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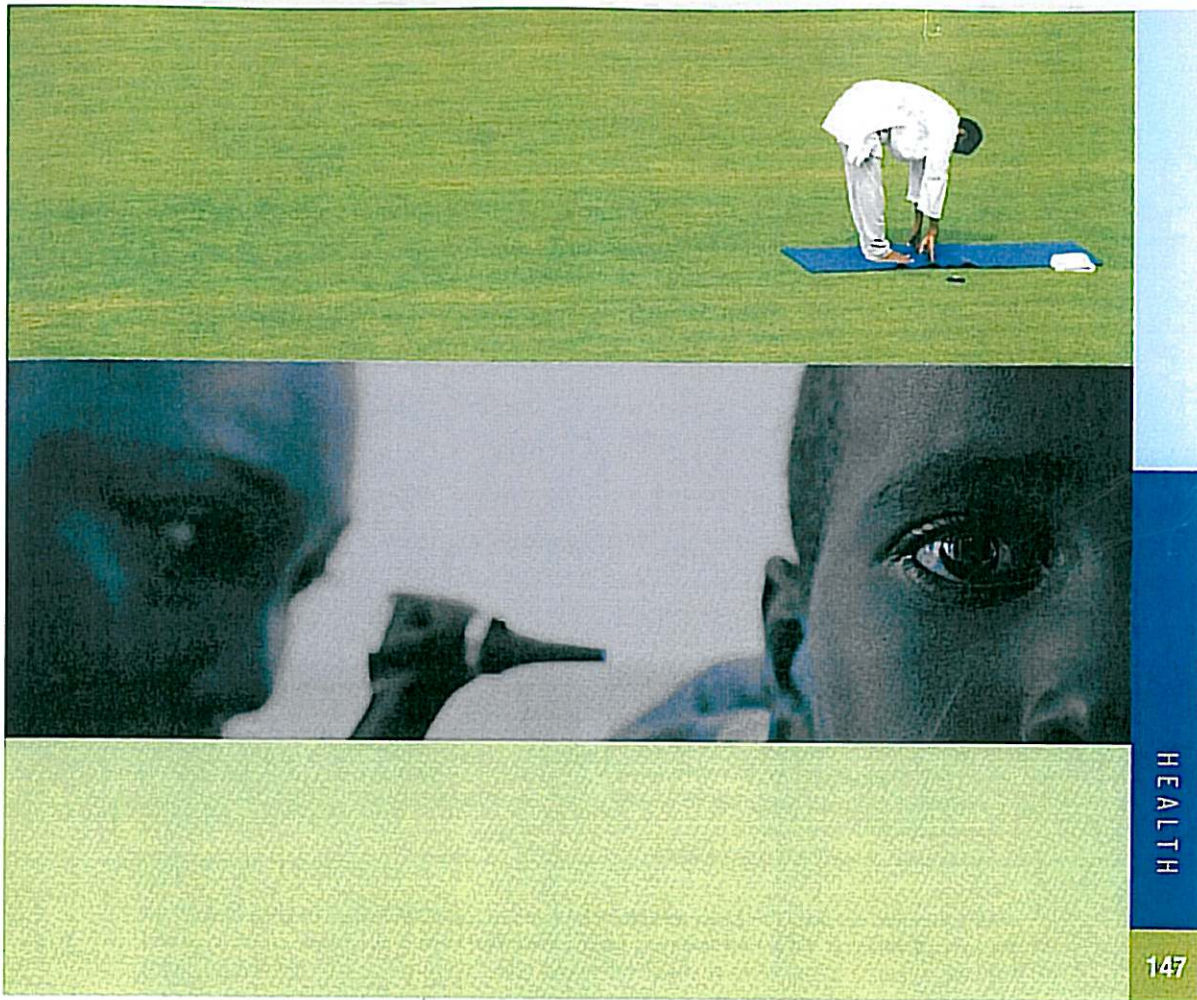
Health

LOOKING AFTER THE NATION'S HEALTH

Health infrastructure is essential to the successful delivery of health services. With a normal planned lifespan of over 50 years, such capital investment endures for extended periods and major changes in the estate take a long time to achieve. The existing health estate in South Africa - made up of over 4 000 facilities with a current replacement value of over R180 billion - is a complex mixture of facilities and is challenged, in many cases, by a combination of inherited imbalances from the apartheid era and new investments made since the transition in 1994.

A range of initiatives has been introduced to address the backlogs initially identified by the 1995/96 National Health Facilities Audit. These include the strengthening of strategic and project planning to ensure that the estate meets current and changing health service needs; a drive towards an equitable and inclusive health service; strategies to address affordability concerns, and initiatives to strengthen capital procurement processes.

Capital investment levels have increased significantly and are projected to increase further over the current Medium Term Expenditure Framework (MTEF). However, investment levels - for new capital and especially for the operation and maintenance of the estate - remain suboptimal; that is, below



the levels required to address the required changes and maintain the estate at an acceptable level. Progress has been further constrained by the erosion of staff over time and by challenges in attracting and retaining professional and key functional staff in both the health and public works departments.

These features make it difficult to deliver quality health care that meets community needs. More broadly, if the potential for improved health outcomes is not realised, the Accelerated and Shared Growth Initiative (AsgiSA) objectives of systematically reducing poverty and unemployment may not be met. Since infrastructure is essential to healthcare delivery and good public health, strengthened capacity to plan for infrastructure delivery and maintenance, accelerated investment and coordination are imperative.

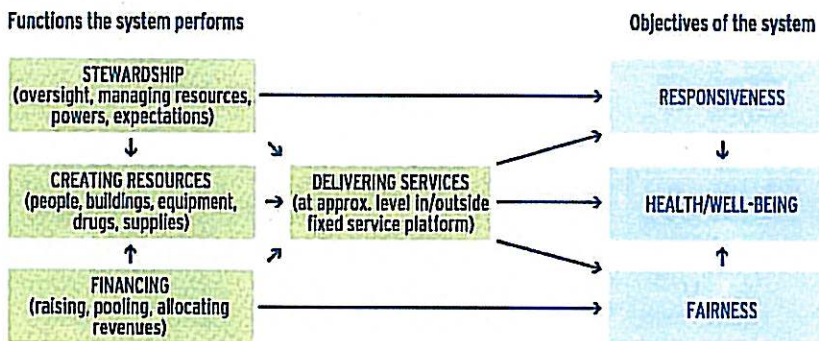
INTRODUCTION

Recent political events resulted, among other things, in the appointment of a new Minister of Health to the Cabinet. Minister Barbara Hogan has committed herself to the transformation of the South African public health service within five years. This, and a more proactive approach to addressing the HIV/AIDS pandemic and its treatment could bring about significant changes in this lagging sector(1). This chapter, written before the change of leadership in September 2008, should be read in the light of these more recent developments.

Physical infrastructure is an integral part of an interconnected, integrated and cohesive health system.

Physical facilities are key resources that need to be developed, aligned and managed as part of an overall health system (see Figure 30). The goal of public sector health services is to meet the overall objective of achieving the best health status for the population within a system that is both responsive and fair. Government, in its defined stewardship role, is mandated to provide the policy direction, supporting legislation and management structures to enable the design, management and operation of an appropriate service within the available financial and resource constraints. Physical infrastructure is an integral part of this interconnected, integrated and cohesive health system(2).

FIGURE 30: HEALTH SYSTEM PERFORMANCE FRAMEWORK



Adapted from World Bank, 2000; Schneider et al, 2007

With a planned service life of half a century or more, physical buildings provide an anchor for service delivery. While new facilities can be designed to reflect current technology and thinking and even to anticipate change, technology (particularly medical technology) changes much faster. A long planning and procurement lead time means that many new facilities are considered out-of-date by the time they are commissioned.

Low rates of investment in the health estate in the latter part of the last century have meant that much of the existing estate is old and in need of refurbishment and replacement. Many older facilities remain a legacy of the apartheid policy framework. They are thus either inappropriately located to support an equitable model of service delivery, or inappropriately designed or sized to support optimal service delivery. Although the National Health Facilities Audit (NHFA) provided a first consolidated assessment of the health estate in relation to the envisaged new policy framework in 1995/96, the profile has not been updated and the current condition, suitability and level of legal compliance of the estate have not been established.

In addition to dealing with the legacy of an existing, outdated estate, health facility planners need to address the infrastructure implications of the new burdens of HIV/Aids and drug-resistant TB, a high rate of infectious diseases associated with low income, developing communities, an increasing rate of lifestyle-related diseases associated with a growing middle class, and a high rate of crime and accident-related trauma.

The public health estate in South Africa is made up of a substantial portfolio of some 4 000 facilities, occupying a combined gross area in excess of 10 million square meters and a replacement value (buildings and equipment) in excess of R160 billion. South Africa is scheduled to invest R18.1 billion in the development of capital assets in the public health sector over the 2007/10 MTEF period. Of concern, however, is whether this investment is sufficient to effect the required changes to the alignment of the estate, enable an improved service and ensure its ongoing serviceability.

Investing in capital infrastructure implies a commitment to long-term life cycle funding and to maintaining and operating infrastructure. Studies indicate that current infrastructure investment levels (capital and maintenance) are below acceptable benchmarks and that there is little likelihood of increasing funding significantly. Thus the overall affordability of the current estate needs to be questioned as part of an integrated strategic review of service and infrastructure policy.

The National Treasury has shown itself willing to invest larger amounts in health infrastructure(3). However questions have been raised about the capacity of government and the broader construction sector to use current and potential additional funding to best advantage. This issue is being partially addressed through the introduction of the Infrastructure Delivery Improvement Programme (IDIP)(4)(5) whose aim it is to improve enabling systems and processes and to develop capacity in the sector.

The lack of appropriate, nationally consistent, current information on the health estate and its performance is a major constraint to infrastructure delivery and management and, by extension, to health service delivery.

The next section ('Context and need for health care infrastructure') offers a review of the context for health service delivery, linking health status and the need for infrastructure, touching on policy and relevant legislation and analysing the existing health estate in South Africa. The subsequent section, 'Budget allocations to health infrastructure', analyses and critiques current infrastructure-related capital, maintenance and operating cost investment and expenditure patterns. 'Health infrastructure delivery: constraints and enabling mechanisms' reviews the current constraints - such as internal and external sector capacity to effect delivery and management and current initiatives such as the IDIP.

While it is recognised that local authorities are significant role players in public health service delivery, the study has focused on services at provincial and national levels, which encompass the bulk of public health infrastructure.

CONTEXT AND NEED FOR HEALTH CARE INFRASTRUCTURE

The determinants of health status and the role of infrastructure

The quality of human life is inextricably linked to the state of the physical and socio-economic environment (See the focus note in this section on the relationship between the environment, development and health and education status)(6). The impact of climate change on the southern African region is expected to be severe(7), leading to crop failures, increased migration and poverty-induced settlements. This will affect the locus and type of health service and infrastructure required.

Disease burden

In the developing world, morbidity and mortality are most commonly related to infectious and parasitic diseases (43 per cent), followed by circulatory diseases (24 per cent). In the developed world, circulatory diseases (46 per cent) and cancers (21 per cent) are the most frequent causes of mortality, while infectious and parasitic diseases account for only one per cent(8). Perinatal and maternal causes follow the same pattern, with 10 per cent mortality in developing countries against one per cent in the developed world(9). Developmental gains lead to a change in morbidity towards diseases associated with lifestyle, and a different profile of patients with different treatment and different infrastructure requirements.

South Africa faces a triple burden of disease. As a developing country, there is a high incidence of infectious diseases, a growing burden of lifestyle diseases associated with a society in transition and a high incidence of trauma(10). However, the most pressing health burden in South and sub-Saharan Africa is the HIV/AIDS pandemic(11). This poses particular problems for the health infrastructure as high numbers of patients require hospitalisation for HIV/AIDS or opportunistic co-infections and displace those requiring other care. There is also increased pressure on outpatient care, particularly at primary health level, as the rollout for ARV treatment expands.

The tuberculosis (TB) epidemic in South Africa - with an incidence rate of 285/100 000 in 2004(12) - is one of the worst in the world. There is a high co-infection rate with HIV/AIDS and a high correlation between the two epidemics(13). There are currently estimated to be 10 348 multi-drug resistant tuberculosis (MDR-TB) cases in South Africa, an incidence rate of 21/100 000(14)(15). Due to the extreme infectivity of MDR-TB and extensive drug resistant tuberculosis (XDR-TB) patients throughout their treatment and the extended treatment required, new separate treatment centres of specialised design are required, as are precautionary measures in existing facilities(16).

The lack of appropriate, nationally consistent and current information on the health estate and its performance is a major constraint to infrastructure delivery and management and, by extension, to health service delivery.

Morbidity can refer to either the incidence rate or the prevalence rate of a disease. This can be compared with the mortality rate of a condition, which is the number of people dying in a given time period, divided by the total number of people in the population.

Multi-drug resistant tuberculosis (MDR-TB) is a form of TB that is resistant to two or more of the primary drugs. This is called acquired drug resistance.

MDR generally occurs when there is inadequate treatment or improper use of medication. XDR-TB, or extensive drug resistant TB (also referred to as extreme drug resistance) is MDR-TB that is also resistant to three or more of the six classes of second-line drugs.

Drug resistant forms of the disease take longer to cure, and require more and more expensive drugs to treat. Besides the added time and expense required for treatment, cure rates are low and fatality rates high.

Improved housing and increased electrification reduce the poverty-related incidence of diseases such as tuberculosis.

South African health facilities must be designed to provide both for the high rate of infectious diseases characteristic of a developing society, and the emerging needs of chronic lifestyle diseases associated with developed societies and a high level of trauma and injuries.

Increased migration(17), coupled with climate change(18), is changing the spread of infectious and parasitic diseases and the range of vector-borne disease. Changing weather phenomena have led to changes in epidemiology in South Africa, particularly with respect to malaria and water-borne diseases such as cholera.

Rapid - and in many cases inadequately controlled and regulated - growth is raising levels of pollution and environment-related diseases. The impact is most severe in historically disadvantaged urban and rural areas and informal settlements, particularly those close to very contaminated areas and where household heating and cooking is done with fossil-based fuels. Investment in cleaner forms of electricity generation is required to reduce the negative impact of air pollution. Improved housing and increased electrification reduce the poverty-related incidence of diseases such as tuberculosis(19), supporting the need to invest in basic infrastructure in order to improve health status.

While there have been significant gains in water supply and sanitation to households, inadequate maintenance of sewage treatment, water purification and reticulation systems in many municipalities - coupled with unmanaged run-off from industrial areas and informal settlements - have led to the severe deterioration of fresh water sources and water supply and to reported outbreaks of water-borne diseases(20).

Health facilities, if inadequately designed or poorly managed, can also contribute to the disease or accident burden. Risk assessment studies are required to establish where risks are unacceptably high and where preventive action, either administrative or infrastructure-related, should be introduced.

Special programmes

In addition to the challenging demands of the current health environment, provision is being made for other special programmes. The 2010 FIFA World Cup requires the host country to ensure the availability of a fully comprehensive medical service, including 24-hour medical treatment and disaster management. The World Cup programme includes the upgrading of existing facilities and emergency medical services in the nine cities in which games will be played(21). The prioritisation required for this process may not necessarily align with what is required for service transformation.

