



SADC Engineering Needs and Numbers Study

Share your experience and
insights on **Engineering**
Capacity in SADC

Contact us:

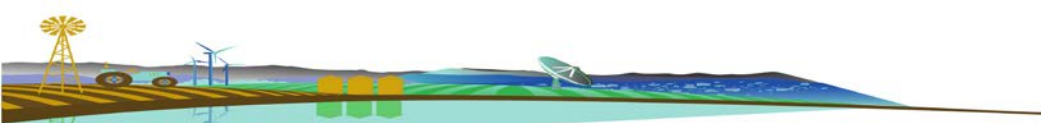
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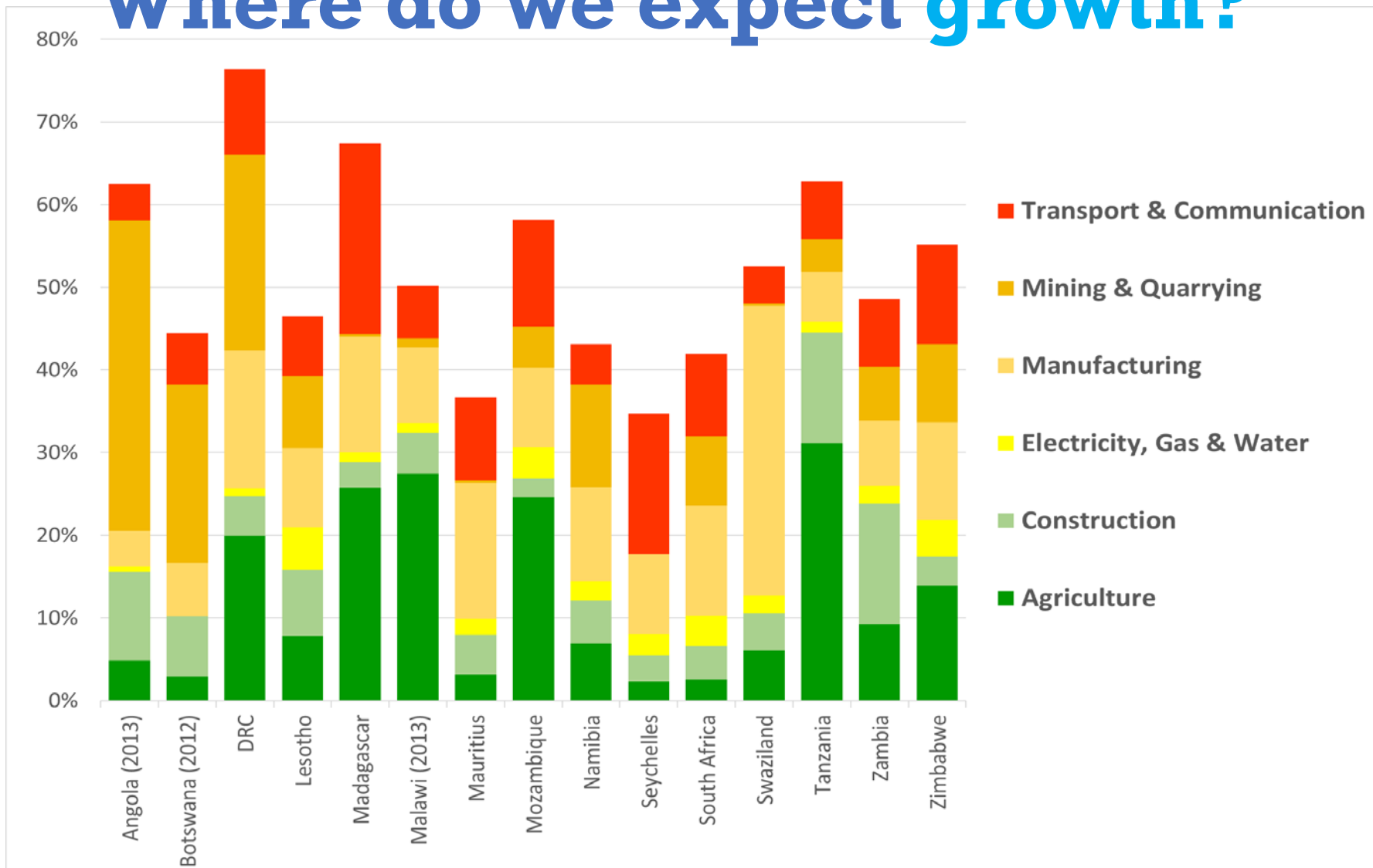
<http://needsandnumbers.co.za/>

