



GLOBAL SUSTAINABLE DEVELOPMENT

In association with Caswell Mthombeni Consultants cc

and Soderlund and Schutte

**Support Programme for Accelerated
Infrastructure Development (SPAID)**

**REVIEW OF EXISTING CURRENT AND FORECAST EDUCATION
INFRASTRUCTURE PLANS IN LIMPOPO**

Report submitted in fulfillment of first deliverable for appointment to develop an education infrastructure procurement strategy for the Limpopo Department of Education

5 May 2009

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1. Background to the assignment

At the end of March 2009, Global Sustainable Development, in association with Caswell Mthombeni and Associates and Soderlund and Schutte, were appointed by Matthew Nel and Associates on behalf of the Business Trust to develop an infrastructure procurement strategy for the Limpopo Department of Education (LDOE). The assignment forms part of the Business Trust's Support Programme for Accelerated Infrastructure Delivery (SPAID) and aims to develop an infrastructure procurement strategy as a pilot project in the development of sector infrastructure procurement strategies, which could be rolled out more extensively in the public sector.

Development of a procurement strategy by a government department involves collection and collation of data on needs, prioritisation of the needs, infrastructure planning and the formulation of the procurement strategy. This report focuses on the first stage and deliverable of the assignment, which is to work with LDOE to develop and/or document a methodology for translating identified needs into a prioritised infrastructure plan.

The second deliverable will involve developing an analytical framework for translating needs and priorities into a procurement strategy. Examples of possible procurement approaches include PPPs or direct government contracting; build only or build and maintain; facilities management; once-off contracts or period contracts, etc.

The third deliverable will involve applying the analytical framework to the prioritised needs in order to produce the high-level procurement strategy for the Department, and the fourth deliverable will be a detailed plan for implementing the procurement strategy.

2. Introduction

2.1 Limpopo DOE five-year infrastructure plan

There are 4015 schools in Limpopo. Limpopo DOE (LDOE) produced a rolling five-year infrastructure plan for the first time in 2007. This was updated in 2008 and 2009. In 2008 it also produced a 15 year plan (lists of priority projects to be implemented over the next 15 years) for the first time. The five-year infrastructure plan identifies capital education infrastructure backlogs (based on norms) to a value of R21.44 billion in 2006 Rand. These backlogs are summarized in Table 1 below.

Table 1 Backlogs

	Space Backlog (based on space norms)	Standard Backlog (based on standards for infrastructure)	Condition Backlog (based on condition assessment)	Planned and Unplanned Maintenance	Total
NEIMS cost model end 2006	16 828 492 071	3 969 146 936	422 240 068	217 601 986	21 437 481 060

Source: LDOE Infrastructure Plan 2009-2014

LDOE estimates that its average infrastructure budget over the next five years will be R1.2 billion per annum. It will therefore take LDOE at least 23 years to address the capital backlog, considering that it should spend part of its budget on maintenance as well.

The main areas of backlogs are:

- School sanitation and water supply
- School electrification
- Classrooms (schools with overcrowded classrooms or utilizing mobile classrooms)
- Administration blocks
- New schools (overcrowded schools)

- Libraries
- Workshops
- Laboratories
- Grade R facilities
- Rehabilitation (major repairs)

The infrastructure plan also identifies the prioritized projects to be funded over the next five years. The purpose of this report is to review these plans and the planning process. This is the first step in a broader process of developing a provincial education infrastructure procurement strategy. A further objective of the report is to provide a high level assessment of the quality of the data used to produce the infrastructure plan.

2.2 Maintenance

In terms of the Schools Act of 1996, School Governing Bodies (SGBs) are responsible for minor maintenance at schools. It is not clear exactly which maintenance activities this involves. LDOE provides SGBs with funding, some of which is used for maintenance (the funds for SGBs do not come from the education infrastructure budget). It is not currently known how much of this money SGBs spend on maintenance but LDOE is currently engaging in a process to enable this information to be obtained in future.

For the first time since 1994, LDOE budgeted for major maintenance at schools last financial year. This money is being spent on rehabilitating buildings which have deteriorated badly due to a lack of maintenance. It is therefore being spent on reactive repairs rather than preventative maintenance.

The infrastructure plan identifies key simple preventative maintenance activities which, if carried out, would prolong the lives of the assets. Since these are minor maintenance activities, they are the responsibility of SGBs. These activities include:

- Eradication of pests and termites every three years (termites are a major cause of damage to buildings)
- Quarterly cleaning, weeding and maintenance of gutters, channels, and other storm water drains to prevent flood damage to foundations, paving, buildings, toilets and sports fields

- Annual repairs and maintenance of roofs, including sealing, fixing and replacing old roof coverings, treating roof trusses, pest control, painting or treating roofs to prevent deterioration, and replacement of gutters. Without this treatment the annual summer rains cause severe damage first to roofs and then to the whole building. Lack of basic roof maintenance is a major cause of rapid deterioration in the condition of buildings.
- Annual maintenance of ablution blocks
- Annual painting and treatment of outdoor equipment to prevent rust damage to metal work and rotting of woodwork.