In summary, South African health facilities must be designed to provide not only for the high rate of infectious diseases characteristic of a developing society, but also for the emerging needs with regard to chronic lifestyle diseases associated with developed societies and a high level of trauma and injuries(23). Infectious diseases characteristically require a high allocation of space for medical care, where the high trauma load requires additional casualty, surgical and rehabilitative space. The need for inpatient care is exacerbated by the impact of HIV/Aids and the emerging requirement for long-term specialised care and new facilities for MDR-TB patients. At primary health level, specific additional services and space are required for HIV/Aids detection and treatment. There is ongoing debate about the extent to which this should be integrated into existing primary healthcare facilities or whether additional separate infrastructure should be provided.

The legislative framework

The mission of the Department of Health is to promote the health of all people in South Africa through a caring and effective national health system based on the primary healthcare approach(23). The current focus of the Department is centred on the five priorities that underpin the national health system, namely:

- Developing service transformation plans
- Strengthening provision of human resources
- Strengthening physical infrastructure
- Improving quality of care
- Strengthening priority health programmes (with a key focus on promoting healthy lifestyles, implementing the TB crisis management plan and the accelerated prevention of HIV)(24).

The Integrated Health Planning Framework provides information on strategic planning and support to national and provincial health departments, to help them prepare coordinated

health service transformation plans. These plans provide the service framework and review health needs against available resources (finances, infrastructure and staffing).

Infrastructure-related legislation

Other key legislation that will affect the planning, management and operation of physical infrastructure includes the Government Immovable Asset Management Act (GIAMA)(25), the Occupational Health and Safety Act (OHS)(26), the National Building Regulations (NBR) and Treasury regulations.

GIAMA clarifies the respective roles of the health and public works departments in relation to the management of immovable assets, providing a consistent framework for the acquisition, operation, management and disposal of such assets. This will have significant implications for the health sector as the current structures and division of responsibilities may need to be reviewed. Government has introduced two targeted initiatives - the Infrastructure Delivery Improvement Programme and the National Infrastructure Maintenance Strategy - to address specific weaknesses in the delivery and management of government property.

Clear guidelines and performance and design standards are set out in the OHS Act and the NBR, providing for the health and safety of those at work and for the safe use of plant and machinery. However, compliance is neither strictly monitored nor consistent.

The specific infrastructure-related norms and standards envisaged to support the National Health Act have yet to be developed and published. The outdated R158(27) and SAHNORMS(28) regulations are still in force. This presents a serious obstacle to the quality assurance of infrastructure provision in the sector, and increases the requirement for expertise in briefing and design processes.

AsgISA in the public health sector

Investment in health infrastructure should translate into improved health outcomes, and play a key role in meeting the AsgISA objectives of reducing poverty and inequality(29). Another link between the overall objectives of AsgISA and the public health sector infrastructure relates to the opportunities created around infrastructure development to support sustainable socioeconomic development and growth. To translate this into sustainable job creation opportunities, constraints in skills will be addressed by the Joint Initiative for Priority Skills Acquisition (Jipsa) Initiative.

Jipsa defines the priority skills that qualified and experienced people require to fill particular roles/professions, occupations or specialisations in the labour market, with a view to addressing shortages. While management and planning skills in health (and education) were identified as requiring attention, these were to be prioritised during the second Jipsa phase from December 2006 and reports of progress have yet to be published. However, artisan skills for building maintenance are not identified in the Jipsa report(30). Moreover, it will be some time before these programmes have an impact on the industry.

Existing health estate in South Africa

There are currently well over 4 000 public health facilities in South Africa (Table 19). Although the aim is for a more equitable, accessible, affordable and effective service(31), any changes need to acknowledge and develop out of the existing estate. This section will provide an overview of the existing estate and touch on issues related to its fitness for purpose (functional suitability) and fitness for service (primarily related to conditions and legal compliance).

TABLE 19: POPULATION BREAKDOWN 2001, 2006, 2011, 2016

	2001	2006	2011	2016
Population (millions)	44.7	48.0	50.3	51.8
Rate of natural increase (%) (1)		1.4	0.9	0.6
Life expectancy at birth (1)		57.2	50.1	48.0
Age distribution: %<15 years	31.9	29.3	27.2	
Age distribution: %<65+ years	4.7	4.6	4.6	

Note: 1. For five-year periods leading up to the year shown
Source: Pelsler, 2004

There are currently two main central registers of health facilities in South Africa - the District Health Information System (DHIS) database and the Integrated Strategic Planning Framework. Most provinces also have their own immovable asset registers. The databases show significant differences in the number of facilities, however, Table 20 is based on DHIS data.

TABLE 20: NUMBER OF PUBLIC AND PRIVATE HEALTH FACILITIES IN SOUTH AFRICA

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Primary health care facilities										
Mobile clinics	140	112	50	153	128	76	32	94	98	883
Clinics	683	231	307	547	411	231	118	286	263	3 077
CHCs	32	35	33	15	27	36	20	51	64	313
Total PHC facilities	715	266	340	562	438	267	138	337	327	3 390
Public hospitals										
District	61	25	9	40	33	23	24	19	35	269
Regional	9	5	12	14	5	3	1	-	5	54
Provincial	-	1	-	2	2	2	1	4	-	12
Tertiary National	-	1	4	1	-	-	-	-	3	9
Tertiary Special	19	3	10	19	4	6	3	2	18	84
Public hospitals	89	35	35	76	44	34	29	25	61	428
Usable public beds	13 421	4 970	15 317	23 833	8 431	5 040	1 988	4 849	10 021	87 870
Planned beds	151	142	438	314	192	148	69	194	164	205
Source: DHIS, June 2007										
Note 1: Other public health facilities not included above include nursing colleges, forensic mortuaries, offices, emergency services depots and central stores, laundries and kitchens										
Private hospitals	14	12	82	32	7	8	17	4	35	211
Private hospital beds	1 488	2 016	13 558	3 827	455	1 021	1 922	325	4 222	28 834

Source: Wilbury & Claymore Database, 2007

Other health facilities include nursing colleges, residential accommodation off hospital sites (houses and residences) and central support services. There are also discrepancies between data sources on the number of beds as well as different definitions of beds(32). Table 21 illustrates the difference in area per bed, using planned and usable bed definitions.

TABLE 21 >

TABLE 21: COMPARISON OF WESTERN CAPE HOSPITAL, BED AND AREA PER BED DATA ILLUSTRATING BED REDUCTIONS MADE THROUGH THE RATIONALISATION PROCESS AND THE IMPLICATIONS THEREOF ON AREA/BED

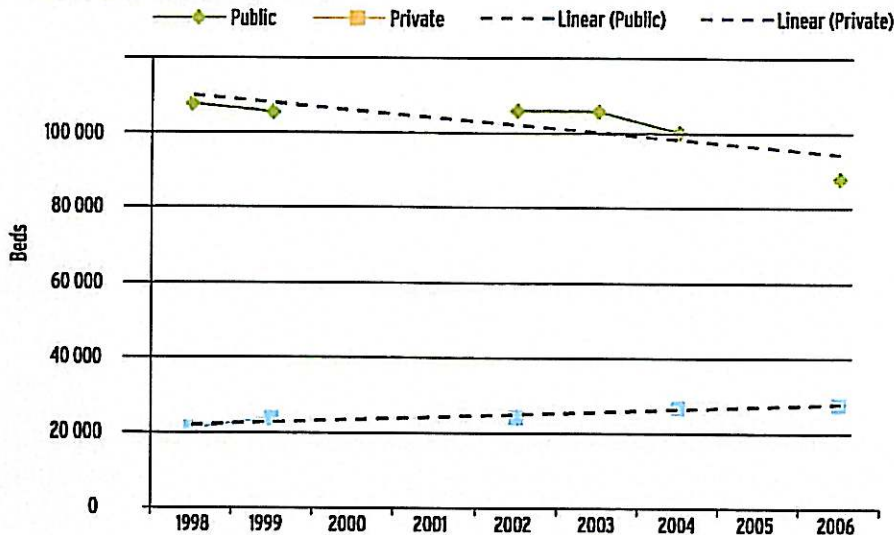
	1996 NHFA	2007 DHIS*	2005 Current	2010 2010 PLAN
Hospitals	59	61	42	44
Gross area (m ²)	1 509 294	1 252 625	1 401 997	1 436 497
Planned beds	15 010	-	-	12 190
Gross area/bed (m ²)	101	-	-	118
Usable beds	12 957	10 021	8 672	9 003
Gross area/bed (m ²)	116	125	162	160

*Estimated area

Sources: NHFA, 1996, Western Cape 2010 Plan

Since 1998, an overall increase has been reported in the number of public and private sector hospitals, with a reported decrease in the number of (usable) public sector beds and an increase in the number of private beds (Figure 31). A reduction in usable beds does not, however, translate into less space used (Table 21), and pressure can be applied to challenge the practice of appropriating the excess space created by closing excess usable beds by introducing a 'user pay' principle(33). The introduction of this principle in the United Kingdom led to the far more efficient and cost-effective use of space in the health sector. Once an enabling environment and information systems are in place, this practice may deliver benefits in South Africa.

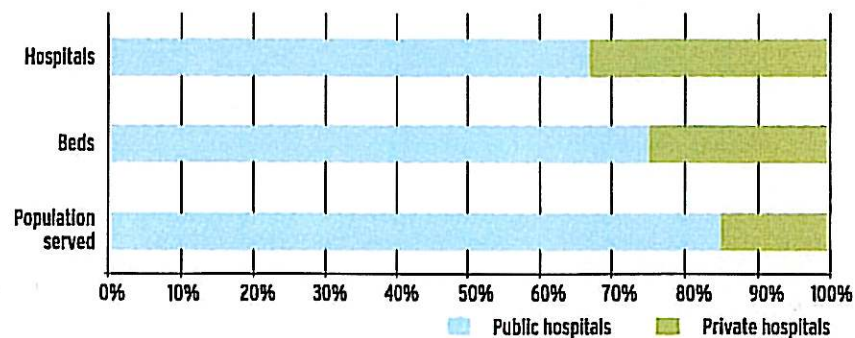
FIGURE 31: TRENDS IN THE NUMBER OF PUBLIC AND PRIVATE SECTOR USABLE BEDS IN SOUTH AFRICA, 1998 - 2006



The result of the ongoing increase in the number of private beds is that there are significantly more beds available per 1 000 population for private patients (mostly privately insured) than for those being hospitalised in the public sector. Figure 32 shows the proportion of hospitals, beds and population served(34) by the public and private sectors in South Africa.

FIGURE 32 >

FIGURE 32: COMPARISON OF PUBLIC AND PRIVATE SECTOR SERVICES, 2006



Valuation of the estate

The modern equivalent replacement cost (modern equivalent asset or MEA) is an important base valuation. It provides a method of establishing a uniform, comparable estimate of the cost of building all existing facilities - regardless of age, location, size or complexity - using current construction costs and technology⁽³⁵⁾. The MEA, together with the current condition, functional suitability and usage profile of facilities, are key data requirements for strategic planning and budgeting. In order to calculate MEA, a basic and consistent set of data⁽³⁶⁾ for all facilities should be collected in a consistent manner. This data set would also provide an essential resource for immovable asset planning and management, as well as for performance benchmarking through the full asset life cycle.

In the absence of a suitable official valuation of the estate, the following estimate of MEA (Table 22) is made. This is based on available information from DHIS, average facility areas used for planning purposes and current construction rates for different types of facilities and levels of care⁽³⁷⁾. There is no current formal replacement valuation of all medical equipment in South Africa as there is no consolidated equipment asset register. An estimated average figure of 30 per cent of building costs can be used for all equipment⁽³⁸⁾. The resulting calculations show an estimate of MEA of R124.1 billion for buildings and infrastructure and R37.2 billion for equipment. Adjusted for excluded facilities⁽³⁹⁾, the full value of capital assets is likely to be between R180 and R200 billion.

TABLE 22: ESTIMATED MODERN EQUIVALENT REPLACEMENT COST OF PUBLIC HEALTH CAPITAL ASSETS, 2007

Source: CSIR, 2007 using DHIS facility and bed data

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Estimated modern equivalent replacement cost (MERC) for public health facilities										
Clinics	2 524	854	1,891	2 696	1 772	854	436	1 057	1 458	13 542
CHCs	591	646	677	277	499	665	369	942	1 313	5 980
Hospitals	14 495	5 368	20,954	27 456	7 588	4 536	1789	4 364	18 038	104 587
Immovable assets (1)	17 610	6 868	23 522	30 428	9 859	6 055	2 595	6 363	20 809	124 108
% of total	14	6	19	25	8	5	2	5	17	100
Ratios:										
PHC facilities										
Total Immovable assets	18	22	11	10	23	25	31	31	13	16
Estimated replacement cost of equipment (movable assets)										
Movable assets (2)	5 283	2 060	7 057	9 128	2 958	1 816	778	1 909	6 243	37 232
Total capital assets	22 893	8 928	30 579	39 557	12 816	7 871	3 373	8 272	27 052	161 341

Notes:

1. Based on planning area per functional unit (consulting room or bed) for PHC and hospitals and rates per m² for different facility types
2. An estimated value of 30% of MERC has been used for all movable assets including medical devices, information systems and all furniture
3. Values include professional fees and VAT

By adjusting the MEA to account for the current condition of facilities, the depreciated replacement cost (DRC) is obtained. The cost, together with the condition profile and the MEA, can be used to arrive at an accurate estimate of the maintenance budget and condition-based backlog. This is developed in more detail in the section on 'Budget Allocations to Health Infrastructure' below.

Profile of the public health estate

Another measure of the estate is to gauge whether the facilities are appropriate to the function required ('fit for purpose') and whether they provide an optimum and safe environment for service delivery ('fit for service'). Determining whether a facility is fit for service requires an assessment of its current condition, constituent components and level of statutory compliance. Apart from the 1995/96 NHFA, there has been no consolidated assessment of health infrastructure in South Africa, though a few provinces have updated their own or relied on sample assessments.

The NHFA recorded consolidated condition, functional suitability and use data at 434 public hospitals and 108 community health centres – at facility, regional, provincial and national levels. The study found that the average condition of the facilities was 3.6 on a scale of 1 (worst) to 5 (best)(40), where 3 is suggested as the minimum acceptable level(41). Overall there was significant variation between ratings on the conditions of facilities. Utilisation rates(42) ranged from 78 to 129 per cent across provinces(43). Backlog maintenance was assessed at 34 per cent of the replacement value of the estate at that time.

There have been other studies of sections of the estate. Recently, the South African Human Rights Commission found significant variations(44) in the quality of services and infrastructure across the estate. While some facilities, even in deep rural areas, are "well managed and maintained", their general impression was of an underfunded system struggling to cope with the demands made upon it. Many managers referred to budget limitations that were constraining their plans to improve service delivery and fill vacant posts. There was a general sense that, although hospitals are functional on the whole, they require improvement. Many facilities "are dilapidated, run down and overcrowded, and long queues are common"(45). Rural facilities were found to be in a poorer state than urban facilities, and patient rights to privacy were often compromised by overcrowding or inadequate design. Many managers called for systematic and ongoing hospital monitoring and evaluation.

Rationalisation of the estate

There have been significant changes in the public health estate since 1994. While there is no consolidated record of change, provinces have seen the closing of duplicate facilities, rationalising the location of facilities and the level of care, the construction of some fully new hospitals, health centres and clinics, and the introduction of the district health system. Provinces have individual strategic plan frameworks (e.g. the Western Cape, Healthcare 2010 Plan) at different stages of development. However, it is not possible with the available information to quantify change to the health estate – either backward or forward looking – since the last audit on a national basis. A reassessment of the condition and suitability of the estate is urgently required.

