equivalent of or less than two times the Government pension grant. 4 Must be the owner or tenant. 5 Must have an active Municipal Account.	A debtor will be considered indigent if: 1 the total household income is less than R 2,500 per month. 2 shall not own any fixed property in addition to the property in respect of which indigent support . 3 are Citizens of the Republic of South Africa. 4 Resident within UMzimkhulu Municipality. 5 In possession of a service agreement and or monthly statement with UMzimkhulu Municipality.
FBSan Benefit	Indigent debtors will receive a rebate of the amount charged on a stand of average 500m2 as described by budget on a monthly basis.	Only qualifying indigent households that have been registered by the municipality in terms of this Indigent Policy may receive benefits under the Free Basic Services Policy	Each registered indigent household shall be subsidised for sanitation as provided for in the annual budget. Housing assistance is provided as a means of technical, rather than financial support.	The recipient's monthly account will be credited, on a monthly basis, with the amount in accordance to the indigent level as was determined by the council.	The Council shall from time to time determine the overall subsidy for indigent debtors. This amount includes rates, water, sewerage availability, refuse removal and VAT. The indigent debtor is exempted from paying for sewerage.	The following forms of assistance could also be given to indigent households: 1 The accounts of successful applicants should be flagged to prevent credit control measures. 2 No interest should be charged on arrears. 3 The accrued arrears of an indigent household should be placed in suspense account and be reviewed 12 monthly. 4 The account of an indigent household that applied for an Indigent Grant should be credited with an amount totaling the amount as approved by the Council.	Indigent subsidies may be granted on: - rates (100 % or full subsidy), - refuse removal (100 % or full subsidy), All registered indigent households will, on approval, be designated as: - Indigent and shall be charged the determined economical tariff or charge for a service applicable to their designation. The indigent household's monthly account will be credited with the amount of the indigent subsidy as determined by the budget according to their designation. An indigent household shall qualify to receive subsidised services on the following terms and conditions:

4.2 MUNICIPAL SANITATION BY-LAWS WITHIN THE CONTEXT OF NATIONAL SUBSIDISED SANITATION POLICY

By-laws are the legislation of municipalities, similar to the legislation made by the National and Provincial Governments, and give effect to the subsidised sanitation policy of a municipality (DWAF, 2005). The regulations of sanitation services by municipalities and the enforcements of these cannot be achieved without sanitation by-laws. The Constitution and the Municipal Systems Act recognise by-laws as the only instrument through which a municipality exercises its legislative authority (DWAF, 2005). In addition the Water Services Act No. 108 of 1997 requires municipalities to proclaim water services by-laws and the Municipal Systems Act requires municipalities to proclaim tariff by-laws and credit control and debt collection by-laws. These by-laws are thus the legislative instrument through which municipalities give effect to their policies and are a critical instrument in ensuring the municipalities' sustainability. By-laws should (DWAF, 2005):

- set out the relationship between the municipality, its service providers and consumers; and
- provide clarity in respect of the rights and responsibilities of the municipality, its service providers and consumers.

According to DWAF (2005) municipal by-laws should include details related to subsidised services, including:

- That a municipal council may implement subsidies, by public notice, to the extent to which it can afford to do so without detriment to the sustainability of municipal services that are being rendered by it within its area of jurisdiction, for what, in its opinion, is a basic level of service for a particular municipal service. This public notice must contain at least details of:
    - the domestic customers who will benefit from the subsidy;
    - the type, level and quantity of a municipal service that will be subsidised;
    - the area within which the subsidy will apply;
    - the rate (indicating the level of subsidy);
    - the method of implementing the subsidy; and
    - any special terms and conditions that will apply to the subsidy.
- The municipal council may in implementing subsidies differentiate between types of domestic customers, types and levels of services, quantities of services, geographical areas and socio-economic areas.

By-laws should also include details related to subsidised services for Indigent Customers. When the municipalities determine the municipal services and levels of municipal services that will be subsidised in respect of indigent customers, they give public notice of the determination containing at least:

- the level or quantity of municipal service that will be subsidised;
- the level of subsidy;
- the method of calculating the subsidy; and
- any special terms and conditions that will apply to the subsidy, not provided for in these by-laws.

A review of 10 municipal sanitation by-laws showed that these regulations have serious gaps and shortfalls with reference to municipality's enforcement and application of indigent, subsidy and FBSan policy. Of the documents reviewed, only the by-laws of Makana Municipality explicitly links sanitation by-laws to the municipal indigent, subsidy and FBSan policies. This in effect provides the municipality with the legal standing to implement and regulate these policies as part of their operations and service delivery responsibilities.

The majority of these by-laws are however, clear that responsibility for the connection and O&M of internal sanitation service is the responsibility of the property owner (however a few of the municipalities do qualify this by saying that this holds true unless the service (O&M) is provided by a sanitation grant). Hence, provision of on-site subsidy sanitation services with the housing or household sanitation grants discussed above are, in most cases, a contravention of the majority of these municipality by-laws since grants provide internal connection, and provision of O&M subsidy and services is often the responsibility of municipalities.

It should however be noted that, in general, by-laws related to sanitation service provision are lacking or weak in many of the municipalities in South Africa. The Green Drop Assessment, conducted by DWA every two years to assess improved performance of WSAs and wastewater treatment works, has as one of its assessment criteria *Proof of the Bylaws providing for the regulation of industrial (trade) effluent (volumes & quality) discharged into municipal system, package plants, decentralized systems, vacuum tank discharges and spillages into the environment.* A rapid assessment of municipal scoring for this criteria in the 2010/2011 Green Drop Assessment shows that, although this criteria is one of the better scored criteria in the assessment, there were still a number of municipalities which score 0% for this criteria. This indicates that a number of municipalities in the country had in 2010/2011 still not developed sanitation by-laws, let alone focussing these by-laws on indigent, subsidy and FBSan policies.

CHAPTER 5: REVIEW OF THE SANITATION SUBSIDY (GRANT) FINANCIAL POLICY AND PROCEDURES

The Strategic Framework introduces a new financial framework for the water services sector, with the key elements of this framework shown in Figure 3. Although there are a wide number of additional funding sources for sanitation services in the country, such as through the Department of Rural Development and donors, the funding streams shown in Figure 3 represent the chief sanitation funding sources to household in the country.

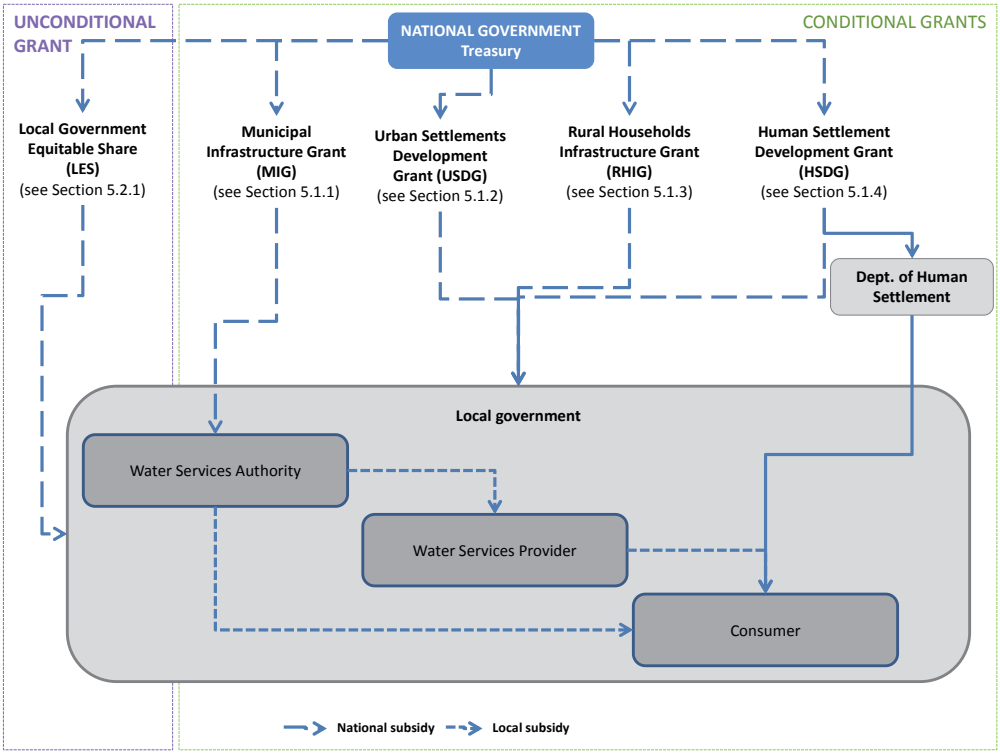


Figure 3: Financial framework for subsidised sanitation services in South Africa (adapted from DWAF, 2003).

The financial framework shown in Figure 3 introduces a number of subsidy mechanisms to address basic sanitation services provision in the country. The procedure for the Ministers to allocate sanitation subsidies on an annual basis, as outlined by the Constitution of SA (1996) (South Africa 1996).The procedure for the Ministers to allocate sanitation subsidies on an annual basis, as outlined by the Constitution of SA (1996), includes the following:

- The National Revenue Fund into which all money received by the national government must be paid, except money reasonably excluded by an Act of Parliament. Government can only withdraw from the National Revenue Fund through:
    - an Act of Parliament, or
    - as a direct charge against the National Revenue Fund.
- Equitable shares and allocations of revenue, which are the equitable division of revenue raised nationally among the national, provincial and local spheres of government,
- National, provincial and municipal budgets and budgetary processes, which must promote transparency, accountability and the effective financial management of the economy, debt and the public sector.

National Treasury regulates the funds mentioned above.

The Local Government: Municipal Systems Act 32 of 2000 (Municipal Systems Act) provides the machinery and procedures to enable municipalities to uplift their communities socially and economically, and guarantee affordable universal access to basic services. It seeks to empower the poor and ensure that municipalities establish service tariffs and credit control policies that take their needs into account (South Africa, 2000).

The Water Service Act (Act 108 of 1997), which is the primary legislating underpinning delivery of water services in South Africa, is the first to legitimise the right of all South Africans to *basic sanitation* to *ensure an environment not harmful to health or well-being* (South Africa, 1997). The Act established the basic framework within which sanitation services would be provided. Specifically, the Act highlights the role of local government as the Water Service Authority and provides a distinction between the Water Service Authority and the Water Service Provider (South Africa, 1997).

The Act, in Section 65, also provides the Minister with the power, after consultation with provinces, to *make grants and loans and give subsidies to a water services institution from funds* (South Africa, 1997). —

(a) appropriated by Parliament;

(b) contributed by individuals or non-governmental organisations; or

(c) contributed by other governments and governmental institutions.

In Section 66(1) the Minister is required to *make regulations relating to financial assistance in term (a) the financial feasibility of the construction, operation and maintenance of water services; (b) the manner in which financial assistance must be applied for; and*

(c) the terms and conditions where under any grant or loan may be made or subsidy may be given (South Africa, 1997). .

The Act, in effect, makes the Minister of Water responsible for the granting of loans/subsidies and the developing of the regulations that administer these loans and subsidies.

The 2001 White Paper on Basic Household Sanitation introduced sources, apart from the housing subsidy, of funding for sanitation service that are available to local authorities, namely (DWAF, 2001):

- the Equitable Share subsidy, which was introduced to address the shift of service provision responsibility to municipalities in 2001. The Equitable Share is defined as the sum of unconditional transfers flowing from national to local government.
- infrastructure grants discussed as a planned single, integrated grant to be known as the Municipal Infrastructure Investment Grant (MIIG), which will be distributed between municipalities through a formula mechanism that generates three-year allocations for individual municipalities. The phased introduction of these reforms will be managed through the annual Division of Revenue Act. At the time of the 2001 White Paper, the Department of Water Affairs and Forestry was providing a once-off sanitation subsidy of R600 for community development and R600 for the basic toilet structure (i.e. total of R1200).

In support of a municipality's ability to perform their water services and other functions, Section 216 of the Constitution provides for national government to transfer resources to a municipality. Annually, in terms of the Division of Revenue Act (DoRA), the national revenue is divided among the national, provincial and local spheres of government to ensure that they all receive an equitable share. Two types of financial support are provided, through DoRA, to provincial and local government to meet their obligations of water service provision; namely:

Two types of financial support are provided, through DoRA, to provincial and local government to meet their obligations of water service provision; namely:

- **Conditional grants:** which are considered in section 214(l)(c) of the Constitution (South Africa, 1996) and currently include:
    - *Municipal Infrastructure Grant* (MIG): which has the purpose to provide specific capital finance for basic municipal infrastructure for poor households, micro enterprises and social institutions servicing poor communities. This grant can be used for construction of new infrastructure, the upgrading bulk and connector infrastructure, as well as the rehabilitation of existing infrastructure (South Africa, 2013). The grants are transferred directly to local government.
    - *Urban Settlements Development Grant* (USDG): replaces the MIG in metropolitan areas in the country. In the DoRA Bill (2013) this grant has a R30.1 billion allocation

in the 2013 MTEF, of which 100% was transferred to metropolitan municipalities (South Africa, 2013).

- *Rural Households Infrastructure Grant* (RHIG): In DoRA 2013 this funding stream was budgeted at R113.1 million (2014/15) to subsidise on-site sanitation, 100% utilised for providing water supply and sanitation infrastructure in the rural areas of the country (including health and hygiene awareness programmes). The 2012 DoRA Bill indicated that this grant was expected to be gradually integrated into the MIG (South Africa, 2012). However, the DoRA Bill of 2013 indicates that *this decision has been reversed and amounts of R113.1 million in 2014/15 and R118.3 million in 2015/16 have been shifted from the municipal infrastructure grant to restore the rural households infrastructure grant* (South Africa, 2013). The administration of this grant has shifted from the National Department of Human Settlement to local government.
- *Human Settlement Development Grant* (HSDG): In the DoRA Bill of 2013 this funding stream was estimated to be budgeted at R110 million, 100% transferred to six metropolitan municipalities (South Africa, 2013).

- Unconditional grants: which include the
  - *Local Government Equitable Share:* Over the 2012 MTEF, the local government equitable share, including the RSC/JSB levies replacement grant and special support for councillor remuneration and ward committees, was worth R122.1 billion.

Each of the funding streams is discussed in more detail in the following sections.

5.1 GOVERNMENT'S PROCEDURE FOR CONDITIONAL GRANTS TO MUNICIPALITIES FOR SANITATION SERVICES (AS OF 2013)

5.1.1 Government's Procedures for the MIG-funded Sanitation

The establishment of a consolidated grant mechanism, the Municipal Infrastructure Grant (MIG), was approved by Cabinet in 2003. The details of the grant, strategy for implementation and the basic principles of the grant are outlined in the MIG policy document published by dplg in 2004. MIG, which covers infrastructure capital costs, has the overall target of addressing basic municipal service backlogs over a 10-year period. MIG is focussed on providing these services while maximising employment, creating enterprise opportunities and capacitating municipalities (dplg, 2004).