Although these are all relatively low-cost and simple maintenance activities, if they were to be carried out regularly they would have a major impact on the condition and life-span of the assets. However, SGBs are often not carrying out these maintenance activities regularly, resulting in rapid deterioration of assets and a constant increase in the size of the backlogs. In other words, failure to spend a little money on simple preventative maintenance is resulting in the need to spend much larger amounts of money on rehabilitation and reconstruction.

LDOE is very much aware of the importance of this preventative maintenance and the infrastructure plan states that the newly appointed Circuit Governance Officers *“will be trained to support schools in preventative maintenance...Guidance documents will be provided to SGBs with prescripts for the use of schools fund allocations for the 2009/10 financial year. A training programme is being developed for SGB’s on routine repairs and maintenance using the schools fund allocation.”* However, it also points out in the plan that *“in some cases the implementation of no-fee schools is having an unexpected consequence in that the attitude of the majority of parents at these schools is that they do not participate in any way, and that the state is responsible for all aspects of maintenance and improvement of the school infrastructure and grounds. Any routine maintenance plan should therefore be linked to education and advocacy in school communities...”*

Given the very low cost: benefit ratio of these key preventative maintenance activities, and given the fact that their neglect results in huge financial implications for LDOE, it is recommended that LDOE investigate the possibility of negotiating with SGBs in the province for the removal of responsibility for preventative maintenance from SGBs. There may also be economies of scale resulting from centralizing the procurement of preventative maintenance services.

LDOE would then need to budget for preventative maintenance activities and manage its implementation. LDOE is currently investigating the possibility of putting in place a period contract for maintenance which could be utilized for this purpose. This will be dealt with in more detail in the next deliverables of this assignment.

2.3 The Infrastructure Delivery Improvement Programme (IDIP)

National Treasury, in collaboration with the Construction Industry Development Board (CIDB), initiated the Infrastructure Delivery Improvement Programme (IDIP) with the aim of addressing infrastructure delivery challenges and provincial and municipal level. The purpose of IDIP is to introduce improvements to:

- multi-year infrastructure planning
- institutional roles & responsibilities
- programme & project management
- procurement practices.

IDIP has been piloted in nine provincial Departments of Education, two Provincial Departments of Health and two Provincial Departments of Transport and Roads. The piloting has involved the deployment of technical assistants to participating provincial departments and the development of an infrastructure delivery management toolkit (“the toolkit”). LDOE is a participant in IDIP and the recent improvements in infrastructure planning by LDOE (described in section 2.1 above) are a direct result of IDIP.

Although these recent improvements are largely due to the influence of the IDIP technical assistant, LDOE has recently obtained approval for a new organogram which includes a number of new positions for infrastructure planning, which did not exist before. There are also additional positions for managing infrastructure delivery. It is currently in the process of evaluating these positions and aims to fill them by the end of the calendar year. The sustainability of the improvements will depend on National Treasury maintaining the IDIP support in place long enough for the improved infrastructure delivery management processes to be embedded amongst the new staff to be appointed.

As a result of the current lack of capacity in the department, it spends a disproportionate amount of time and effort on managing the implementation of infrastructure projects compared to the

time and effort it spends on infrastructure planning. In other words, it does not spend enough time and effort ensuring that it is doing the right things.

The toolkit is available on the CIDB website. It provides good practice guidelines for planning and managing the implementation of infrastructure and maintenance programmes, based on international project management best practice (Project Management Body of Knowledge (PMBOK) © Project Management Institute). LDOE's infrastructure plan is based on the toolkit and an assessment of the plan against the Toolkit guidelines is provided in Annexure 1.

2.4 The Government-wide Immovable Asset Management Act (GIAMA)

The Government-wide Immovable Asset Management Act (GIAMA) was recently passed by Parliament. It came into effect for national departments on 30 April 2009 and will come into effect for provincial departments on 1 May 2010. The Act provides for a uniform framework for the management of immovable assets, the coordination of the use of immovable assets with service delivery objectives, and minimum standards in respect of effective immovable asset management.

The Act defines “custodians” and “users” of immovable assets. For immovable assets which are owned by provincial governments, the Act states that the Premier of a province or an MEC designated by the Premier is the custodian. In the case of education infrastructure in Limpopo, the MEC for Public Works is currently implicitly, if not yet formally, the custodian. The Act provides custodians with the caretaker responsibilities normally associated with the owner of a property, including the rights to acquire and dispose. The Act makes an exception for public private partnerships relating to immovable assets, in which case the accounting officer of a user is the designated custodian.

The Act prescribes the following principles of immovable asset management:

- a. An immovable asset must be used efficiently and becomes surplus to a user if it does not support its service delivery objectives at an efficient level and if it cannot be upgraded to that level;
- b. to minimise the demand for immovable assets, alternative service delivery methods that do not require immovable assets must be identified and considered;

- c. in relation to an acquisition, it must be considered whether—
 - (i) a non-immovable asset solution is viable;
 - (ii) an immovable asset currently used by the state is adequate to meet a change in its service delivery objectives; and
 - (iii) the cost of the immovable asset as well as operational and maintenance cost throughout its life cycle justifies its acquisition in relation to the cost of the service;
- d. immovable assets that are currently used must be kept operational to function in a manner that supports efficient service delivery;
- e. when an immovable asset is acquired or disposed of best value for money must be realised;
- f. in relation to a disposal, the custodian must consider whether the immovable asset concerned can be used—
 - (i) by another user or jointly by different users;
 - (ii) in relation to social development initiatives of government; and
 - (iii) in relation to government’s socio-economic objectives, including land reform, black economic empowerment, alleviation of poverty, job creation and the redistribution of wealth.