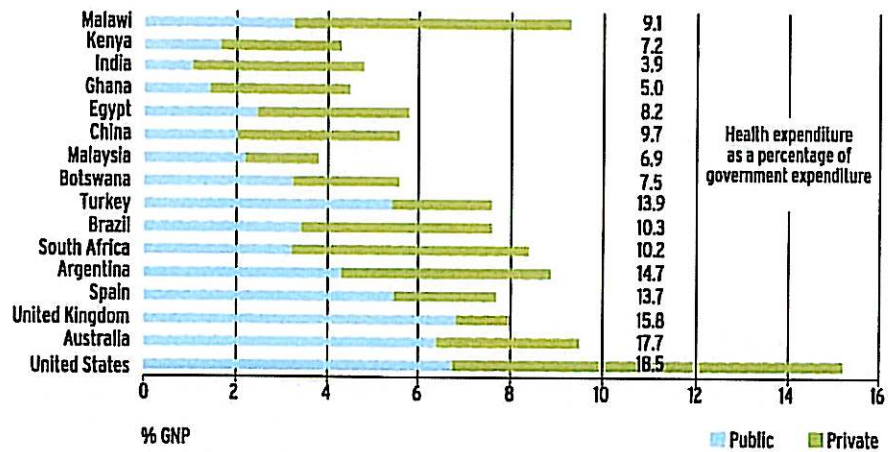
BUDGET ALLOCATIONS TO HEALTH INFRASTRUCTURE

Benchmarking health sector budget allocation

South Africa currently invests some 8.3 per cent of its Gross National Product (GNP) in public and private sector health services. This is similar in total to the pattern in some developing and developed countries (Figure 33) and greater than in a range of developing countries. In total, South Africa currently invests 11.5 per cent of government expenditure on health(46), lower on the whole than that spent in developed countries with less need for competing infrastructure and social development investment. There is, however, substantial inequity in spending and access to services between the public and private sectors in South Africa: 3.3 per cent of GNP (or 40 per cent of total health expenditure) is spent in the public health sector (catering for 85.2 per cent of hospitalisation and 64.2 per cent of primary healthcare – see Figure 35), while 5.0 per cent of GNP (60 per cent of total health expenditure) is spent on private health services that serve only 14.8 per cent of hospitalisation needs and 35.8 per cent of primary care(47).

The Human Rights Commission received a general impression of the health estate as an underfunded system, struggling to cope with the demands made upon it

FIGURE 33: HEALTH EXPENDITURE AS A PERCENTAGE OF GNP AND OF GOVERNMENT EXPENDITURE FOR SELECTED DEVELOPING AND DEVELOPED COUNTRIES, 2003

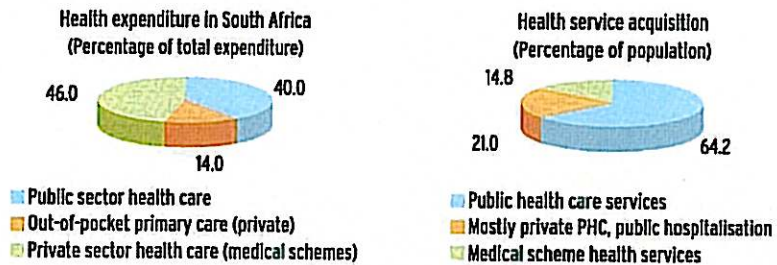


Note: There is a discrepancy between WHO figures and Treasury figures for health expenditure: over the period 2003/10 health expenditure is expected to range between 11.2% and 11.6% of the total government budget (Treasury 2007)

Source: WHO, 2006

FIGURE 34: PUBLIC/PRIVATE SECTOR HEALTH SERVICE ACQUISITION AND EXPENDITURE IN SOUTH AFRICA

Source: SAHRC 2007

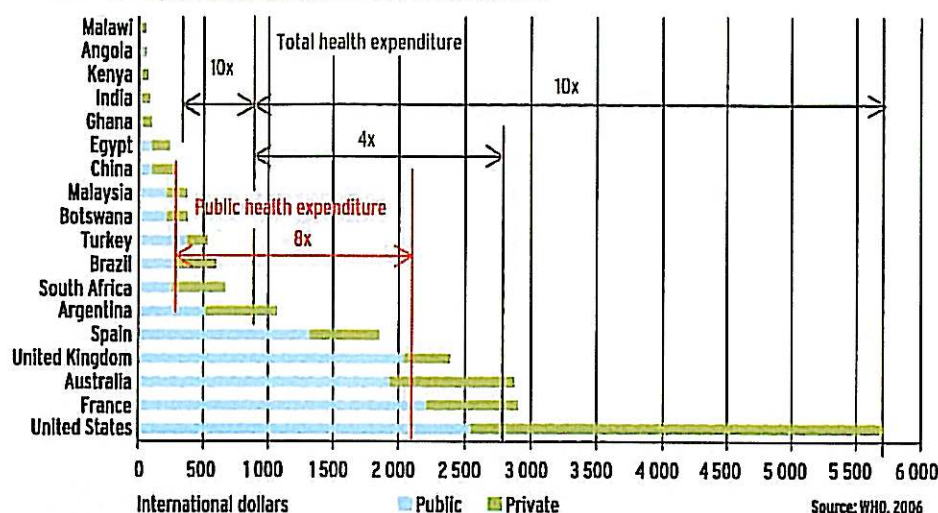


Performance benchmarking should be set against similar developing countries, and norms, standards and guidelines that are appropriate to local circumstances should be developed.

The disparity in health spending between countries at different levels of development is more evident when viewed as expenditure per capita (Figure 35). In total, South Africa spends over 10 times more per capita than less developed countries and between five and 10 times less than developed countries. In terms of government expenditure, South Africa spends about eight times less per capita than the sample of developed countries shown in Figure 35. While planners and policy makers in South Africa need to take cognisance of infrastructure norms and standards in developed countries, performance benchmarking should be set against similar developing countries, and norms, standards and guidelines appropriate to local circumstances should be developed.

FIGURE 35 >

FIGURE 35: HEALTH EXPENDITURE/CAPITA, 2003



Over 85 per cent of the population relies on public sector hospitalisation; of these, 64 per cent rely entirely on the public sector and 21 per cent obtain most primary healthcare services from the private sector. The remaining 14.8 per cent are medical scheme beneficiaries, who receive services directly from the private sector. In contrast, fully 60 per cent of health spending is in the private sector(48). While there is a measure of overlap in service provision, this chapter focuses on issues related to expenditure in the public sector.

Current public health infrastructure budget allocations

Annual spending on the full public health sector has grown above inflation since 2002/03 (Table 23) and this growth is set to continue. Funding allocated to capital investment has grown and is projected to grow substantially through the 2007/10 MTEF (medium-term expenditure framework) period, increasing 2.74 times against the 1.92 times for health overall over the seven year framework period(49).

TABLE 23: TOTAL PROVINCIAL HEALTH AND CAPITAL ASSET SPENDING OVER THE 2003/10 MTEF PERIOD

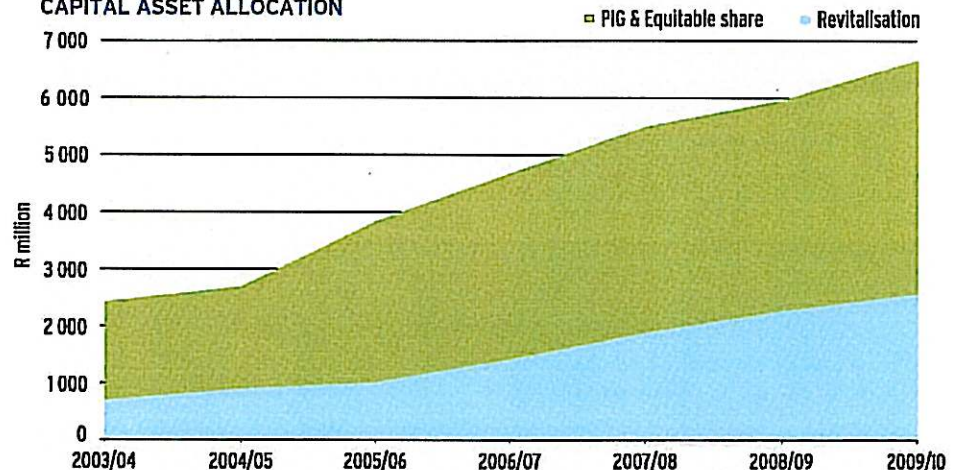
	2003/04	2004/05	2005/06	2006/07*	2007/08	2008/09	2009/10
Actual and budget payments (R million)							
National budget	328 709	368 541	416 760	474 230	533 873	594 198	650 301
Total health	37 939	41 610	48 146	54 798	60 586	66 340	72 656
Provincial health	36 987	40 599	47 116	53 648	59 252	64 939	71 182
Capital assets	2 428	2 693	3 844	4 685	5 496	5 971	6 662
Buildings, other fixed structures	2 427	2 682	3 841	4 657	5 466	5 941	6 628
Machinery and equipment	991	1 102	1 867	1 665	2 146	2 190	2 494
Annual growth (%)							
National budget		112.1	113.1	113.8	112.6	111.3	109.4
Total health		109.7	115.7	113.8	110.6	109.5	109.5
Provincial health		109.8	116.1	113.9	110.4	109.6	109.6
Capital assets		110.9	142.7	121.9	117.3	108.6	111.6
Buildings, other fixed structures		110.0	124.9	151.6	111.0	113.0	110.2
Machinery and equipment		111.2	169.4	89.2	128.9	102.1	113.9
Construction Inflation (BER)		14.2	17.1	10.1	14.0	12.6	7.1
Ratios (%)							
Total health: National budget	11.5	11.3	11.6	11.6	11.3	11.2	11.2
Capital: Provincial health	6.6	6.6	8.2	8.7	9.3	9.2	9.4
Buildings: Capital assets	59.2	58.7	51.3	63.9	60.4	62.8	62.1

* Preliminary outcome

Capital asset funding is divided roughly 60/40 into allocations for buildings and other fixed structures (Immovable assets) and machinery and equipment (loose assets, primarily medical equipment). A relatively higher investment in immovable assets is projected over the MTEF period. Measured in real terms against the construction price increase (50) over this period, growth in the allocation to immovable assets (fixed infrastructure) is 86 per cent and, factoring in population growth, real growth of 77 per cent is projected.

The provincial health infrastructure budget (capital asset) allocation is made up of three components: an allocation from the provincial equitable share budget, the Provincial Infrastructure Grant (PIG) and the Hospital Revitalisation Grant (HRG). While the PIG and HRG are targeted and must be spent on capital projects, 'equitable share' is discretionary and is allocated by the provinces. Figure 36 illustrates the relative growth of the HRG against the total capital allocation and the sum of the PIG and equitable share (other) over the 2003 to 2010 MTEF period (51).

FIGURE 36: RELATIVE GROWTH IN HOSPITAL REVITALISATION GRANT AGAINST TOTAL CAPITAL ASSET ALLOCATION



Funding for 'normal work' on health infrastructure - including the provision of new facilities to address population growth, the replacement of facilities that have reached the end of their life cycle and the repair and maintenance of existing facilities - should generally come out of the equitable share and PIG. An estimated figure of R1 207 million is invested in buildings and equipment in the 2007/08 financial year, equivalent to nearly 22 per cent of the capital investment. This includes provision for minor capital work.

Hospital revitalisation grant

The hospital revitalisation grant or HRG is targeted as a special, additional strategic national investment grant over and above 'business as usual'. It is directed towards developing an integrated and wholly transformed service delivery environment by recapitalising hospital infrastructure and equipment. It also aims to ensure that hospital management and monitoring systems, processes and staffing can support quality health services in line with national policy objectives (52). Initiated in 2002, the HRG now accounts for nearly of a third of infrastructure related expenditure.

In addition to the PIG and HRG, there are other more focused health-funding grants, including:

- The Comprehensive HIV/Aids Grant
- The Health Professions Training and Development Grant
- A grant for the restructuring and recapitalisation of Emergency Medical Services, including the development of air ambulance services
- The National Tertiary Services Grant to compensate for cross-boundary tertiary service provision

- The transitional Forensic Pathology Services Grant to support the transfer of forensic pathology services from the South African Police Service.

In all of these, there is a capital component with a further split between infrastructure and movable equipment. The immovable asset component varies between grants. It is likely that the component for immovable assets in these grants is limited; the capital allocation within the tertiary services grant, for example, is focused on health technology or equipment(53).

Although primary healthcare is the cornerstone of government health policy, there is no dedicated fund at present for the development of primary healthcare infrastructure. A component is to be addressed through the national HIV/Aids grant, but this more often involves the addition of special infrastructure for the rollout of the ARV programme. Substantial capital project-related work in the primary healthcare field is required, with the consolidation of local authority and provincial primary healthcare services and infrastructure.

Review of capital budget allocations

While the Hospital Revitalisation Programme (HRP) has focused attention on and increased the actual investment levels in capital assets, the total amount allocated to capital - and particularly to buildings - is still relatively small in relation to the full extent of the existing estate. The R3.3 billion buildings investment planned for 2007/08 (Table 24) against an estate of R124 to R140 billion (Table 22) implies a 37 to 42 year reinvestment turnaround time for the full estate, assuming zero growth and the same level of service. Assuming, however, that the estate should grow in line with the current 1 per cent annual population growth and the same level of service, the turnaround time will increase to 100 years. The targeted 20-year period(54) for full estate renewal for HRP(55) is therefore an unrealistic expectation at current activity and investment levels.

Although primary healthcare is the cornerstone of government health policy there is no current dedicated fund for the development of primary healthcare infrastructure.

TABLE 24: ANALYSIS OF THE PROPOSED CAPITAL ASSET INVESTMENT COMPONENT FOR THE 2007/08 FINANCIAL YEAR IN RELATION TO MERC

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Primary appropriation health vote	8 143	3 643	12 052	13 413	6 096	3 595	1 460	3 755	7 095	59 252
Capital assets (appropriation)	907	205	1 094	1 185	717	337	220	377	454	5 496
Buildings & other fixed structure	632	141	719	495	439	185	193	245	270	3 320
Machinery & equipment	275	63	376	690	248	152	26	132	184	2 146
Other	-	-	-	-	30	-	-	-	-	30
Building appropriation as % capital assets appropriation	69.7	69.0	65.7	41.8	61.3	54.9	88.0	64.9	59.4	60.4
Capital assets appropriation as % primary appropriation	11.1	5.6	9.1	8.8	11.8	9.4	15.0	10.0	6.4	9.3
Capital assets (MERC) (Table 22)	17 610	6 868	23 522	30 428	9 859	6 055	2 595	6 363	20 809	124 108
Building appropriation as % MERC	3.6	2.1	3.1	1.6	4.5	3.1	7.4	3.8	1.3	2.7
Years to replace full estate: no growth	28	49	33	61	22	33	13	26	77	37
1% growth										100

Source: Provincial Appropriation Bills for 2007/08 financial year; Provincial Budgets & Expenditure Review, 2003/04 - 2009/10; CSIR MERC estimates

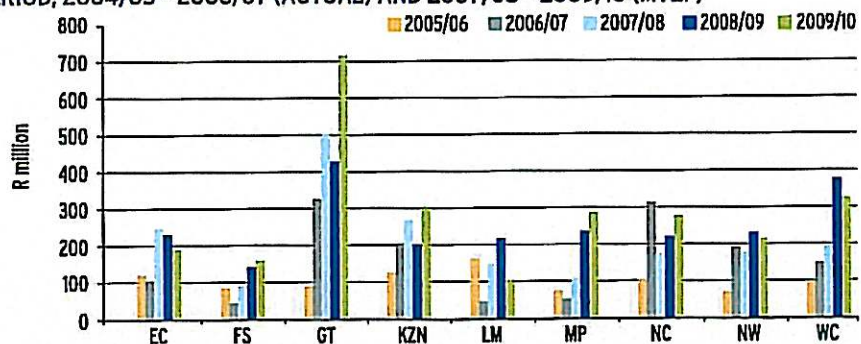
The amount invested at a provincial level in relation to the MEA of the provincial estate varies considerably. Table 24 shows the provincial investment together with building appropriation as a percentage of MEA and the estate turnaround time at the current investment level. Provincial turnaround time at the current level of investment and zero growth varies between 13 to 77 years(56). Given the poor condition of the existing estate and the current population growth rate, the current level of investment is insufficient to reform the estate materially within an acceptable timeframe.