The key principles of MIG are the following:

- Providing infrastructure for a basic level of service. MIG aims to provide only basic infrastructure.
- Focus on the poor with funds allocated to interventions that address the needs of this group of individuals.
- Focus on providing infrastructure in a manner that maximises local economic spin-offs.

- Managed at local government level with identification, selection and approval of projects occurring at this level of government.
- Funding must be used in a manner which provides the maximum improvement to access to basic services at the lowest possible cost, i.e. efficient use of resources.
- Support local, provincial and national development objectives.
- Funding must be provided to individuals municipalities on a 3-year basis.

Key to sanitation services provision through the MIG is that the grant will fully subsidise the capital costs of providing basic sanitation services to poor households. The MIG policy does mention that provision of this basic services includes both external and internal municipal services; i.e. *meeting the basic infrastructure needs of poor households, through the provision of appropriate bulk, connector and internal infrastructure in municipal services* (dplg, 2004)

The MIG targets beneficiaries based on the criteria shows in Table 8

Table 8: Municipal service definitions supported by MIG funding (adapted from dplg, 2004).

Infrastructure category	Target consumer group	Services included	MIG funding restrictions
Residential services	Specific households	'Pilot package" including electricity, stormwater management, water supply, sanitation, municipal roads, refuse removal and street lighting	Funds are only for basic infrastructure to households with expenditure below R1100 per month (poor households)
Services provided to institutions other than public municipal services	Institutions such as schools, clinics, police stations, prisons, churches and private recreations facilities	'Pilot package"	Funding include only services or institutions which are used extensively by the poor (see above)
Public municipal services: community services	Accessible to all	Child care facilities, beaches and amusement facilities, cemeteries, funeral parlours and crematoria, cleansing facilities for animals, fencing, local amenities, local sports facilities, municipal health services and public places	Funding include only services or institutions which are used extensively by the poor (see above)
'Standards services' to business premises	All business	'Pilot package'	Can only be used to provide infrastructure to businesses run by individuals who are poor.

Excluded from these definitions of municipal infrastructure, and thus excluded from support from MIG, are housing related infrastructure.

The design of the MIG arrangements is shown in Figure 4 below. Linked to Figure 4, the following funding allocations are available from MIG to provide services that include sanitation:

Box 1: Allocated to national MIG unit for national programme management

MIG funds are made available for programme management at a national level, for CoGTA management of the programme.

Box 2: Special Municipal Infrastructure Fund (SMIF) allocated to municipalities on application

MIG funds are allocated to each municipality in the country based on a formula, however the MIG policy does allow for mitigation measures against using only this formula in the case of requirements for regional (spillover) effects of infrastructure investments in certain circumstance and to promote innovative approaches to infrastructure investments (dplg, 2004). A portion of MIG funding is retained to fund project-based application by municipalities to address these (based on pre-determined criteria). This fund allocation is referred to as the Special Municipal Infrastructure Fund (SMIF) (dplg, 2004).

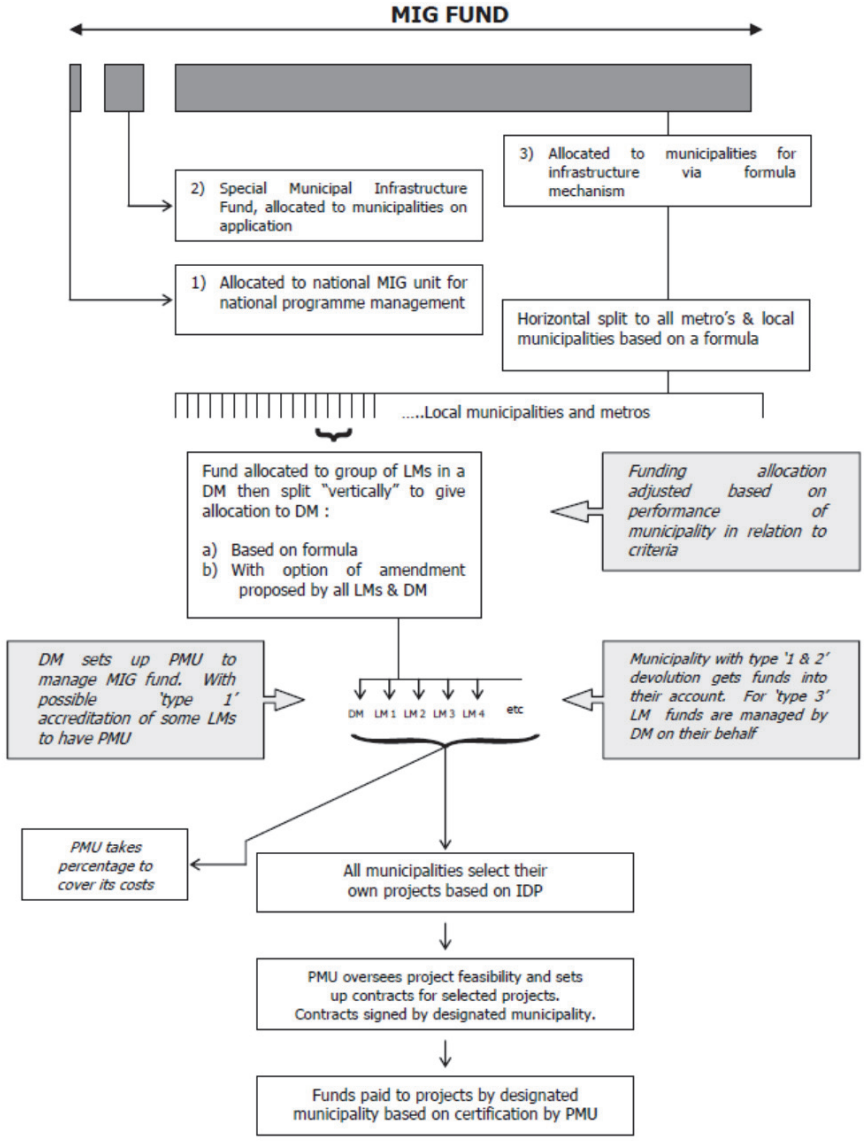


Figure 4: MIG funding mechanism (taken from dplg, 2004).

Box 3: Allocation to municipalities for infrastructure via formula mechanism

The bulk of MIG funding is horizontally allocated to all metro's and municipal areas according to a formula mechanism (dplg, 2004). This includes funding for capital investment for new, rehabilitated and upgraded infrastructure for un-serviced and newly formed households and funding for municipal capital programme management and capacity building activities (dplg, 2004).

MIG is a **conditional** grant, with funds allocated according to policy priorities (dplg, 2004). The following conditions are attached to MIG funding:

1. DORA, the Division of Revenue Act, is published annually with relevant Conditional Grant Frameworks including MIG.

2. Cross-cutting conditions, which include that funding used needs to:

    - conform with municipal Integrated Development Plans (IDPs);
    - can only be used for capital investment and cannot be used to finance expenditure other than the prescribed percentage permitted for operation of a project management unit;
    - eligibility is restricted to beneficiaries and categories shown in Table 8 above;
    - certain MIG investment should fund rehabilitation of existing infrastructure;
    - these funds may not be used as 'pledging' funds to pay off a loan;
    - should be used to address pre-agreed basic service coverage targets in specific sectors (i.e. water and sanitation) – non-compliance with these targets can cause negative performance evaluation on components of the MIG allocation formula;
    - focus on maximising temporary and permanent job creation arising from infrastructure investment, in association with the Expanded Public Works Programme;
    - municipalities need to prepare and submit all progress reports prescribed by MIG funding;
    - funds must be allocated to projects identified in the municipal budgets; and
    - all projects must have a project business plan which meets the requirements for MIG programmes and must be registered on the MIG database before the award of contracts.

3. Sector specific conditions, which include the conditions attached to the use of MIG funding for sanitation from DWA, DHS and DoH. In the case of DWA these conditions attached to the use of MIG funding include (dplg, 2006) the following:

    - Funding can only be used for Basic Water Services, i.e. Basic Sanitation Facilities as defined in the SFWS (2003).
    - Funding must be used for projects within the Water Services Development Plan as the Sector Component of the Integrated Development Plan (IDP).
    - Funding of projects which are viable, feasible, acceptable and sustainable.
    - Funding to be used for projects which are sustainable from an operational and maintenance perspective.
    - Projects must be implemented in line with DWA related policies and Acts.

The national Department of Cooperative Governance and Traditional Affairs (CoGTA) is responsible for regulating the cross-cutting conditions attached to MIG funding. Sector departments, including DWA, DHS and DoH, are responsible to regulate and monitor the performance of municipalities with

regard to sanitation sector specific criteria. The Department of Public Works is responsible for monitoring the poverty alleviation criteria of MIG, while National Treasury is responsible for monitoring financial reporting and revenue related criteria.

The 2004 MIG policy makes special mention of coordinating infrastructure grants with housing grants (dplg, 2004). The policy highlights that there is *inconsistency in the way planning is undertaken for housing (which currently includes 'internal' infrastructure) and related bulk and connector infrastructure.* To address this inconsistency the policy suggests that in future the infrastructure component of housing development should be funded from the MIG grant, as is currently recommended in the National Housing Programme funding policy. The land acquisition and 'top structure' provision could then be funded by the housing subsidy. However, the current housing subsidy principles of (although under exceptional circumstances) making funds (approx. R22 000) available for provision of basic services do continue this confusion in fund allocations. It also continues to create the potential risk of double subsidisation to a household.

5.1.2 Urban Settlements Development Grant (USDG)

The USDG was introduced by government in the 2011 Division of Revenue to enable the eight large urban metropolitan municipalities in the country to respond to pressures created by continued urbanisation and growing urban poverty. This new grant funds infrastructure development in metropolitan municipalities to upgrade urban informal settlements (South Africa, 2013). The grant funding is available for provision of basic services that were previously funded through a combination of the funds allocated through the *municipal infrastructure grant* and the basic services portion of the *human settlements development grant* (South Africa, 2013). This shift reflects the importance of government's policy to devolve more housing authority to cities, which will facilitate better coordination of providing basic servicesservice and housing to the citizens of these urban settlements.

Municipalities will also receive additional funds through the local government equitable share to strengthen their administration and governance – an important foundation for improving the effectiveness of municipalities.

The USDG provides funds for the purchasing and servicing of vacant land, or upgrading of existing settlements. The USDG essentially separates the funding for land and services from that of top-structures, which will still be provided through the Housing and Human Settlements Development Grant (IHHSDG). However, the allocation of IHHSDG to cities is unclear. This causes more difficulties to municipalities who are not accredited as the developer for provision of housing, as the two grants effectively separate the funding for the provision of services from the provision of top structures (PDG, 2011).

5.1.3 Rural Households Infrastructure Grant (RHIG)

The Rural Households Infrastructure Grant (RHIG) is a transfer to local government to build on-site water and sanitation facilities in **rural municipalities** where bulk-dependent services are not viable. The grant also funds training for beneficiaries on health and hygiene practices and how to maintain the facilities provided.

The grant sees a shift in the administration in 2013/14 from the National Department of Human Settlements to local government (South Africa, 2013). The grant fund will thus become a direct grant to municipalities in 2013/14, where funds will be transferred directly to municipalities for these projects. These sanitation projects have significant community consultation processes, hence directing the funds directly to local government will facilitate this consultation process. Since maintenance of this infrastructure is also often the responsibility of local government, their management of this grant will provide local government with a much greater incentive to include maintenance planning in their annual budget planning processes.

5.1.4 Human Settlements Development Grant

The *human settlements development grant*¸ which is the primary source of funding of the subsidised housing programmes in the country, has the purpose to establish habitable, stable and sustainable human settlements in which all citizens have access to social and economic amenities (South Africa, 2013).

In 2013 the grant funding will be transferred to six metropolitan municipalities, with funds for human settlements development in these municipalities being transferred directly to them. The human settlement development grant allocation in other municipalities will be administered by the national and provincial offices of the Department of Human Settlements.

The implementation of National Housing Programmes using the Human Settlement Development Grant is determined by the specific provisions of individual programmes.

Ensuring security of tenure remains a key principle of these programmes with all beneficiaries of programme acquiring tenure through ownership, deed of grant or formal rental arrangements, and non-ownership forms of tenure (DHS, 2010).

The annual Housing Subsidy Quantum is announced by the Director-General of the National Department, which addresses the annual allocation of national and provincial housing subsidies and programme grant amounts (DHS, 2009a). The provincial housing institution then reserves and allocates funding to each of the Human Settlement Development Grant subsidy instruments from their provincial allocation. For example, in 2012 the housing subsidy amounts were as follows (DHS KZN, 2013):

Income category	Municipal Services	Top Structure	Subsidy
Institutional Subsidies			
R0 to R3 500	R 25 696	R63 666	**R 89 362**
Farm Resident Subsidies and Rural Subsidies			
R0 to R3 500	R 25 696	R63 666	**R 89 062**
Enhanced People's housing Process			
R0 to R3 500	R 25 696	R64 666	**R 64 666**
Consolidated Subsidies			
R0 to R1 500		R64 666	**R 64 666**
Individual Subsidies			
R0 to R3 500	R 25 696	R64 666	**R 96 362**
Project Linked Subsidies			
R0 to R3 500	R 25 696	R64 666	**R 90 362**

Of note is that the Housing Subsidy Amount for 2010/2011 also indicated that, as a last resort, internal municipal engineering services may be financed from the housing subsidy. An additional subsidy amount of R25 969 per stand is made available for this purpose. DHS KZN (2013) indicates that this internal municipal engineering services subsidy is estimated to include R 6 218.48 for sanitation reticulation.

According to the DHS (2009a) certain of the assistance measures require beneficiaries to contribute toward their housing product, as a pre-requisite to being part of the National Housing Programme. This contribution may be financial or an 'in kind' contribution.

The National Housing Programme is administered through the Housing Subsidy System by the Department of Human Settlement. All recipients of a subsidy are recorded on the National Housing Subsidy Database to prevent individuals benefitting more than once from the subsidy.

To qualify for the housing subsidy, generally beneficiaries must:

- lawfully reside in South Africa (i.e. citizen of the Republic of South Africa or be in possession of a permanent residence permit);
- be 21 years or older;
- the applicant or their spouse has not benefited from a housing subsidy previously;
- the applicant does not own fixed residential property in the past;
- must be married or co-habitating;
- a single person with dependents;
- single aged persons, disabled persons and military veterans without financial dependants may be assisted;
- households must earn a monthly income in the range as annually approved;
- may have benefited from the Land Restitution Programme; and

- who satisfy all other relevant criteria may also be assisted.

It should be noted however that each of the housing assistance programmes may have specific beneficiary qualification requirements.

5.2 GOVERNMENT'S PROCEDURES FOR UNCONDITIONAL GRANTS

In this type of grant, no conditions may be attached to how funds are used and thus allows the recipient to fully determine how funds are spent.