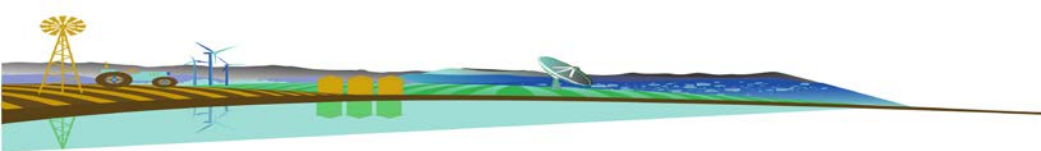




Engineering sectors' contribution to GDP₍₂₀₁₄₎

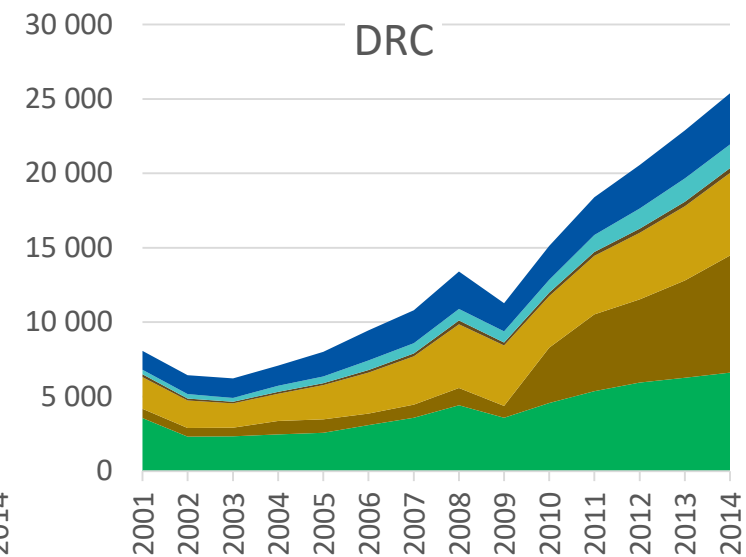
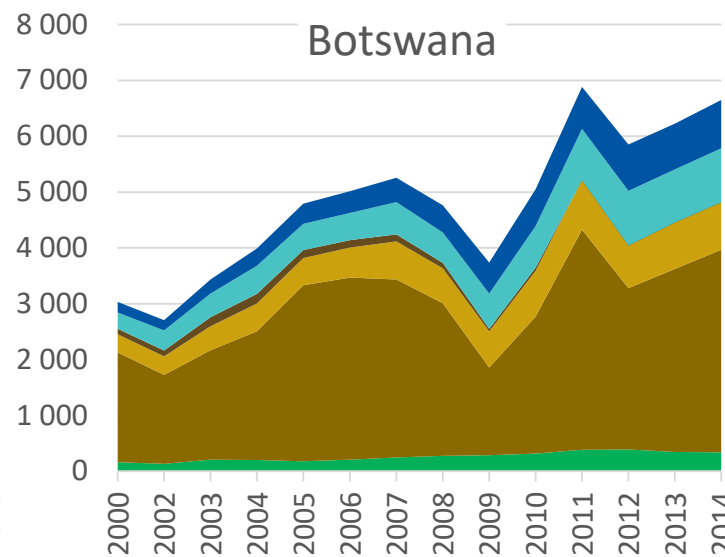
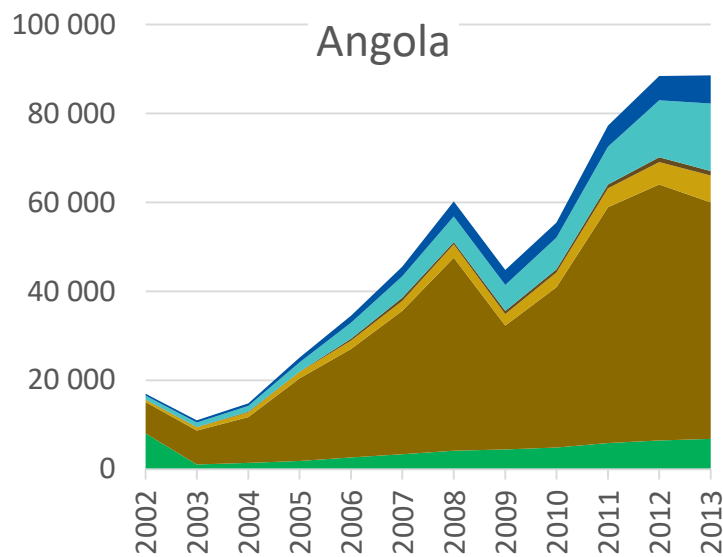
Where do we expect growth?