Table 25 reflects the provincial capital split for the 2007/08 budget and the HRG component. Revitalisation varies between 21 and 79 per cent (Northern Cape) of the provincial capital allocation, at an average of 35 per cent. While the variance in spending reflects current project status, the average of 25 per cent reflects the growing importance of HRG as a contributor to capital spending. Without this additional grant, provinces would find it more difficult to fund the required capital investment. There may be a concern, however, as to whether provinces are becoming overly reliant on a fixed-term funding source. Figure 37 shows the pattern of allocated and anticipated expenditure for the HRG for the period 2003/04 to 2009/10. The overall pattern of the increase in grant funding in all provinces is shown, except for a reduction in Limpopo and a substantial additional funding allocation in Gauteng over the MTEF period, reflecting changes in provincial projects.

TABLE 25: PROVINCIAL CAPITAL FUNDING SPLIT, 2007/08

All figures Rm	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Provincial capital Asset budget	907	205	1 094	1 185	717	337	220	377	454	5 496
Revitalisation grant	247	90	503	268	148	108	173	177	192	1 907
Revitalisation as % capital asset budget	27	44	46	23	21	32	79	47	42	35

FIGURE 37: REVITALISATION FUNDING ALLOCATION FOR ALL PROVINCES FOR THE PERIOD, 2004/05 - 2006/07 (ACTUAL) AND 2007/08 - 2009/10 (MTEF)



Since its inception in 2003, eight HRP hospitals had been completed by March 2007 and a further three were scheduled for completion in the 2007/08 financial year. This represents just over two per cent of the total public sector beds in South Africa (Table 26). Of the 11 projects scheduled for completion by 2008, four are in Limpopo, where there are 56 per cent of total HRP beds.

TABLE 26 >

TABLE 26: SCHEDULE OF COMPLETED REVITALISATION PROJECTS, 2003/08

	2003/07	Beds	Completion 2007/08	Beds
Eastern Cape	Mary Theresa	248		
Limpopo	Jane Furse	252		
Limpopo	Lebowakgomo	241		
Mpumalanga	Piet Retief	140		
Northern Cape	Calvinia	35		
Northern Cape	Colesburg	35		
North West	Swartruggens	120		
Western Cape	George	265		
Northern Cape			Barkley West	42
Limpopo			Dilokong	252
Limpopo			Nkhensani	363
		<u>1 336</u>		<u>657</u>
			Total beds	1 993
			Percentage of total public beds in South Africa	2.3

There were 48 HRP registered projects at the beginning of the 2007/08 financial year; the current project status is shown in Figure 38.

FIGURE 38: REVITALISATION HOSPITAL PROJECTS

Revitalisation hospital projects
Hospitals at different stages of delivery, 30 September 2007



Spending outcome

The patterns of spending against budget normally provide good initial indicators of spending pressures and areas where capacity may be lacking(57). It has not been possible with the available data to do more than a high-level assessment of capital expenditure against budget for facilities and equipment. Table 27 shows the relationship between the adjusted capital appropriation and audited figures. There is significant variance in most cases, generally with overall underspending and, in some cases, substantial overspending. This may be due, amongst other issues, to the difficulty of aligning the capital project cycle with the budget cycle - including projects starting later than anticipated and overrunning their expected duration, or differences between estimates and final project costs.

TABLE 27 >

TABLE 27: BUDGET vs ACTUAL CAPITAL EXPENDITURE SHOWING UNDER AND OVER EXPENDITURE, 2003/04 - 2005/06

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
2003/04: Facilities										
Available	116	123	324	179	225	-	73	118	71	1230
Actual	368	105	359	154	227	1	30	64	127	1436
%	317	85	111	86	101	-	42	54	179	117
2003/04: Equipment										
Available	178	46	258	373	133	183	18	68	102	1360
Actual	159	34	130	357	92	53	12	63	90	991
%	89	73	50	96	69	29	65	93	89	73
2003/04: Total										
Available	295	170	581	553	359	183	91	186	172	2 590
Actual	528	139	489	511	319	55	42	127	217	2 427
%	179	82	84	93	89	30	47	68	126	94
2004/05: Facilities										
Available	410	121	207	175	224	37	58	128	226	1 587
Actual	344	98	189	221	236	95	41	133	222	1 580
%	84	81	91	126	105	261	70	104	99	100
2004/05: Equipment										
Available	34	86	289	394	171	217	67	81	105	1 444
Actual	27	75	179	359	159	95	43	59	105	1 102
%	78	88	62	91	93	44	64	73	100	76
2004/05: Total										
Available	445	207	496	569	396	253	125	209	331	3 031
Actual	371	173	368	581	395	190	84	193	328	2 682
%	83	84	74	102	100	75	67	92	99	88
2005/06: Facilities										
Available	433	183	320	389	355	150	115	116	200	2 262
Actual	267	172	330	422	226	128	127	138	164	1 973
%	62	94	103	109	64	85	110	119	82	87
2005/06: Equipment										
Available	26	67	527	642	146	115	40	92	152	1 807
Actual	92	56	639	520	165	117	43	54	181	1 867
%	356	84	121	81	113	102	109	59	119	103
2005/06: Total										
Available	459	250	847	1 031	501	265	155	207	353	4 068
Actual	358	228	969	941	391	245	170	192	345	3,840
%	78	91	114	91	78	92	109	93	98	94
2005/06 MERC										
2005/06: Total as	19 402	7 491	26 543	34 164	10 722	6 552	2 767	6 779	23 168	137 590
% MERC	1.85	3.05	3.65	2.76	3.65	3.75	6.14	2.83	1.49	2.79

Source: National Treasury Provincial Budget and Expenditure Reviews: 2000/07, 2001/08, 2002/09, 2003/10 (Treasury 2004, 2005, 2006, 2007b)

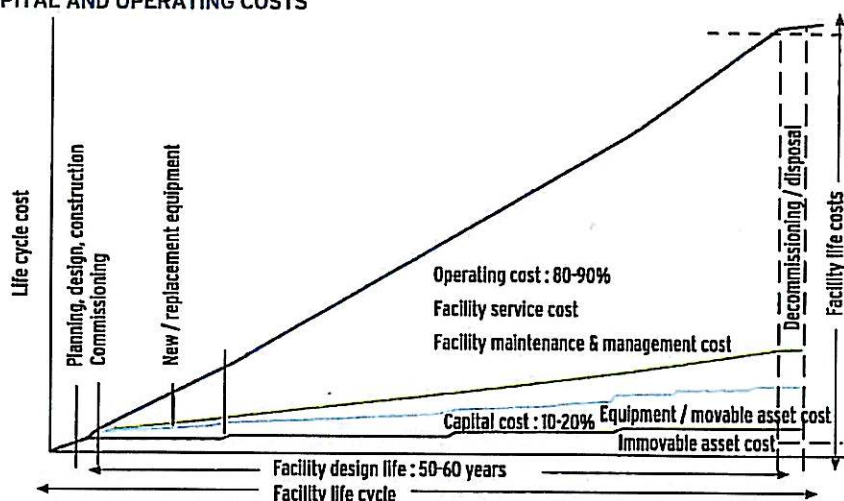
Life cycle costs

The life cycle cost of facilities can be divided into two broad categories: capital and operating (or current) costs. Capital cost includes the initial cost of fixed infrastructure, including site acquisition, site and building development costs(60), major renovations and additions and the investment cost of loose equipment. Operating includes all costs incurred in the operation of the facility and includes both the service cost(61), as well as the cost of repairs and components that need replacing in the course of normal use.

Figure 39 illustrates the relationship between indicative capital and operating costs. Well-maintained facilities designed for functional efficiency and economy in operation, and allowing for cost-effective change over time, will show lower life cycle costs than less effective facilities. Inadequate maintenance will either reduce the life cycle or result in substantially higher operating costs to compensate for more frequent and severe breakdowns. Similarly, facilities constructed with poorly selected materials will require more frequent and costly maintenance.

FIGURE 39 >

FIGURE 39: FACILITY LIFE CYCLE COST SHOWING THE RELATIONSHIP BETWEEN CAPITAL AND OPERATING COSTS



Capital investment needs to be seen not only as a once-off commitment at the beginning of the design life, but also as a recurring need through the full life cycle of the facility. Similarly, planned preventive and unplanned maintenance need to be viewed as ongoing financial commitments - from initial commissioning through to eventual disposal of the asset. Life cycle asset management strategies and data are required to support this dynamic environment, in order to maximise the operational service benefit from initial and ongoing capital investment. Policy embodies this increasingly, but to a suboptimal extent, and often at the cost of increasing and duplicating administrative processes (e.g. IDIP, GIAMA).

Infrastructure and equipment maintenance

Maintenance is a critical yet often under-recognised and chronically under-resourced facet of health service delivery. Facilities that are poorly maintained not only impede the successful delivery of health services, but also significantly increase the level of risk to patients and staff, raise service costs and reduce the service life of facilities and equipment. This subsection deals with the maintenance of immovable assets (buildings and infrastructure) and equipment maintenance (medical devices, computer systems and all furniture).

Maintenance budgeting

The decision as to what allocation to make for maintenance is taken at provincial level and is informed by the national target framework of three to five per cent of the hospital (operating) budget⁽⁶¹⁾. This is interpreted in some provinces as a percentage (e.g. three per cent in Gauteng) of the primary appropriation for health. However, as shown in Table 28⁽⁶¹⁾, there is significant variation in the allocation (from 0.5 per cent to 3.2 per cent)⁽⁶²⁾ when seen as a percentage of the primary health appropriation.

This basis for maintenance budgeting⁽⁶³⁾ is arbitrary and at odds with best practice models. A more appropriate guideline is to relate the maintenance budget to the current replacement value (MEA) of the estate. The Federal Facilities Council in the USA suggests a guideline of between two per cent and four per cent of the current replacement value of the estate⁽⁶⁴⁾. This is seen as an absolute minimum and presupposes that the estate is in good condition⁽⁶⁵⁾⁽⁶⁶⁾. This is similar to a figure that comes from United Kingdom practice in the 1980s and is widely seen as an industry standard for acceptable maintenance.

TABLE 28 >

TABLE 28: PROVINCIAL CURRENT EXPENDITURE (PRIMARILY MAINTENANCE) ALLOCATIONS, 2007/08

All figures R million	Eastern Cape	Free State	Gauteng	KwaZulu- Natal	Limpopo	Mpuma- langa	Northern Cape	North West	Western Cape	Total
Primary appropriation: Health vote	8 143	3 643	12 052	13 413	6 096	3 595	1 460	3 755	7 095	59 252
Health facilities management (programme 8) (1)	630	179	1 092	1 084	510	250	210	302	369	4 626
HFM as % PA	7.7	4.9	9.1	8.1	8.4	6.9	14.4	8.0	5.2	7.8
Current (programme 8 - maintenance) (2)	103	38	384	298	89	8	25	79	103	1 126
Engineering (programme 7.2)	-	-	-	-	-	9	2	35	36	81
Maintenance estimate (A) (3)	103	38	384	298	89	17	27	114	139	1 207
Maintenance 'A' as % PA	1.3	1.0	3.2	2.2	1.5	0.5	1.8	3.0	2.0	2.0
Hospital budgets (programmes 2.9, 4, 5) (4)	4 334	2 152	7 226	7 541	2 750	1 958	581	1 737	3 434	31 713
Estimate of maintenance from hospital budgets (4)	87	43	145	151	55	39	12	35	69	634
Adjusted maintenance estimate (B)	189	81	528	448	144	56	38	148	208	1 841
Maintenance 'B' as % PA	2.3	2.2	4.4	3.3	2.4	1.6	2.6	4.0	2.9	3.1
Department of Works health infrastructure support budget (5)	na	na	na	na	na	na	na	na	18	-
Capital asset valuations (table 22)										
Fixed infrastructure (MEC)	17 610	6 868	23 522	30 428	9 859	6 055	2 595	6 363	20 809	124 108
Equipment	5 283	2 060	7 057	9 128	2 958	1 816	778	1 909	6 243	37 232
Total capital assets	22 893	8 928	30 579	39 557	12 816	7 871	3 373	8 272	27 052	161 341
Maintenance 'A' as % capital assets	0.4	0.4	1.3	0.8	0.7	0.2	0.8	1.4	0.5	0.7
Maintenance 'B' as % capital assets	0.83	0.90	1.73	1.13	1.12	0.71	1.14	1.79	0.77	1.1

1. Includes budgets for current payments, transfers and subsidies and capital asset payments
2. No breakdown for current payment as a part of the HFM allocation was available in the Eastern Cape or Mpumalanga 2007/08 Appropriation Bills. The same percentages were applied for 2007/08 as shown in the respective 2006/07 Bills.
3. Includes 'day to day' maintenance (maintenance and minor capital works), scheduled maintenance, repairs, rehabilitation from programmes 7.2 and 8.
4. In Western Cape an estimated 2% of hospital budgets are used for 'day to day' maintenance in addition to central support through programmes 7.2 and 8. A similar figure (to be confirmed) is assumed for other provinces.
5. Only separated out in the Western Cape. The amount under engineering in the Western Cape is used largely to fund the regional maintenance workshops providing for both buildings and equipment.
6. In all cases except Mpumalanga the Appropriation Bill figures are the same as in the Provincial Budget Expenditure Review. As a detailed Appropriation Bill was not available for Mpumalanga, the figures in the Provincial Budget Expenditure Review were used in preference to the summary figures in the Bill.

Source: Provincial Appropriation Bills for 2007/08 financial year; Provincial Budgets and Expenditure Review, 2003/04 - 2009/10; CSIR MEC estimates

In addition to the 4 per cent guide for fixed hospital infrastructure, provision needs to be made for the maintenance of equipment. As a guide, a figure of 5 per cent of the replacement value of medical devices is suggested⁽⁶⁷⁾. The maintenance requirement should, therefore, be made up of the sum of 4 per cent of the value of buildings and infrastructure plus 5 per cent of the value of equipment, or an aggregate value of 4.23 per cent of all capital assets. Measured against the total value of capital assets, the actual maintenance budget in the public health sector in South Africa is between 0.21 and 1.37 per cent of the MEA⁽⁶⁸⁾ in respect of maintenance estimate A, and 0.71 to 1.79 per cent of estimate B.

