

2014 FIDIC – GAMA ANNUAL CONFERENCE

LOCAL INVOLVEMENT IN MAJOR PROJECTS FOR SUSTAINABILITY

MAPUTO: 23 TO 26TH MARCH 2014



Group of African
Member Associations



International Federation
of Consulting Engineers



Association of Consultants
Mozambique

PREPARED TO LEAD?

TAFADZWA MUKWENA

CESA YPF

World Cup 2014 - Brasil

- Almost exactly 4 years since Africa's first home World Cup
- A showcase of the best football talent in the world
- A showcase of African engineering ability
 - South Africa is home to engineering talent from across the continent!



World Cup Showcase

- I was there!!!





World Cup Showcase

- I was there!!!
- And I was watching.
- I didn't see it then but I see it now...

ENGINEERING = FOOTBALL



Global Playing Field

- **Competition**
 - Local – clubs
 - Continental – AFCON
 - Global – World Cup
- **Consumer (Employer) Choice**
 - Moçambola;
 - NPL (Nigeria)
 - English Premier League



Human Capital Driven

- The teams with the best players and coaches perform better
- Teams actively search for top talent
- Recruitment and retention of players is key to success
- Teams invest in developing talent

Human Capital is volatile



Global Mobility of Talent

- Late, great Eusébio (1960s)
 - Born here in Maputo
 - Played for Portugal and Benfica
- Countless African players at the highest level
- Not just players, also coaches!
- Carlos Quiroz
 - Portugal, USA, Japan, UAE, RSA, UK, Spain & Iran



So Why No African World Cup Winners?

- **Successful teams combine world class talent with world class tactics**
 - **African players - In the top teams, in the top leagues
= World Class**
 - **African Coaches - NOWHERE TO BE SEEN!**



In Context

- **Consulting Engineering is a team game too! To win:**
 - The team must have good team players
 - The team must have good tactics



Team Success Factors

- **SUCCESS = $k \cdot T^2$**
= k (Talent X Tactics)

**where k = all other market place variables
(common to all players)**



Talent Success Factors

$$\begin{aligned} T_s &= e^t \\ &= (\text{Effort})^{\text{training}} \end{aligned}$$

- Effort (=attitude etc) is personal characteristics
- Training involves external input
- Training builds individuals capacity to contribute to success



Capacity Building Bias

- **Various forms of capacity building**
 - Tertiary education
 - Continuing professional development
 - Graduate studies
 - “On-the-job skills transfer”
 - Self study and online education



Capacity Building Bias

- Focus has been on technical capacity building
- Development of non-technical skills left to:
 - Random workplace programmes
 - Non-engineering graduate studies (e.g MBAs)
 - Self driven study
 - Chance!
- Key weakness in development of future industry leaders

Player Training ≠ Coach Training



Need for Leadership Capacity

- Football teams need coaches
- Engineering Companies need business leaders
 - Coordination
 - Planning
 - Competitive tactics
 - Leverage talent
- Business leadership is a talent that also needs development



Need for Leadership Capacity

- Globalization means we now compete against the best in the world in our local environment
- “Best in the world” means they bring
 - World class technical skills
 - World class business models and business leaders



Appropriate Response

- **Historically:**
 - **Protect our turf – lobby**
- **Alternative:**
 - **Embrace them...**

...with one arm!



What we're up against!

- **Technical capacity development for the knowledge economy**
 - Some build, Some buy
- **Leadership capacity – They build**
 - In-house programs
 - Changes in engineering education



What's Out There?

Gordon – M.I.T Engineering Leadership Program

- World leading engineering education institution
- Adopting method from their world leading business school
- Aims to develop graduates with:
 - Attitudes of Leadership
 - Skills of Leadership
 - Deep understanding of the Engineering Knowledge



What's Out There?

Gordon – M.I.T Engineering Leadership Program

- Clearly defined *Capabilities of an Engineering Leader*
- Base on MIT-Sloan Four Capabilities Model

CREATE & COPY



Gordon-MIT Leader Capabilities

- 1. Attitudes of Leadership**
- 2. Relating**
- 3. Making Sense of Context**
- 4. Visioning**
- 5. Delivering on Vision**
- 6. Technical Knowledge and Reasoning**



What Else is Out There?

- **2008-2009 study by Gordon-MIT – Programs identified:**
 - Engineering Leadership Program, Iowa State University
 - Teamwork and Leadership Module, Loughborough University
 - Leadership in a Technological Environment, Monash University
 - Engineering Leadership Development Minor, Penn State University
 - Leaders of Tomorrow, University of Toronto, (Toronto)
 - Global Engineering Teams, Technische Universität Berlin
 - Constructionarium, UK University and Industry Partnership



What Else is Out There?

- 2008-2009 study by Gordon-MIT showed:
 - Eng. Leadership programs are a new thing (pioneer programs are ± 10 years)
 - Majority are US-based
 - Distinct difference in approach and attitudes:

US vs. Rest of the World
Explicit vs. Non-explicit

- NO PROGRAMS IN AFRICA



No Programs in Africa!

- Therefore no Engineering Leaders in Africa?
 - Clearly not the case
- So where do they come from?

GEOLOGICAL METHOD

=

APPLY GREAT HEAT AND/OR PRESSURE



Available Alternatives

Compliment the Geological Method

- **FIDIC YPMTP**
 - Since 2004, 392 participants, 64 African
 - 2004-2009: 15 part.
 - 2010 – 5 part., 2013 – 16 part., 2014 – 12 part.
 - International, Project Case-based, online
 - Content from FIDIC Guide to Practice



Available Alternatives

- **CESA – Business of Consulting Engineering**
 - Since 2012
 - Local (RSA), but content widely applicable
 - Modular
 - Focus on functional competencies applied during project life-cycle (Business)
 - Leadership component under development



Available Alternatives

- **MERIT**
 - Engineering Business-case based
 - Online platform
 - Team game
 - International (mainly European)
 - Competitive



So What?

- To compete we must combine Talent and Tactics (T^2)
- Must develop capacities - BOTH
- Create & Copy
 - Innovate and proliferate
- Think & Decide

