Infrastructure: Healthy buildings for the NHI.

Peta de Jager, Geoff Abbott and Nsindiso Hlatswayo
<table>
<thead>
<tr>
<th>MILESTONE</th>
<th>TIME ALLOWANCE</th>
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<tbody>
<tr>
<td>Project identification</td>
<td>0</td>
</tr>
<tr>
<td>Site identification</td>
<td>4 Months from identification of project</td>
</tr>
<tr>
<td>In principle clearance to build on site</td>
<td>3 Months from identification of site</td>
</tr>
<tr>
<td>Site Development Plan, EIA - approval LA</td>
<td>12 Months from identification of site</td>
</tr>
<tr>
<td>Preparation of Business case</td>
<td>3 Months from LA approval</td>
</tr>
<tr>
<td>Approval from Provincial Health, Treasury</td>
<td>2 Months from submission of business case</td>
</tr>
<tr>
<td>Approval from National Health and Treasury</td>
<td>2 Months from submission to National</td>
</tr>
<tr>
<td>Request for service(RFS) to Implementing Agent</td>
<td>1 Months from receipt of approval</td>
</tr>
<tr>
<td>Appointment of Consultants</td>
<td>3 Months from RFS</td>
</tr>
<tr>
<td>Confirmation of Brief/Scope</td>
<td>1 Month after consultants appointment</td>
</tr>
<tr>
<td>Design development and PIP to client</td>
<td>12 Months after Scope</td>
</tr>
<tr>
<td>PIP approved</td>
<td>3 Month after submitted</td>
</tr>
<tr>
<td>Tender Documentation completed</td>
<td>3 Months after PIP</td>
</tr>
<tr>
<td>Tender advertising</td>
<td>1</td>
</tr>
<tr>
<td>Tender closing</td>
<td>2</td>
</tr>
<tr>
<td>Tender award</td>
<td>2</td>
</tr>
<tr>
<td>Contract start date</td>
<td>1</td>
</tr>
<tr>
<td>Site handover/Access date</td>
<td>1 7 Months after tender docs completed</td>
</tr>
<tr>
<td><strong>SUB TOTAL OF MONTHS FOR PLANNING</strong></td>
<td><strong>54 Months</strong></td>
</tr>
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South Africa’s oldest hospital:

Somerset Hospital. Circa 1890

Photo: Etienne du Plessis [2]
Why this matters

Service delivery in the healthcare sector is profoundly affected by the built infrastructure provided to support it.

The built environment can undermine health and healing and aid or cause ill-health, or promote wellness and healing.

South Africans have the Constitutional rights to:
- an environment that is not harmful to their health or well-being;
- and access to - health care services.
Transformation is necessary for equity

Resource constraints

Severe staffing constraints (healthcare and built environment)
Legacy service platform
Very slow replacement rate – about 40 years

Portfolio and enterprise management is crucial to affordability and sustainability

South Africa’s 4300 Healthcare Facilities [5]
IUSS Norms and Standards

Development objective

• Principal objective
  – The development of a **sustainable** set of **universally adopted** South African national norms, standards, guidelines and benchmarks for **all levels of healthcare facilities** related to **all stages** of the healthcare **infrastructure lifecycle** from strategic planning through to operation and eventual disposal

• Strategic context
  – **Equitable** and **optimised** balance between **need**, **service delivery model** and **place of service**
  – Balance infrastructure development within **current delivery framework** and the needs of NHI
Accessibility

- Inclusive environments and barrier-free design
- Location and proximity to need, and right sizing
- Telemedicine
- Taking the service into the community

CSIR biennial conference – Real Problems – Relevant Solutions
October 09, Pretoria
There is a sectorisation of healthcare provision with distinctive characteristics:

**PRIVATE SECTOR**
- Market driven (brand-conscious, attract HCW and patients);
- Must remain viable:
  - Economic imperative to minimise capital cost;
  - Replicates successes;
  - “In-house” capability;
- Agile (selects its services);
- Formerly legislated with reference to minimum standards (R158).

**PUBLIC SECTOR**
- Complex institutional split between custodial and user departments;
- Economic imperative to minimise operating costs:
  - Maintenance averse;
  - Roster-based professional selection;
- Inert;
- Formerly legislated with reference to maximum area and cost norms (SAHnorms).

