Working Towards Improved Delivery of Infrastructure & Engineering Services

International Trends in Service Delivery with Regard to Construction and Engineering Infrastructure; Drivers of Infrastructure and Target Markets by International Consulting Engineers

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- President: FIDIC Africa (2007 – 2009)
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- Registered Consulting Engineer Tanzania 1997
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AGENDA

1. DEFINITION
2. DRIVERS OF INFRASTRUCTURE DEVELOPMENT
3. BACKGROUND DATA
4. INFRASTRUCTURE DEVELOPMENT - SADC
5. INVESTIMENT IN INFRASTRUCTURE - SADC
6. GLOBAL INFRASTRUCTURE INVESTMENT
7. FINANCING GAPS
8. TEN RECENT MOST SPECTACULAR PROJECTS (CNN)
9. PROCUREMENT TRENDS
10. CLIMATE CHANGE FACTOR
11. SUMMARY

END

International trends in Service Delivery with regard to Construction & Engineering Infrastructure

Drivers of infrastructure, and

Target markets by international consulting engineers

Infrastructure

The fundamental facilities and systems serving a country, city, or area, as Roads, Railways, Ports, Airports, Bridges, Telecommunication Networks, Schools, Hospitals, Real Estate, Water Treatment and Supply and Telecommunication Systems, Energy and more

Urbanization as a driver of infrastructure development

- Estimated by 2011 half of world population (3.5 billion) lived in urban areas
- By 2030 estimated five billion (60%) of world population in urban areas
- Rapid growth in developing countries
- Other drivers
  - Globalization
  - Digitization
- The Three have impact on economic growth that in turn creates demand for infrastructure development

Source: David Aldred: Urbanization: A major driver for infrastructure spending; Citi EMEA Industrials Sector; 2011

BACKGROUND DATA

- In 2011 fiscal year WB committed $26 billion in infrastructure financing (43% of total commitment)
- Estimated that over $40 trillion will be spent on infrastructure in 20 years time

Source: David Aldred: Urbanization: A major driver for infrastructure spending; Citi EMEA Industrials Sector; 2011

- In 2013 Population in SADC was estimated to be 272 million
- Average growth rate estimated 2% p.a.
- In 2027 population estimated at 350 million

Source: SADC Regional Infrastructure Development Master Plan (RIDMP), Executive Summary, 2013

INFRASTRUCTURE DEVELOPMENT - SADC

Southern Africa Development Community (SADC) Infrastructure Vision 2027 is anchored on the following pillars:

- Energy
- Water
- Transportation
- Tourism
- ICT
- Meteorology

Source: SADC Regional Infrastructure Development Master Plan (RIDMP), Executive Summary, 2013