As noted above, the four per cent infrastructure and five per cent equipment benchmark range assumes that the estate is in good condition. Studies in South Africa by the CSIR⁽⁶⁹⁾ show that there is significant backlog maintenance in the health infrastructure estate. The average condition of the estate is probably closer to 3.67 than in the desired four to five range, where normal planned preventive and statutory maintenance prevails (Table 29)

TABLE 29 >

TABLE 29: BUDGET REQUIREMENTS FOR CONDITION-BASED MAINTENANCE AND BACKLOG MAINTENANCE (CAPITAL WORK)

Condition rating	Condition	Action required	Maintenance type	Budget required as % MEC	Provision for unplanned maintenance if maintenance deferred (%)
5	Very good	Preventive maintenance	Normal maintenance	2 - 3	0.75 - 1.25
4	Good	Condition-based maintenance		4 - 6	1.5 - 2.5
3	Fair	Repairs	Backlog maintenance (primarily capital)	20 - 30	3 - 5
2	Bad	Rehabilitation		50 - 60	6 - 10
1	Very bad	Replacement		100	10 - 20

Source: McDuling 2005, NHFA 1996

TABLE 30: ESTIMATED PREVENTIVE AND CONDITION-RELATED MAINTENANCE BUDGET REQUIREMENTS FOR HEALTH INFRASTRUCTURE AND EQUIPMENT

All figures R million	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Buildings and fixed infrastructure valuation (MEC) (table 22)	17 610	6 868	23 522	30 428	9 859	6 055	2 595	6 363	20 809	124 108
Equipment valuation (table 22)	5 283	2 060	7 057	9 128	2 958	1 816	778	1 909	6 243	37 232
Buildings and fixed infrastructure maintenance										
Normal maintenance budget (1)	704	275	941	1 217	394	242	104	255	832	4 964
Additional unplanned maintenance budget (deferred maintenance (2))	176	69	235	304	99	61	26	64	208	1 241
Equipment maintenance (4)										
Preventive and corrective maintenance (5)	264	103	353	456	148	91	39	95	312	1 862
Backlog maintenance (capital budget)										
Buildings and infrastructure (note 3)	1 585	618	2 117	2 739	887	545	234	573	1 873	11 170
Equipment (note 4)	528	206	706	913	296	182	78	191	624	3 723
Total maintenance budget requirement	1 145	446	1 529	1 978	641	394	169	414	1 353	8 067
Additional capital budget (backlog maintenance)	2 113	824	2 823	3 651	1 183	727	311	764	2 497	14 893

Notes:

1. Assuming a conservative baseline figure of 4% of MEC required - see table 29 for guideline range for maintenance budgeting
2. Assuming an average condition of the estate of 3.6 and an additional 1% budget requirement to cater for unplanned condition-based (breakdown) maintenance
3. Assuming an average condition of the estate of 3.6 and a conservative additional 6% capital budget requirement to cater for major repair, rehabilitation and replacement work. It may be possible to defer some of this pending major revitalisation programme upgrades or replacement. However the additional provision for deferred maintenance would then need to be made.
4. Equipment is made up of a range of movable assets including medical devices, computer systems, and medical and general office furniture. All of these have different depreciation and degradation rates and different replacement cycles. As a broad estimation a figure of 5% of replacement value has been used for maintenance and a replacement cycle of 10 years for backlog maintenance and replacement. As maintenance budgeting has been well below target levels this figure is likely to be very conservative as a higher replacement cycle should be used to ensure accelerated replacement of obsolete or condemned equipment.

Source: Consolidated from information and guidelines supplied by Dr JJ McDuling, Dr B Remmelzwaal, N Polluta

Maintenance budget spending

There are other key challenges to addressing infrastructure maintenance, including the following:

- Budgeting on an annual basis ignores the associated nature of capital and operating costs(71)
- It is common practice to defer maintenance in favour of more urgent reactive repairs and renovation or other capital work

- There is currently very limited coordinated maintenance planning
- There is no formal means of establishing what maintenance budgets should be because the budgets are not condition-based
- Very limited real, planned, preventive maintenance work is done
- There is an acute shortage of technical skills and experience, at technical, artisan, and experienced management levels.

The recent introduction of the GIAMA will begin providing a formal framework for buildings and infrastructure-related maintenance planning. The introduction of the NIMS Initiative provides a framework for coordinated planning linked with the GIAMA initiative. However, much remains to be done towards establishing a proper framework at provincial and institutional levels, and promoting a culture of implementation for infrastructure maintenance.

Unfortunately, without an adequate monitoring system, consistent definitions or an update on the actual condition of the estate since the NHFA, the extent of the maintenance backlog remains speculative⁽⁷²⁾. Besides taking maintenance implications into consideration during the planning and construction phases, new or revitalised facilities need to be placed on a planned preventive maintenance programme as soon as they are commissioned, along with the balance of the existing estate. Without adequate maintenance funding, the estate will not be able to meet the 'fit for service' objective through its full planned life cycle.

Improving outcome through facilities design

There is a strong body of international, evidence-based research around the link between health facility design and health service outcomes. Evidence-based design stems from the recognition that the physical environment can have a measurable effect on the well-being of patients and facility users. Areas of direct impact on health include reduced length of stay and improved patient safety (including a reduction in hospital-acquired infection); improved staff performance, staff retention and satisfaction, and the reduction of life-cycle costs⁽⁷³⁾. Very little evidence can be drawn, however, from the health sector in South Africa, due to a paucity of comparable information⁽⁷⁴⁾ and the absence of an adequately recognised and supported infrastructure-related research programme.

The use of design to reduce the opportunities for nosocomial (hospital-acquired) infection is of particular relevance in South Africa, where there is a high ratio of immuno-suppressed patients and staff and a high burden of disease⁽⁷⁵⁾.

The role of infrastructure was one of the guiding principles identified by the Department of Health, which noted that "work environments must be conducive to good management practice in order to maximise the potential for health workers to deliver good quality health services (principal 6)"⁽⁷⁶⁾.

Infrastructure operation

In property management practice, operational costs under facilities management would normally include all non-core functions and would, in addition, include facilities maintenance, cleaning services, security, catering, utilities, rates payments, water, waste and energy management and gardening services. Most of these costs are, however, already covered under the core health service programme costs (programmes 2 to 7) and are dealt with at institutional level. Rates payments are the responsibility of DPW as the primary property custodian and are to be transferred, together with the budget, from national to provincial level in the 2008/09 financial year.

With some exceptions, data that can be used to benchmark utility costs against beds is generally not available at a provincial level. Western Cape set a provincial performance benchmark of R4 000 per bed for utilities for 2006/07, down from actual costs of R5 560 in 2004/05, and an estimated figure of R4 200 for 2005/06⁽⁷⁷⁾. While an initial planned decrease can be justified due to increasing efficiencies, higher utility costs will mean that costs are more likely to increase over time.

Energy efficiency

The energy crisis in 2008 is placing heavy demands on the health sector, requiring a response that will reduce energy load and increase emergency backup to limit the negative

Impact of load shedding on service delivery. Provision will need to be made for additional emergency generation plant(78), the additional energy costs for emergency generation of power(79) and projected steep increases in energy costs.

Strategic planning: scenarios and affordability

As indicated in Figure 30, a health system that is responsive to the varied needs of the communities served and allows fair or equitable access requires a well-managed process with sufficient resources and adequate finances. Affordability impacts on the level and balance of resources that can be deployed: that is, on the size, type and number of facilities, medical and non-medical equipment, and the staffing and supplies needed to operate the facility and the service that can be provided.

The Hospital Strategy Project, part of the Health Sector Strategic Framework (HSSF), was initiated in 1994. It identified the revitalisation of hospital services as one of the key components of a strategy to accelerate the quality of health service delivery. HSSF identified the development of a National Planning Framework, the rehabilitation of existing hospital stock and decentralisation of hospital management as key focus areas(80).

The Hospitals Rehabilitation and Reconstruction Programme (HR&R) was initiated in 1998. Its focus was to review the infrastructure backlogs and redress the dilapidated state of the health facilities. Funding was set aside for a period of seven years to meet the backlog identified in the NHFA(81). Where the focus of the HR&R programme was to repair and rehabilitate all hospitals, the focus of the Hospital Revitalisation Programme (HRP) is to ensure that only those facilities that are part of a long-term service strategy are upgraded to become fully viable service delivery points with proper management structures and quality assurance programmes, and that these have adequate, ongoing operational and maintenance funding in place.

The current strategic planning on the reduction and rationalisation of the hospital base and the number of hospital beds is guided by calculations at the national Department of Health, using the national Integrated Health Planning Framework (IHPF). Planning models developed using the IHPF have indicated that affordability is a key constraint to achieving a viable long-term health service. Affordability may be even more constrained if one takes into account the level of funding that appears to be necessary for maintenance and capital projects.

Alternative service delivery models are being considered. One example is a hub and spoke model, through which services are concentrated at fewer, better resourced points, and supported by more effective outreach, patient transport and community-based support services.

HEALTH INFRASTRUCTURE DELIVERY: CONSTRAINTS AND ENABLING MECHANISMS

The previous section reviewed the availability and use of financial resources as critical to the creation and operation of the facilities required for health service delivery. This section considers stewardship. This encompasses sourcing, enabling and managing people or organisations (either within or outside government) to acquire, manage and operate the physical infrastructure (buildings and equipment) necessary for service delivery (Figure 30).

Constraints to Infrastructure delivery and management

A number of key constraints have been identified. These affect the ability of the mandated authorities to plan for, provide and support infrastructure delivery, maintenance and management. In addition to the major funding constraints discussed above, others include:

- A pattern of chronic underspending of capital budgets in government as a result of inadequate planning, system constraints and the lack of available skills
- Difficulty in recruiting and retaining new professional and technical staff over and above already serious levels of understaffing
- The capacity of the construction industry in general - in the light of strong competition resulting from the rollout of significant government infrastructure development programmes and overall economic growth

The Hospital Strategy Project identified the revitalisation of hospital services as one of the key components of a strategy to accelerate the quality of health service delivery.

Stewardships encompasses sourcing, enabling and managing people or organisations to acquire, manage and operate the physical infrastructure necessary for service delivery.

These issues, along with initiatives to address some of these problems, will be developed further in this section.

Budget underspending

The current pattern of underspending is a multi-faceted problem. One of the difficulties facing Infrastructure departments has been aligning capital budgets with the annual budget cycle, which requires projects to be initiated and completed in a single year. New or substantial renovation capital projects typically have long lead times for planning, briefing, design and tendering before on-site construction can begin. A further impact is inappropriate expenditure patterns, with an often unpredictable fourth quarter expenditure spike. Delays in decision-making within provinces - due to capacity or systems constraints - exacerbate the problem.⁽⁸²⁾ While there is ample evidence of the need for additional funding, the inability to spend the funding allocated is a constraint that limits further allocations.

Treasury identified the following constraining factors:

- Poor project planning, resulting in discrepancies between project requirements and budgets
- An inability to estimate final costs accurately, with frequent cost overruns on projects
- A consequent lack of predictability for budgeting purposes
- A budgeting practice of adjusting the previous year's budget for inflation instead of making budgets project based
- A lack of alignment between the Infrastructure delivery cycle and either the budget or the strategic planning cycle
- The practice of committing budgets for large multi-year projects to one year instead of spreading them over the MTEF cycle⁽⁸³⁾.

A significant challenge to accurate budgeting is the absence of information on the immovable and movable asset portfolios, including comprehensive asset registers of buildings, plant and equipment and adequate current information on the condition and suitability of the assets. Without this information it is not possible to develop zero-based budgets.

Public sector

Health service personnel

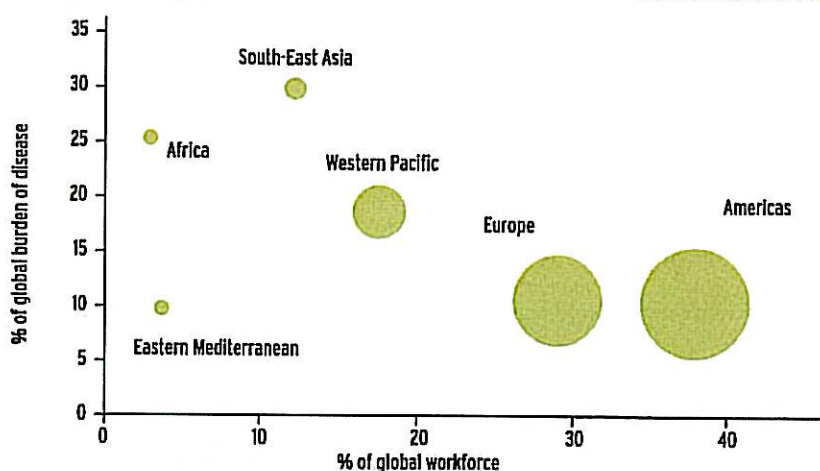
Difficulties in recruiting and retaining appropriately qualified health service personnel are a major constraint to health service delivery and a challenge that faces health planners, managers and administrators. While the introduction of scarce skills and rural allowances has had a positive impact, current shortages, especially of skilled and experienced staff, present an ongoing and serious challenge to service delivery. Of particular concern is the high level of attrition, especially among more highly skilled staff. The Western Cape has had an average attrition rate of eight per cent since 1998, but a higher rate of 12 per cent among professional nurses and a rate of up to 26 per cent among highly skilled nurses with specialist skills⁽⁸⁴⁾.

The Department of Health's National Human Resource Plan⁽⁸⁵⁾ cites the unavailability of suitably qualified staff, movement to the private sector and emigration as major reasons for the shortage. Concerns expressed by staff include remuneration (although not the prime concern), significant increases in workload, the uneven distribution of resources between public and private sectors and between rural and urban areas, exposure to endemic diseases (such as Aids and tuberculosis), lack of suitable equipment, and social issues⁽⁸⁶⁾. South Africa is not alone in the challenge to secure and retain health service personnel. Figure 40 illustrates the disparity in health staff availability between developed and developing countries. Although crucial to service delivery, no similar study could be found for infrastructure personnel.

Difficulties in recruiting and retaining appropriately qualified health service personnel are a major constraint to health service delivery.

FIGURE 40: DISTRIBUTION OF HEALTH WORKERS BY LEVEL OF HEALTH EXPENDITURE AND BURDEN OF DISEASE

World Health Organization, 2006



Infrastructure personnel

Understandably, much of the focus of both the national and provincial departments is on the recruitment and retention of health services staff and professionals. The responsibility for stewardship of health services includes the responsibility to procure, manage and maintain a fixed estate through which services can be rendered. Currently this is a joint responsibility shared by the provincial health departments as service providers and users, and provincial works departments as the assigned custodians of all provincial property.

The division of responsibilities between departments is generally defined in terms of a service delivery agreement, which varies across provinces. Usually the Department of Public Works acts as the implementing agent for capital and major maintenance projects, while health departments identify and define projects and undertake day-to-day maintenance (servicing) of plant and facilities. However, these agreements are often ill-defined and not always enforced due to a lack of capacity. There has been a steady erosion of professional and technical skills from both departments, with greater workloads imposed on fewer people. Planning and technical sections are hard hit across these departments in most provinces.

The erosion of maintenance and facilities management skills is particularly problematic in hospitals, which are left without the required range of technical skills to undertake the work or remain legally compliant. The law requires certificated artisans for different types of work; however, electrical (and other) work is sometimes done by unregistered and unskilled staff. In larger hospitals with specific load levels, a registered engineer is required to be resident on site. In many cases, this requirement is not met. Maintenance staffing levels and vacancy rates in a province are shown in Table 31. The rate of vacancies amongst professional staff and senior and middle management is particularly acute.