As indicated by the analysis of LDOE’s infrastructure plan in Appendix 1, it is broadly in line with the principles described in the Act. However, the absence of effective arrangements for preventative maintenance as described in Section 2.2 above is in violation of the principle that immovable assets that are currently used must be kept operational to function in a manner that supports efficient service delivery.

The Act further requires custodians to produce a custodial immovable asset management plan (CAMP) and users to produce a user immovable asset management plan (UAMP). It prescribes the following minimum contents of CAMP:

- a) a portfolio strategy and management plan;
- b) a management plan for each immovable asset throughout its life cycle;
- c) a performance assessment of the immovable asset;
- d) a condition assessment of the immovable asset;
- e) the maintenance activities required and the total and true cost of the
- f) maintenance activities identified; and

- g) a disposal strategy and management plan.

The following minimum contents of a UAMP are prescribed:

- a) a strategic needs assessment;
- b) an acquisition plan;
- c) an operations plan; and
- d) an immovable asset surrender plan.

LDOE has just started the process of developing a UAMP, as a separate document and through a separate process to its infrastructure plan. However, LDOE's infrastructure plan already meets the first three minimum requirements of a user asset management plan, as well as a, c, d, e and f of the custodian asset management plan requirements. There is a danger that the introduction of GIAMA in parallel with the ongoing implementation of IDIP will result in an overload of the nascent infrastructure planning capacity in provincial education departments. This could be avoided if National Treasury could engage with national DPW regarding the integration of the IDIP infrastructure plans with the GIAMA requirements for CAMPs and UAMPs.

The Act identifies further functions or responsibilities of custodians, including:

- a. managing an immovable asset throughout its life cycle
- b. assessing the performance of the immovable asset
- c. assessing the condition of the immovable asset at least every fifth year
- d. identifying the effect of the condition of an immovable asset on service delivery ability
- e. determining the maintenance required to return the immovable asset to the state in which it would provide the most effective service
- f. estimating the cost of the maintenance activities identified
- g. establishing and executing a performance measurement system as prescribed.

As indicated in the discussion in Section 2 above and in the assessment of LDOE's infrastructure plan in Appendix 1, LDOE is, in practice, currently carrying out all the custodial responsibilities (except disposal) for education-related immovable assets. The Act empowers the Premier or delegated MEC to assign custodial powers, duties and responsibilities to another organ of state, and the MEC for Education in Limpopo should consider requesting such an assignment of custodial powers from the MEC for Public Works, in consultation with the Premier.

If LDOE is to be the custodian of education-related immovable assets, it will need to start planning to become compliant with GIAMA from May 2010. For example, it will need to plan to carry out a condition assessment of each school at least every five years.

3. Infrastructure Planning

3.1 Norms and standards

In October 2008 national DoE published new national norms and standards for schools. The document prescribes architectural norms (e.g. space per learner in a classroom in relation to different subjects and learning areas, ventilation, lighting, site layout, etc); and planning norms (e.g. school site, location relative to other facilities, maximum size depending on population, maximum walking distance to school, etc).

They describe safety, functionality effectiveness norms, but do not provide prescriptions for these. LDOE has therefore developed its own standards for functionality and effectiveness. For example, an existing 49 square meter classroom is acceptable in terms of functionality but new classrooms should be bigger in terms of effectiveness.

There are some shortcomings in the norms and standards. For example, the norms and standards do not define a minimum standard for a toilet. Consequently, if a school has an unimproved pit latrine, this is counted as a toilet. According to DWAF standards, an unimproved pit latrine would not be considered an acceptable standard of sanitation. Application of the DWAF sanitation standards would result in an increase in the calculated infrastructure backlog in the province.

In addition, the norms and standards are also thin on specific norms and standards for schools for children with special needs, and on guidelines for site layouts. LDOE has added guidance to consultants on site layouts and is in the process of adding more detail on special needs issues.

There are also discrepancies between the text of the norms and standards and the technical specifications in the annexures. LDOE has clarified these discrepancies by producing a summary table of technical specifications which it has issued to its Programme Implementing Agents and professional service providers.

LDOE has also developed specific specifications for Dinaledi Schools (centres of excellence for maths and science education), which were not included in the national norms and standards.

LDOE is also in the process of revising its standard designs for schools based on the new norms and standards.

3.2 Data on needs

LDOE obtains its data on needs from two systems – NEIMS and PREMIS. These are described and assessed in Section 5 below. From these two systems, LDOE is able to produce reports on both capital and maintenance needs.