GDP contributions per country

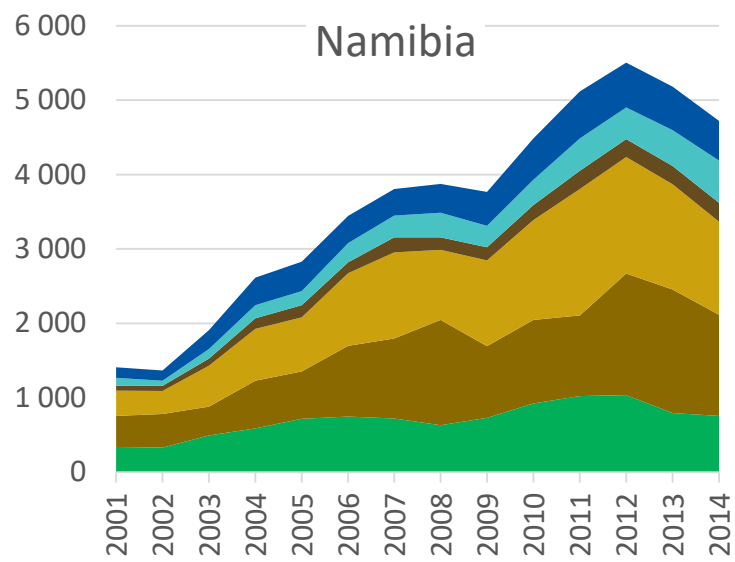
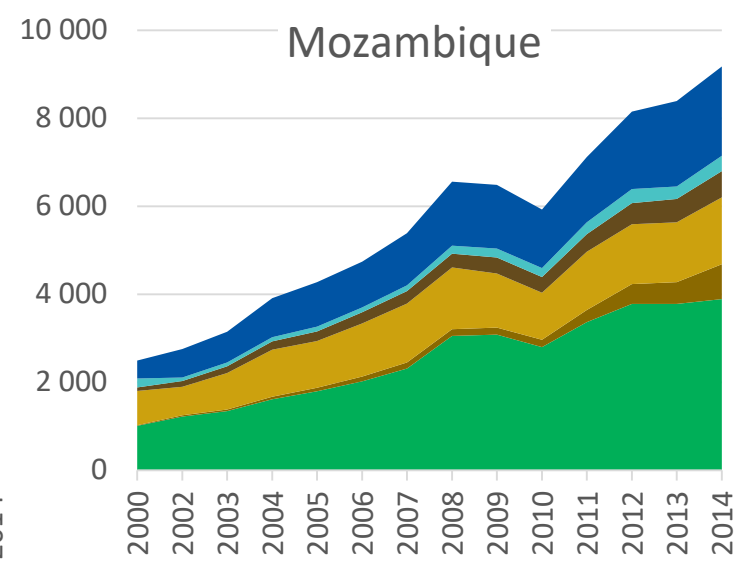
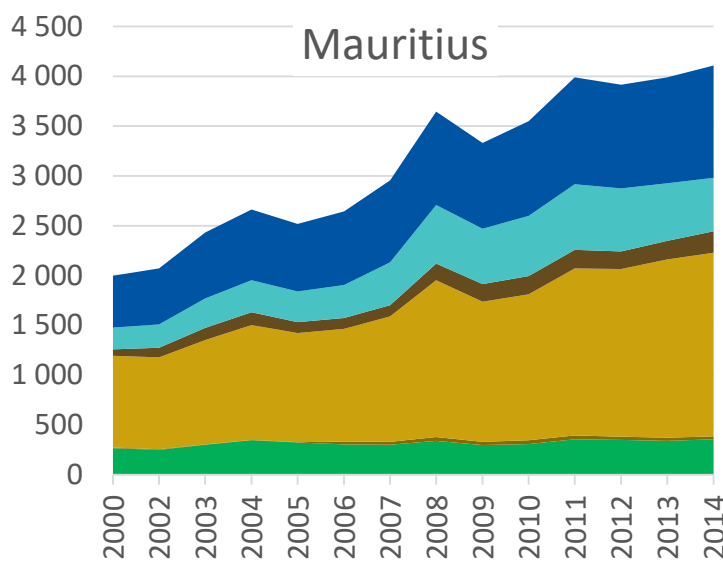
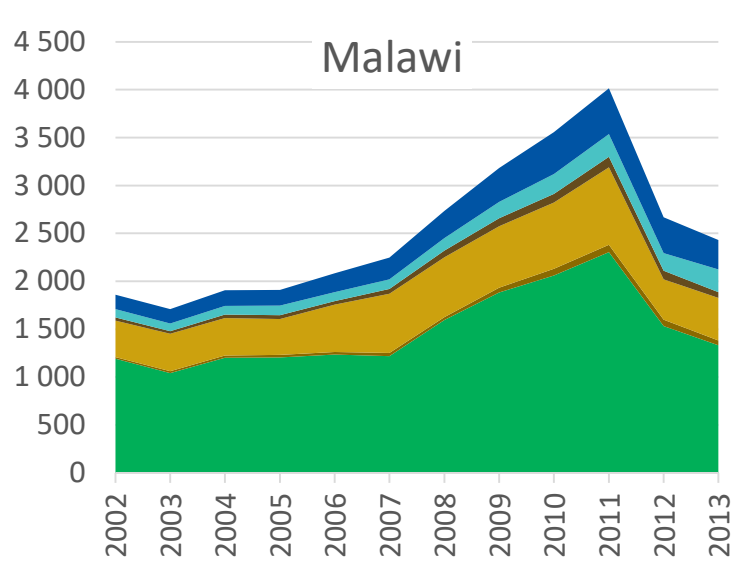
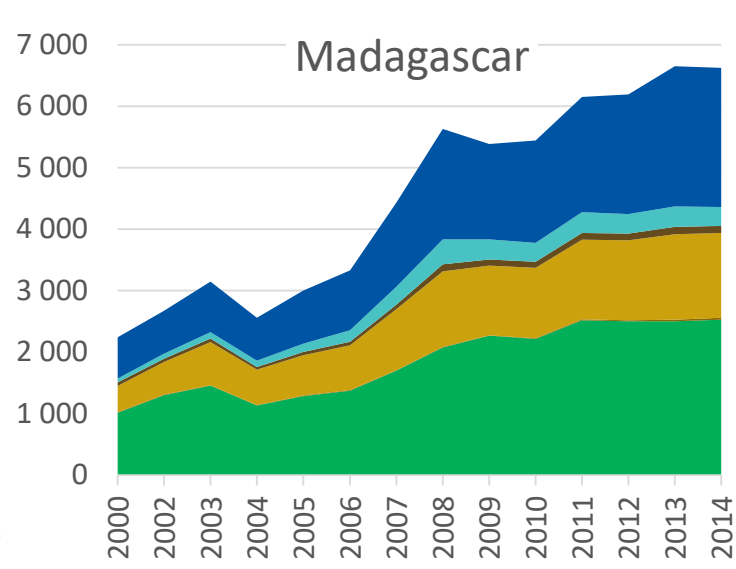