INVESTIMENT IN INFRASTRUCTURE - SADC

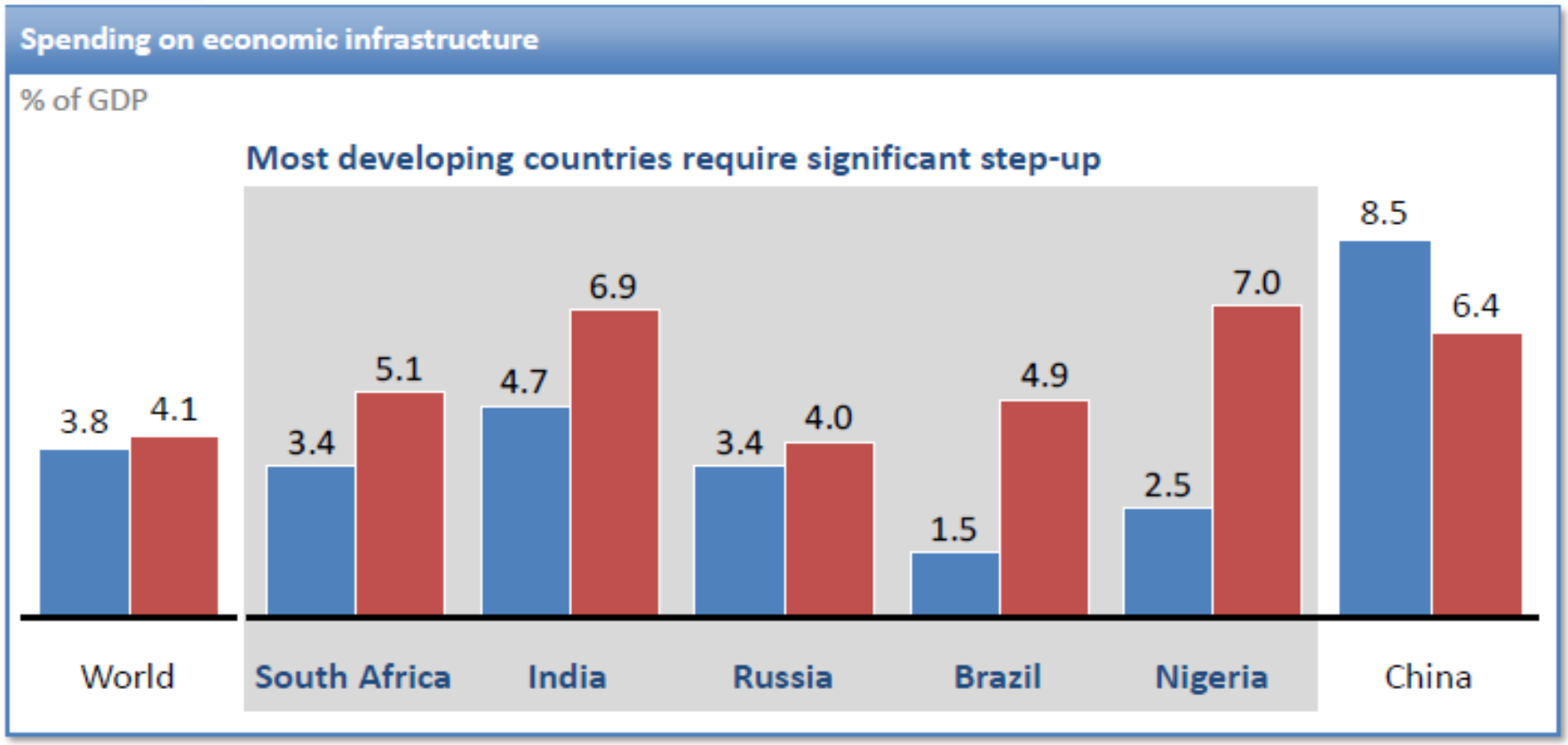
Sector	Programme description	Initial investment cost (US$ billion)	SADC STAP 2013–2017 (US$ billion)
Energy	Energy generation and grid connections	45–127	12.27
Tourism (TFCAs)	TFCA facilities investment	1	0.324
Transport	Construction and maintenance	100	16.28
ICT	Complete broadband connectivity	21.4	21.40
Meteorology	Improved equipment, manpower and expertise	0.125	0.192
Water	Investment projects and studies	16	13.48
Total		**183.5–265.5**	**63.95**

GLOBAL INFRASTRUCTURE INVESTMENT

- Over USD nine trillion spent globally each year
  - Transport 1,100
  - Power and Water 1,100
  - Communication 400
  - Social infrastructure 1,200
  - Oil, Gas and Mining 1,100
  - Real Estate 4,150

Source: Nicklas Garemo, The global industrial performance and challenge, FIDIC 2015, Dubai. (www.fidic2015.org)

Financing gaps in infrastructure development



1 Estimated need based on projected growth, 2013–30 to ensure 70% of GDP in 2030
2 Weighted average annual expenditure over years of available data, 1992–2011

