

Appropriate Levels of Service

By Kevin Wall

Services are only a means to an end. The "end" can be variously defined, but for a household it would certainly include greater health and safety and greater access to income-earning opportunities and amenities.

Understanding of this is essential in:

- Addressing the end (for example, enhancing access to services) by the most appropriate means (which may not be an engineering service, for example, but could be through education, or an institutional means);
- Integrating the service with other means to the same end; and
- Selecting levels of service and standards.

The term "services", as used in this article, broadly refers to infrastructure (in particular, civil and electrical engineering infrastructure), and also the infrastructure elements of facilities such as schools, clinics and halls. The term "basic services" generally refers to RDP standards and levels of service. Services lower than the prescribed standards are referred to as "elementary services", or as no service.

"Level of service" is a specific concept, not to be confused with "standard of service". The difference is best illustrated by means of examples:

- A high level of water service would be a water pipe on to the plot and into the house, but this might be to a high standard (well constructed with good quality materials) or to a low standard (poorly constructed with shoddy materials);
- Whereas a low level of water service, which might be a communal standpipe 200m away, could be constructed to a high or low standard.

Specific characteristics of the community to be served and the circumstances of the development (particularly the site and its relationship to the rest of the urban fabric, or to the nearby rural fabric) are all important in making decisions on infrastructure.

Also, it must be understood that selection of infrastructure (principally, the type of infrastructure and level of service) and its planning and design is made in the context of a set of planning, design, construction, operation, maintenance and upgrading assumptions. The validity of those assumptions must be tested and, if it is found that they are not valid, then the selection needs to be reviewed.

The decision to provide services to a settlement or proposed settlement must be part of an integrated decision-making and prioritisation process, and then the investment in the services must be part of a package of interventions.

Services Planning and Design

For many years the standard reference work for all levels and standards of service has been the Guidelines for Human Settlement Planning and Design (commonly known as The Red Book). It was compiled in 2000 by the CSIR under the patronage of the Department of Housing.

The Red Book is available on the CSIR website and can be downloaded for free (http://www.csir.co.za/Built_environment/RedBook/).

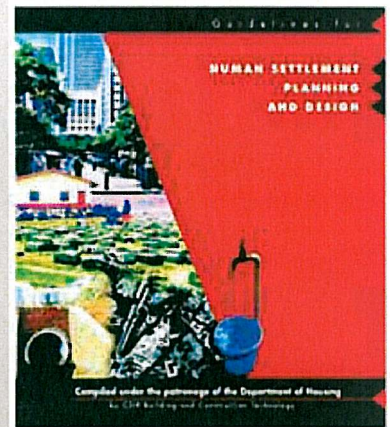
As stated in The Red Book:

"This document provides performance-based guidelines for informed decision-making. The purpose is essentially to indicate the qualities that should be sought in South African settlements, and to provide practical guidance on how these qualities can be achieved. The document is therefore intended to be educational, providing ideas and useful information, and not as a substitute for innovative planning and engineering practice.

"The purpose of this document is not merely to assist professionals in producing efficiently serviced 'townships', but rather to create sustainable and vibrant human settlements. In this context, a 'human settlement' is regarded as any built environment where people live, work and play, with the proviso that only residential areas, and other developments associated therewith, are considered in this book.

"The document consists of two volumes, with volume 1 focussing primarily on planning issues (chapters 1 to 5), and volume 2 (chapters 6 to 12) dealing with engineering services."

This book sets out, among other things, the levels and standards of service for each of the engineering sectors (for example, energy and storm water drainage).



Selection of Levels of Service

Determination of the appropriate level of service can be a very political issue, with expectation on the part of many communities and their political representatives that they will receive a higher level of service than the basic. This can, for example, imply an expectation, even in water-stressed areas, that households will receive waterborne sanitation.

Resolution of this should be through mechanisms, such as the Integrated Development Plan (IDP), the Comprehensive Infrastructure Plan (CIP)¹ and the Water Services Development Plan (WSDP), which are among the plans that each municipality is statutorily obliged to prepare. In practice, however, these plans individually, and their integration, usually leaves much to be desired. Strong efforts have been made in recent years by National Treasury and DPLG (now COGTA) to improve municipal planning practice.

When it comes to options for levels of services, not much has changed in the debate over the last ten years. The following, still very relevant, is extracted from a document compiled by the Department of Water Affairs and Forestry, namely, Guideline: Water Supply Service Levels: A Guide For Local Authorities (November 2000, page 6 and 7). It provides insight in levels of service as they relate to water.

"Government defined the basic level of water supply as 25 litres of potable water per person per day within 200m from each dwelling. Such services should be at least 98 percent reliable and be provided at a minimum flow rate of 10 litres per minute to satisfy typical peak demands of a communal street tap system.

"Water supply which does not comply with all the criteria of the basic standard is considered a rudimentary level, but may still satisfy the specific needs of a community. These may include run-of-river abstraction, spring protection, wind-driven pumps and hand pumps.

"Higher levels of services exceed some or all of the basic standards. Most customers associate higher levels of service with examples seen in established urban areas, which mostly comprise conventional metered, full pressure house connections with flush toilets and internal bathing facilities. The conventional system is only one of the available technologies, and needs to be reviewed against other technologies for appropriateness in both urban and rural areas.