3.3 Categorisation

LDOE has categorized its school infrastructure expenditure as follows:

- A. Expenditure to meet service delivery norms, including architectural and planning norms
- B. Expenditure to address deficiencies in condition
- C. Expenditure to address deficiencies in terms of standard of building
- D. Expenditure to address deficiencies in services

3.4 Prioritisation

3.4.1 Identification of focus areas

LDOE has identified the following five main infrastructure expenditure sub-programmes within the above categories over the next five years:

- I. Space:
 - a. Additional classroom blocks
 - b. Administration blocks
 - c. New schools in growing areas
 - d. New circuit offices
- II. Condition:
 - a. Rehabilitation of dilapidated or damaged buildings
 - b. Maintenance

III. Standard:

- a. Replacement of inappropriate structures

IV. Service:

- a. Water supply and sanitation (partly funded by the Department of Water Affairs and Forestry (DWAF))
- b. Electrification (funded by the Department of Minerals and Energy (DME)).

These focus areas have been prioritized because they involve the creation of the requirements for basic learning and teaching. This is informed by the need to achieve a basic level of equity in school infrastructure across the province before addressing other needs. There are many other school infrastructure needs which LDOE could spend money on, but which have not been prioritized in the context of scarcity of funds (the needs are far greater than the funds available). For example, many schools in the province do not have playing fields, nutrition centres, multi-purpose halls, and special learning facilities such as laboratories, libraries, and computer centres.

Detailed reasons for prioritizing these five focus areas include:

- Additional classrooms and new schools: overcrowded classrooms and high learner-educator ratios are a major contributor to poor education results
- Water and sanitation: inadequate water and sanitation services contribute to poor public health at schools, which in turn reduces the ability of learners to focus on school work
- Electrification: electricity supply opens up opportunities for access to modern learning technology such as computers and the internet, and enables the school buildings to be used at night
- Rehabilitation of dilapidated and damaged buildings: these buildings pose a risk to the health and safety of learners and educators
- Administration blocks: without administration blocks, educators tend to occupy classrooms for non-learning purposes
- New circuit offices: without circuit offices it is difficult to provide learning and teaching support (e.g. provision of textbooks and other learning materials and curriculum support)
- Replacement of inappropriate structures: inappropriate structures require more maintenance, can pose a health and safety risk, and sometimes provide an environment which is not conducive to learning and teaching

- Maintenance: the useful life of buildings which are not maintained is much shorter than the useful life of buildings which are properly maintained (by as much as a factor of 25). Neglecting maintenance therefore results in much higher expenditure requirements in later years.

3.4.2 *Prioritization within the focus areas*

However, the needs in these focus areas are also much greater than the funds available, and it is therefore necessary for LDOE to engage in a second stage of prioritization, within the focus areas. LDOE uses the following criteria to prioritise within the focus areas:

- i. Spatial development considerations (PGDS)
- ii. Projected future demographic movements
- iii. Meeting contractual commitments from previous financial years
- iv. Equity considerations (e.g. focusing on lower quintile areas)
- v. Starting with the worst affected schools:
 - a. where there are threats to health and safety
 - b. where there is gross over-crowding and where mobile classrooms are being provided
 - c. where there is no water or sanitation at all.

The demographics of the province are changing and are predicted to change substantially in future. LDOE's infrastructure plan quotes *Nationmaster.com* which predicts that SA's population growth will be -0.46% over the next 42 years and that the overall percentage change in population will be -25.35% between 2000 and 2050. It also notes evidence of increasing urbanization. It is therefore important for LDOE to include projections of future demographics in its planning, in order to avoid schools or classrooms being built which later become underutilized. However, LDOE faces a data challenge with regard to incorporating demographic considerations in its prioritization process, in that population projections are generally not available at a local (ward or village) level.

LDOE is also taking into account spatial development considerations which will have a strong influence on future demographics in the province. The Provincial Growth and Development Strategy (PGDS reference) identifies a number of potential growth sectors and the geographical concentrations of these growth sectors in the province.

LDOE is avoiding prioritizing projects which could be addressed through non-asset solutions. For example, there has been a need to upgrade infrastructure at farm schools (some of which had mud classrooms). However, in order to make the most efficient use of scarce financial resources, LDOE has rather implemented a non-asset solution which involves merging farm schools with less than 100 learners (i.e. most farm schools) into neighbouring schools and providing learners with transportation where necessary. LDOE is also considering introducing arrangements where classes are run in shifts, enabling facilities to be used for 10 hours per day rather than 6 hours per day, and therefore reducing the need for construction of additional facilities. However, interviews with management indicate that there is some opposition to introducing multiple teaching shifts at the same school site. Other non-asset solutions being pursued include division of overly large schools, improving the management of neighbouring schools to attract learners away from over-subscribed schools, and closure and consolidation of small schools. Platoon arrangements where a school uses facilities at another site are also being considered.

3.4.3 Planning / prioritisation process and results

Historically, provincial education departments have not had formalized processes for prioritizing infrastructure expenditure and producing infrastructure plans. Education infrastructure planning has been a neglected function, both in Limpopo and elsewhere, and there has been a tendency to focus on project implementation at the expense of the planning function. Under IDIP, a target of March 2010 has been set for all provincial education departments to put formal planning and prioritization processes in place. As part of the process of producing this report, the authors worked with LDOE to formalize their existing informal prioritisation processes. These are described below.