5.2.1 Local Equitable Share

The Local Equitable Share (LES) is provided by national government to the local government as an unconditional grant. The grant is based on estimates of national revenue raised annually in the country and is divided among the country's 278 municipalities using a formula, with one of the key components of this formula being the basic services component. The basic service component is worth 99.1 per cent of the value of the equitable share and provides for the cost of free basic services for poor households, as well as municipal health services (South Africa, 2012).

During 2012, the National Treasury, the Department of Cooperative Governance and SALGA, in partnership with the FFC and Statistics South Africa, reviewed the local government equitable share formula. As a result of the review, the DoRA Bill of 2013 indicates that *the local government equitable share has been increased to address the rising costs of providing free basic services to poor households* (South Africa, 2013). A new LES formula (see Box 1) has been developed, which uses demographics and other data to determine each municipality's share of the local government equitable share.

The LES formula has three parts, made up of five components (South Africa, 2013), the chief sanitation subsidy component of the formula being the *basic services component.* The basic service component of the LES formula assists municipalities to provide free basic water, sanitation, electricity and refuse removal services to households that fall below an affordability threshold[5]. According to South Africa (2013), *the basic services component provides a subsidy of R278 per month in 2013/14 for the cost of providing basic services to each of these households. The allocation to each municipality is calculated by multiplying this monthly subsidy by the number of households below the*

[5] See section 4.1. for discussion on affordability thresholds in SA

affordability threshold in each municipal area. The free basic services subsidy includes funding for the provision of free basic water (6 kilolitres per poor household per month), energy (50 kilowatt-hours per month) and sanitation and refuse (based on service levels defined by national policy). Sanitation allocations per household amount to R72.04 per household per month for each household in a municipality that falls below the affordability threshold (South Africa, 2013).

Box 1: Structure of the local government equitable share formula (South Africa, 2013)

$$LGES = BS + (I + CS) x RA \pm C$$

where
LGES is the local government equitable share
BS is the basic services component
I is the institutional component
CS is the community services component
RA is the revenue adjustment factor
C is the correction and stabilisation factor
The basic services component

The Local Authorities' own revenue may also be used to cross subside between "rich" and "poor" households. A broad assessment of municipal income in rural areas, (the areas with the greatest sanitation need), indicates that, currently, direct cost recovery is applied only to electricity (City of Cape Town).

The local authority has discretion in deciding the composition of the service delivery packages, the levels of services and the manner in which these are funded (City of Cape Town, 2008).

CHAPTER 6: THE FULL COST OF SUBSIDISED SANITATION

In this chapter, the economic modelling of the full cost of provision of basic sanitation services in South Africa is provided, including health and natural resources cost related to the various technologies.

The economic modelling of cost of subsidised sanitation provision were guided by the FOA (2004) framework for analysing economic charges (Figure 5). The FOA framework was adapted and applied to guide the economic modelling of the historical and current full cost of subsidies sanitation provision to household (MIG, LES) and through housing subsidies (low-cost housing subsidies) in South Africa. Based on the framework, the research categorised the full cost of subsidised sanitation service provision into three chief cost components: the Full Supply Cost; the Full Economic Cost; and the Full Cost (Figure 5). The cost of subsidised sanitation was discussed according to these cost categories.

Comment [REF1]: Not in References or abbreviations section

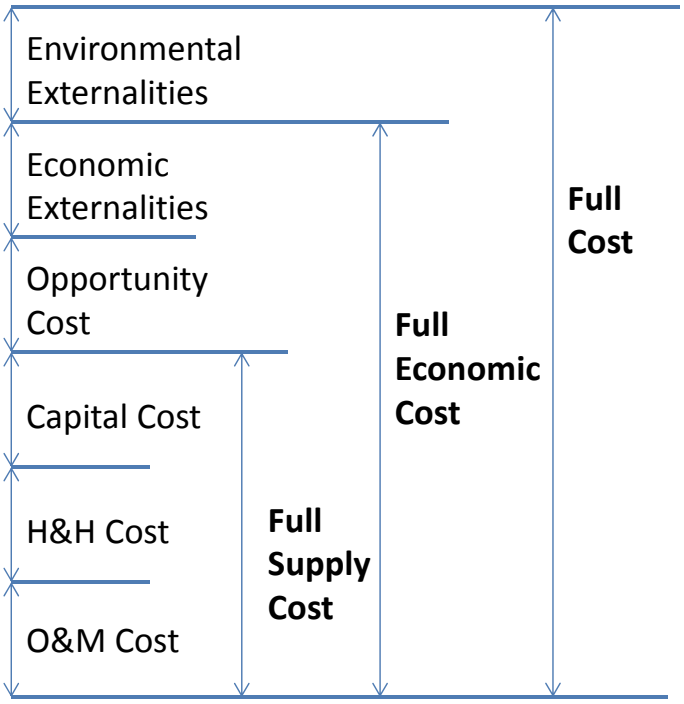


Figure 5: The Full Cost of providing a good/service includes the O&M Cost, Health and Hygiene cost, Capital Charges, Opportunity Cost, Economic Externalities and Environmental Externalities (adapted from Rodgers et al. (1998).

6.1.1 Estimating the Full Supply Cost of Subsidised Sanitation

The Full Supply Cost is defined to include the costs associated with the supply of good/service to a consumer excluding the externalities imposed upon others, and excluding the alternate uses of the water (i.e. opportunity costs).

Subsidised sanitation service provision in South Africa generally allocates budgets to cover the full supply costs, including (COGTA, 2010):

- Construction (basic materials, the wages of the builders, labour for digging pits and trenches, contractors' costs and fees),
- Social facilitation (including training, health and hygiene education, community liaison, and functioning of the committee).
- Project management.
- Other expert inputs as required (e.g. geo-hydrologist).

The research estimates the Full Supply Costs of subsidised basic sanitation service in South Africa based on three items: O&M Cost, ISD Cost and Capital Charges.

(1) O&M costs are associated with the running of the supply system. Typical costs items might include purchased water (where water supplies are a component of the sanitation system), electricity for pumping, labour, repair materials, and input costs for managing and operating storage, distribution, and treatment plants where relevant.
(2) ISD costs are community liaison, training of community sanitation expertise, health, hygiene and user education materials and training and household visits.
(3) Capital Charges include capital consumption (or depreciation charges) and interest costs associated with the facility, reservoirs, treatment plants, conveyance and distribution systems.

6.1.1.1 Capital Cost of Providing Subsidised On-site Sanitation Facilities in South Africa

There are generally four types of on-site sanitation facilities provided through the subsidised sanitation process in South Africa; namely:

- **VIP toilets (single or double)** which operate on the premise of a dry system, where the excreta is collected in a pit below the toilet. Organic matter accumulates in the pit while the liquid component percolates into the substrate where it is 'treated' through biological process. Pits need to be emptied, generally by the municipality, after a number of years of use (generally 5-8 years).
- **UD toilets** which operates on the premise of a dry system, separating urine and faeces at the toilet seat. Urine is generally collected in a soakaway pit and 'treated' through biological process,

while faeces are collected in a vault and after a period of dehydration and sanitisation, the dried faecal matter is emptied from the vault and buried or burned.

- **Wet on-site digesters** including the LOFLOS systems Aqua-privies or Pour Flush toilets; systems that are rarely implemented in South Africa. These systems operate on the permis of waterborne sanitation systems, but using minimal water to operate the system. Excreta are contained in a sealed pit, conservancy tank and soakaway. These pits or conservancy tanks require emptying at some point in time.

The COGTA Industry Guidelines (2010) state that subsidised sanitation facilities provided:

- Need to be designed and built to an acceptable (good) standard so that the structures will last for at least 20 years;
- Do not make use of corrugated iron (zinc) superstructures;
- Must at least be partially lined; and
- Must be socially acceptable and serve the needs of the community, i.e. communities must be engaged and consulted at the start of the project and there should be a participative assessment of the pre-project situation in the community.

Table 9 shows the most recent CoGTA estimates of the capital cost per unit for each sanitation facility type.

Table 9: The COGTA Industry Guide 2010 provides estimates for the unit costs for domestic sanitation per province, which includes the material costs, labour costs, a construction margin of 15%, and P&G's of 10%.

Province		VIP toilets/ equivalent (single pit fixed top structure)	VIP toilets/ equivalent (double pit fixed top structure)	VIP toilets/ equivalent (single pit movable top structure)	VIP toilets/ equivalent (double pit movable top structure)	Onsite UDS	Septic tanks (full level of service)
		R/household	R/household	R/household	R/household	R/household	R/household
Limpopo	Min	6,247	6,518	6,587	6,858	6,125	9,388
	Max	6,941	7,242	7,319	7,620	6,806	10,431
	Avg	6,594	6,880	6,953	7,239	6,466	9,910
Gauteng	Min	5,614	5,860	6,216	6,462	5,515	8,476
	Max	6,238	6,511	6,907	7,180	6,127	9,418
	Avg	5,926	6,186	6,562	6,821	5,821	8,947
North West	Min	6,326	6,604	6,916	7,194	6,185	9,229
	Max	7,028	7,337	7,684	7,993	6,872	10,254
	Avg	6,677	6,970	7,300	7,593	6,528	9,741
Free State	Min	5,608	5,863	6,300	6,555	5,487	9,075
	Max	6,231	6,514	7,000	7,283	6,096	10,084
	Avg	5,919	6,188	6,650	6,919	5,792	9,580
KwaZulu-Natal	Min	5,302	5,536	6,140	6,374	5,086	8,274
	Max	5,891	6,152	6,822	7,082	5,651	9,194

Province		VIP toilets/ equivalent (single pit fixed top structure)	VIP toilets/ equivalent (double pit fixed top structure)	VIP toilets/ equivalent (single pit movable top structure)	VIP toilets/ equivalent (double pit movable top structure)	Onsite UDS	Septic tanks (full level of service)
		R/household	R/household	R/household	R/household	R/household	R/household
	Avg	5,597	5,844	6,481	6,728	5,369	8,734
Mpumalanga	Min	6,234	6,503	6,697	6,966	6,115	9,160
	Max	6,926	7,225	7,441	7,740	6,794	10,178
	Avg	6,580	6,864	7,069	7,353	6,454	9,669
Northern Cape	Min	6,502	6,791	6,925	7,213	6,406	9,885
	Max	7,225	7,545	7,694	8,014	7,118	10,983
	Avg	6,864	7,168	7,309	7,614	6,762	10,434
Western Cape	Min	6,107	6,374	6,684	6,950	5,971	9,300
	Max	6,786	7,082	7,426	7,723	6,635	10,333
	Avg	6,447	6,728	7,055	7,337	6,303	9,817
Eastern Cape	Min	6,231	6,531	6,776	7,077	6,014	9,477
	Max	6,923	7,257	7,529	7,863	6,682	10,530
	Avg	6,577	6,894	7,153	7,470	6,348	10,003
National	Avg	6,353	6,636	6,948	7,230	6,205	9,648

6.1.1.2 Operation and Maintenance Cost Related to Subsidised On-site Sanitation Facilities in South Africa

Despite the policy confusion related to subsidisation of the operation and maintenance cost of subsidised sanitation services, the COGTA Industry Guidelines (2010) state that a subsidised sanitation facility must be provided based on the principles of affordability. This implies that the cost of sustaining the operation and maintenance of the facility must be affordable to both the household and the local municipality. Mjoli et al. (2009) and Still et al. (2009) estimated the O&M cost in 2009 as shown in Table 10 below.

Table 10: Estimated O&M cost per facilities type for 2009 (taken from Mjoli et al. (2009) and Still et al. (2009)).

Type of facility	Estimated annual O&M	Cost per emptying	Cost to move top-structure	Annual cost for 8 year toilet lifespan
Lined VIP	R100 -R320	R 1 100.00		R 458.00
Double VIP	R50-R200	R 700.00		R 128.00
Movable VIP	R 50.00		R 4 000.00	R 425.00
Urine diversion	R 50.00	R 200.00		R 250.00
Waterborne - septic tank	R750 - R1500			R 1 183.00

6.1.1.3 Health and Hygiene and Social Cost of Providing Subsidised On-site Sanitation Facilities in South Africa

Subsidised sanitation service provision prior to 2001, at which time responsibility for provision devolved to municipalities, did not make provision for the hygiene and social cost of providing the

services. After 2001, with the advent of MIG and municipal implementation and management of subsidised sanitation service provision, the following costs were recommended for hygiene awareness and promotion:

Table 11: Recommended H&H unit cost for sanitation initiatives (adapted from unknown source).

Component	Proposed costs per household	Maximum variation per household	Comments
1. PHAST PROGRAMME			
PHAST Facilitator	R 15.00	R 8.00	Assuming a senior and junior facilitator for 5 days. In some situations where communities are large additional time may be required to gather information and decision making.
Materials	R 5.00	R 2.00	Copies of forms and information documents + light catering
Disbursements	R 3.00	R 1.00	Preferable PHAST facilitators should stay within the community during the exercise but pay for their stay.
Allowance for community participants	R 4.50	R 1.00	Up to 12 community members may be paid an allowance to fully participate in the PHAST exercise.
TOTAL PHAST	**R 27.50**	**R 12.00**	Up to R40 may be budgeted but a median amount of R30 is proposed.
2. FOLLOW-UP AND ONGOING AWARENESS PROGRAMMES			
(note that some of the follow-up should be carried out by the District Health EHO's and the Municipal Health Programme)			
Training of CHWs	R 12.00	R 5.00	Training may be done on-site or at an accredited training school.
Community Health Workers	R 15 (for 2 CHWs)	R 5	CHW's generally work 5 mornings per week.
Follow-up visits by consultants	R 12.00	R 5.00	Assume 6 follow-up visits over the year.
TOTAL FOLLOW-UP	**R 39.00**	**R 15.00**	Up to R50000 may be budgeted but a median of R40000 is proposed.
3. SPECIAL CAMPAIGNS			
(e.g. school programme WASH cholera awareness)			
Consultants inputs	R 17.00	R 3.00	Assume senior and junior facilitators inputs of 1 week each
Materials	R 5.00	R 2.00	Posters pamphlets soap light catering.
Disbursements	R 3.00	R 1.00	Preferable that facilitators should stay within the community during the exercise but pay for their stay.
TOTAL CAMPAIGNS	**R 25.00**	**R 6.00**	Up to R30 may be budgeted but a median of R25 is proposed.
TOTAL H&H	**R 91.50**	**R 33.00**	A median of R95.00 is proposed for H&H education

According to the COGTA Industry Guide of 2010, Community Development for subsidised sanitation services are currently recommended at R445.00 per households, to address the components shown in Table 12 below.

Table 12: Training, Health, Hygiene and User-education (Community Development).