TABLE 31: STAFFING LEVELS FOR FACILITIES MANAGEMENT AND ENGINEERING SERVICES FOR A PROVINCIAL HEALTH DEPARTMENT

	Posts	Filled	Vacant	% vacancies
Professional engineers	11	3	8	72.7
Industrial technicians	75	53	22	29.3
Artisans	228	164	64	28.1
Tradesmen	174	125	49	28.2
Handymen	157	107	50	31.8
Foremen	17	16	1	5.9
Groundsmen, general workers	17	14	3	17.6
Total	679	482	197	29.0

The traditional role of the provincial works departments has been to provide full professional and technical services for the planning, design, construction and maintenance of health facilities. With the steady erosion of the professional skills pool in government, works departments have been less able to provide full services within the expected time frames. Moreover, in many cases there has been a loss of confidence by health and education departments as to the ability of public works to undertake the required technical functions and develop technical capacity.

The provincial departments of public works provided the training ground for built environment professionals in the past; most now face severe capacity constraints and are unable to compete with the private sector. In some cases, only a few built environment professionals remain and a large proportion of the normal workload is outsourced.

Private sector built environment professionals

Strong growth across the construction sector has increased demand for built environment professionals. A recent study on behalf of the South African Institute of Civil Engineers (SAICE) showed a profession that, while crucial to development, has insufficient capacity to meet demands. This is because of a long period of reduced industry demand, fewer graduates, emigration, low rewards and the movement of professionals into other sectors of employment. Shortages are particularly evident amongst experienced mid-career professionals who are required to execute major projects and transfer skills to junior staff(87). There have been no similar studies for other built environment professions(88), although the situation is likely to be similar.

Construction sector

The construction sector in South Africa comes from a stagnating base representing 2.5 per cent of GDP in the 1980s. It has had to grow rapidly to meet the demands of higher growth expectations and a resurgent economy. The sector doubled in relation to GDP by 2003 and will need to double again to meet the desired AsgISA growth targets of six per cent between 2009 and 2014. The construction sector was able to absorb some of the growth due to spare capacity during the early part of 2000. However, there is now evidence that this capacity has been absorbed and that there is limited capacity for further growth - with a premium on skilled workers, engineering skills and core materials, cement and steel(89).

Construction Industry Development Board (CIDB) regulations state that government may invite tenders only from contractors registered at the required level with the CIDB. The registration level is determined by a range of factors (including experience), which determine the maximum value for which a contractor may tender - ranging from a grade 1 contractor able to manage general building contracts up to R200 000 to a grade 9 contractor dealing with contracts in excess of R100 million(90). Capital projects in the public health sector will span this entire range, with most new HRP hospitals costing in excess of R100 million.

A recent analysis of demand-side requirements and industry supply-side capabilities indicated that there is insufficient capacity in the industry to meet the expected large project requirements of the HRP.(91) Of the total of 20 541 contractors registered for general building (including hospital work), only 20 are registered as grade 9, which can undertake major projects (over R100 million). Currently these contractors are heavily committed locally and abroad and, given the buoyancy of the construction sector and the ongoing demand for capital investment, there will be a reluctance to let go of contracts of this magnitude unless high premiums are paid. Renovation, alteration and addition projects fall below this threshold and are able to draw on a broader contractor base.

It is suggested that specific interventions will be required to allow the Department of Health to meet its HRP strategic objectives. Options include:

- Strategic procurement, including the establishment of integrated and partnered supply chains
- The development of long-term supply relationships (i.e. that remove single contract volatility) throughout the construction and post-construction period
- Innovation in the construction process
- The use of new technologies(92)

Current contractor development initiatives (under the banner of a National Contractor Development Plan) are targeted at level 1 and 2 contractors, and will benefit the health sector, albeit only for smaller contracts.

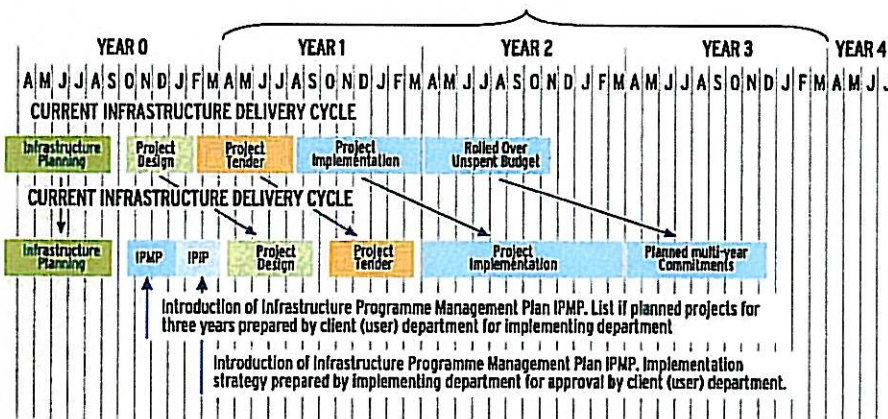
Addressing capital delivery constraints - the introduction of IDIP

Recognising a pattern of chronic underspending of available provincial capital infrastructure budgets, the National Treasury - in collaboration with the Department of Public Works, the CIDB and the DBSA - initiated the Infrastructure Delivery Improvement Programme (IDIP)(93). The programme supports the improved effectiveness and efficiency of public sector infrastructure delivery by developing and institutionalising best practice and building capacity in government departments. This is done by identifying and appointing technical assistants to work in departments for defined periods. They will assist in aligning IDIP processes with departmental realities and provide some much needed transitional capacity.

As mentioned, one of the problems experienced in provincial capital projects is the long lead-time and duration of capital projects against the fixed annual budget and spending cycle required in government. An innovation, introduced through IDIP, is the alignment of the infrastructure delivery cycle with the MTEF budget cycle. This allows budgets for large multi-year projects to be appropriately committed across the duration of the projects (Figure 41)

One of the problems experienced in provincial capital projects is the long leadtime and duration of capital projects against the fixed annual budget and spending cycle required in government.

FIGURE 41: IMPROVED IDIP INFRASTRUCTURE DELIVERY CYCLE



Source: Adapted from IDIP, 2007

Outsourcing, public-private interactions and public-private partnerships

A variety of initiatives are being explored and undertaken in South Africa in order to address capacity and funding constraints in the public sector, and make use of the expertise and resources available in the private sector.

Outsourcing work can take many different forms: from the use of consultants to manage part of the service programme through to more defined service provision. This includes, for example, using a contractor to provide security services or maintain particular items of equipment. These fall broadly into the category of public-private initiatives. A public-private partnership (PPP) exists where there is "a contract between a public sector institution/municipality and a private party in which the private party assumes substantial financial, technical and operational risk in the design, financing, building and operation of a project"(94).

In some provinces, where in-house capacity is severely constrained, some infrastructure management services (such as the management of capital projects) and private practice support have been drafted in to provide the required professional capacity. In others, the support of external implementing agents has been used to enable construction programmes - in place of, or in collaboration with, works departments.

There are currently six signed PPP health projects registered with the National Treasury in South Africa and a further eight in various stages of preparation (see Figure 32). These projects provide a range of services, from facilities management of existing facilities (Inkosi Albert Luthuli and Western Cape Rehabilitation Centre and Lentegeur Hospital) to co-location projects where private hospital services are provided in or adjoining existing public hospitals (Universitas and Pelonomi hospitals) to full revitalisation of existing hospitals (Chris Hani Baragwanath and Penge hospitals).

FIGURE 32: PPP HEALTH PROJECTS REGISTERED WITH NATIONAL TREASURY PPP UNIT

Signed projects	Department of Health:	
Inkosi Albert Luthuli Hospital	KwaZulu-Natal	
Universitas and Pelonomi Hospitals	Free State	Co-location
Humansdorp District Hospital	Eastern Cape	
Western Cape Rehabilitation Centre and Lentegeur Hospital	Western Cape	Facilities management
Polokwane Hospital Renal Dialysis	Limpopo	
Port Alfred and Settlers Hospitals	Eastern Cape	
Projects in preparation		
Hermanus Hospital	Western Cape	Co-location
Revitalisation of Pharmaceutical Supply Chain	Eastern Cape	
Swellendam Hospital	Western Cape	Co-location
Grahamstown and Port Alfred Hospitals	Eastern Cape	Co-location
Lusikisiki Clinical Staff Accommodation	Eastern Cape	
Penge Hospital	Limpopo	Revitalisation
Chris Hani Baragwanath Hospital	Gauteng	Revitalisation
Procurement of serviced and sustainable hospital facilities	KwaZulu-Natal	

Source: PPP Unit

There is a growing body of knowledge and experience in the use of PPPs in the health sector. The introduction of PPPs can bring benefits such as private sector skills and expertise, predictability in capital and operating budgeting, capital funds that would not otherwise have been available, and the provision of definable and regulated minimum standards of service. However, there is a clear need for a high level of managerial skill and experience when commissioning PPP contracts. There is also a need for a high level of buy-in to ensure that the expected benefits do accrue⁽⁹⁵⁾. Also needed is a considerable time frame – typically two to three years to initiate projects⁽⁹⁶⁾.

GIAMA

The Government Immovable Asset Management Act or GIAMA sets out to clarify the relationship between public works ('the custodian') and the client ('the user') to provide a consistent framework for infrastructure-related services. GIAMA provides for the development of custodian and user asset management plans to create a framework for planning and budgeting. However, there is an overlap between GIAMA requirements and the departmental health planning and budgeting processes already developed and implemented as part of the HRP (such as the strategic transformation plans and business cases). Further work is required to resolve the conflict and duplication between these parallel processes.

Health Infrastructure Information

The absence of a central, unified health infrastructure information system is a key problem. While the IHPF has been developed into a sophisticated service and budget-modelling tool, there is no up-to-date profile of the physical condition and suitability of the individual facilities – as was obtained from the NHFA for 1995/96.

The availability of good quality current and comprehensive infrastructure information is central to good management. There is a legislative requirement (in terms of PFMA and GIAMA) that all departments prepare consolidated asset registers of both movable and immovable assets. While many provinces are embarking on this process, there is inconsistency in the definitions used, and a low level of involvement by health departments – particularly

In defining a minimum infrastructure-related dataset for health planning and facility management purposes. Health estate management is a complex area and, while sharing some key attributes with the estate management of other government portfolios (such as education and general office accommodation), it requires a more sector-specific focus.

It needs to align facility planning and management benchmarks with the desired outcome data to support health service delivery and ensure an optimised relationship between service and infrastructure. In particular, there is a need for a common industry-specific framework that can, at a high level, be used across the public and private sectors to support the development and introduction of a common regulatory framework. Furthermore, the relationship of the public and private sectors can potentially be strengthened with by resource, as reflected in a recent plea from the Hospital Association of South Africa.

The private hospital sector is unified in calling for the introduction of standardised definitions and measurement criteria to form the basis for all future industry evaluations. This will require adapting and developing operationally relevant statistical models and maintaining the highest degree of accuracy in data collection(97).

In order to redress this situation, it is recommended that a specific health infrastructure database be developed - linked to the DHIS and IHPF - in order to support strategic and project planning, budgeting and facilities management, as well as enabling health infrastructure research(98).

Health infrastructure research capability

While the Health Act makes provision for the establishment of a national health research committee and the identification of research priorities, the primary focus has been on the burden of disease and health systems. There has been minimal research funding directed towards the improvement of infrastructure and the relationship between outcome and infrastructure design and performance. Funding and capacity need to be developed to ensure that the appropriate guidelines are in line with specific local constraints and environment. Although some research is undertaken in this sector and regular health infrastructure conferences are held in South Africa, there is no culture of academic research in the field. A key constraint has been the absence of funding and academic support towards addressing health infrastructure challenges.

Health infrastructure challenges

In summary, the South African health estate shows enormous variations in the quality, quantity and appropriateness of its infrastructure. This is characterised by:

- The structural devolution of stewardship to provincial (and sometimes local) government
- Limited prioritisation of infrastructure in the Department of Health(99)
- Severe challenges in attracting and retaining appropriate staff throughout the system
- Outdated norms, standards, guidelines and benchmarks

As a result, the health estate looks set to continue at the mercy of contingency. A reasonable projection of the health estate under these conditions suggests that the characteristic features of inequity, infrastructure degradation, wide variations in spending patterns and predictability and unsustainable investment look set to continue. Already, confidence levels in the service delivery environment have been undermined by media reports of particular incidents in compromised hospital environments in particular(100), and infrastructure failure across other sectors(101).

These features clearly present difficulties in fulfilling the policy directives of delivering equitable services, meeting community health needs and ensuring value for money. Additionally, if the potential for improved health outcomes is not realised, AsgiSA objectives of systematically reducing poverty and unemployment will be undermined.

Infrastructure has a considerable role to play in many aspects of the delivery of health care (value for money, staff retention, job satisfaction, enabling environments, healing environments and improved health outcomes, to name but a few), absorbs considerable investment and resources, and endures for an extended time. Therefore, it follows that strengthened coordination, the integration of leadership, and appropriate supportive and enabling systems are required.

A reasonable projection of the health estate under these conditions suggests that the characteristic features of inequity, infrastructure degradation, wide variations in spending patterns and predictability, and unsustainable investment look set to continue.