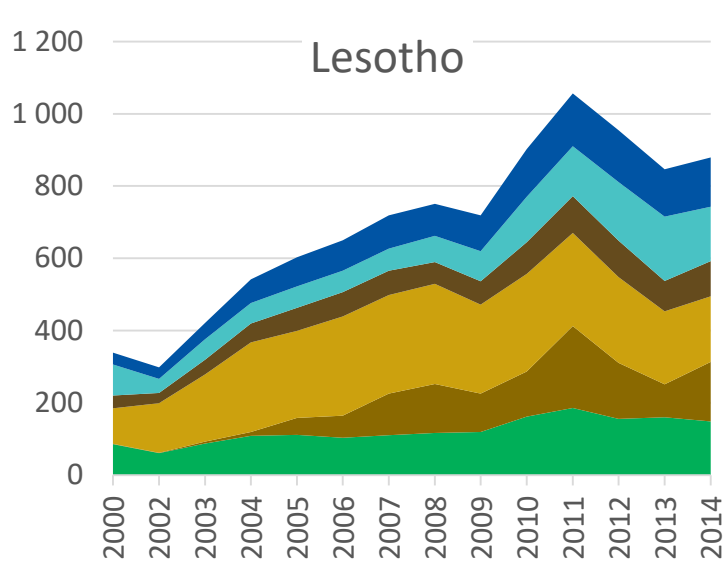
- Note different mix of GDP contributions per country
- Must to determine which engineers needed to strengthen to expand or improve efficiency per sector