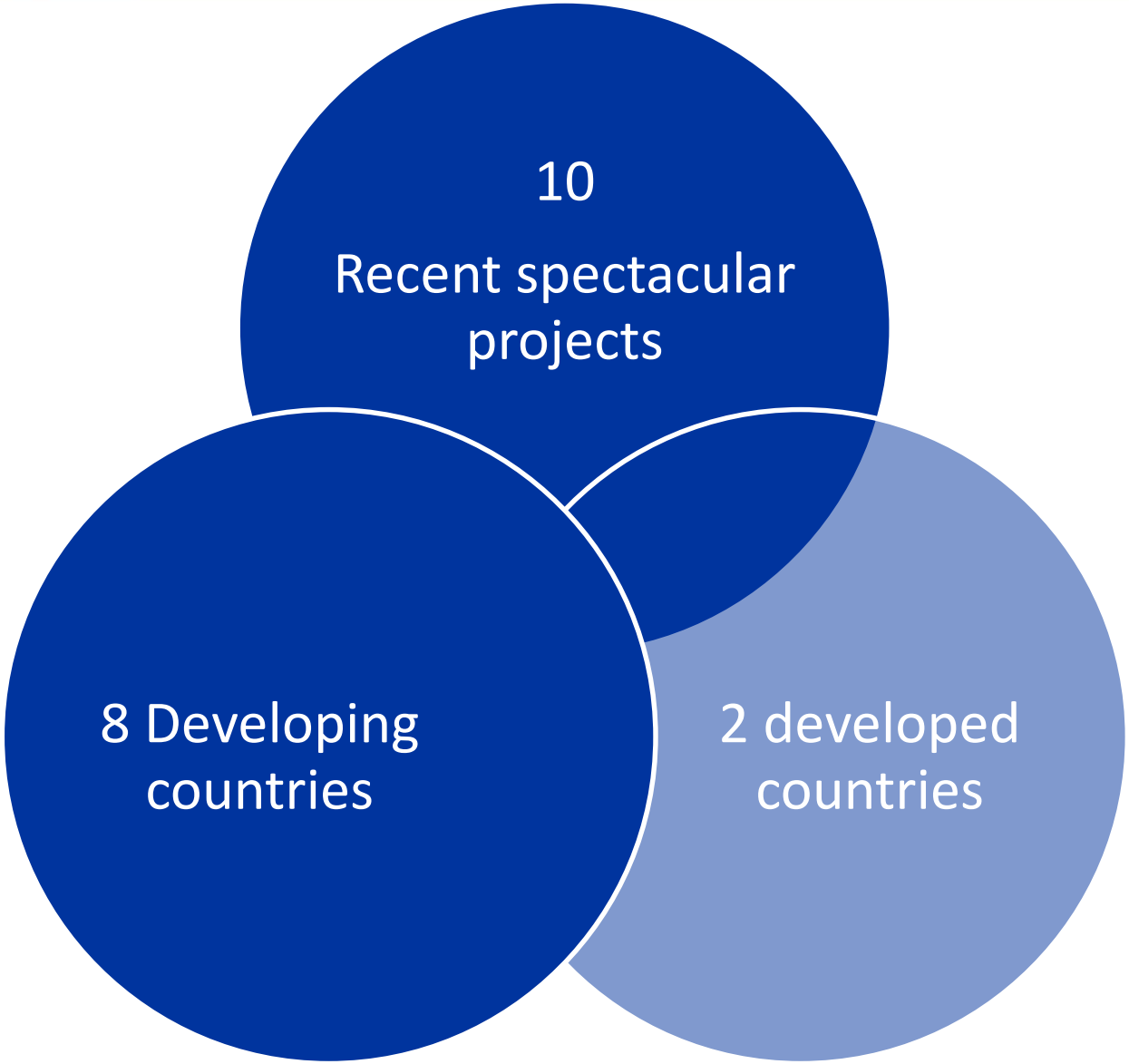
TEN RECENT SPECTACULAR PROJECTS (CNN)

1. Panama Canal Expansion Project (USD 5.25 billion) likely to be completed 2017 (Panama
2. A new canal in Nicaragua with even greater capacity at a cost of $40 billion
3. Marmaray Project connecting Asia and Europe in Turkey Approx. cost 3.0 Billion USD (2017) (Turkey)
4. Beijing's new international airport (USD 13.1 Billion, 2018) (China)
5. Etihad rail network 1200 km of high speed railway in UAE, 11 billion USD) (UAE)