- 1) For example, News 24 interview, 26 September 2008; Mail & Guardian, 2 and 13 October 2008
- 2) World Bank (2000); Schnelder et al (2007)
- 3) Treasury (2007)
- 4) IDIP is a Joint Initiative of National Treasury, DBSA, CIDB and the Department of Public Works.
- 5) Treasury (2007)
- 6) Pelsler (2003)
- 7) Christensen et al (2007)
- 8) Redelinghuys et al (2004) from WHO (1998) data
- 9) Loudon (1992)
- 10) Bradshaw et al (2000)
- 11) Statistics South Africa (June 2007) Mortality and causes of death in South Africa, 2005. This report, together with a previous edition published in May 2006, reveals that the annual number of registered deaths rose by 87 per cent between 1997 and 2005. This disproportionately affects the 25 to 49 year age group, which showed a 169 per cent increase.
- 12) Weyer (2007)
- 13) Weyer (2007)
- 14) The real number of cases is not known. The number of identified cases varies significantly between data sources. In addition, the detection rate is currently believed to be low.
- 15) WHO (2007)
- 16) DoH (2007)
- 17) Olshansky et al (1997)
- 18) Christensen et al (2007)
- 19) Pelsler (2003)
- 20) M&G Online (2007b); M&G Online (2007c)
- 21) Fuhri (2007)
- 22) Redelinghuys et al (2004)
- 23) Treasury (2007c)
- 24) DoH (2007)
- 25) GIAMA (2007)
- 26) OHS (1993)
- 27) Regulations that govern the provision and management of public health facilities
- 28) SAHNORMS - South African Hospital Area and Cost Norms
- 29) AsgISA (2007)
- 30) Jipsa (2006)
- 31) DoH (2003)
- 32) From an infrastructure point of view, planned beds are used to measure facility and design efficiency as opposed to usable (or available) beds and allocated (or approved) beds used in health service planning and management. Many existing facilities were initially designed for more beds than are currently in use, resulting in a high gross floor area to usable bed ratio. Tygerberg hospital, for example, was designed for 1 899 beds but currently operates at 1 280 beds - 33 per cent of its design capacity. Reducing usable beds to achieve service rationalisation and cost saving does not bring commensurate facilities management cost savings. Facility management costs remain high as unallocated floor area tends to be filled by remaining departments and any unused floor or building space still requires servicing and maintenance, albeit at a lower level.
- 33) Western Cape Works (2007)
- 34) The Health Systems Trust reports in its 2007 South African Health Review that 14.8 percent of the population of South Africa receive most of their benefits (including hospitalisation) from the private sector, a further 21 per cent acquire hospitalisation in the public sector but pay out-of-pocket for private primary care, and the balance of 64.2 per cent receive all benefits from the state (SAHR 2007).
- 35) The MEA represents the cost to build the existing facility today using current technology. The valuation method is currently being developed by the CSIR for the Department of National Public Works and National Treasury for use with the introduction of GIAMA.
- 36) Facility level data required to calculate MEA includes current gross construction area of all buildings on the site, the primary construction materials and electrical and mechanical systems as well as an indication of site development.
- 37) This estimate of MEA will be used as a basis for testing the adequacy of the capital and maintenance allocations currently provided in provincial budgets.
- 38) Including medical devices, information systems and medical and non-medical furniture. The amounts will vary considerably between different levels of care
- 39) Offices, residential, central services, forensic mortuaries and so on
- 40) Using a 5-point scale where condition 5 = as new; 4 = preventive maintenance; 3 = minor repairs; 4 = rehabilitation; 5 = replacement (CSIR 1996) - see Figure 40
- 41) Experts assert that below this level the condition is such that it can no longer provide an acceptable, secure healing environment, nor deliver a safe service. (McDuling, Abbott).
- 42) Defined as the ratio of current beds in use (usable beds) to planned beds
- 43) Regular facility assessments have very recently become a requirement under GIAMA legislation.
- 44) In a provincial study in preparation for the HRC public enquiry into the right to access to healthcare services (Nthuil 2007)
- 45) Nthuil (2007)
- 46) Treasury (2007a)
- 47) WHO (2006); SAHR (2007b)
- 48) SAHR (2007b)
- 49) Treasury (2007b)
- 50) The actual and projected increase of accepted tender prices shows an expected construction price increase of 2.02 times over the 2003/10 framework period: BER (2007).
- 51) Due to reporting inconsistencies in the provincial appropriation Bills, it was not possible to establish the split between the equitable share and PIG allocations.
- 52) DoRA (2006)
- 53) Other sources of funding for health assets not included above include electrification, water supply and sanitation, primarily for clinics.
- 54) Treasury (2004)
- 55) The real time frame will be longer as the capital amount is not only for replacement but also for periodic upgrading during the life of the facilities, and HRG is not solely for capital but also has a component allocated to hospital management and quality improvement.
- 56) However, this variance is for the 2007/08 budget only, as there is a peak in HRG funding for Northern Cape for this year, reflecting the expenditure requirement for five concurrent HRP projects.
- 57) Treasury (2007b)
- 58) Including fixed equipment and professional fees
- 59) All staffing, consumables and facility management costs include administration, security, energy and utilities, and facility and equipment maintenance costs.
- 60) Department of Health (2007). This objective target includes maintenance of all capital assets (movable and immovable).

- 61) It is difficult to establish from Treasury allocations what is currently being budgeted and spent for maintenance, as this is not clearly defined and separated (as for capital allocations). Maintenance is partly included as current expenditure under facilities management (programme 8) and partly under engineering services under health care support services (programme 7). Some provision is also made under the hospital services budget lines (programmes 2, 4 and 5). Table 28 shows an estimation of maintenance allocation using available data for 2007/08.
- 62) Table 28 shows two versions of allocation (A and B) calculated using information from two provinces. With the higher estimate, the range of allocation is from 1.6 to 4.4 per cent of primary allocation.
- 63) It appears that this basis is either a misinterpretation of the real relationship between maintenance, current condition and the current replacement value of the estate, or a proxy figure in the absence of a proper appropriate valuation of the estate. In other cases, budgeting is done on the basis of an adjusted amount based on historical budget figures.
- 64) This allocation includes provision for preventive and programmed maintenance, predictive testing and inspections and routine repairs. Funding for expanding, changing the function of, or extending the useful life of a facility is excluded (capital funding), as is funding for normal operational activities (custodial work, security, grounds, utilities, etc.). The two per cent to four per cent guide is for a range of public sector facilities, from simple warehouses at two per cent to four per cent for complex hospitals.
- 65) Where neglect of maintenance has caused a backlog of needed repairs to accumulate, spending must exceed this minimum level to reverse the backlog.
- 66) FFC (1996)
- 67) Personal communication: Dr B Remmelzwaal and M Poluta
- 68) In reality, the current maintenance spending against MEA will be lower than this, as the estimate of the MEA of the estate excluded other categories of health facilities such as forensic mortuaries, regional laundries, nursing colleges, off-site housing and offices and maintenance expenditure will be an overestimate, due to the difficulty of excluding other facility management-related expenditure.
- 69) NHFA (1996); McDuling (2005)
- 70) A recent condition (2005) assessment of all health facilities in Limpopo showed an average condition improvement following a very successful capital upgrading programme. However, work undertaken in other provinces is unlikely to have matched this.
- 71) AMG (2004)
- 72) This may be partly resolved by the introduction of GIAMA, which requires a greater degree of reporting on the estate.
- 73) Ulrich et al (2004); Hamilton (2003)
- 74) Kibambe et al (2007)
- 75) Issues inviting attention include investigation into the link between design, operation and maintenance and infection control. Occupancy levels above 75 per cent (overcrowding) increase pressure on staff to a point where adherence to proper infection control procedures, such as hand washing, is reduced. An urgent review of overcrowded congregate areas in district health facilities may lead to a reduction in the incidence of opportunistic cross infection.
- 76) DoH (2006)
- 77) Western Cape Health (2006)
- 78) Some private hospital groups are adding back-up capacity to 100 per cent of load at key facilities, at a guide cost of R10 000 per bed for full backup generation capacity (personal communication).
- 79) Electricity generated using diesel generators on site is currently four times the cost of Eskom power (personal communication).
- 80) Heunis (2004)
- 81) Heunis (2004)
- 82) Treasury (2007b); IDIP (2007)
- 83) IDIP (2007)
- 84) Western Cape Health (2006)
- 85) DoH (2006)
- 86) OECD (2003)
- 87) Lawless (2004)
- 88) Personal communication
- 89) Van Wyk (2007a)
- 90) CIDB (2007)
- 91) Van Wyk (2007)
- 92) Van Wyk (2007)
- 93) Treasury (2007b)
- 94) PPP Unit
- 95) Heunis (2004)
- 96) Shuping et al (2007)
- 97) HASA (2008)
- 98) While systems are being developed to support the HRP, the focus is on information for revitalisation projects (currently impacting one to two per cent of all health facilities country wide) and does not provide the broad overview of all infrastructure as was provided in the NHFA or has recently been consolidated by National Education through the NEIMS project.
- 99) Infrastructure, after all, is not the primary interest of DOH.
- 100) Daily Dispatch online (2007)
- 101) Fin24 online (2008)

Although significant strides have been made in health infrastructure investment, much remains to be done if South Africa is to transform the sector fully – so that it can provide quality health care delivery in response to community needs. This includes:

- Accelerate considered investment in health infrastructure.
- Strengthen nationwide capacity to plan for health infrastructure delivery.
- Prioritise and implement the maintenance of health infrastructure and equipment.
- Consider the burden of disease when planning for health infrastructure delivery.
- Manage the impact of support Infrastructure (energy, water, transport and ICT) on health infrastructure delivery, especially in rural areas.
- Strengthen systems and processes (health information and supply chain management).

Scenario 1 (CLEAN BILL OF HEALTH)

It is 2014. Significant increases in capital investment and expenditure, coupled with extensive buy-in to capacity building initiatives, are producing outstanding results. There is an excellent working relationship between the Health and Public Works departments and the National Treasury as they implement and review interdepartmental service level agreements for effective health infrastructure delivery and maintenance.

Experienced health infrastructure officials are ensuring timely delivery and maintenance of health infrastructure. A strong research infrastructure support base has enabled government to identify and address system and service blockages and provide usable guidelines for infrastructure planners, professionals and technical planners.

An impressive range of health infrastructure and capacity plans has been developed and these are being actively implemented and monitored. All infrastructure plans have been aligned with budget cycles and there is no under-spending on health infrastructure investments. All provinces are reporting on infrastructure planning, delivery and maintenance in a timely manner, through a central web-based database. Consequently, the National Treasury no longer withdraws funding for health infrastructure.

- Ensure intergovernmental collaboration and coordination.
- Facilitate and sustain strategic partnerships between the public, private health and civil sectors.
- Ensure political stewardship in health infrastructure planning, delivery and maintenance.

The health scenarios offer a hypothetical look into the future, based on alternative paths. They attempt to answer three questions. What can we expect if significant changes are made now to address key areas of concern (Clean bill of health)? What can we expect if only limited adjustments are introduced (Not feeling too good)? And what can we expect if the current delivery environment does not change and we fail to meet our goals and policies (Looking very poorly)?(1)

A review of capacity in both the public and private construction sectors identified key skills requirements. An academy for health infrastructure professionals has been established to accelerate the provision of appropriate skills in the country. Bursaries are now offered for post-graduate advanced degree and/or diploma programmes in architecture, hospital engineering, facility management and service planning. Skills development programmes are available to health facility planners, managers, hospital technicians, health administrators and artisans. CPD training, workshops and seminars are offered to ensure ongoing training.

An intensive recruitment strategy was implemented to attract and retain relevant health infrastructure and service professionals. Significant investments in remuneration have made it possible for the public health sector to offer market-related packages. The Department of Health has also recruited and retained much-needed administration professionals.

Patients appreciate the quality of care offered in well-maintained facilities with experienced staff and functional equipment. The queues are much shorter due to the overhauled health information system, and clinic opening hours have been extended to accommodate working patients. Communities are playing an active role in infrastructure delivery and maintenance. All provinces have active and

Health infrastructure has gained prominence, with the result that there are no reports of health being compromised during provincial Infrastructure allocations. The country is implementing lessons learned about the Importance of health Infrastructure during the successful hosting of FIFA World Cup in 2010.

Maintenance funding for health facilities is on a par with internationally accepted guidelines. All provinces are adequately prioritising maintenance funding and complying with the requirements of the Government Immovable Asset Management Act (GIAMA). Asset registers are in place and are updated regularly. Deterioration of health facilities has been halted through scheduled maintenance and upgrading programmes, resulting in health facilities that are fit for purpose and services. A hub-and-spoke model of Infrastructure delivery has been adopted. This has resulted in an optimum balance between base and outreach services, and has ensured that affordable and acceptable health services are offered where required, for both urban and rural populations. This has resulted in a smaller, better-targeted estate, with effective staff and resource use. Improved staff transfer (flying doctor) services have been introduced, allowing for an increase in visiting doctor sessions in outlying centres while retaining a fully staffed core at base hospitals. The rollout of telemedicine also allows for better interaction between referral hospitals, base hospitals and rural facilities.

The Health Information System is well funded and coordinated. Intensive training has resulted in improved system use. There is integrated planning between Infrastructure and service delivery. A freely available single register of health facilities is minimising discrepancies in health Infrastructure and service information. National facility audits are conducted at three-year intervals, with key planning and budgeting data to ensure facilities remain in excellent condition.

All facilities have adopted an IT-based patient record system (using barcode readers and smart-card-enabled ID books), which provides instant access to records and consolidates statistics into a central system. South Africans simply present their smart cards (with health profiles) at health facilities. Infrastructure (facility) and service (health profiles) information is thus aligned and regularly improved to ensure that it is valid, relevant and reliable.

The supply chain management process has been outsourced to appropriate service providers, who comply with government processes and procedures. This has resulted in improved logistical supply of equipment and drugs.

Multi-sectoral planning has resulted in shorter travelling distances to clinics due to the overhauled transport sector. Effective management ensures an uninterrupted supply of good water and sanitation. All facilities have ICT and are using energy-saving mechanisms such as solar heaters, heat recovery and so on. New facilities are built in an environmentally friendly manner.

Intensive collaboration between relevant stakeholders has resulted in a decline in communicable diseases, traffic and crime deaths and injuries, and lifestyle-related illnesses and injuries. Health Infrastructure and service professionals have collaboratively developed well-designed, appropriate new Infrastructure to support multi-drug resistant tuberculosis programmes, including laboratory services and long-stay residential units at hospitals close to patients' places of residence. Most hospitals and primary health care facilities have been upgraded to counteract the risk of airborne disease transmission in congregate areas and reduce the incidence of preventable fatalities.

Influenza clinic and hospital boards that have contributed to the streamlining of the health estate. This ensures that overcrowded facilities are given the requisite resources and underused facilities scaled down to appropriate levels.

The national health insurance system (tax-based revenue, benefitting everybody) was adopted in 2009, resulting in medical aid coverage of approximately 80 per cent of the South African population, who can now access services at all health facilities, thus reducing the burden on the public health system.

There is effective collaboration between the public and private health sectors on Infrastructure planning, delivery and maintenance. The choppy relationships of the early 2000s are completely forgotten as the two sectors move towards a streamlined health estate, offering appropriate, cost-effective service.

The partnership unit mandated to facilitate a good working relationship between the two sectors is located in a deputy director-general's office, ensuring it has the seniority to coordinate strategic initiatives and good follow-through.

A health Infrastructure agency has been established to fast-track public private partnerships in the delivery of health Infrastructure where necessary. The agency's work is informed by the public-private partnership guidelines developed by the National Treasury and Department of Health principles for Infrastructure planning, delivery and maintenance. The agency is hard at work, leveraging resources where there are funding gaps. Its effectiveness and efficiency have resulted in the timely delivery of world-class health facilities.

Proactive and visible political stewardship in health Infrastructure matters has produced good results. Functional local, provincial and national health authorities ensure improved coordination across the different spheres of government.

There is a move towards an integrated long-term Infrastructure vision, aligned with a research programme. This has resulted in ongoing evaluation of Infrastructure to develop an evidence base for effective planning, design and resource allocation. IT-enabled norms, standards and guidelines have been developed for health Infrastructure, and facility performance can now easily be measured against 'fit for purpose', 'fit for service' and 'environmentally sustainable' targets. To facilitate knowledge sharing and best practice, international collaborative research and academic support programmes have been developed.

Political leaders are driving the development of appropriate facilities with appropriate human resources, equipment, drugs and supplies. Most importantly, health Infrastructure has been contextualised as an integral part of an interconnected, integrated and cohesive health system, culminating in equitable, accessible, affordable and effective health service delivery.

Scenario 2 (NOT FEELING TO GOOD)

It is 2014. Increases in capital investment and expenditure, coupled with increasing buy-in to capacity building initiatives such as the Hospital Revitalisation Programme and the Infrastructure Delivery Improvement Programme are slowly bearing fruit.

Communication and collaboration between Health and Public Works departments are improving as they slowly accept the necessity of implementing inter-departmental service level agreements for health infrastructure delivery and maintenance. Technical assistants have been deployed to strengthen provincial capacity to prioritise and plan for health infrastructure delivery and maintenance - within realistic timeframes and budgets. Provinces are appointing additional health infrastructure specialists to work with technical assistants to finalise infrastructure plans and align them with budget cycles. This minimises underspending and limits the withdrawal of funding by the National Treasury. There is some improved monitoring and reporting on infrastructure planning and delivery. However, some provinces are still not performing as expected.

While capital funding levels do not seem adequate to transform and maintain the public health sector, growing capacity is resulting in more efficient use of limited resources.

Improved prioritisation of health infrastructure delivery has resulted in fewer reports of health infrastructure budgets being compromised in favour of other sectors in provincial infrastructure allocations. Although the successful hosting of FIFA World Cup 2010 highlighted the importance of good health infrastructure in the overall delivery of good service, there is scope to implement lessons learned.

