

Water and Wastewater in Public Housing

Challenges and Solutions

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CWWA 2016



INTRODUCTION

- **THE BIG PICTURE**

- Shortage of new private housing starts
- Rising private housing prices
- Salaries and wages not commensurate
- Opportunity for gov't to help voters
- Opportunity for gov't to impact electoral districts

CHALLENGES

❖ EXTERNAL CHALLENGES

- Political Will
- Availability of Funding
- Land Availability
- Statutory Approvals
- Contractor Quality

CHALLENGES (cont'd)

❖ INTERNAL CHALLENGES

- Employees
- Quality of Tender and Contract Documents
- Quality of Designs
- Plumbing Challenges
- Infrastructure Challenges

EXTERNAL CHALLENGES

❖ Political Will

- Change in Government
 - Housing development in opposition constituency
 - Main contractor
 - Opposition financier
 - Poor contract documentation – non transparent
- Change in development layout
 - Larger – addition of phases
 - More dense – more high rises
 - Smaller – elimination of future phases

EXTERNAL CHALLENGES (cont'd)

❖ AVAILABILITY OF FUNDING

- **Downturn in national economy**
- **Focus of funding in other areas/programmes**
- **Rise in construction costs**
 - **Contractors' fees**
 - **Material costs**
 - **Inflation**
 - **New duties, taxes**
 - **Reduced subsidies**

EXTERNAL CHALLENGES (cont'd)

❖ LAND AVAILABILITY

- **Shortage of “easy to develop” land**
 - **Most already developed for housing**
 - **Farm Lands could be difficult to acquire**
- **Hillside lands available**
 - **Higher construction costs**
 - **More cutting and grading of land**
 - **Usually less units/area**
 - **Sewer lift stations required**
 - **Potable water booster stations**
 - **Potable water infrastructure may be expensive**

EXTERNAL CHALLENGES & SOLUTIONS

❖ STATUTORY APPROVALS

Challenges	Solutions
Outdated processes - unnecessary bureaucracy	Streamline processes to match development requirements
Undertrained staff at State Agency	Train Staff
Inadequate staffing at State Agency	Increase staffing as required

EXTERNAL CHALLENGES (cont'd)

❖ CONTRACTOR QUALITY

- Poor quality construction practices
- Substandard installation practices
- Substandard materials







INTERNAL CHALLENGES & SOLUTIONS

❖ EMPLOYEES

CHALLENGES	SOLUTIONS
Inadequate number of required staff	Increase staffing as required
Inadequate training of staff	<p>Technical training</p> <ul style="list-style-type: none">➤ Civil checks➤ Plumbing checks➤ Electrical checks <p>Administration training</p> <ul style="list-style-type: none">➤ Contracts➤ Quantity Surveying➤ Process

INTERNAL CHALLENGES & SOLUTIONS

❖ EMPLOYEES' PERFORMANCE

CHALLENGES	SOLUTIONS
Inadequate QA/QC processes	Design and institute a Quality Assurance Programme
Attendance at seminars Attendance at conferences <ul style="list-style-type: none">➤ Regional➤ International Presentation of Technical Papers	Design and initiate a programme for personal development via available conferences and seminars on an annual basis

INTERNAL CHALLENGES & SOLUTIONS

❖ QUALITY OF TENDER AND CONTRACT DOCUMENTS – Tender Documents

CHALLENGES	SOLUTIONS
<p>Tender documents lacking full details</p> <ul style="list-style-type: none">➤ Instructions to Tenderers➤ Specifications➤ General Conditions➤ Particular Conditions➤ Employers Requirements➤ Contract Sum Analysis➤ Day works Rate Schedule➤ Material Price List➤ Drawings	<p>Ensure all Tender Documents comprise of all details including lessons learned from previous tenders</p>

INTERNAL CHALLENGES & SOLUTIONS

❖ QUALITY OF TENDER AND CONTRACT DOCUMENTS – Contract Documents

CHALLENGES	SOLUTIONS
<p>Contract documents lacking full details</p> <ul style="list-style-type: none">➤ Appendix to Tender➤ General Conditions➤ Particular Conditions➤ Employers Requirements➤ Contract Sum Analysis➤ Day works Rate Schedule➤ Material Price List	<p>Ensure all Contract Documents comprise of all details including lessons learned from previous tenders</p>

INTERNAL CHALLENGES & SOLUTIONS

❖ QUALITY OF DESIGN - Designs inappropriate

CHALLENGES	SOLUTIONS
WWTPs too “high tech” for country capability <ul style="list-style-type: none">➤ Parts availability➤ Repair technician – local supplier is only the importer➤ Technical knowledge of Operators	Use appropriate technology for Country <ul style="list-style-type: none">➤ Local Suppliers➤ Parts Available➤ Repair technician➤ Factory training for Operators
High life cycle costs	Design tenders to consider life cycle costing
Designs too “low tech” <ul style="list-style-type: none">➤ Inadequate treatment	Reject any design that will not meet national discharge standards
Poor Lift Station Design <ul style="list-style-type: none">➤ Screens and grit removal omitted➤ Poor pump choices	Ensure all Tender Documents comprise all design details required

INTERNAL CHALLENGES & SOLUTIONS

❖ PLUMBING CHALLENGES

CHALLENGES	SOLUTIONS
Lack of inspections – not all units inspected <ul style="list-style-type: none">➤ Either poor process or deliberate	Ensure all units are inspected – completed form for each unit in file
Lack of testing – not all units tested <ul style="list-style-type: none">➤ Either poor process or deliberate	Ensure all units are tested – completed form for each unit in file
Poor usage practices by residents	Public education by new homeowner packet and flyers periodically as reminders
Lack of process for emergency works <ul style="list-style-type: none">➤ Pre-approved contractors➤ Pre-approved pricing and approved add-ons	Develop process for emergency works <ul style="list-style-type: none">➤ Pre-approve contractors➤ Pre-approve pricing and approve add-ons

INTERNAL CHALLENGES & SOLUTIONS

❖ INFRASTRUCTURE CHALLENGES

CHALLENGES	SOLUTIONS
Lack of inspections – not all units inspected ➤ Either poor process or deliberate	Ensure all units are inspected – completed form for each unit in file
Lack of testing – not all units tested ➤ Either poor process or deliberate	Ensure all units are tested – completed form for each unit in file
Poor usage practices by residents	Public education by new homeowner packet and flyers periodically as reminders
Lack of process for emergency works ➤ Pre-approved contractors ➤ Pre-approved pricing and approved add-ons	Develop process for emergency works ➤ Pre-approve contractors ➤ Pre-approve pricing and approve add-ons
Poor pump station designs	Ensure required design features are in Tender documents and Contracts



BEFORE



AFTER



CONCLUSIONS AND RECOMMENDATIONS

- ✓ Adequate funding for the project (usually follows political will)
- ✓ Detailed tender documents
- ✓ Detailed and robust contract documents (e.g. use of FIDIC)
- ✓ Robust Tender evaluation process to accept “best” option
- ✓ Early Planning and pursuit of statutory approvals

CONCLUSIONS AND RECOMMENDATIONS

- ✓ Contractor Performance Evaluation process
- ✓ Appropriate training of all staff (technical and administrative)
- ✓ Assignment of trained and capable staff
- ✓ Detailed Project Management processes (e.g. utilising FIDIC)
- ✓ Detailed and robust internal payment processes (to minimise payment delays)

THANK YOU !