■ Transport and Communication
■ Construction

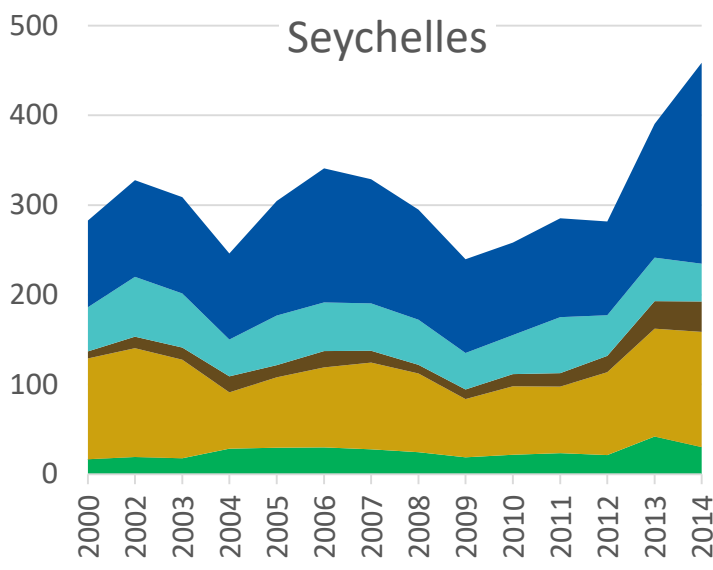
■ Electricity, Gas and Water
■ Manufacturing

■ Mining and Quarrying
■ Agriculture

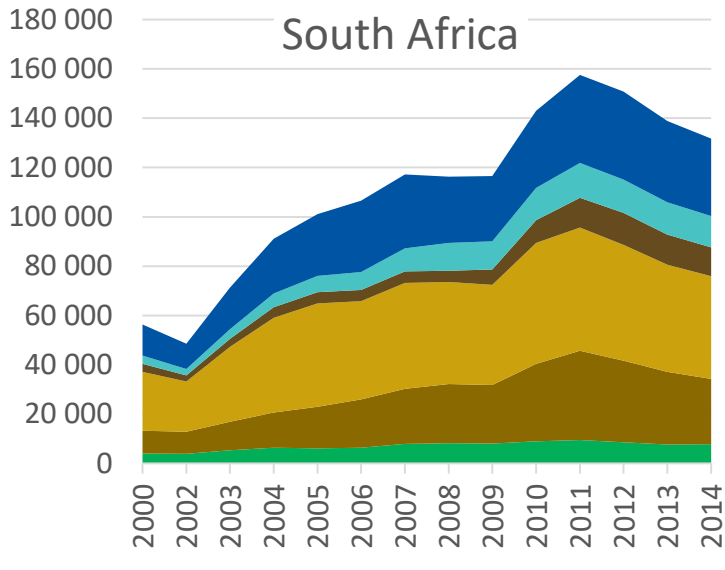


- Transport and Communication
- Construction
- Electricity, Gas and Water
- Manufacturing
- Mining and Quarrying
- Agriculture