"A higher level of service can be:

- An improved access to water.
- Higher pressure of water supply.
- Higher quantity of water use.
- Improved quality of water.
- Improved reliability of supply (for example, [ensured with the help of] enlarged water storage).
- Better cost-efficiency of supply.
- Improved customer service (for example, customer involvement, reliable billing system).

"As these aspects are interrelated, a higher level of the one (for example, higher pressure) may result in a lower level of another (for example, lower affordable quantity), thus providing a net benefit that is not meeting expectations.

"Technology options are grouped according to the customer's access to water supply points:

- Rudimentary systems (access generally greater than 200m from dwelling).
- Basic systems (access within 200m from dwelling).
- Distributed yard tank systems (water in the yard).
- Roof tank systems (water in the house).
- Conventional house connections.



"These groups are further categorised in terms of [convenience of access and] their water pressure at the point of supply, as follows:

- Rudimentary systems.
- Communal street taps.
- Low-pressure yard connections.
- Medium-pressure house connections.
- Full-pressure house connections.

"Each is evaluated in terms of:

- Financial suitability (affordable, equitable, cost-recovery).
- Technical suitability (effective, reliable, operational, maintainable and upgradable).
- Social suitability (customer's choice, customer satisfaction, customer service).
- Managerial suitability (institutional, administrative and operational capacity, support and mentoring).
- Environmental suitability (environment and customer health, water reserve and resource use, waste).

"The weighting of each of these evaluation criteria varies significantly from place to place and from time to time. Changes in the relative weighting can lead to significantly different levels of service being chosen for otherwise similar developments."

In conclusion, "no single technology is the answer. Communities and individual households differ in their expectations, their affordability and hence their choice. ... All options have their advantages and disadvantages and should be reviewed under site-specific conditions." (Ibid, page 32)

Funding for Services

Capital costs of engineering infrastructure services within a housing development project are usually part of the housing subsidy grant.

The boundary of what is fundable by the housing subsidy grant has at times been ill-defined. Funding of bulk services is usually the responsibility of the municipality, which can either use its own funds or access, among other sources, the Municipal Infrastructure Grant. Funding of the feeder services between what is clearly "housing development" and "bulk" is at times territory that is contested by the municipality, the developer and the housing funder.

All of the above refer to the capital expenses of funding the services. However, by far the greater portion of expenses associated with providing an infrastructure service over its planned life is in respect of the operating and maintenance cost. Studies by DWAF and others show that on average, the operating and maintenance cost of water supply infrastructure over the lifetime of an infrastructure element, such as a reservoir, pipe, pump or treatment works, is between three and four times the cost of the initial construction.

In respect of services for "indigent" households, the cost of operation and maintenance is supposed to be funded by na-

tional transfers (the "equitable share") to municipalities. The households concerned then receive "free basic services" up to defined limits of supply per household per month. While the equitable share adequately serves this purpose in many municipalities, there is widespread evidence that in many other municipalities one or more of the following lead to shortages of funding for operation and maintenance - and hence to poor operation, under-maintenance, and consequent unreliability of service.

- The equitable share is not a conditional grant, municipalities too-often utilise part of it for other purposes, and therefore that part is not spent on services operation and maintenance.
- The estimates of indigent households are in some or other way incorrect, and therefore the equitable share is insufficient to supply free basic services to all of the indigent.
- Households take more than the defined limits of supply per household per month, thereby putting additional strain on the equitable share budget.

The Role of Municipalities

The significant dysfunction of many of South Africa's municipalities is in so many respects important to service delivery. Indicators of the presence of ineffective municipalities have been plotted many times, most recently by COGTA, which identified the approximately one-quarter of South Africa's local municipalities that are to all intents and purposes dysfunctional. (State of Local Government in South Africa: Overview Report: National State of Local Government Assessments, COGTA, October 2009)

Developers in these areas need to understand that they have to deal with a municipality that may have very low capacity and a high propensity to be unable to provide for operation and maintenance of municipal services. This municipality will certainly be highly dependent on transfers of national government for its income - in the case of some municipalities, for above 90 percent of its income. Developers also need to note there have been many instances within these types of municipalities where grant funding was received for the provision of infrastructure, the infrastructure was built and commissioned, and in a matter of just a few years the infrastructure has deteriorated to much that the service has become unreliable, or has even ceased completely.

In any event, in choosing a level of service in a dysfunctional municipality, there should be a bias towards a lower level of service and a more robust standard of infrastructure. This is for the simple reason that a less competent municipality, while possibly not able to carry out its operation and maintenance responsibilities in respect of a higher level of service, is less likely to fail at operation and maintenance of the infrastructure for lower levels of service.

This article is an extract from a paper prepared by Kevin Wall (CSIR) for a Managed Land Settlement Thought Experiment Workshop held in Johannesburg on 1 December 2009. T

¹"The Comprehensive Infrastructure Plans ... addresses sustainability in terms of the technical, environmental, institutional, financial and social economic issues involved in service delivery, taking cognisance of the integration and interdependencies between the different services." (DPLG 2008.)