ACTIVITIES PER HOUSEHOLD	UNIT	QTY	RATE	TOTAL
Community liaison, builder and quality assessor training and record keeping	person days	1	R 150.00	R 150.00
Health, hygiene and user education materials	user material pack	1	R 100.00	R 100.00
Health, hygiene and user education training	person days	0.5	R 150.00	R 75.00
Peer education house to house visits (x 3)	visit	3	R 40.00	R 120.00
TOTAL COMMUNITY DEVELOPMENT PER HOUSEHOLD				**R 445.00**

Source: DWA: Costing Framework for Household Sanitation Projects; November 2009

6.1.1.4 Estimating the full supply cost of sanitation in South Africa

The full supply cost of sanitation is estimated based on a number of data source. The O&M and ISD cost is based on data collected from literature, particularly for MIG project cost reports by COGTA (2010), Still and Foxon (2012) and DORA (2011)

The capital cost of subsidised sanitation is sourced from (1) interviews with WSAs and implementing agents involved in the sanitation sector and (2) from various reports of MIG annual allocations to sanitation. These sources were utilised to build a database of potential capital (including ISD and management) cost of subsidised sanitation initiatives in a number of provinces. Data was filtered:

- By sorting tables according to project categories (i.e. sanitation, water, roads, etc.)
- Deleting all none sanitation or PMU projects from the tables.

To calculate the capital and ISD cost of sanitation the research made use of the total cost of the project divided by the number of toilets constructed with the allocation (i.e. total cost may include funds provided from other sources (i.e. EPWP), as well as the MIG funding). It is important to note that this provides the full supply costs as the cost does not differentiate between the capital and ISD cost.

The full supply cost of subsidised sanitation includes a project management cost. According to the Municipal Infrastructure Grant (MIG) framework in the 2012 Division of Revenue Bill a maximum of five per cent may be used for project management costs that are directly related to infrastructure projects. A minimum of 95 per cent of the MIG allocation ***must*** be appropriated on the municipality's capital budget. The research thus utilised the MIG project costs collected above and assumed a 5% project cost for provision of each of the sanitation facilities.

The research used the 2011 Division of Revenue Bill O&M recommendation of R125.36 per household provided with a Septic tank and low flush system and R56.41 for households with a VIP and UD system. The research calculated the O&M costs assuming:

- The septic tank and low flush O&M free basic service is for water to operate the system, while the O&M subsidy for the VIP and UD systems will be used to empty pits and vaults.
- that the life-span of a facility is 20 years, with planned emptying of VIPs every 5-years and UDs every 2 years of the life-span of the facility.
- The NPV of the monthly O&M subsidies over this life-span for a single facility is equal to approximately R20 thousand. This assumes that any per annum increase in O&M subsidies will be equivalent to the inflation rate; with the inflation rate being used as the discount rate to calculate the NPV.

Based on various data sources the research estimated subsidy amounts (capital/ISD) used to provide the various sanitation technologies in the country between 2002-2011 (Figure 6). A graphic illustration of the changes in the capital (incl. ISD and management) cost of providing subsidised sanitation is illustrated in Figure 6 below. Figure 6 does show strong evidence of an increase in the capital/ISD cost of subsidised VIP, UD and septic tank sanitation facilities between 2002 and 2008. The increase in cost could likely have been supported by the robust economic growth taking place in South Africa at the time. This would have supported government funded growth in the subsidised sanitation sector

as the fiscus was running at a surplus. The low economic growth period that emerged post 2008 could very likely have contributed to decrease in per unit cost for subsidised VIP, UDs and septic tank.

There is insufficient data for Low Flush subsidised sanitation systems to draw any definitive conclusion.

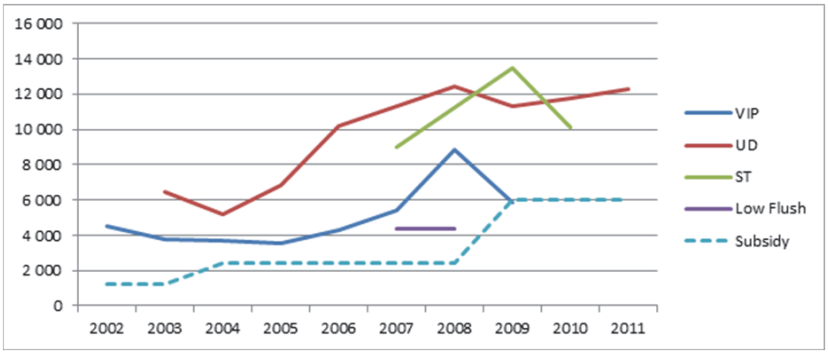


Figure 6: Historic national estimates of full supply cost of the various subsidised sanitation facilities in South Africa, and trends in the costs over time (average cost per facility per year are shown).

An estimated full supply cost for provision of the various subsidised sanitation facilities in South Africa is shown in Figure 7. The full supply costs of provision of subsidised sanitation unit range from R22 800 for a VIP facility to R46 400 for a septic tank system (adjusted to 2012 prices). The management cost is calculated as 5% of the capital/ISD cost of construction, while the O&M cost is calculated as explained in the method above.

O&M cost is 64% of the full supply cost of a VIP, 54% of a UD, 70% of the full supply cost of the septic tank and LOFLOS system. This shows that the current capital/subsidy allocation for households is a relatively small proportion of the long-term subsidy which will need to be allocated to a household to ensure a sustainably functioning system.

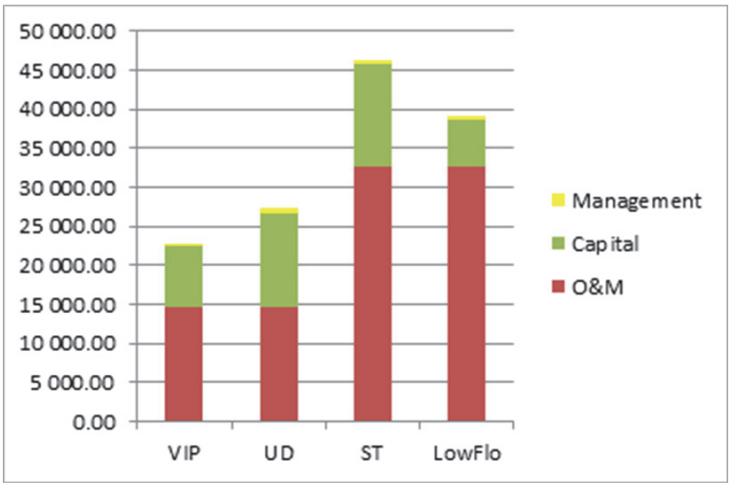


Figure 7: Estimated full supply cost of each of the subsidised sanitation service levels provided in SA (2012 estimate).

6.1.2 Estimating the Full Economic Cost of Subsidised On-Site Sanitation Facilities

The Full Economic Cost of a good/service is the sum of the Full Supply Cost, the Opportunity Cost associated with the alternate use of the same resources used to provide the good/service, and the Economic Externalities imposed upon others due to the consumption of the good/service by a specific actor.

The Opportunity Cost addresses the fact that by consuming a given good/service, the user is depriving another user of the resource (i.e. water). If that other user has a higher output production value associated with consumption of that good/service, then there are some opportunity costs experienced by society. The Opportunity Cost of the consumption of sanitation is zero only when there is no alternative use for the resources used to provide it. The consequence of ignoring the Opportunity Cost undervalues the good/service, and results in a failure to invest optimally, and thus causes serious mis-allocations of the resource between users.

The most common Economic Externalities are associated with a lack of sanitation services and the adverse health impacts to a community and the adverse impact on the local environment due to a build-up of human waste. The economic cost of subsidised on-site sanitation systems are captured through aspects of the full supply costs and the environmental externalities discussed below. The research included these costs under the estimation of the full cost of subsidized on-site sanitation facilities.

6.1.2.1 Opportunity costs

Opportunity cost is the cost of any activity measured in terms of the value of the next best alternative forgone. It is the sacrifice related to the second best choice available to someone, or group, who has picked among several mutually exclusive choices.

In South Africa where the needs of the poor are so varied it is prudent to consider that various options available to increase the standard of living. Subsidies are a useful mechanism to provide much needed access to sanitation for impoverished communities. Improved sanitation not only facilitates improvements in human health, but enhances prospects for education and work, as well as personal security and dignity (particularly for women), and has a positive impact on the environment (Susan Design, 2011). However it is also important to assess whether the benefits to society, if the funds has been spent differently, or left in the pockets of taxpayers, would perhaps have been greater (Steenblik, undated).

Due to the effects of taxation and other feedback loops in an economy, the separation between government and households is not always distinct, but in the presence of a budget constraint all spending decisions imply some kind of trade off (Steenblik, undated). In the context of South Africa, these trade-offs include possible lower taxes and expenditure of education, healthcare and job creation among others.

The World Sanitation Program (WSP) provides some basic guidelines for expenditure of sanitation, which ensure that spending will achieve the highest impact possible, which also serves to reduce opportunity costs. These include the prioritisation of the elimination of open defecation, to target sanitation investments to the poorest individuals and to address bottlenecks in the service delivery pathways so that expenditure may be as efficient as possible (WSP, 2012).

6.1.2.2 Economic externalities

An externality is an effect of a purchase or use decision by one set of parties on others who did not have a choice and whose interests were not taken into account. In other words the third party was external to the transaction that took place.

Subsidisation of a good or service almost inevitably induces some form of externality. Steenblik (undated) states that expenditure on sanitation tends to have a positive impact on health, education, security and environmental quality. Whilst many of these impacts will be as a direct effect of improved access to sanitation, other impacts will be indirect, and fall into the boundaries of what may be defined as an externality.

According to Hassen (2000), benefits of infrastructure (water, sanitation and housing) delivery include:

- **Lowering of transaction costs:** Infrastructure lowers transaction costs by facilitating flows of information and goods, and interactions between markets;
- **Creation of economic linkages:** Infrastructure investment creates the potential for economic linkages. In particular, the ability to move goods makes investment viable;
- **Concentration of economic activity:** The provision of infrastructure concentrates economic activity spatially, thus supporting backward and forward linkages;
- **Responsiveness to change:** Depending on the quality of infrastructure delivered, economies undergoing restructuring are able to respond to shocks, competitive pressures and value-added production;
- **Improvement of productive capacities:** Access to infrastructure services can improve the capacities for producing goods and services in communities;
- **Creation of wealth:** Irrigation systems, transport routes and other infrastructure outcomes hold the potential for creating viable assets and markets;
- **Creation of jobs:** Infrastructure expansion creates jobs during the construction phase, and for continuing maintenance.
- **Boosting of demand:** Infrastructure expansion also boosts demand in the economy, thus supporting forward linkages.

Research conducted by the world subsidy program (WSP, 2012) measures a range of indicators to determine the impacts of improved access to sanitation. These indicators include epidemic outbreak costs, funeral costs, water pollution / water quality, health care costs, cognitive development impacts and tourism benefits.

Negative externalities that arise from subsidisation relate primarily to the market distortions that may arise. A key consideration here is that subsidisation may encourage inefficiency because producers are able to rely on government aid (Gartner, 2006). Negative externalities resulting from subsidies are often exaggerated when government has limited knowledge about the service, and the manner in which it should be delivered. Authors argue that a degree of market inefficiency is inevitable, but that the benefits that result from an increased expenditure on sanitation that, in the context of extremely poor communities, tend to outweigh the costs of providing the subsidy, providing that the mechanisms for providing the subsidy are efficient and the subsidy is sufficiently well targeted to the intended recipients (WSP, 2012).

6.1.3 Estimating the Full Cost of Subsidised On-Site Sanitation Facilities

The Full Cost of consumption of a given good/service is the Full Economic Cost, as defined above, plus the Environmental Externalities. These costs have to be determined based upon the damages caused, or as additional costs of restoring the environment to its original state. Environmental Externalities are those associated with public health and ecosystem maintenance.

Traditionally, the sanitations sector has made a strong link between provision of sanitation service and the positive and negative impacts on the environment and on human health. However, the sector tends to view these environment and human health impacts as dissociated, separate issues (see Figure 8). The model used in this study viewed environmental and human health issues as intrinsically linked, with the maintenance and protection of human health dependent on the environment (ecosystems). A change in this relationship is demonstrated by a change in the ecosystem services benefits which humans gain from sanitation service provisions (see Figure 8).

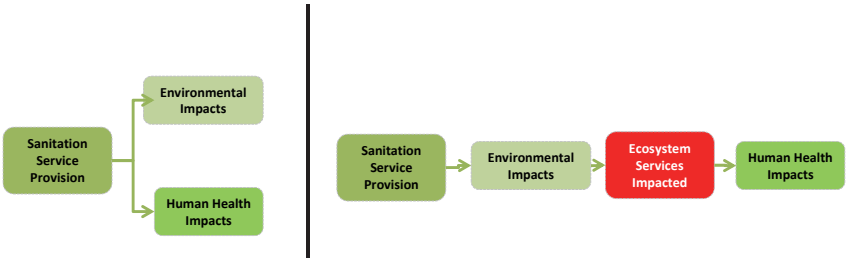


Figure 8: Left figure shows how the sanitation sector traditionally views the relationship between sanitation service provision and environment/health impacts. The figure on the right shows the researched viewed the relationship, with sanitation service provision impacting on the environment (ecosystem) and thus changes ecosystem service benefits to humans, especially to human health.

This view holds that functioning ecosystems contribute to the wellbeing of ecological and social components of the larger environmental system and considers humans to be an explicit part of that system (Miranda et al., 2002; Munn, 2009). Any change/impact on the ecosystem, for example contamination from a sanitation facility, will result in a change in the ecosystem services which humans benefit from and thus will impact on the well-being of humans. Hence, the research discussed human health based on the ecosystems services provided and impacted on when providing subsidised sanitation services.

6.1.4 Method of determining environmental externalities

In attempting to quantify the environmental externalities of subsidised sanitation services the research makes use of a Comparative Risk Assessment (CRA) approach. Comparative risk assessment provides a systematic way of looking at environmental problems that pose different types and degrees of health risk. CRA is a structured way for experts to describe how a change might impact on an ecosystem service in question and thus on human health. It is both an analytical process and a methodology for prioritizing complex problems.

A CRA includes the identification and description of a number of components and relationships related to provision of subsidised sanitation services (Figure 9). Firstly, is identification of the actual pressure (stressor) which is causing the environmental change. Pressures (stressors) are caused by human activities (such as generation of human waste) or by natural events (such as occurrence of

a drought) (Figure 9). It is often necessary to quantify the environmental risks from these stressors to guide management decisions and interventions. CRA provides a structured method for assessing, comparing, ranking and describing formally the resulting from stressors on this environment.

Stressors lead to a number of hazards to the ecosystem asset. The hazard is that aspect of the stressor which can cause an adverse effect (i.e. ammonia in urine) on the ecosystem asset, while the ecosystem asset is equivalent to the bio-physical component of the ecosystem upon which a flow of ecosystem services depends (i.e. soil fertility).

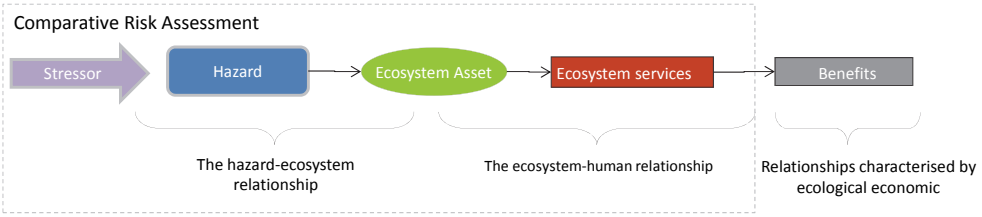


Figure 9: component required, and thus steps, to a CRA.