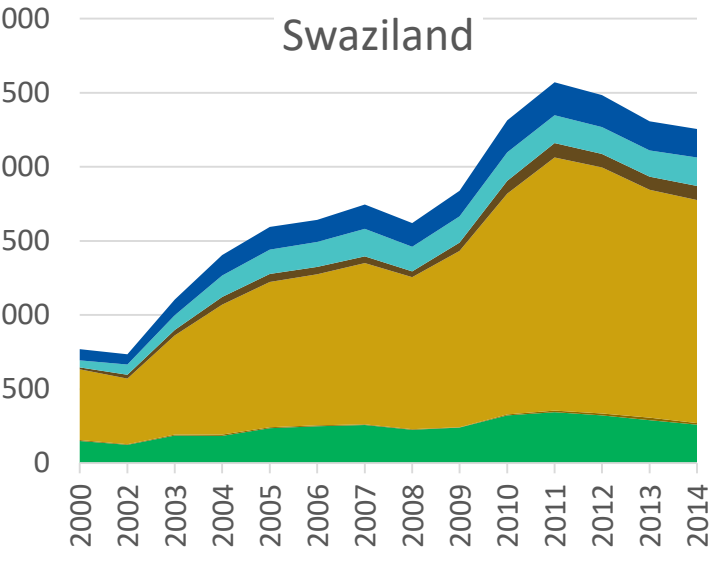
Seychelles



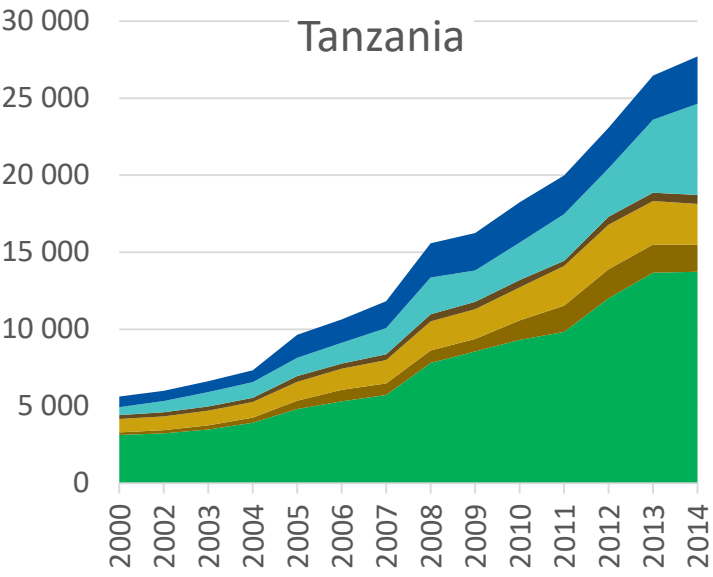
South Africa



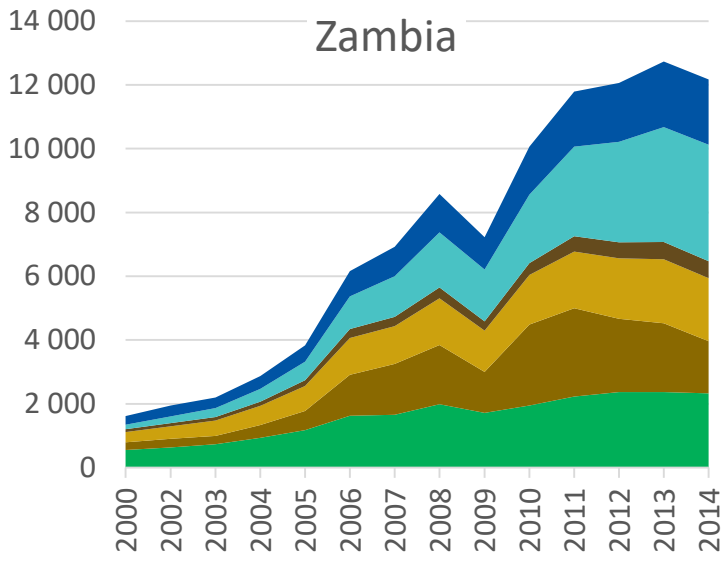
Swaziland



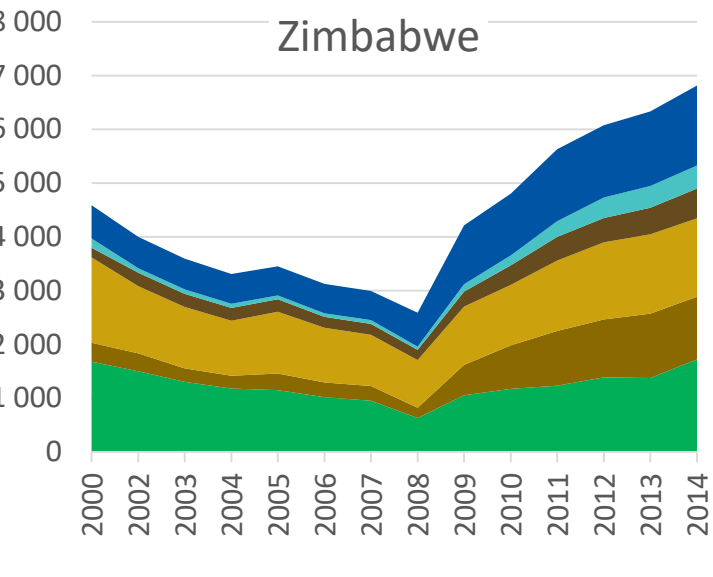
Tanzania



Zambia



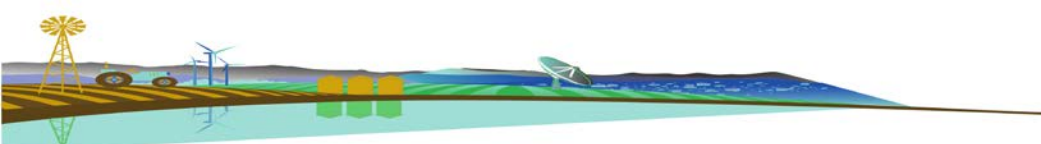
Zimbabwe



- **Transport and Communication**