48.5% of spend (R 120.8-billion )
16.2% of the population
8.2-million

49.2%* of spend (R 122.4-billion )
84% of the population
42-million people

*[10]* excludes works on health infrastructure
Is (should) NHI be a rebranding opportunity?
IUSS Norms and Standards

Cost modelling tool

- **Order of Magnitude**
  - Hospital and PHC estimators available, updated regularly
  - Extensively work-shopped with peer group

- **Departmental and elemental cost model**
  - Progressive detail through project development

- **Simple interface, sophisticated modelling.**
IUSS Norms and Standards

IUSS online – www.iussonline.co.za

Objectives

- Information dissemination
- Site where all IUSS norms & standards, guidelines, documentation can be accessed and downloaded
- Mechanism for anyone in SA health infrastructure community to provide feedback into development of guides
- Information resource for health care facility planners/ designers engaged in public/ private health projects

Equity - Accessibility - Solidarity - Strengthening - Prevention - Accreditation - PHC - Funding

Supported by

Development Bank of Southern Africa
<table>
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<tr>
<th>Clinical services</th>
<th>Support services</th>
<th>Healthcare environment/ crosscutting issues</th>
<th>Procurement and operation</th>
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<tbody>
<tr>
<td>Inpatient Services</td>
<td>Admin &amp; related</td>
<td>Generic room data</td>
<td>Integrated infrastructure planning</td>
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<tr>
<td>Laboratories</td>
<td>General hospital support</td>
<td>Hospital design principles</td>
<td>Project planning and briefing</td>
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<tr>
<td>Mental Health Services</td>
<td>Catering services</td>
<td>Engineering design principles</td>
<td>Space guidelines</td>
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<td>Laundry and linen</td>
<td>Environment and sustainability</td>
<td>Cost guidelines</td>
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<td>Accident and emergency</td>
<td>Mortuary</td>
<td>Materials and finishes</td>
<td>Procurement liaison</td>
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<td>Nursing colleges</td>
<td>Future healthcare environments</td>
<td>Commissioning</td>
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<td>Health facility residential</td>
<td>Healthcare technology</td>
<td>Maintenance</td>
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<td>Sterile supply</td>
<td>Inclusive environments</td>
<td>Decommissioning</td>
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<td>Clinical training</td>
<td>Infection prevention &amp; control</td>
<td>Capacity development</td>
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<tr>
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<td>Waste disposal</td>
<td>Health informatics</td>
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Equity - Accessibility - Solidarity - Strengthening - Prevention - Accreditation - PHC - Funding

[12]
CSIR flagship

Blueprints for the future...
Standardised clinic design for improved quality and standardised procurement
Primary healthcare

• Portability and continuity of care
• Support and continuing development for community health workers
• Monitoring and evaluation

Referral networks – KZN pilot (EOH)
Planning, design, construction, commissioning

Facility design life: 50-60 years

Decommissioning/disposal

Cost

Facility life cycle costs

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Capital Costs 10% over life-cycle
- A: Construction cost (immovable assets)
- B: Equipment cost (movable assets)

Operating Costs 90% over life-cycle
- C: Service cost (staffing, supplies...)
- D: Facility maintenance, operation, utilities...

Operation

Infrastructure renovation/addition

New / replacement equipment

Planning, design, construction, commissioning

Time

Facility design life: 50-60 years

Facility life cycle

[13]
NEGLECTING MAINTENANCE IS VERY COSTLY = UNSUSTAINABLE

(vs cost to retain in “VERY GOOD” condition)
Figure 1: Schematic diagram of phases and stages in the whole life [14]
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Fourways Private Hospital - Gauteng
Khayelitsha Public Hospital – Western Cape

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Acknowledgements

CSIR (especially the Architectural Engineering Research Group)
National Department of Health, CDC, Department of Science and Technology, DBSA),
IUSS stakeholders in public and private service frequently on a voluntary basis and appointed experts
References

[4] WHO
[6] Abbott, G (adapted from WHO)
[7] [http://www.google.co.za/imgres](http://www.google.co.za/imgres)