A CRA thus begins by describing/identifying the hazards to a particular asset as a result of a stressor. This is followed by the identification and description of the ecosystem service which will be affected by hazard effects on the asset.

For each hazard-asset-service relationship that has been identified and described, the question is asked 'what is the likelihood that this ecosystem service be affected by the impact of the hazard on the asset?' The likelihood is the probability of an effect on the asset and is determined for each relationship based on the criteria shown in Table 13 below.

Table 13: Qualitative and quantitative classes of likelihood of an environmental effect, or resultant change in the flow of an ecosystem service having an environmental consequence to a service from an environmental asset in the ecosystem adapted from the classification adopted by the IPCC (2007).

Likelihood rating	Assessed probability of occurrence	Description
Almost certain	> 90%	Extremely or very likely, or virtually certain. Is expected to occur.
Likely	> 66%	Will probably occur
Possible	> 50%	Might occur; more likely than not
Unlikely	< 50%	May occur
Very unlikely	< 10%	Could occur
Extremely unlikely	< 5%	May occur only in exceptional circumstances

This is followed by the question 'what would be the consequences of the impact on the asset to the delivery of this ecosystem service?' The consequence of the hazard is the change in the ecosystem

service from the environmental effect of the development on the exposed asset and is evaluated based on the levels shown in Table 14 below.

Table 14: Qualitative measures of consequence to environmental services in an ecosystem arising from the hazards.

Level of consequence		Environmental effect
1	Severe	Substantial permanent loss of environmental service, requiring mitigation or offset.
2	Major	Major effect on the asset or service that will require several years to recover, and substantial mitigation.
3	Moderate	Serious effect on the asset or service, that will take a few years to recover, but with no or little mitigation.
4	Minor	Discernible effect on the asset or service, but with rapid recovery, not requiring mitigation.
5	Insignificant	A negligible effect on the asset or service.

Once the likelihood and consequence is known for each of the hazard-asset-service relationships, the level of risk can be determined as the product of likelihood and consequence in the event of an environmental effect on an asset. Thus:

Risk to ecosystem service = f(likelihood, consequence) of environmental effect on an ecosystem asset.

Figure 10 shows how the likelihood and consequence rating are combined to determine the risk as:

- Low (L) requiring no to little response;
- Medium (M) requiring local level response;
- High (H) requiring regional level response; or
- Very High (VH) requiring national level response.

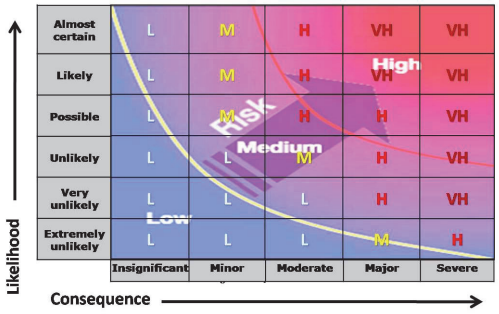


Figure 10. Levels of risk, assessed as the product of likelihood and consequence in the event of an environmental effect on an ecosystem asset (Adapted from Australian/New Zealand Standard on Risk Management (2004)).

A summary of the CRA for open defecation, which is the same as utilising a poorly constructed, operated and maintained subsidised toilet, as a promoter and stressor to ecosystem services is shown in the Figure 11.

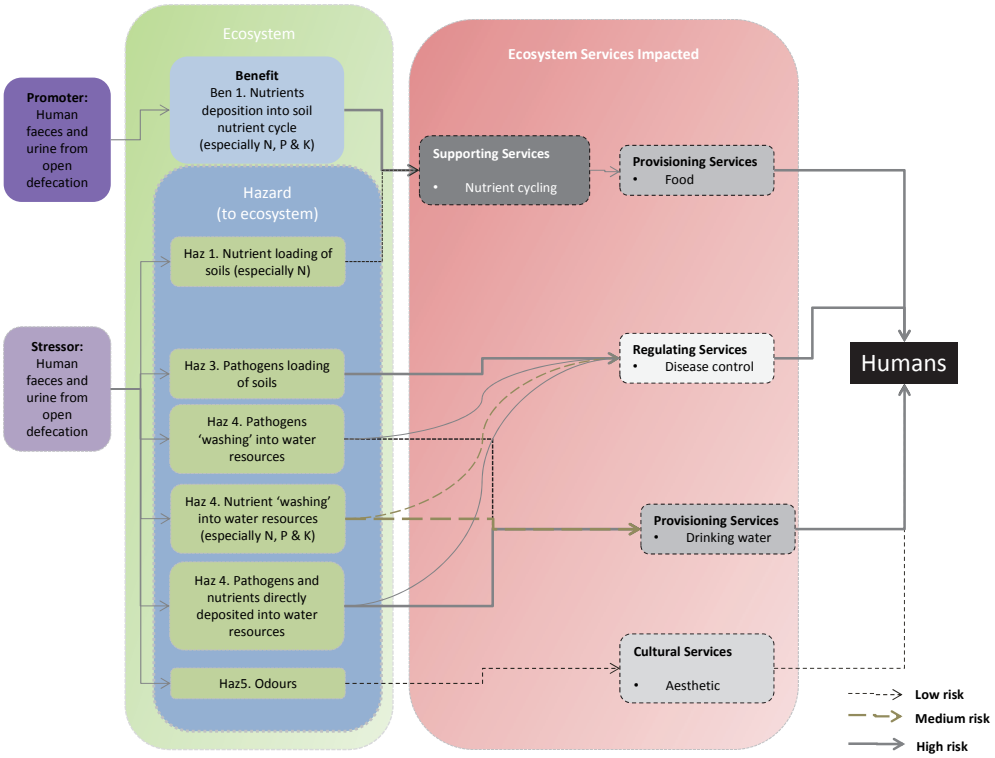


Figure 11: Diagrammatic representation of the benefit/hazard-asset-service risk relationships as a result of open defecation.

The environmental risk (cost) assessment of open defecation recognises that it is not open defecation which poses a risk to ecosystem services, but rather the excretion of faeces and urine into the environment. Again, the faeces and urine itself is not the hazard to the ecosystem service, but rather components (physical, chemical characteristics) within the urine and faeces (i.e. nitrogen in urine; pathogens in faeces). The risk assessment thus discusses open defecation based on these hazards which it poses to ecosystem services and thus risk to the benefits humans gain from the ecosystem.

6.1.5 Full Cost of Subsidised Sanitation Service Provision

Where subsidised sanitation environmental costs differ from open defecation costs related to the effect on the soil nutrient cycling ecosystem services. Since on-site sanitation services generally

confine human excreta in pits/vaults/tanks, the nutrients in excreta are temporally lost to the soil nutrient cycle. By failing to return this natural fertilizers to the land, sanitation systems deplete the soils of nutrients (especially Nitrogen and Phosphorus), ultimately diminishing food supply (Esrey, 1998). In Southern Africa, each hectare of cultivated land loses an average 22kg nitrogen, 28kg potassium and 6 kg phosphorus annually (South African Research and Documentation Centre, 1994), equivalent to the resource value of 30 people – 6 people to replace the nitrogen, 20 to replace the potassium and 15 to replace phosphorus (Esrey, 1998; Jonsson, 1997). By containment of excreta, specifically in sealed pits and septic tanks, the nitrogen, potassium and phosphorus content, which were extracted from soils by the plants eaten by people, are largely lost to the soil nutrient cycles. These nutrients generally end up in the water cycle, when containment tanks are emptied and content transported to wastewater treatment works. The research assumed in this study that this risk does not relate to UD systems as the content of a vault is returned to the environment in a soakaway or buried in the garden.

The environmental cost of VIP, low flow and septic tank on-site subsidised sanitation to nutrient cycling ecosystem service is the cost related to loss of nitrogen fertilizer (discussed as a benefit of open defecation above), estimated to be R65.28 per household or R 49 million cost to the national soil nutrient cycling ecosystem services. Figure 12 below does show this cost is however such a small cost per unit that it cannot be clearly displayed on the figure.

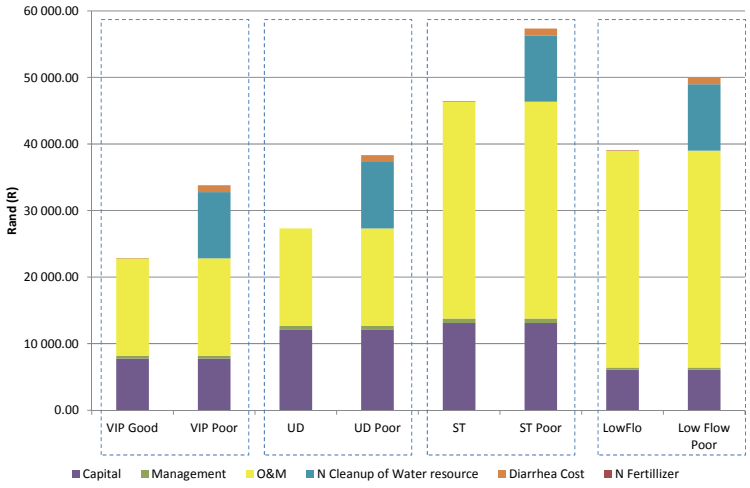


Figure 12: Full cost of subsidised sanitation service provision in South Africa, showing cost for well-constructed, operated and maintained facilities (good) and cost for facilities for poorly constructed, operated and maintained systems.

Figure 12 shows that the cost of providing a subsidised sanitation service thus reduces the cost to a household and to the economy of this environmental risk to ecosystem services. However, if the subsidised sanitation services is not constructed correctly or is inadequately and inappropriately operated and maintained, many of these environmental risks will be high and will result is environmental costs.

It is important to note that at least 3.2 million households (26%) of South Africans already have poorly maintained facilities (The Presidency and DHS, 2012). Poorly constructed or inadequately operated and maintained (O&M) sanitation facilities thus results in ecosystem degradation, which, in-turn impacts on exposure to and transmission of faecal-related pathogens. This is what happens when the ecosystem has exceeded its carrying capacity[67] to assimilate waste and process it (Nadkarni, 2004). The environmental effects of provision of incorrect or poorly maintained sanitation services is thus, realised through the effects this environmental contamination/contamination have on humans.

This is clearly demonstrated by the full subsidised sanitation costs shown in Figure 12. The figure shows that the full cost of subsidised sanitation facilities which are well constructed, operated and maintained is effectively the full supply cost of the facilities, i.e. no environmental externalities. As mentioned in section 6.1.1, this amounts to R22 800 for a VIP facility, R27 300 for a UD facility and R46 400 for a septic tank system (adjusted to 2012 prices).

Figure 12 also shows that when a facility is incorrectly constructed, operated and maintained, all the environmental costs related to open defecation are applicable. This means that due to damage to a number of ecosystem services, the cost of supplying a subsidised VIP toilet increases to R33 800, a 32% increase in unit cost. Similarly, UD costs increase to R38 300 (29%) and the unit cost increase of septic tanks increased to R57 300 (19%). This cost should be a wake-up call and incentives for municipalities to ensure responsible and effective use of sanitation subsidies in South Africa.

It should be noted that not only the above mentioned hazards will result from poorly constructed, maintained and operated subsidised sanitation system, but additional environmental costs may result from contamination of water resource by these systems, which would further impact on freshwater provision services. If subsoil conditions of on-site sanitation are not permeable enough and the soak ways not big enough to ensure that effluent does not surface, it poses a direct health risk from

---

[6] Assuming 5 individuals per household

[7] Carrying capacity is defined as the maximum rate of resource consumption and waste discharge that can be sustained without progressively impairing the functional integrity and productivity of ecosystem (Nadkarni, 2004)

microbiological contamination for the user of the system, and can also be washed off the surface by rainfall directly into surface watercourses. This is of particular concern to the individuals that rely entirely on surface water as their drinking water resource. Impacts on freshwater provision services can also impact on the biodiversity of this system and thus on other provisioning services such as fish as food.

If should be noted that the research has limited the environmental cost to the facilities. Excreta containment compartments are designed with a limited life-span of between 5-10 years depending on the size of the pit and the number of people making use of the facility. These will eventually require emptying through mechanical suction of the sludge or other methods. Emptying processes have additional hazards and disposal of the collected production also posses' additional problems in rural areas of the country. The research will attempt to cost the environmental cost of emptying risk in the future deliverables.

It is important to note that since the VIP and UD are dry systems, they only receive excreta and cleansing materials during usage. However, since the LOFLOS and full-flush septic tank systems are wet systems, these systems may also receive greywater. The water used to flush these systems in South Africa has been treated to potable water quality levels. Thus, there is a treatment cost related to getting this water to potable quality and a cost related to distribution of this water to the household for flushing of the facilities. The research has assumed the environmental cost of utilising potable water to flush these systems as captured in the O&M costs related to the full supply cost of the facility (see Figure 12 above).

Finally, since there is very often a time lag between contaminant discharge and its impact being felt, it is possible for individuals and government to ignore pollution from sanitation systems for a period of time. However, this often results in a 'tipping point' being reached (i.e. as assessment of wastewater treatment works has shown in the Green Drop Assessment), at which the cost of the pollution would then be the cost of clean-up in the future (discounted to the present) plus the value of the loss of amenity, etc. for the period for which that loss applied (van Ryneveld et al., 2001).

CHAPTER 7: PERCEIVED AND ACTUAL DRIVERS OF CHANGE IN THE FULL COST OF SUBSIDISED SANITATION

Below the research provides some of the sector perceptions of drivers of subsidised sanitation costs, mentioned by stakeholders which were interviewed and in various sanitation reports. Where possible the research has attempted to assess whether these perceptions are fact.

7.1.1 Budget Allocations as a Driver Of Subsidised Sanitation Cost

One of the key drivers of the cost of subsidised sanitation services is the availability of budget to deliver these services, particularly the availability of municipalities to provide the sustainability O&M budgets related to free basic sanitation services.

The Free Basic Services form a large component of the Equitable Share allocation to provinces every year. It is intended to provide municipalities with sufficient funds for the operational costs of providing free basic services to their poor households. These FBS apply to indigent households which received sanitation services from all sources, including through the household sanitation programmes and through the housing subsidy programmes.