- **Construction**

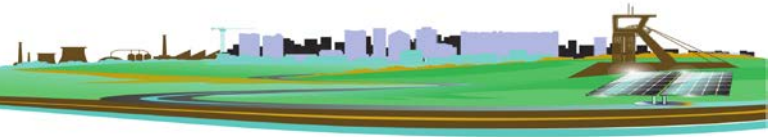
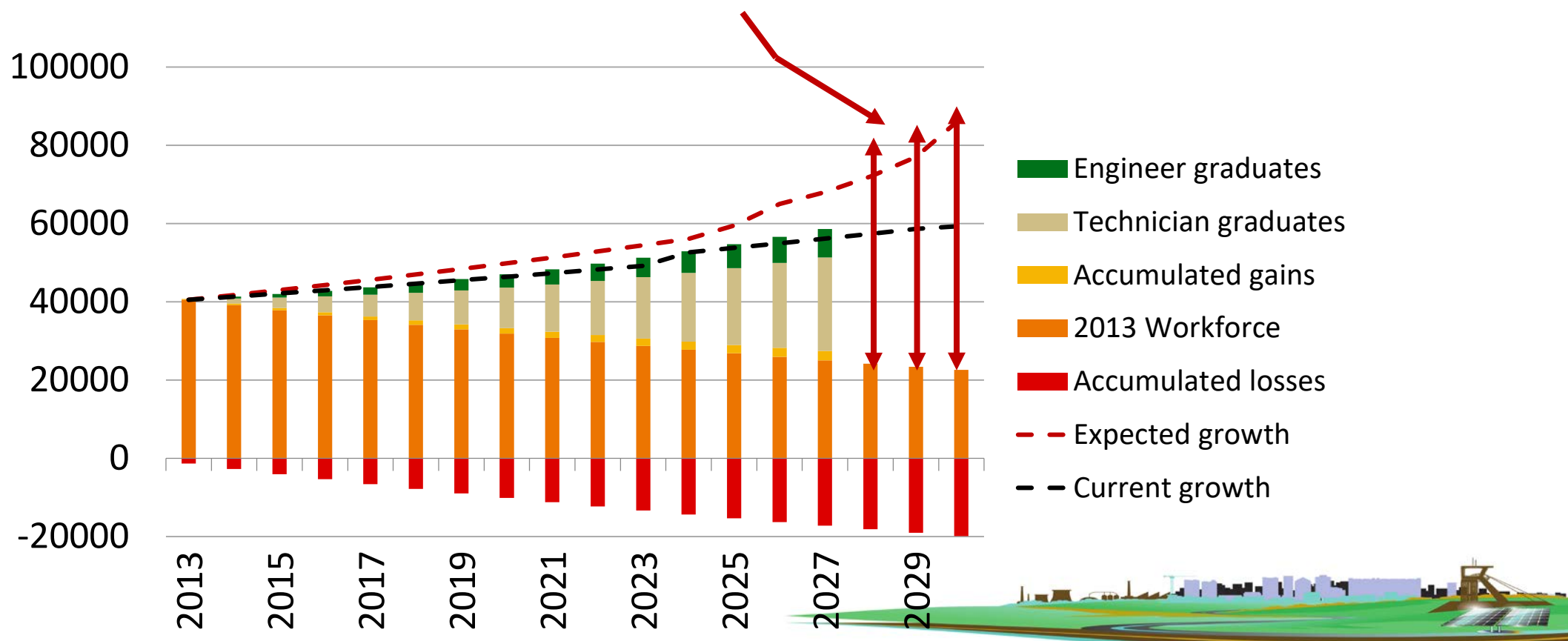
- **Electricity, Gas and Water**
- **Manufacturing**

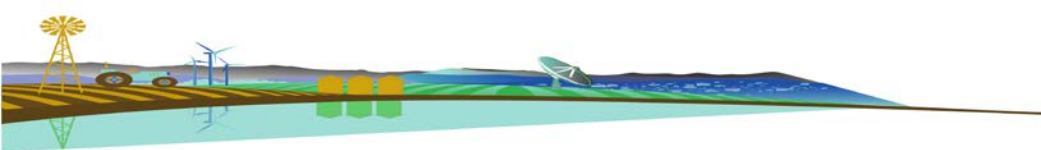
- **Mining and Quarrying**
- **Agriculture**



What interventions needed to support growth?