LDOE follows the following sequential process to produce its list of prioritized projects for funding:

- a. First call on the budget (contractual commitments): obtain details of contractual commitments from LDOE's TRACKER database: contractual commitments from previous financial years (for projects which are implemented over more than one financial year) must be funded before anything else is funded
- b. Second call on the budget (national priorities): because education is a concurrent function, national DoE can set policies which result in mandates for provincial education

departments to spend fixed amounts from their budgets in certain areas. Examples of these mandates include:

- a. New Grade R facilities at existing primary schools
 - b. Primary school nutrition facilities
 - c. Facilities for special and inclusive education
 - d. Resource centres
- c. Third call on the budget (maintenance): from 2008, the provincial treasury has started to provide the department with a specific allocation for maintenance, which must be spent on maintenance
- d. Fourth call on the budget (schools with mobile classrooms): addressing the need for additional classrooms at these schools enables the mobile classrooms to be released for other needy areas, and therefore results in efficient use of available resources
- e. Fifth call on the budget (schools with worst emergencies): situations where learners' and educators' health and safety are at risk must be prioritized
- f. Sixth call on the budget (the remainder of the budget is allocated to the remaining focus areas using the prioritization criteria described above):
- a. Obtain information to inform prioritization process:
 - i. Priority list based on the data on NEIMS: LDOE has put together a set of filters to be applied to the data on NEIMS in order to obtain an initial priority list from NEIMS (see planning maps analyse schools directory excel spreadsheet in docs from Kate). The filters contain the focus areas and secondary prioritisation criteria described above. The resultant list from NEIMS is then adjusted to take account of information from TRACKER on project implemented since 2006.
 - ii. Data on enrolments and grades offered per school from EMIS (Education Management and Information System)
 - iii. Lists of requests from various sources, including District Offices and members of the public. The requests are filtered by taking out requests which are not related to the focus areas and the priorities and by undertaking site visits to verify the remainder.
 - iv. List of schools which are merging
 - b. Remove projects from the NEIMS list where schools are merging
 - c. Add filtered requests from various sources to the NEIMS list

- d. Sort the projects on the NEIMS list in terms of the categories and focus areas described above
- e. Sort the projects on the NEIMS list in terms of the prioritisation criteria described above
- f. Apply a cut-off line based on the remaining budget available
- g. Present the prioritised list to the District Offices for comment and possible adjustments
- h. Present the prioritized list to the HoD and MEC for approval and possible adjustments.

Projects of a value of approximately 25% above the available budget are prioritized to take account of possible delays in implementation of some projects, so that the budget can be fully utilized. If there is a change in budget (decrease or increase) the cut-off line is raised or lowered. In the case of budget cuts, the first step is to reduce the scope of prioritised projects where possible. Thereafter the cut-off line is lowered (in consultation with the MEC), usually starting with the sixth call on the budget and working backwards until all the projects for which the department has funding discretion have been removed.

It is a general 'rule of thumb' amongst built environment professionals that approximately 4% of the asset value of buildings should be spent on preventative maintenance in order to optimize the life of the assets. NEIMS calculates the depreciated asset value of Limpopo's 4015 schools to be R13 billion, and 4% of this translates to R600 million per annum, or 99% of the LDOE infrastructure budget of R609 million for 2008.

As mentioned above, LDOE only started to budget for major maintenance in 2008 (R56 million), for the first time since 1994. As a result of the lack of preventative maintenance, many of the buildings have deteriorated to the extent that rehabilitation has become the main priority for older buildings, and most of the maintenance budget has been allocated to such repair work. Given the small size of the available budget for preventative maintenance versus the required budget, LDOE has decided to prioritise newer schools for preventative maintenance. It will be necessary to develop further prioritization criteria for maintenance and an IDIP target has been set for all provincial education departments to do this by March 2010.

4. Assessment of data used in the planning process

4.1 Methodology

Meetings were held with Mr David van der Westhuizen and Mr Harold Buitendag of Bigen Africa and Geoff Abbott and Pieter Liebenberg of the CSIR regarding the NEIMS and PREMIS systems. GSD has viewed both systems in order to carry out this assessment.

4.2 Introduction to PREMIS

PREMIS stands for Property and Real Estate Management Information System. In the late 1990's North West DPW requested the CSIR to provide them with a property and real estate management information system. Thereafter, several other provinces requested the CSIR to assist them to introduce and utilize the same system, with minor modifications. The CSIR offers the system to any provinces which want to utilize it, without license fees. The system has attracted several provinces, partly due to the fact that it is not education-specific and can be utilized for general asset management purposes.

As far as LDOE is concerned PREMIS is primarily a maintenance management system. PREMIS does not include any demographic data, and is therefore difficult to use to identify capital backlogs. PREMIS contains data on existing infrastructure, including condition profiles based on conditions norms and assessments. It is therefore a useful tool for management of maintenance.

The CSIR first started working with LDOE in 2005, as part of a DFID-funded project to assist to LDOE to develop a maintenance strategy. In 2006, LDOE then requested the CSIR to provide further support for its maintenance strategy, by providing PREMIS system and carrying out comprehensive condition surveys to populate the system.