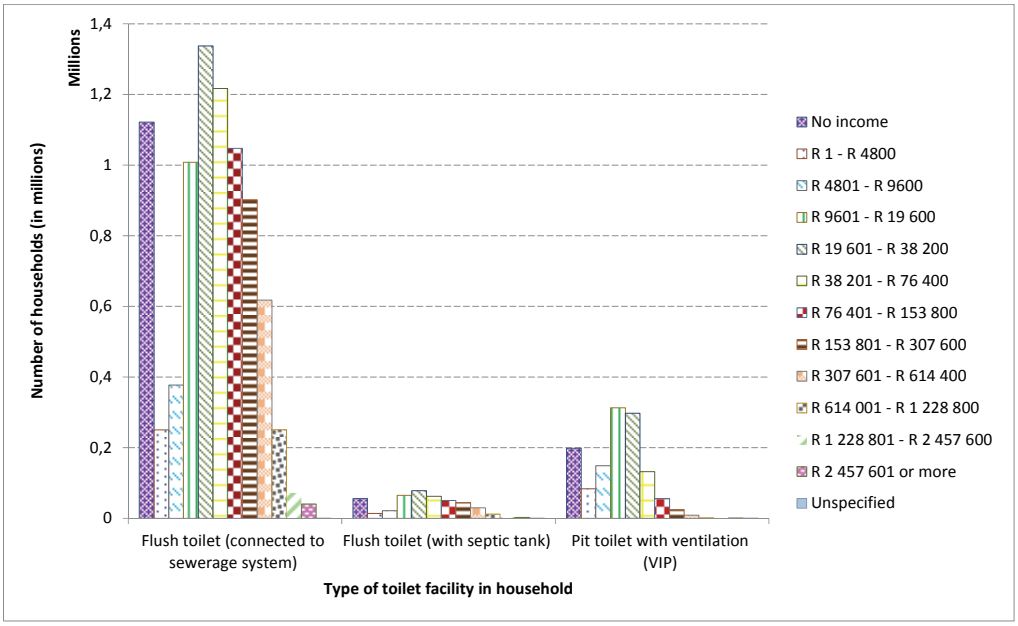
DoRA Bill (2013) acknowledges the difficulty with defining and identifying beneficiaries of the Local Government Equitable Share (LES) operation and maintenance sanitation subsidy, and provides details as to how local government should apply an “affordability threshold” to calculate beneficiaries of the subsidy (see Box 2 below) (South Africa, 2013). According to the DORA Bill (2013), the 2011 Census was used to determine beneficiary households in the original LES formula, using a household income level of R800 per month as an affordability threshold (Treasury, 2013). Estimates in 2001 showed that approximately 47% of households in the country fell below this threshold and qualified for free basic services (Treasury, 2013). Assuming a similar affordability threshold would be used after the 2011 Census, the equivalent household income level in 2011 would be approximately R1 500 (inflation adjusted from 2001). However, the LES in 2013 has utilised a new affordability threshold of R2 300 per month, which is substantially higher in real terms than the approximated R 1500 (see Box 2 below for explanation for the new LES affordability threshold) (South Africa, 2013). This higher affordability threshold will result in more households in the country qualifying for subsidised basic services, with the DoRA Bill (2013) estimating 59% of households in the country falling below the threshold and thus qualifying for inclusion in the LES formula (South Africa, 2013). The DoRA Bill indicates that R2300 will be the official poverty line in the country and should be utilised by municipalities to determine indigent households under their jurisdiction (Treasury, 2013). Local government is not obligated to provide all households under this poverty line with free basic services. They will however be required to provide clear reasons, after consultation with communities, as to

why they are not including all the households under the poverty in the LES formula (South Africa, 2013).

Box 2: Extract from the 2013 DORA Bill related to the use of affordability thresholds to determine beneficiaries of basic service subsidies.

This component helps municipalities provide free basic water, sanitation, electricity and refuse removal services to households that fall below an affordability threshold. During the consultation process it emerged that municipalities would prefer the formula's affordability measure (used to determine how many households should be targeted for free basic services) to be based on the level of two state old age pensions. When the 2011 Census was conducted, the state old age pension was worth R1 140 per month, two old age pensions were therefore worth R2 280 per month. A monthly household income of R2 300 per month has therefore been used to define the formula's affordability threshold. Statistics South Africa has calculated the number of households in each municipality that fall below this income level in the 2011 Census. The basic services component provides a subsidy of R278 per month in 2013/14 for the cost of providing basic services to each of these households. The allocation to each municipality is calculated by multiplying this monthly subsidy by the number of households below the affordability threshold in each municipal area.

Below the research provides a short summary of the latest census data which have sanitation subsidy implications. Figure 13 shows the latest South Africa (2011) household sanitation service levels statistics based on household income levels.



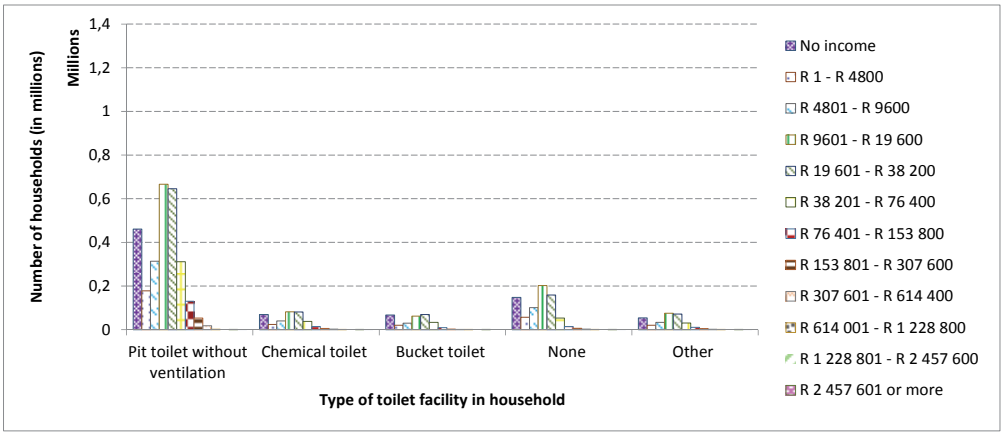


Figure 13: Number of household in South Africa in 2011 with access to each level of sanitation services, by household income levels (StatsSA, 2011). Top graph include household with an acceptable basic level of service while the bottom graph shows households with a below basic level of service.

From Figure 13 the following are noted:

At least 4.2 million (29%) households in South Africa do not have access to a basic level[8] of sanitation service. However, governments subsidy responsibility (which focusses on indigent) extends to only 1.5 million (10.5%) of these households as the remainder have household incomes of > R19 600 per annum, which is generally above the poverty line of $1 per person per day.

At least 8% (1.1 million) of households that indicated no household income had access to a flush toilet (septic tank or connect to the sewer system). This figure has O&M subsidy implications. If low income[9] households are added to this, at least 1.44 million (10%) indigent households have flush toilets connect to the sewer or to septic tanks.

At least 36 600 (0.3%) higher income[10] households make use of a VIP toilet. VIP toilets are usually associated with a government sanitation programme, hence one could assume either, on the positive side, these households applied the principles of the government subsidised sanitation programmes and have built the toilets for themselves, or, on the negative side, these households have benefitted from the government subsidised sanitation programme which is intended for poor households. In a country of R14 million households this does seem like a small number of households, however if these households are assumed to benefit from the subsidy it would equate to R 256 million (assuming a subsidy of R7000 per household) of the fiscus.

The average proportion of the free basic sanitation services allocation for services to poor households, as specified in the 2011 Division of Revenue Bill, is R125.36 per household for serviced households (households with water based facilities) and R56.41 (per household) for unserviced households (includes households with VIPs). Using the latest 2011 census date national government will need to make provision from the fiscus for R 365 million per month (R 4.4 billion per annum) to be able to provide this free basic sanitation services to each serviced (flush toilet) poor household and R42 million per month (R 503 million per annum) for unserviced (VIP toilet) households. These costs will increase as more poor households gain access to sanitation services through MIG and other grant processes. Although one could argue that not all 744 thousand poor households with VIPs will currently require this emptying O&M free basic service, Still and Foxon (2012) reported that 683

[8] Without access is deemed to be households with a pit toilet without a ventpipe, a bucket toilet, a chemical toilet and those with none toilet at all.

[9] Assuming income < R 19600 per annum as equivalent to 1$ per person per day in a household of 3.5 individuals

[10] Assumes household income of >R153 800 per annum

thousand of the VIP toilets in their study were reported by the WSAs to 702 thousand VIP toilets in the represented municipalities were 5 years or older.

Similarly, effective finance strategies to subsidised sanitation and housing interventions require adequate budgets, which in turn depends on an adequate assessment of how sanitation and housing demand is likely to change in future. The factors that need to be considered in projecting this future demand include the current sanitation and housing context, demographic growth, economic growth and the change in supply given private and public sector provisioning.

If subsidies are unavoidable then the question is how to use them effectively, ensuring the poorest benefit. Instead of direct subsidies to households, financial support can be given to businesses and banks to make sanitation more affordable to the poor. Instead of subsidies up-front, and having a budget for it, they can be given after completion of construction and managed through community committees that can also negotiate with the private sector for lower construction costs. It is also recommended that clear and transparent indicators should be used to determine which households are eligible for toilet subsidies or for loans to avoid having a large budget on sanitation subsidies.

7.1.2 Emergency situations as a driver

An emergency, such as the cholera outbreak of 2000/2001 may have influenced the cost of subsidised sanitation. It certainly focussed greater attention and inputs into sanitation service provision, with a significant leap in resource inputs and delivery of this service over that time period. One of the key changes in the sector at the same time, was the increase of the sanitation subsidy from the R900 to R1200 in 2002. Thus, the focus on sanitation as a result of the emergency situation does seem to have resulted in a review of the subsidy situation. In addition, the outbreak resulted in significant financial resources being dispersed to the affected province to implement fast-track sanitation programmes.

It is recommended that sanitation interventions be demand-driven and not reactive, thus avoiding situations of ‘rushed’ interventions and a focus on reaching national targets to address backlogs. South Africa is already experiencing an increase in demand for sanitation, currently materialising in negative service delivery protests across the country. Targeted, effective and responsible use of sanitation subsidies would go a long way to addressing some of these demands. Disaster management policies need to be brought into the subsidised sanitation services environment.

7.1.3 Inflation as a driver

There is a growing perception amongst sanitation practitioners in South Africa that the capital cost for construction of a basic sanitation facility in the past 10 years has escalated at an unreasonably high (i.e. not inflation related) rate. To determine whether this perception is correct and whether inflation is

driving an increase in the full supply costs of subsidised sanitation, the capital/ISD cost of sanitation shown in Figure 14 were adjusted for inflation.

Linear regression analysis of the VIP cost trendline that has been adjusted to account for inflation still shows a positive trend over time. The analysis indicates a per annum increase of R773. The R-squared measurement for this trendline is 0.0862 indicating that only 8.62% of this variation of VIP per unit cost over time can be explained by per annum increase in price. Results for UDs were similar in that the per annum increase of R729 was obtained, however 31% of this variation in the UDs per unit cost over time can be explained by the per annum increase in price.

Figure 14: Inflation adjusted capital/ISD cost for the various subsidised sanitation facilities in South Africa.

7.1.4 Construction input prices as a driver

There are three industry cost trends in the graphic which illustrated the prices of inputs into construction. Specifically the Commodity Industrial Inputs Index, the Cement Retails Price and the Cement Brick Price. The scale of the data for these trends was proportionally modified to make them directly comparable with the sanitation costs illustrated on the graph. The data for these trends were obtained from Statistics South Africa.

Figure 15 reflects the effect of the economic downturn on the building confidence index, post 2007.

Linear regression analysis of the VIP cost trendline against the cement retail price. The R-squared measurement for this trendline is indicating that 9.9 % of this variation of VIP per unit cost over time can be explained by the variation in the cement retail price. Results for UDs show a per annum increase 16.7% of the variation in the UDs per unit cost can be explained by the variation in the cement retail price.

Linear regression analysis of the VIP cost trendline against the building confidence index, with resulting showing that 8.05% of the variation in the per unit cost of VIPs can be explained by the variation in the building confidence index. Results for the variation in the per unit costs of UDs could not be explained by the variation in the building confidence index.

Thus, to avoid escalating cost of sanitation subsidies due to rising cost of sanitation input costs, there is a need to stimulate demand for toilets while simultaneously improving the supply side construction input prices. For example, in the sanitation marketing pilot project in Vietnam, programme funding was used for raising demands for toilets and improving the supply side. This pushes the private sector to diversify its toilet products and financing options, and come up with cheaper and diverse toilet designs. It is therefore, recommended that appropriate sanitation financing mechanisms for the poor should go beyond hardware subsidies, and take into account hardware and software, capital and operational expenditure, the type of sanitation system being built, and consumer demand. Stimulating demand for toilets needs to go hand in hand with supporting service provision.

7.1.5 Subsidy as a driver

One of the suspected drivers of subsidised sanitation supply costs was the subsidy itself. The perception was that since a certain maximum subsidy amount was available for each sanitation unit, this would dictate the supply cost of the unit, i.e. if the unit subsidy was R4500 then no system would be provided at a lower cost. However, Figure 14 shows that the unit supply cost (capital, management and ISD) of sanitation facilities is generally higher than the subsidy ceiling. Costs were estimated at R8 150 for a VIP, R12 660 for a UD system and R13 760 for the on-site component of a septic tank system. The subsidy therefore, seems to follow these costs, rather than driving these costs.

Thus, household cash subsidies in favour of one specified costly design may distort the market and stifle service provision. Thus, it would be more beneficial to provide households with a range of sanitations options within a ‘free’ market environment to allow them to decide on the facility they wish

to ‘invest’ in with their subsidy and to find the most cost effective provider (i.e. contractor) of this service. This would however require strong oversight and on-going monitoring of these activities. Moreover, toilet construction is just one step and households may require construction of a second toilet once a pit or septic tank is full. Thus, instead of providing cash to households for construction of toilets there is need to financially support viable businesses/employment creation to empower people to address this need and ensure on-going sustainability. A broad range of subsidy options for different parts of the sanitation value chain (not just cash subsidies) should be considered. Inclusive approaches should also focus on stimulating the private sector, banks and local business to serve the poor.

7.1.6 Double accounting for subsidy

PDG (2011) *indicates that that the housing subsidy does not cover the entire costs of delivering a BNG house, and the balance is covered by hidden subsidies provided by the municipality in most cases. Where the housing subsidy is insufficient to cover the cost of services, MIG funding has been used by municipalities, although this is specifically excluded in the MIG policy in order to avoid ‘double’ subsidies. But it is seldom that MIG funding for internal services for low-income housing development is sufficient. Most often, if the municipality is topping up the cost of internal services to low-income households, this is done from their own sources of capital, using either internal reserves or borrowing. Given the obvious financial challenges that are faced in the sector, the dominant interventions are likely to be those that combine the dedicated state funding sources with maximised contributions from households and the private sector*.

CHAPTER 8: SUMMARY OF GAPS AND CHALLENGES IN THE SUBSIDISED SANITATION POLICY ENVIRONMENT

The policy and procedure review provided above, and the evaluation of subsidy programmes in various countries by Trémolet et al. (2010) are applied below to provide tentative recommendations to address some of the sanitation subsidy gaps and issues in South Africa.

