Lessons learned from 25 years of project experience

Dr Andrew Holden, Classic Seminars
Project success

- Delivered on time, budget and quality
- It must fulfill its purpose (functionality)
- Achieves the required benefits for the sponsor or owner
- Profitable to the contractors and the professional team

Esselen Park housing project

- Low cost housing project, early 1990’s
- Delays, cost over-runs, technical problems
- Poor founding conditions
- Project failure caused by many factors...
- Project team too large
- Number of lines of communication:
  \[
  \frac{n(n-1)}{2}
  \]
Umlazi rail embankment repair

- Umlazi, Durban
- Commuter rail line
- Settlements, unstable embankment
- Strategic success factors:
  - Emergency project
  - Community liaison
Bayhead truckwash facility

- Environmental pollution control project
- Truckwash facility in Bayhead
- Rail siding, high-pressure hoses, under cover
- Major storm water culvert at a shallow depth
- Do a thorough investigation of existing underground services early in a project
Port of Durban EES Project

- Tight time and cost constraints
- Your ability to influence project costs is high in the early project stages
Port of Durban EES Project

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- User requirement specifications
Nsesi pollution project

- Rail yards in Nsesi, Richards Bay
- Sewage and industrial effluent
- Approx. 10 km pipeline and pump stations
- Initial costs were not based on a rational estimate
- Cost estimate based on a concept design
- Projects should be based on a realistic cost estimate
Procurement of contractors

- Appointing a competent contractor
- The cheapest tender is not always the cheapest tender!
- Numerous examples…
Implementation stage

- Effective systems for
  - Issuing drawings
  - Site instructions
  - Quality control

- Adequate site supervision / construction monitoring

- Quality should be built in rather than inspected in
Hulamin extension, Pietermaritzberg

- 2-year, 1 billion Rand project
- Factory extension to increase the capacity for producing Aluminium products
- Complex project, greenfields & brownfields work
- Scheduling: co-ordination of contractors and equipment suppliers
- The financial impact of delays after the project is complete
Moses Mabhida Stadium, Durban

- **Client:** eThekwini Municipality
- **Professional team:**
  - 7 Lead Consultants
- **Principal building contractor:**
  - JV Group 5 / WBHO / Pandev
- **2.5 billion Rand project**
- **3 years:**
  - July to Dec 2006: pre-construction
  - 2007 - 2009: construction phase
• Seating bowl: 85 000 spectators
• Access and different levels
• Change rooms, boxes, VIP areas, VIP parking
Demolition of old soccer stadium
Seating bowl support structure
Precast seating
Lift / stair shafts
Façade columns
Arch and membrane roof
First arch elements arriving in Durban: March 2008
Construction of arch and roof
Step 1...
Step 2
Step 3
Step 4: arch towers
Steps 5 to 8
Netherlands vs. Japan 1:0
• Project finished late:
  • Scope changes
  • Contractor’s slippage
• Project over budget:
  • High tenders
  • Scope changes
  • Contractor’s claims
• Scope changes can be “excusable” (enhancements - re-baseline the budget) or “inexcusable” (oversights)
• Despite being late and over budget, the project is considered a great success
Umgeni interchange

- Complex project, sequencing of work
- Delays:
  - Slow start
  - Labour disruptions
  - Scope changes – additional work
  - Land expropriation
- Risk management!
Keys to project success

Initiation & planning
- Identify strategic success factors
- Optimise the project team
- Thorough planning
- Support the business plan
- Shared vision
- Management support
- Good relationship with the client / sponsor

Design & development
- Realistic schedule and cost estimate
- Optimise project costs at concept design stage
- Identify existing services
- Accurate user requirement specifications
- Adequate & competent resources
- Good flow of information
- Regularly review deliverables

Procurement
- Appropriate choice of standard form of contract
- Watertight contract documents
- Clear scope of work
- Solid procurement process
- Appoint a competent contractor
- The cheapest tender is not always the cheapest tender!

Implementation
- Effective systems
- Adequate site supervision
- Quality built in rather than inspected in
- Good change control
- Monitoring and corrective action so as to deliver on time and on budget
- Scheduling and coordination
- Risk management
- A complete and accurate design
- Motivated work force