4.3 Introduction to NEIMS

In 2006 NDOE created a national database (the national Education Infrastructure Information Management System (NEIMS) of schools needs. A comprehensive schools condition assessment was carried out by Bigen Africa (appointed by national DOE) in order to populate the database. NEIMS is now managed by SITA. NEIMS is able to produce backlog data by

calculating the condition of the schools against norms and standards (it currently contains the old norms and standards).

NEIMS is a more of a general planning tool, designed to enable identification of gaps between norms and standards and existing infrastructure, including capital and maintenance gaps, and hence identification of priority projects. NEIMS includes demographic data, and can therefore be used to identify capital backlogs as well as maintenance backlogs.

4.4 Status of NEIMS and PREMIS in Limpopo

LDOE, the CSIR and Bigen Africa are collaborating to ensure that LDOE data on the PREMIS system is aligned to LDOE data on the NEIMS system. (There are differences in the fields of data held by the two systems.) During 2009 LDOE appointed Bigen Africa and CSIR to jointly carry out an updated condition assessment on approximately 1221 schools in the province on which work has been carried out since 2006 or which have deteriorated significantly since 2006 (identified on the basis of requiring mobile classrooms because existing classrooms are in too poor a condition to use), and this information has been captured on NEIMS and PREMIS. In addition, LDOE has introduced a requirement that its professional service providers do condition surveys before and after any project is implemented, and send these through to Bigen Africa and the CSIR for capturing on the two systems.

Logically, LDOE should decide to use one or the other system. However, this decision is complicated by the fact that the source codes for NEIMS are owned NDOE. It is not currently possible for LDOE to decide to use NEIMS because it is not accessible (see below).

4.5 Accessibility

PREMIS is intranet-based rather than web-based. The CSIR has loaded PREMIS onto computers at LDOE. The CSIR only works on the PREMIS data on the request of LDOE. LDOE is still in the process of putting in place the necessary internal capacity to fully utilize PREMIS.

Although NEIMS is web-based, it is not readily accessible by provincial education departments. National DOE has access rights over the system and has given the NEIMS source codes to SITA to manage on their behalf. However, SITA has not yet made the system accessible to provincial education departments. In general, provincial education departments are therefore not able to update their data on NEIMS. However, LDOE has circumvented this issue by

appointing Bigen Africa itself to update Limpopo schools data on NEIMS, and it is therefore able to utilize the NEIMS functions such as generating reports on backlogs. These arrangements are innovative but not sustainable, because LDOE only has access to NEIMS as long as it has an appointment with Bigen Africa.

4.6 Reliability and integrity of data

As mentioned above, in 2006, LDOE requested the CSIR to provide with them with PREMIS and to carry out a comprehensive condition survey of Limpopo schools in order to populate PREMIS, and NDOE appointed Bigen Africa to carry out a comprehensive condition assessment of Limpopo schools in order to populate NEIMS. In 2009 LDOE appointed Bigen Africa and the CSIR jointly to carry out a condition assessment and update data on both systems for 1221 schools (out of 4015 schools). The 2009 condition assessment was limited due to affordability considerations.

Both Bigen Africa and the CSIR use quality control mechanisms to ensure that condition assessments are accurate. This includes field checks and data checks on samples of assessments. All the data is collected by trained assessors.

The data on the remaining schools which are not being updated in 2009 is rapidly becoming out of date. LDOE only started spending money on maintenance in 2008 (for the first time since 1994), and it is therefore likely that there has been a deterioration in the average condition of schools since 2006. Nevertheless, the NEIMS data is still within the GIAMA standard of updated condition assessments at least every five years.

In addition, the new norms and standards, which are higher than the old norms and standards, have not yet been captured on NEIMS. As a result, NEIMS is likely to produce underestimates of the extent of the backlog (the difference between the norms and standards and the existing condition).

Partly due to these shortcomings, LDOE has not relied on the NEIMS data alone to produce its infrastructure plan. As discussed in Section 3.4 above, LDOE also obtains information on needs from its District Offices and members of the public.

5. Conclusions

Supply chain management involves demand management and demand planning as well as procurement. The outcomes of procurement processes are therefore dependent on the quality and effectiveness of the preceding demand planning and prioritisation processes. In other words, it is necessary to procure the right things as well as to procure them in the right way. Thus, if LDOE develops poor infrastructure plans based on bad data and inadequate planning and prioritization methods, good implementation of the plans through a well-considered procurement strategy will not result in optimal infrastructure outcomes.

In addition to demand management and procurement, supply chain management involves contract management. Similarly, if LDOE develops good infrastructure plans and appropriate procurement strategies, if contract management is poor, optimal infrastructure outcomes will not be achieved. The potential for adequate contract management to be provided should therefore be a consideration in the development of the procurement strategy.

The analysis in this report indicates that, although there are shortcomings with regard to the currency of backlog data in NEIMS and PREMIS, the methodology which LDOE used to produce its infrastructure plan is logical and relatively robust. It is underpinned by equity considerations and appears to be directing expenditure towards the most urgent needs. The major area of weakness appears to be the lack of expenditure on preventative maintenance, which is complicated by provisions of the Schools Act as discussed in Section 2.2 above. In time, LDOE could consider adding a simple cost: benefit analysis element to the prioritization process, which would highlight the importance of preventative maintenance.