Due to the complexity of sanitation services delivery the sector requires continuous evaluation and monitoring of the policies, guidelines and procedures. There appears to be a number of gaps in the national and municipal sanitation policies affecting the smooth provision of basic sanitation services in South Africa, including:

- The national sanitation policy does not provide guidance on the interpretation of access to basic sanitation as a human right. As a result municipalities encounter problems with defining the poor and the narrow definition of 'indigent'; e.g. some municipalities use income equal or less than two state pensions or social grants per household per month as the qualifying criteria for indigent, while others use property/land value to determine if a household qualifies.

- The Municipal Infrastructure Grant (MIG), the largest allocation to municipalities to subsidise the capital costs of providing basic services to disadvantaged and poor households, does not cover operation and maintenance costs of on-site systems. The Local Equitable Share grants which do address these gaps are unconditional grants where municipalities can decide where these funds should be utilised, i.e. no FBSan ring-fencing of grant funding. Since these funds are often utilised to support the basic functions of the smaller municipalities or are allocated to other municipalities priorities, the FBSan grants may often not reach all South Africans who should ultimately benefit from these, let alone indigents who are the priority beneficiaries of these grants. There is a need for policy to guide municipalities on the ring-fencing of operational budgets for provision of basic sanitation services.

- The sanitation policies do not provide clarity on the roles and responsibilities between government departments involved in the delivery of sanitation services.

- The linking of the roll-out of basic sanitation to housing delivery programmes through the National Housing Subsidy Scheme (NHSS) may not be the most effective means of delivery of these services due to the same long delays experienced in housing delivery being experienced in the sanitation service provision sector. This has forced poor and indigent households to wait for long periods, sometime years, being allocated a housing subsidy (and a house) and gaining access to basic sanitation services.

- There are gaps in the national policy with regards to guidelines for the provision of basic sanitation services to households who have no property rights (i.e. renting or those on private land).

- Policy guidelines for solid waste disposal in dense urban informal settlements and rural settlements are lacking and the sanitation policy does not address institutional sanitation including provision of public toilets in informal settlements.

- One major gap in the sanitation related policies is that there is too much focus on toilet construction with limited or no attention paid to the health and hygiene education (H&HE) component of sanitation and no budgets allocated to incorporate this component into free basic sanitation service delivery sanitation.

- There are no clear guidelines on how the private sector can participate in the sanitation delivery process.

- The policies also do not make special provisions for subsidising basic sanitation services for the severely marginalised groups, such as people with physical disabilities, elderly, women, children, HIV/AIDS infected individuals and child-headed households.

The following are **recommendations** to address these gaps in the policies and procedures:

- There is a need for national standards for minimum acceptable level of a basic sanitation service that meet the requirements of constitutional rights to an environment that is not harmful to the health of all people. Municipal by-laws should include all aspects of a basic sanitation service as stated in the policy definition of a basic sanitation service such as H&HE, grey water management in dense urban informal settlements, refuse removal, etc.

- Policies should be put in place to ensure ring-fencing of long-term operation and maintenance funding of on-site and other sanitation systems by municipalities, initially for indigent households but later for all South Africans (as is required by policy).

- It is recommended that the sanitation functions related to infrastructure, software, education, policy, regulation, etc. be consolidated under a single department with the requisite knowledge and skills to understand and address the complexities of sanitation service delivery beyond the scope of simply providing a facility but rather in the context of the interrelationship between water, sanitation and social needs.

- Policy guidelines are needed for the integration of water conservation and water demand management strategies into the delivery of basic sanitation services and appropriate economic and legal instruments for enforcing compliance.

- The provision of interim basic services in informal settlements is critical, and services should be provided regardless of whether there is a long-term plan for upgrading the settlement or not, or whether the settlement is situated on state- or privately-owned land.

- In general, all households should pay the full operating and maintenance costs of the sanitation services consumed. Exceptions to this should only be made for truly indigent households for which separate welfare support should be sought. Indigent policies need to be reviewed and criteria for determining indigents within the subsidised sanitation sector need to be refined.

- In the context of renters and people without legal tenure, who have no incentive to invest in a toilet, focusing on subsidies for these indigent households are not applicable. It is recommended that policies and guidelines to be developed.to address these needs.

- Policies and guidelines to allow the various forms of private sector participation in the provision of basic sanitation should also be adopted by municipalities.

This section provides recommendations to address and counteract the drivers of change in sanitation subsidy costing within these policies, processes and procedures.

CHAPTER 9: CONCLUSION

Perhaps the key conclusion which can be drawn from the above review is that the provision of sanitation services utilising subsidies may be one of the most difficult regulatory environments in which to operate in South Africa, largely due to the lack of clarity and often conflicting legislation, policies and strategies from national to local government levels. To meet their Constitutional mandates and be able to deliver effective and responsible basic sanitation services to all South Africans, all sectors of government need to understand the interactions, overlaps, gaps and conflicts in subsidised sanitation-related policies, processes and procedures.

The financial component of the basic sanitation service sector would benefit significantly from a set of guidelines which could bring all these confusing and contradictory policy documents and instruments under a single set of guidelines, bringing together water services, housing, indigent, municipal and financial requirements of the subsidised sanitation sector. These guidelines could provide significant support to the sector, at a national, provincial and local government level.

CHAPTER 10: REFERENCES

ARGOSS (2001). Assessment the risk to groundwater from on-site sanitation (ARGOSS). UK Department of International Development (DFID), Words and Publication, Oxford, UK.

BARKER J. AND BLOOMFIELD S. F. (2000) Survival of Salmonella in bathrooms and toilets in domestic homes following salmonellosis. *J Appl Microbiol* 89(1): 137-44.

BARRETT M. (2002). Groundwater and sanitation; nutrient recycling and waterborne disease cycles. *Personal Communication:* Robens Centre for Public and Environmental Health. University of Surrey, UK.

BURGER A, PEARCE D and CRAFFORD J. 2012. In connection with an analysis of water pricing instruments governed by the DWA Water Pricing Strategy, and its potential for generating revenue for CMA's. Unpublished WRC Progress Report. Project K5-2078. Pretoria, South Africa. Water Research Commission of South Africa.

CARR R. (2001). Excreta-related infections and the role of sanitation in the control of transmission. In: WHO (2001). Water quality – guidelines, standards and health. Fewtrell, L., and Bartram, J. (eds). World Health Organisation, Geneva, Switzerland.

CAVE B. AND KOLSKY P. (1999). Groundwater, latrines and health. WELL Study, Task No:163. London School of Hygiene and Tropical Medicine, UK and WEDC, Loughborough University, UK.

CIC (2007). A comparative cost-benefit analysis of development options in the Port of Durban. Client confidential document.

CITY OF CAPE TOWN (2008). Water and sanitation service standard. Preliminary draft 2. [Online]. Available: http://www.capetown.gov.za/en/Water/Documents/Water%20and%20Sanitation%20Service%20Standards.pdf

COGTA (2010). Industry Guide. [Online]. Available: http://www.cogta.gov.za/

COGTA AND DBSA (2011). The Municipal Infrastructure Investment Framework (MIIF). An assessment of investment requirements for municipal infrastructure and implications of such investment.

COHRE, AAAS, SDC and UN-HABITAT (2007). *Manual on the Right to Water and Sanitation.* Centre on Housing Rights and Evictions, Geneva, Switzerland

COMPTON J.E., HARRISON J.A., DENNIS R.L., GREAVER T.L., HILL B.H., JORDAN S.J., WALKER H and CAMPBELL, H. (2011). Ecosystem services altered by human changes in the nitrogen cycle: a new perspective for US decision making. *Ecological Letters*, 14: 804-814.

CONSTITUTIONAL COURT OF SOUTH AFRICA (2000). Government of the Republic of South Africa and Others v Grootboom and Others (CCT11/00) [2000] ZACC 19; 2001 (1) SA 46; 2000 (11) BCLR 1169 (4 October 2000). [Online]. Available: http://www.saflii.org/za/cases/ZACC/2000/19.html

CORDELL D., DRANGERT J.O., WHITE S., 2009a. The story of phosphorus: global food security and food for thought. Global Environ. Change 19, 292-305.

DE LA HARPE (undated). Strengthening local governance for improved water and sanitation services. IRC International Water and Sanitation Centre

DEPARTMENT OF HOUSING (1994). New Housing Policy and Strategy for South Africa: White Paper. [Online]. Available: www.gov.za

DEPARTMENT OF HOUSING (2004). BREAKING NEW GROUND. A Comprehensive Plan for the Development of Sustainable Human Settlements. [Online]. Available: www.gov.za

DHS (2009a). *The National Housing Code*. [Online]. Available: http://www.nwpg.gov.za/HumanSettlements/Nationalhousingcode.asp

DHS (2009b) National Norms and Standards for the Construction of Residential Structures

DHS (2010). *National Housing Policy and Subsidy Programmes*. [Online]. Available: http://www.kznhousing.gov.za/Portals/0/docs/Policy&Legislation/National_Policy_&_Legislation/National%20Housing%20Policy%20and%20Subsidy%20Programmes.pdf

DHS (2012). SOCIAL HOUSING ACT, 2008. SOCIAL HOUSING REGULATIONS No. R. 51. Government Gazette No. 34970., 26 January 2012. [Online]. Available: www.gov.za

DHS KZN (2013). Policy Communiqué. Circular No.1/2013. Date : 5th February 2013. [Online]. Available: http://www.kzndhs.gov.za/Portals/0/docs/Policy&Legislation/comm/Com_%201%202013.pdf

dplg (2004). Policy Framework for the Introduction of the Municipal Infrastructure Grant (MIG). Concise version – final. Amended by the Municipal Infrastructure Task Team 5 February 2004. . [Online]. Available: http://www.cogta.gov.za/mig/docs/2.pdf

dplg (2005d). Study to Determine Progress with and Challenges Faced by Municipalities in the Provision Of Free Basic Services & Supporting those Municipalities Struggling with Implementation. Final Study Report. [Online]. Available: www.cogta.gov.za/.../77-**free**-**basic**-**services**-**study**-2005.html

dplg (2005e). *The Municipal Infrastructure Grant. Basic Level of Service and Unit Costs: A guide for municipalities*.

dplg (2005a) National Framework for Municipal Indigent Policies. [Online]. Available: iphone.cogta.gov.za/.../739-**municipal**-**indigent**-**policy**-**nationa**…

dplg (2005b). Study to Determine Progress with and Challenges Faced by Municipalities in the Provision Of Free Basic Services & Supporting those Municipalities Struggling with Implementation. Final Study Report. [Online]. Available: www.cogta.gov.za/.../77-**free**-**basic**-**services**-**study**-2005.html

dplg (2005c). Guidelines for the Implementation of Municipal Indigent Policies**.** . [Online]. Available: iphone.cogta.gov.za/.../739-**municipal**-**indigent**-**policy**-**nationa**…

dplg (2006). Municipal Infrastructure Grant. National MIG Management Unit Programme Management Processes and Procedures. [Online]. Available: http://www.cogta.gov.za/mig/docs/1.pdf

dplg (2007). The Municipal Infrastructure Grant. From programme to projects to sustainable services. Department of Provincial and Local Government. Pretoria South Africa. [Online]. Available:

http://www.solplaatje.org.za/downloads/project%20management/MIG%20BOOKLE%20PDF.pdf. Accessed on 23 December 2012

dplg (undated1). National Framework for Municipal Indigent Policies. [Online]. Available: iphone.cogta.gov.za/.../739-**municipal-indigent-policy-nationa**…

dplg (undated2). Guidelines for the Implementation Of Municipal Indigent Policies

Drangert, J.O., 1998. Fighting the Urine Blindness to Provide More Sanitation Options. <http://www2.gtz.de/Dokumente/oe44/ecosan/en-fighting-urineblindness-1998.pdf>

DWA, THE PRESIDENCY AND DEPARTMENT OF HUMAN SETTLEMENTS (2012). Sanitation Services – Quality of Sanitation in South Africa. Report on the Status of sanitation services in South Africa. [Online]. Available: http://www.info.gov.za/view/DownloadFileAction?id=178724

DWAF (1994). *White Paper of Water Supply and Sanitation Policy*. Government Printers: Pretoria.

DWAF (1997). *White Paper of Water Policy.* Government Printers: Pretoria.

DWAF (1997). A protocol to manage the potential of groundwater contamination from on site sanitation. *Directorate of Geohydrology*.

DWAF (2001). White paper of basic household sanitation. *Policy document.* Government Printers: Pretoria.

DWAF (2002). Free Basic Water Implementation Strategy. Version 2. August 2002. [Online]. Available: http://www.dwaf.gov.za/Documents/FBW/FBWImplementStrategyAug2002.pdf

DWAF (2002). Draft White Paper on Water Services. Water Is Life, Sanitation Is Dignity. Draft For Public Comment, October 2002. [Online]. Available: http://www.dwaf.gov.za/docs/Other/WaterServices/draft%20water%20services%20white%20paper%206.1.pdf

DWAF (2003). *Strategy for Sanitation Services to Informal Settlements*, DWAF Task Team, Pretoria. Government Printers: Pretoria.

DWAF (2004). National Sanitation Strategy: Accelerating Sanitation Sector Delivery 56.*Final Draft.* Prepared for Department of Water Affairs and Forestry National Sanitation Task Team. Department of Water Affairs. [Online]. Available: from:http://www.dwaf.gov.za/dir_ws/waterpolicy/vdFileLoad/file.asp?ID=428. Accessed on 22 December 2012

DWAF (2005). MODEL BY-LAWS PACK. Model Credit Control and Debt Collection By-laws Model Water Services By-laws. [Online]. Available: www.dwa.co.za

DWAF (2005). MODEL BY-LAWS PACK. Model Credit Control and Debt Collection By-laws Model Water Services By-laws. [Online]. Available: www.dwa.co.za

DWAF (2008). Free Basic Sanitation Implementation Strategy. Government Printers: Pretoria.

DWAF (2009). *Free Basic Sanitation Implementation Strategy*, Department for Water Affairs and Forestry, Pretoria, RSA. Government Printers: Pretoria.

DWAF (1995). National Sanitation Draft White Paper. Republic of South Africa, November 1995. [Online]. Available: www.gov.za

ELECTRICITY CONTROL BOARD (2003). Ring--fencing guideline. [Online]. Available: file:///C:/Users/Melanie/Documents/PHD/CHAPTER%201%20-%20The%20Sanitation%20Institution/RingfencingGuidelinev4.pdf

ESREY S.A (1998) Rethinking Sanitation: Panacea or pandora's box. Paper presented at the International Conference on Water, Sanitation, and Health: resolving conflicts between drinking water demands and pressures from society's wastes, Bad Elster, Germany, November 24-28, 1998.

ESREY, S., GOUGH, J., RAPAPORT, D., SAWYER, R., SIMPSON-HÉRBERT, M., VARGAS, J. *et al*. (Eds.). (1998) *Ecological Sanitation*. Stockholm: Swedish, International Cooperation Agency.,

EVANS B., VAN DER VOORDEN C. AND PEAL A. (2009). Public Funding for Sanitation. The many faces of sanitation subsidies. Geneva: WSSCC.