The maintenance of health facilities and equipment is improving. While maintenance funding remains below internationally accepted guidelines, some provinces have begun to budget adequately for maintenance to prevent the deterioration of health facilities and equipment and to ensure fitness for purpose and service. There is a growing understanding of the importance of maintenance, largely attributable to the need to comply with the Government Immovable Asset Management Act (GIAMA). Consequently, there has been a decline in the number of dilapidated facilities, resulting in improved service quality and safety. More needs to be done, however, to ensure sustainability of the entire health estate in the long term.

The health information system is gradually improving as training enhances appreciation and use. To minimise discrepancies in health infrastructure information, a single register of all health facilities has been developed. National facility audits are conducted at five-year intervals, a marked improvement on the earlier sporadic efforts. Although there is growing understanding that audits provide relevant information about facility conditions and service delivery, some provinces continue to have limited capacity to use this information effectively to plan, budget, manage and monitor health infrastructure delivery.

Provinces are steadily moving towards a 'paperless' approach. This will ensure that patient files are entered into an information database, and are accessible across all health facilities to ensure the seamless provision of quality health care through the entire health referral network. The system will also enable proactive and timely communication of notifiable disease outbreaks. The poor alignment between infrastructure and service information remains a major challenge. The supply chain management process is improving. Provinces have learned from

health infrastructure matters. There is a drive towards the continued development and national adoption of norms and standards for improved planning. However, compliance remains a challenge. Local, provincial and national health authorities are functioning better, with improved coordination between different spheres of government on health infrastructure matters.

the experiences of provinces like the Western Cape, where appropriate signing powers are delegated from director-general to deputy-director general, chief director and director levels. This facilitates the timely supply of equipment, drugs and supplies. The hard-line approach adopted towards officials who abuse the supply chain management process is a good deterrent against fraud and abuse.

Multi-sectoral planning and coordination is improving. People are travelling shorter distances to clinics as the transport system gradually improves. Fewer clinics face interrupted supply of water and sanitation, power outages and poor access to ICT.

Effective implementation of strategic plans (coupled with improved collaboration between relevant stakeholders) has contributed to a noticeable decline in the incidence levels of communicable diseases, traffic, crime and lifestyle-related illnesses and injuries. Health professionals and researchers are working together to ensure consideration of the burden of disease during infrastructure planning. This has resulted in fewer reports of an overextended public health system, facility-related infections and preventable fatalities.

The number of health infrastructure professionals has increased as a result of Jipisa and intensive recruitment efforts. Fewer health professionals are leaving the public health sector, due to improved working conditions and better remuneration. Professionals are more willing to work in rural areas as a result of improved access to good water and sanitation, energy, transport, ICT, education and housing. Although the number of unfilled positions is declining, retention strategies need to be intensified so that professionals are not lost to the private sector and the developed world where they can receive better remuneration packages.

Patients are happier with the improved health facilities that are being delivered. The effects of improving multi-sectoral coordination – shorter travelling and waiting times and better provision of water, sanitation, electricity and ICT have contributed to the increased use of public health facilities. However, there is widespread concern that some facilities are still overcrowded, deteriorating, underutilised and costly to run. Growing community participation in health infrastructure matters needs to focus on this as a matter of urgency.

The social health insurance system (with contributions by government and the employed) was adopted in 2009 and has been implemented, but with mixed results. Approximately 40 per cent of the South African population has medical aid and can access private health care – thereby reducing the burden on the public health system. Unfortunately, public and private health facilities are generally misaligned, with implications for coordination.

Communication between the public and private health sectors is improving through the acknowledgement of a shared purpose in sustainable health infrastructure and service delivery. The influence of the partnership unit of the Ministry of Health is growing as it facilitates a good working relationship between the public and private sectors. The process for finalising public-private partnerships on health infrastructure delivery is improving as public-private partnership units in the Treasury and Department of Health strengthen their capacity. The implementation of lessons learnt in public-private partnership transactions remains a challenge. There is growing political stewardship in health infrastructure matters, with promising results. Some political leaders are particularly proactive and visible on

Scenario 3 (LOOKING VERY POORLY)

It is 2014. Despite increases in capital investment, there is frustration about health infrastructure planning, delivery and maintenance. Capital funding levels seem inadequate to transform and maintain the public health sector fully. Although there are well-run facilities, some are overcrowded and deteriorating. This affects the delivery of quality health care and poses safety risks to patients and staff.

There is limited communication and collaboration between the departments of Health and Public Works in some provinces. This leads to poor implementation, monitoring and review of service level agreements. The departments are overstretched and under-resourced and do not have the capacity to develop good infrastructure plans in a coordinated manner and within stipulated time frames. Where plans are completed, they are often not aligned to budget cycles, resulting in under-spending of health infrastructure allocations. Consequently, Treasury has reduced or withheld health infrastructure allocations from provinces that underspend.

Health infrastructure delivery is sometimes not well prioritised in the provinces. For example, roads and stadiums for the FIFA World Cup in 2010 appear to have been prioritised over health infrastructure. Some departments incorrectly rely on the Hospital Revitalisation (Conditional) Grant for the bulk of province-wide infrastructure delivery funding.

Despite the Government Immovable Asset Management Act (GIAMA), the maintenance of health facilities and equipment remains a cause for concern. Maintenance funding is well below internationally accepted guidelines. Despite a decision to 'ring-fence' maintenance funding, implementation remains a challenge; some health facilities and equipment are slowly deteriorating and are becoming increasingly unfit for purpose and service. The absence of a shared understanding about maintenance work exacerbates matters and hampers the effective use of limited resources.

Although the Ministry of Health introduced a strategic planning process to provide a sound basis for strategic service and capital project planning (including the Hospital Revitalisation Programme), there has been varied buy-in and compliance at provincial level. The Infrastructure Delivery Improvement Programme (DIP) - a partnership between Treasury, Health, Public Works, Education, CIDB and DBSA - whose aim was to strengthen provincial capacity to plan for infrastructure delivery and maintenance - has suffered a similar fate, resulting in limited improvements in institutional capacity.

The Health Information System remains a concern. There is still no single register of all health facilities in South Africa and the sources of information show discrepancies. A national update of the 1995/96 National Facility Audits has yet to be done, resulting in inadequate information on the condition of facilities and service delivery. This impedes effective planning, management, monitoring and motivation for capital and maintenance funding. Patient information is largely paper-based and rarely accessible across facilities. This limits effective service delivery and the development of information support systems. Health infrastructure and service information is not linked and there is no well-developed system for communicating the outbreak of notifiable diseases.

consultation and follow-through. The Department of Health has established a unit whose mandate is to facilitate public-private relationships. Despite good intentions, the unit has limited influence. The process of finalising public-private partnerships for health infrastructure delivery is protracted, mainly as a result of the limited capacity of the relevant units in the National Treasury and Department of Health. Political stewardship in health infrastructure planning, delivery and maintenance is limited and usually visible only during times of crisis. There are still no nationally applicable norms and standards for infrastructure planning, resulting in poor planning and coordination. Local, provincial and national health authorities are not functioning as well as anticipated, affecting coordination between different spheres of government.

1) The development of the 2014 scenarios for the health sector was a consultative process. It was conceptualised and written by Nolwazi Cass, in collaboration with Thuthula Balfour-Kalpa, Norma Tsotsi and David Ndegywa of the DBSA as well as Geoff Abbott and Peta de Jager of the CSIR.

The supply chain management process is slow and vulnerable to abuse, with significant impact on the delivery of health infrastructure, equipment and drugs. In some instances, drugs expire in storage, and stock shortages still occur due to haphazard supply logistics. Medical waste management is another area for concern. The Department has noted an inconsistent capacity to implement effective supply chain management and plans to address this by, for example, strengthening capacity, including administrative support.

Despite significant government efforts to increase access to health facilities, people still travel long distances to clinics and frequently have to endure long waiting times. A fair number of health facilities (especially in rural areas) face interrupted supply of water and sanitation, power outages and poor access to ICT.

Communicable diseases (HIV/Aids and tuberculosis) and traffic, crime and lifestyle-related injuries and preventable illnesses continue to increase at an alarming rate. Through numerous strategic plans, government and relevant stakeholders have committed themselves to the collaborative prevention and/or mitigation of the impact of these injuries and illnesses. However, since the impact of communicable illnesses was underestimated or underweighted during infrastructure planning, the over-extended public health system is trying to deal with the consequences.

Despite the introduction of the Joint Initiative for Priority Skills Acquisition (Jipsa), there is a shortage of experienced health infrastructure planning professionals. Notwithstanding incentives such as the rural and scarce skills allowances, few health professionals wish to work in rural areas, primarily because of the deteriorating condition of hospitals, poor working conditions, and the shortage of suitable accommodation and good schools for family members. Many essential positions remain unfilled and public health professionals continue to leave for better working conditions and remuneration in the private sector and the developed world.

Patients are unhappy about the quality of service delivered in some public health facilities. Rural facilities are often far away and expensive to reach because of poor roads and limited and expensive transport. Some facilities have limited access to medical doctor care and could benefit from telemedicine. Despite significant government efforts to ensure affordability in the pharmaceutical industry, the supply of drugs remains a challenge. Where they can afford to do so, patients opt for the out-of-pocket route to access private health care. Communities play a limited role in the planning, delivery and maintenance of health facilities. There is concern about underused, understaffed and costly-to-run facilities that were not well planned in terms of location and service level.

Private health facilities are accessible to less than 20 per cent of the South African population, who can afford the ever-escalating medical costs. Although the government has introduced, among other things, the Government Employee Medical Scheme, most people cannot afford medical aid contributions and are forced to use public health facilities. The lack of consensus on the adoption and implementation of a health insurance system has exacerbated matters.

While there have been efforts to work together on both sides, the relationship between public and private health stakeholders remains work in progress. Ideological differences have resulted in accusations, counter-accusations and, unfortunately, legal battles. Communication often reacts only to crises, with limited strategic

The Infrastructure Delivery Improvement Programme (IDIP)

The Infrastructure Delivery Improvement Programme (IDIP) is a unique capacity-building programme initiated by the government of South Africa. IDIP is designed to address capacity problems, such as those related to the planning and management of public sector infrastructure delivery. Its aim is to give the provincial departments of Public Works, Education and Health appropriate management systems and to support them with the development of appropriate skills to plan and manage infrastructure well.

Public sector spending, which is generally directed at basic bulk infrastructure, is economically important. It creates multiplier effects for the economy and stimulates private sector investment. However, providing and maintaining infrastructure has a greater significance. The government has done much to transform the public service and improve service delivery by introducing new legislation and raising infrastructure budgets. However, the actual spending on physical infrastructure is hampered by bottlenecks, red tape and a lack of skills.

The origins of the IDIP lie in a review of provincial service delivery systems commissioned by the government in 2001. The review identified various deficiencies and recommended that a framework be developed to guide the management of infrastructure delivery. A further recommendation was that provincial departments should be helped to develop their capacity to manage and sustain infrastructure delivery.

The government responded positively to the recommendations by creating the IDIP. The implementation approach has created a partnership between the National Treasury, the national departments of Public Works, Education and Health, the Development Bank of Southern Africa (DBSA) and the Construction Industry Development Board (CIDB).

The managing partners decided to implement the IDIP in phases. The pilot phase, which developed and tested the methodologies and tools used to build and sustain capacity in the host departments, started in July 2004. The second phase of rolling out the programme started in June 2005. Taking on board the lessons learnt in the pilot phase, a well conceived approach and management system was developed for the implementation of the programme.

The IDIP methodology is based on a programme cycle approach, which consists of the following interrelated phases: assessment, design (which entailed the development of a business case for IDIP support to the targeted departments in each province), inception and implementation. The programme cycle for the IDIP is embedded in a continuous monitoring, reporting and review process aimed at measuring progress, effectiveness and impact. It is implemented through provincial technical assistant teams with multi-disciplinary skills. These work closely with provincial officials, facilitating the transfer of skills. It is unique for a highly technical programme like the IDIP to provide experts to assist with the management of change and the intended and unintended consequences of the programme.

Programme management is based on a decentralised programme management system with a Programme Management Unit (PMU), made up of representatives of all the national partners, and a provincial management system with responsibility for managing the IDIP in the provinces on a day-to-day basis.

The IDIP has shown good progress since its inception. It enjoys a high level of leadership support in both national and provincial spheres. With its focus on improving the capacity of government to plan and implement infrastructure delivery, IDIP is a well-established vehicle for promoting sustainable socioeconomic development and growth. The benefits of IDIP are:

- IDIP enables beneficiary departments to identify gaps and inconsistencies in their infrastructure delivery systems, design solutions and appreciate their role in resolving their capacity constraints
- IDIP establishes a well functioning programme management system that ensures effective allocation and use of resources
- IDIP enhances cooperative governance and teamwork among its role players
- IDIP provides tools to guide the prioritisation of infrastructure needs, planning and budgeting, and to ensure alignment between infrastructure priorities, plans and budgets
- IDIP provides a knowledge sharing and lesson learning facility, and a network that provides access to building the following expertise: infrastructure planning, budgeting, monitoring and reporting, programme and project management, procurement, change management, organisational development, capacity building and service delivery management systems.

Lessons learned during the different phases of the programme

- The success of its capacity-building programmes is closely linked to the way IDIP originated. From the initial design phase of the IDIP, there was high level buy-in and commitment from senior political leaders and senior managers in the public service
- The participative approach followed during the design process creates a solid base for the development of strong partnerships during the remainder of the programme
- The programme is embedded in the strategic priorities of the government, which prevents it from 'floating' and enhances its institutionalisation
- IDIP has clear objectives and indicators for the measurement of progress against each objective, most of which remain unchanged since inception. This has helped the programme steer a firm path through political leadership and public service management changes
- It is important that the programme partners and beneficiaries develop a common understanding of the preferred future the programme is intended to create. This assists in the cementing of 'smart' partnerships, built around a common vision of the future
- Transforming political support into administrative action can be difficult. The challenges posed by moving from design to implementation strains partnerships built during the design phase
- There is benefit in strong partnerships at the national level. This ensures that the programme is aligned with national priorities and can 'protect' provincial initiatives from being hijacked by strong personalities and/or vested interests
- There is a similar benefit in having credible and capable provincial partners. These can ensure that the programme meets the needs of the beneficiary provincial departments
- Capacity building with the aim of enhancing infrastructure management is not merely about the filling of vacant public service posts and training staff. It requires a comprehensive approach that embraces, among other things, the development of management systems and approaches and appropriate organisational designs for infrastructure delivery planning and management
- The existing and preferred infrastructure delivery management processes need to be mapped to create a better understanding of the different phases of the process, and to ensure that different government entities have different roles to play during the process. Too often, departments adopt a 'silo' approach, to the detriment of the constitutional principle of cooperative governance
- Enhancing infrastructure planning by government departments will have limited success if infrastructure planning is not aligned with strategic priorities for infrastructure delivery and the multi-year budget cycle. Too often infrastructure plans are developed for the purpose of complying with legislative requirements, but are not anchored in strategic priorities and the multi-year budget. As a result they are ignored or randomly changed
- Capacity building and change programmes like IDIP do not start with a clean slate, but are actually interventions into existing institutions aimed at changing the way infrastructure is managed. The development of a change management model to navigate the intended and unintended impact of the programme assists with the management of resistance and helps institutionalise the systems and approaches being introduced.

Sources: www.treasury.gov.za, www.cidb.co.za (IDIP Toolkit)