The shortcomings with NEIMS data affect all provinces, but it is commendable that LDOE has taken proactive steps to update its data on NEIMS, by linking its PREMIS system to NEIMS and by recently appointing the CSIR and Bigen Africa to jointly carry out condition surveys on the schools which have been worked on since 2006. Under IDIP, all the provincial education departments are currently in the phase of developing prioritization processes for the first time, and LDOE has done well to have formulated its prioritisation processes well before the IDIP target of doing this by March 2010.

We would therefore conclude that, given the available school condition data and the political context within which plans must be produced, LDOE has engaged in a reasonably robust planning process to develop its infrastructure plan. In addition, in the context of needs which vastly exceed available budgets, it may be argued that there are diminishing returns to increasingly quantitative and technocratic planning processes. For example, there are limits to which quantitative objective methods can be used to prioritise between expenditure on new classrooms for a school with overcrowded classrooms on the one hand and expenditure on repairing classrooms which have become dilapidated due to a lack of maintenance on the other hand. To an extent, such prioritisation decisions are necessarily subjective or political in nature.

The main aim of this project is to develop an education infrastructure procurement strategy, as a pilot project to prove the concept of sectoral infrastructure procurement strategies, for potential wider application. We have concluded that the infrastructure plan is the result of a demand planning process which is reasonably robust under the circumstances. We would therefore also conclude that implementation of the resultant infrastructure plan would generally not result in procurement of 'the wrong things'. We therefore recommend that the project proceed to the next phase of developing a procurement strategy to enable the infrastructure plan to be procured in the right way.

Appendix 1 Assessment of the five year infrastructure plan against the Infrastructure Delivery

Toolkit guidelines

Infrastructure Delivery Improvement Programme	Department:	Department of Education	Date of Infrastructure Plan:	31 March 2009	RATING LEGEND: 1 - Unacceptable in terms of the intended scope 2 - Inadequate 3 - Critical / Major Changes Required 4 - Minor Changes required 5 - Excellent
	Province:	Limpopo	Infrastructure Plan Revision Number:	Revision 1 (March 2009)	
	Technical Assistant:	Kate Roper	Quality Assurance conducted by:	GSD	

COMPONENT	FOCUS AREA	RATING	COMMENTS OFFERED
Infrastructure Planning Process	✓ Infrastructure Needs Analysis - What infrastructure is needed to comply with Policy direction and the Departmental strategic plan for service delivery?	5	✓ The policy direction, norms and standards and service delivery gaps are reflected and clearly spelt out. The infrastructure needs are predicted on the basis of the condition assessments that were carried out during the 2006/07 financial year.
	✓ Infrastructure Supply Analysis - What infrastructure does the Department have?	4	✓ The Department has information on exiting assets per district and also information on the condition profile, status and utilisation of infrastructure. Comprehensive condition assessments were carried out in 2006 and were partially updated in 2009. In terms of GIAMA, all the conditions assessments will need to have been updated by 2011. In other words, the information used for planning purposes currently meets GIAMA requirements.
	✓ With regard to Supply Analysis - does the infrastructure plan identify / indicate the utilisation rate of existing facilities?	4	✓ The plan takes space norms and projected future demographic movements into account. This means that current and projected future utilisation rates are taken into account.

COMPONENT	FOCUS AREA	RATING	COMMENTS OFFERED
	✓ With regard to Supply Analysis - does the infrastructure plan indicate the condition rating of existing facilities?	3	✓ Most of the condition data is based on the 2006 assessments that were conducted for both NEIMS and PREMIS. Given the lack of preventative maintenance by many SGB's, it is likely that the condition of many of the assets would have deteriorated since 2006. LDOE has recently requested both the CSIR and BIGEN AFRICA to conduct assessment s on the 1221 schools on which work has been carried out since 2006, based on information in the Department's Tracker database.
	✓ Infrastructure Gap Analysis - What infrastructure is required- based on the needs and supply?	4	✓ The Plan does indicate the infrastructure that is required based on the gaps between the norms and the existing infrastructure.
	✓ Determine Infrastructure Options - What options does the Department have for providing the required infrastructure?	4	✓ Infrastructure options are limited by the national education infrastructure norms and standards.
	✓ Alternative Solutions - What alternatives to physical infrastructure can the Department use?	4	✓ The plan contains a section on non-infrastructure solutions. Interviews with management indicate that there is some opposition to introducing multiple teaching shifts at the same school site. However, progress is being made with transporting learners from overcrowded schools to less crowded schools, division of overly large schools, improving the management of neighbouring schools to attract learners away from over-subscribed schools, and closure and consolidation of small schools (particularly farm schools). Platoon arrangements where a school uses facilities at another site are also being considered.
	✓ Infrastructure Delivery Organisation and Support - How will the department deliver the infrastructure?	3	<p>✓ The LDOE has already developed a new organisational structure comprising of Chief-Directorate Physical Resources and Planning that will take over the responsibility of planning and implementing infrastructure projects. The challenge that LDOE will have will be its ability to attract and retain the required professional and technical staff.</p> <p>✓ In addition, the LDOE is currently making use of a number of Project Implementing Agents (PIAs), including the IDT, Limpopo Public Works, DWAF, ESKOM and in some cases the Department of Minerals and Energy. Whether these will be adequate will largely depend on the value of projects that the LDOE will be implementing in each financial year and also depend on its internal capacity to manage the Implementing Agents.</p>
Infrastructure Budgeting Process	✓ An indication of the base year infrastructure budget	4	✓ This is adequately dealt with in its revised budget template that was resubmitted after a thorough discussion with the Departmental Team.
	✓ Infrastructure Budgeting linked to the MTEF cycles	4	✓ The budgeting is not only responding to MTEF planning timeline, but also looking at the 5 to 15 year horizon, which is medium to long-term in approach.
	✓ Does the Infrastructure Budgeting respond to the infrastructure needs and available infrastructure options?	3	✓ The infrastructure budgets are small in comparison to the needs, but LDOE does not have power to change this. The planning and prioritisation process used in the plan is logical and equitable. The plan is lacking a procurement strategy.
	✓ Is there a clear prioritisation process of infrastructure budgeting in the Department?	3	✓ There has been an implicit prioritisation process. This has now been made explicit and documented as part of this assignment, and should be formally instituted in the department.