FEWTRELL L. AND KAY D. (2007) Quantitative Microbial Risk Assessment with respect to Campylobacter spp. in toilets flushed with harvested rainwater. *Water & Environment Journal,* 21 : 275-280.

FFC (2011). Technical Report: Submission for the 2012/13 Division of Revenue. For an Equitable Sharing of National Revenue. Fiscal and Financial Commission: Pretoria.

FFC (2012). Technical Report: Submission for the 2013/14 Division of Revenue. For an Equitable Sharing of National Revenue. Fiscal and Financial Commission: Pretoria.

FOSTER V, GOMEZ-LOBO A AND HALPERN J (1999). Designing direct subsidies for water and sanitation services: Panama – A case study; World Bank. [Online]. Available: http://www.sswm.info/sites/default/files/reference_attachments/FOSTER%20et%20al%20n.%20y.%20Designing%20Direct%20Subsidies%20for%20Water%20and%20Sanitation%20Services.pdf. Accessed on 10 January 2013

FOURIE A.B. AND RYNEVELD M.B (1995). The fate in the subsurface of contaminants associated with on-site sanitation: A review. *Water SA*, 21 (2):101-111.

GARTNER (2006). Macroeconomics. Prentice Hall. New Jersey, USA.

GERBA, C.P., WALLIS C and MELNICK J.L. (1975). Microbiological Hazards of Household Toilets: Droplet Production and the Fate of Residual Organisms. American Society for Microbiology, 30(2): 229-237.

GINSBURG A.E., CRAFFORD J.G. AND HARRIS K.R. (2010). Framework and Manual for the evaluation of aquatic ecosystems services for the Resource Directed Measures (WRC Project No. K5/1644). WRC, Pretoria, South Africa.

GOMEZ-LOBO, A., FOSTER, V., AND HALPERN, J., (2000). *Information and Modeling Issues in Designing Water and Sanitation Subsidy Schemes*, Policy Research Working Paper, World Bank, Washington D.C.

HARLAN W.P. and DICKEY E.C. (1980). Soils, absorption fields, and percolation tests for home sewage treatment. G80-154. Nebraska Cooperative, Extension Service. University of Nebraska, Lincoln, NB.

HASSEN, E-K. (2000). Of hedgehogs and foxes. Infrastructure delivery and employment creation in South Africa. Paper presented at the Forum 2000 hosted by the Trade and Industrial Policy Secretariat, Glenburn Lodge, 18-21 September 2000.

JOHNS, M. W. and LAWRENCE C. R. (1973). "Nitrate-Rich Groundwater in Australia: A Possible Cause of Methaemoglobinaemia in infants." The Medical Journal of Australia **2**(November 17): 925-927.

JONSSON, H. (1997). Assessment of sanitation systems and reuse of urine. In: Ecological alternative in sanitation: Proceedings from workshop. (eds) Drangert, J-O., Bew, J., and Winblad, U, SIDA, Balingsholm Sweden.

KAUFMANN-HAYOZ R., BÄTTIG C., BRUPPACHER S., DEFILA R., DI GIULIO A., FLURY-KLEUBLER P., FRIEDERICH U., GARBELY M., GUTSCHER H., JÄGGI C., JEGEN M., MOSLER H-J., MÜLLER A., NORTH N., ULLI-BEER S. and WICHTERMANN J. (2001) A Typology of Tools for Building Sustainability Strategies. Switzerland: Birkhäuser Verlag Basel.

KIDD, M. (2011). Environmental Law. JUTA, Cape Town, South Africa.

KOMIVES K., FOSTER V., HALPERN J. and WODON Q. (2005). Water, Electricity, and the Poor. Who Benefits from Utility Subsidies? Washington, DC: World Bank.

KVARNSTRÖM, E., EMILSSON, K., STINTZING, A.R., JOHANSSON, M., JÖNSSON, H., PETERSENS, E., SCHÖNNING, C., CHRISTENSEN, J., HELLSTRÖM, D., QVARNSTRÖM, L., RIDDERSTOLPE, P., DRANGERT, J.O. (2006). Urine Diversion: One Step towards Sustainable Sanitation, Report 2006-1, <http://www.ecosanres.org/pdf_files/Urine_Diversion_2006-1.pdf>

LENTNER, C., LENTNER, C., WINK, A., (1981). Ciby Geigy Scientific Tables, vol. 1: Units of Measurement, Body Fluids, Composition of the Body, Nutrition. Geigy Scientific Tables. Ciba Pharmaceutical Co., Basel, Switzerland.

LEWIS, W. J., FOSTER, S. S. D. ET AL. (1980). The risk of groundwater pollution by on-site sanitation in developing countries: a literature review, International Reference Centre for Wastes Disposal.

LIU Y., VILLALBA G., AYRES R.U. and SCHRODER, H., 2008. Global phosphorus flows and environmental impacts from a consumption perspective. J. Ind. Ecol. 12 (2), 229-247.

MJOLI, N. SYKES, G. AND JOOSTE, T. (2009). Towards the realization of free basic sanitation: evaluation, review and recommendations. WRC: Pretoria

MIHELCIC J.R., FRY L.M and SHAW R. (2011). Global potential of phosphorus recovery from human urine and feces. *Chemosphere* 84: 832-839

MILLENNIUM ECOSYSTEM ASSESSMENT (MA) (2005). Ecosystems and Human Well-being: Synthesis. Washington D.C.: Island Press.

MJOLI N & BHAGWAN J (2008). Free basic sanitation services – South African experience" paper presented at the IRC Symposium on sanitation for the urban poor: Partnership for governance, Delft, The Netherlands, 19-21 November 2008. [Online]. Available: http://www.irc.nl/page/46169.

MJOLI N & BHAGWAN J (2009). Turning sanitation policy into practice. Water Research Commission. [Unpublished] [Online]. Available: http://www.ewisa.co.za/literature/files/68_19%20Mjoli.pdf. Accessed 23 December 2012

MJOLI N, SYKES G & JOOSTE T (2009). towards the realization of free basic sanitation: evaluation, review and recommendations. WRC report no. TT 422/09. [Online]. Available: http://www.wrc.org.za/Knowledge%20Hub %20Documents/Research%20Reports/TT%20422-09%20Water%20Policy.pdf. Accessed on 04 January 2013

MJOLI, N. (2013). Development of a Framework for Sanitation Governance in South Africa WRC Project # 2206. Unpublished Report: Deliverable # 2 Report on International Experience of Sanitation Governance and the Assessment Framework for Sanitation Governance

MYERS, N., ET AL. (1998). Perverse Subsidies: Their Nature, Scale and Impacts, IISD, Canada. NATIONAL TREASURY, 2008

NADKARNI M. (2004). The meaning of sanitation: an ecosystem approach. Centre d'économie industrielle Ecole Nationale Supérieure des Mines de Paris: France

NSTT (1996). National Sanitation Policy. National Sanitation Task Team. Republic Of South Africa. [Online]. Available: http://www.dwaf.gov.za/dir_ws/content/lids/PDF/Strategy.pdf

PDG (2011). Submission to the FFC on "Challenges and Opportunities in Public Housing Finance in South Africa. [Online]. Available: www.**ffc**.co.za/.../67-3-pdg-**housing-finance-submission**?...

QUAYLE, LM, DICKENS, CWS, GRAHAM, M, SIMPSON, D, GOLIGER, A, DICKENS, JK, FREESE, S., and BLIGNAUT, J. (2010) Investigation of the positive and negative consequences associated with the introduction of zero-phosphate detergents into South Africa. WRC report No TT446/10.

ROGERS P, BHATIA R AND HUBER A. (1998). Water as a Social and Economic Good: How to Put the Principle into Practice. Global Water Partnership Technical Advisory Committee (TAC). Global Water Partnership/Swedish International. Development Cooperation Agency. S105-25 Stockholm, Sweden

SOUTH AFRICA (1994a). White Paper on the Reconstruction and Development Programme (RDP) of 1994. NOTICE NO. 1954 OF 1994. Government Printers: Pretoria

SOUTH AFRICA (1994b). The Housing Amendment Act No. 8 of 1994. Government Printers: Pretoria

SOUTH AFRICA (1996). Constitution of Republic of South Africa. Government Printers: Pretoria

SOUTH AFRICA (1997). Housing Act, No 107 of 1997. Government Printers, Pretoria, South Africa. Government Printers: Pretoria

SOUTH AFRICA (1997a). National Water Services Act No. 1662 of 1997. Government Printers, Pretoria, South Africa. Government Printers: Pretoria

SOUTH AFRICA (1997b). Housing Act, No 107 of 1997. Government Printers, Pretoria, South Africa. Government Printers: Pretoria

SOUTH AFRICA (1998) *Local Government: Municipal Structures Act*, Act No 117 of 1998, Cape Town.

SOUTH AFRICA (1998). National Water Act No. 36 of 1998. Government Printers, Pretoria, South Africa. Government Printers: Pretoria

SOUTH AFRICA (1999). Housing Amendment Act. Government Printers: Pretoria

SOUTH AFRICA (2000). Municipal Systems Act 32 of 2000. Government Printers: Pretoria

SOUTH AFRICA (2003). The Housing Amendment Act (1993). Government Printers: Pretoria

SOUTH AFRICA (2008). Social Housing Act No. No. 1199 of 2008. Government Printers: Pretoria

SOUTH AFRICA (2012). Division of Revenue Bill. As introduced in the National Assembly (proposed section 76); explanatory summary of Bill published in Government Gazette No. 35022 of 7 February 2012). Government Printers: Pretoria.

SOUTH AFRICA (2013). Division of Revenue Bill. Government Printers: Pretoria

SRIVASTAVA D.K., BHUJANGA RAO C., CHAKRABORTY P and RANGAMANNAR T. S (2001). Budgetary Subsidies in India. Subsidising Social and Economic Services. National Institute of Public Finance and Policy: New Delhi.

STATSSA (2012). Census 2011. [Online]. Available: www.statssa.gov.za

STEENBLIK (undated). A Subsidy Primer. Global Subsidies Initiative of the International Institute for Sustainable Development. Geneva, Switzerland.

STENSTRÖM T.A., SEIDU, R., EKANE N.AND ZURBRÜGG C. (2011) Microbial Exposure and Health Assessments in Sanitation Technologies and Systems. EcoSanRes Programme, Stockholm Environment Institute, Stockholm, Sweden.

STILL D, WALKER N & HAZELTON D (2009). Basic sanitation services in South Africa Learning from the past, planning for the future Report to the Water Research Commission WRC Report No. TT 414/09. [Online]. Available: http://beta.orangesenqurak.com/UserFiles/File/OtherV2/Basic%20Sanitation%20Services%20in%20SA%20WRC%202009.pdf. Accessed on 25 December 2012

STILL D., WALKER N. and HAZELTON D. (2009). Basic Sanitation Services in South Africa. Learning from the past, planning for the future. WRC: Pretoria.

SUSAN DESIGN (2011). Sanitation for all, an engine of economic growth for urban Africa: About time to get the shit out of town. Oslo, Norway. Sustainable Sanitation Design.

SWARTZ, CD, THOMPSON, P, MADURAY, P, OFFRINGA G and MWIINGA G (2013). Manual for a Costing Model for Drinking Water Supply Systems. Water Research Commission, Pretoria, South Africa

THE PRESIDENCY AND DHS, 2012. Sanitation Services – Quality of Sanitation in South Africa. Report on the Status of sanitation services in South Africa. Executive Summary. Unpublished report.

TISSINGTON (2012). Basic Sanitation in South Africa: A Guide to Legislation, Policy and Practice. Socio-Economic Rights Institute of South Africa (SERI): Johannesburg.

TISSINGTON K, DETTMANN M, LANGFORD M, DUGARD J, CONTEH S (2008). Water Services Fault Lines. An Assessment of South Africa's Water and Sanitation Provision across 15 Municipalities. Centre for Applied Legal Studies (CALS), Centre on Housing Rights and

Evictions (COHRE), Norwegian Centre for Human Rights. Accessed 23 December 2012 from: http://www.wits.ac.za/files/resfd5179ffe9b24ecfa4110e1ee24cbb20.pdf.

TISSINGTON K. (2011). Basic Sanitation in South Africa: A Guide to Legislation, Policy and Practice. Socio-Economic Rights Institute of South Africa (SERI). [Online]. Available: http://www.nwu.ac.za/webfm_send/42156.Republic of South Africa, Constitution, Act 108 of 1996. Government Printers, Pretoria. Access 02 January 2012

TOWNSEND A.R. et al. (2003). Human health effects of a changing global nitrogen cycle. *Front. Ecol. Environ.*, 1: 240-246.

TREASURY, 2012. Website annexure to the 2012 Budget Review. Explanatory memorandum to the division of revenue. [Online]. Available: http://www.treasury.gov.za/documents/national%20budget/2012/review/Annexure%20W1.pdf

TRÉMOLET S, KOLSKY P AND PEREZ E (2010). Financing On-Site Sanitation for the Poor. A Six Country Comparative Review and Analysis. [Online]. Available: http://water.worldbank.org/publications/financing-site-sanitation-poor-six-country-comparative-review-and-analysis

VAN RYNEVELD, M B, MARJANOVIC, P D, FOURIE, A B AND SAKULSKI, D (2001) Assignment of a Financial Cost to Pollution from Sanitation Systems, with particular reference to Gauteng. Water Research Commission Report No. 631/1/01, xix+165pp.

WARD M.H, DE KOK T.M., LEVALLOS P., BRENDER J., GULIS G., NOLAN B.T. et al. (2005). Workgroup report: drinking-water nitrate and health – recent findings and research needs. *Environ. Health Perspect.*, 113: 1607-1714.

WHO (2012). Our Planet, Our Health, Our Future. Human health and the Rio Conventions: biological diversity, climate change and desertification. WHO, Geneva, Switzerland.

WILKINSON M & PEARCE D (2012). Sanitation Subsidies in Perspective: How to Increase the Effectiveness of Sanitation Subsidies in South Africa. The perceived and substantiated drivers of change in the economic and social cost of construction of subsidised sanitation facilities. Report to the Water Research Commission, Deliverable 2: [Unpublished].

WILKINSON, M., CRAFFORD, J. AND MOILWA, N. (2008) (unpublished). Deliverable A: Determination of the nutrient content of excreta for South Africans. Pretoria: CSIR

WOODFORD AND ROSEWARN. 2006. How much groundwater does South Africa have? Cape Town: SRK Consulting.

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (undated). Guide to Corporate Ecosystem Valuation. A framework for improving corporate decision-making. [Online]. Available: http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true (31 August 2012)

WSP (2010). Global Scaling Up Sanitation Project. Benchmarking Local Government Performance on Rural Sanitation: Learning from Himachal Pradesh, India. Water and Sanitation Program (WSP).

WSP (2011). Guide to Ring-Fencing of Local Government-Run Water Utilities. Water and Sanitation Program (WSP).

WSP (2012). Economics Impacts of Poor Sanitation in Africa. London. World Bank Water and Sanitation Program.