TEN RECENT SPECTACULAR PROJECTS (CNN)

6. GCC Railway in the Gulf (Kuwait to Oman 2117 km, 15.1 Billion USD) (Gulf States)
7. Hyderabad metro (Dubbed largest PPP in the World, 2.1 Billion USD 72 km of rail network (India)
8. The LAPSET Project (Lamu Port-South Sudan-Ethiopia Transport Corridor) USD 25 Billion (Kenya)
9. London cross rail project (23 Billion USD, 116 km, 2018) United Kingdom)
10. NITC Bridge New International Trade Crossing Bridge (USD 950 Million – Impact) (Canada

(Widening of Suez Canal - $8.4 bn, one year, 260 million cu. M dredged, 46 dredging ships in operation; completed on time 6/8/2015)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Recent spectacular projects
8 Developing countries
2 developed countries

PROCUREMENT TRENDS

- Private financing of infrastructure is on the rise
- With private financing conventional procurement process is likely to change. More preference is likely to be QBS
- Furthermore procurement process is likely to be impacted with "New money" from new entrants in project financing
- Turnkey and Design-Build projects will gain popularity
- Traditional approach for work designed and procured by the Employer is likely to decline
- With this change in approach of procurement Consulting Engineers are likely to have more assignments working for Contractors

PROCUREMENT TRENDS

- Lately “Fit for purpose” has been a common phrase in project delivery
- Employers are therefore likely to push for a contract with bias on operation liability (e.g. an improved version of DBO form of contract)
- Health and Safety, Sustainability and Integrity will be areas of interest which will be given more and more contractual attention by the Employers
- Information Management (e.g. BIM) is likely gain popularity

Source: Kaj Möller: FIDIC Contracts; A progress report from FIDIC Contracts Committee. Rio de Janeiro 2014

Selection of Consultants

- Trend
  - Large / diverse projects
  - Private financing
  - Financing gaps
  - HSE, Integrity, Sustainability, BIM (etc.)
  - Work for Contractors
- The trend has an impact on selection of Consultants who can cope in terms of size and capability
- Project Managers will have to manage teams of wide diversity. Some engineering projects are likely to be managed by non engineers

Selection of Consultants - QBS Factor

- Interest in procurement of consulting services under QBS likely to rise because large / diverse projects require:
  - Flexibility in extent of investigation
  - Consideration of alternative designs
  - Expertise, experience, judgement, innovation and imagination. It is not possible to write exhaustive TOR for large /diverse projects
  - Sufficient number of qualified persons spending sufficient period of time on the project.
- The above cannot be achieved when fee structure is given under cases like QCBS method of procurement
- QBS is therefore likely to dominate because of need for quality of engineers/consultants who can deliver
- Clients will want to see consultants taking more responsibility on performance of final product –'Fit for purpose ' approach.

Climate Change

- Climate change discussions ongoing
- Efforts now directed at clean energy
- COP 21 planned in Paris (more policy matters in the offing – mainly on climate change)
- Production of clean energy is likely to go top on agenda in future

SUMMARY

Summary and way forward for discussion

- Urbanization, globalization and digitization have been mentioned as drivers of infrastructure development
- Developing countries appear to have a good market for international consulting engineers
- Private financing arrangement is will influence market of consulting engineers
- Large infrastructure projects will dominate in developing countries – this will call for close cooperation between international and national Consulting Engineers

SUMMARY

- QBS will dominate in the procurement method
- DBO, Turnkey and Design - Build form of procurement will prevail over traditional approach of work designed by the Employer
- Energy from some sources like coal and uranium will be discouraged because of their impact on climate change
- Health, Safety, Integrity, Sustainability and BIM are important areas to watch
- SADC has a good market for Consulting Engineers – a place to watch!!!!

Submitted for discussion!!!!!

Thank you for your attention