COMPONENT	FOCUS AREA	RATING	COMMENTS OFFERED
	✓ Does the Infrastructure Plan identify alternative funding models for infrastructure programmes?	3	✓ The Plan does identify potential alternative funding models for infrastructure, but these have not yet been thoroughly investigated by LDOE. However, LDOE has requested assistance from National Treasury to investigate a possible public-private-partnership (PPP) for education infrastructure delivery in the province.
	✓ What are the limitations of the infrastructure budgeting processes of the Department? e.g. knowledge of the condition of the existing infrastructure, migration patterns, etc.	3	✓ Due to the lack of preventative maintenance by many SGB's and due to weaknesses in contract management by some of the PIAs, resulting in poor quality construction work, many assets are deteriorating at a faster pace than would normally be expected. This means that the condition assessments carried out in 2006 are rapidly becoming outdated. LDOE's ability to take account of projected future demographic movements is partially constrained by the absence of detailed local level data in this regard.
Infrastructure Organisation and Support	✓ Organisational Analysis - appropriateness of the current organisational structure in dealing with the infrastructure delivery requirements.	3	✓ Historically, LDOE has not had an appropriate organisational structure. However, the department has recently obtained approval from the dpsa for a new structure which includes new posts for infrastructure planning as well as additional posts for infrastructure delivery management. The department is currently in the process of evaluating the new positions and plans to fill them by the end of the calendar year.
	✓ Is the proposed Capacitation Plan responsive to the infrastructure plan of the Department? If not, which areas must be improved or addressed?	4	✓ It appears to be appropriate in addressing the infrastructure plan requirements of the Department.
	✓ Enabling systems to enhance the implementation of the Infrastructure Plans, e.g. IT Platform such as EMIS, NEIMS, PREMIS, etc.	3	✓ It is not ideal that LDOE is using two systems (NEIMS and PREMIS) for its infrastructure planning. NEIMS is owned by the National Department of Education, while PREMIS is owned by the CSIR. NEIMS is a planning tool, while PREMIS is mainly a maintenance management tool. Given that NEIMS is currently not accessible to provincial Departments, while PREMIS has already been loaded into the computers of the LDOE and can be used by the provinces, capacity permitting, the current attempts to utilise both systems in an integrated fashion (see discussion in body of report) are probably the best arrangements in the prevailing circumstances.
	✓ Did the Infrastructure Plan take into account the provision / supply of other complementary resources / support infrastructure that will ensure that the created infrastructure will be operationalised? Staffing requirements such as Teachers, Nurses, Doctors, Engineers, etc?	4	✓ The infrastructure plan is linked to the planning for employment of teachers.

COMPONENT	FOCUS AREA	RATING	COMMENTS OFFERED
	<p>✓ Adequacy of the envisaged monitoring systems and capacity as part of the Capacitation Plan?</p>	3	<p>✓ There are risks with regard to the data systems being utilised - given the fact that there are challenges regarding the NEIMS data that cannot be accessed by the LDOE except where they have access to the database through Bigen Africa. LDOE is dependent on the CSIR and Bigen Africa for planning data.</p> <p>✓ If the posts in the new organogram are filled then the Department will be in a much better position to fulfil its monitoring responsibilities.</p>
<p>Systemic Issues / Risks</p>	<ul style="list-style-type: none"> i) Prioritization methodology to be formally adopted by Department. ii) Systems issues – using two systems - PREMIS and NEIMS – potential for errors iii) NEIMS data sets not accessible to Provincial Departments iv) Unrealistic alternative funding options for infrastructure v) Poor performance of some PIAs vi) Lack of preventative maintenance vii) Lack of explicit and considered procurement strategy viii) Procurement documentation not aligned to CIDB Standard for Uniformity in Construction Procurement II. 		