- * Increase graduations?
- * Attract - Increase immigration?
- * Automation
- * Retired engineers back, extend retirement age?
- * Retain - Reduce emigration, and no. leaving engineering?
- * What else?

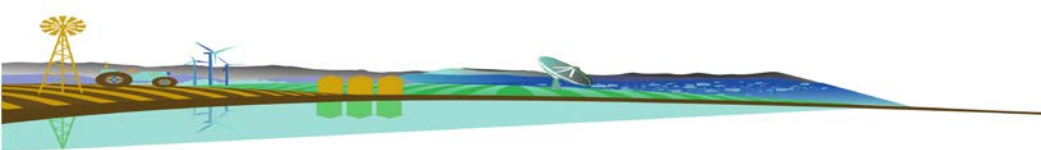




Elements of the study

- Determine numbers in the workforce
- Determine needs based on current workload, demands of policies, planned projects and expansion of services
- Determine inflows from higher education and immigration
- Determine gaps and how to address them by following existing successful models, and/or developing innovative solutions
- Identify successful initiatives in place and understand lessons learned





What support structures are in place?

We can get useful labour force details from associations

- Member Bodies e.g. Institutions of Engineering and other voluntary associations
- Registration Bodies
- Consulting Engineering Associations
- Contracting Associations and Council
- Manufacturing Associations
- Mining Associations
- Agricultural Associations
- What else – **please let us have names of organisations and contact details – email address, mobile numbers ?**





What qualifications are offered?

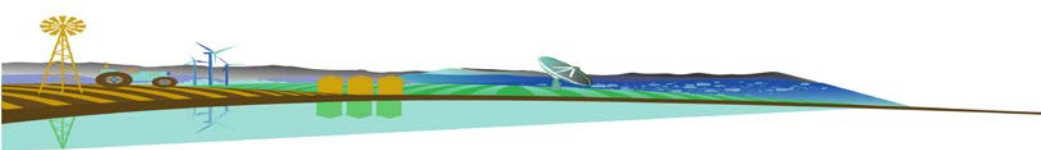
Engineering qualifications

- Engineering degrees?
- Technologist qualifications?
- Technician qualifications?
- How many graduates from 2005 to 2015?
- Nationality?
- Gender?

At which universities are these offered?

- University name/campus
- Structure of qualifications and duration
- History and content of qualifications
- Lecturing capacity
- Laboratory capacity





In which sectors do we find engineering practitioners?

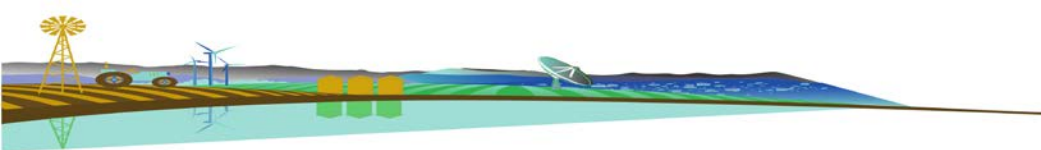
How many do you have?

- Government departments
- Municipalities – how are they structured
- Utilities
- Academia
- Manufacturing
- Process plants
- Consultants
- Contractors
- Etc

In more detail

- How many consulting engineers?
- How many contractors?
- What are the main industries in manufacturing?
- What industries are the major employers of engineers?
- Who are the big manufacturing companies?
- Is steel made in the country?
- Etc





What expansions or major projects is **your organisation** involved in/planning?

To determine growth – please share the following with us:

- Project lists
- Expansion plans
- Industrialisation plans in general
- National development plans & master plans
- Policies
- Growth strategies
- Any other useful documents



What targets are set?

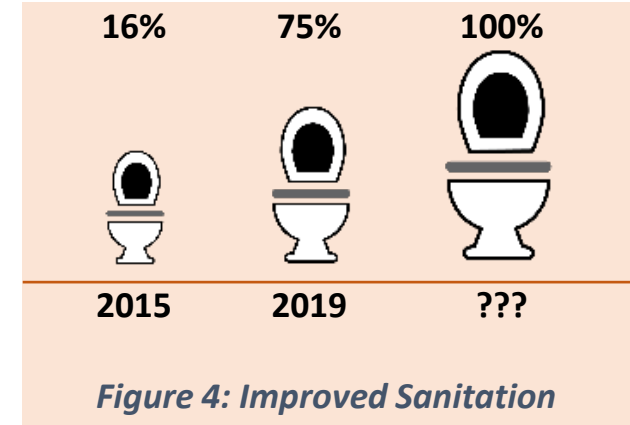
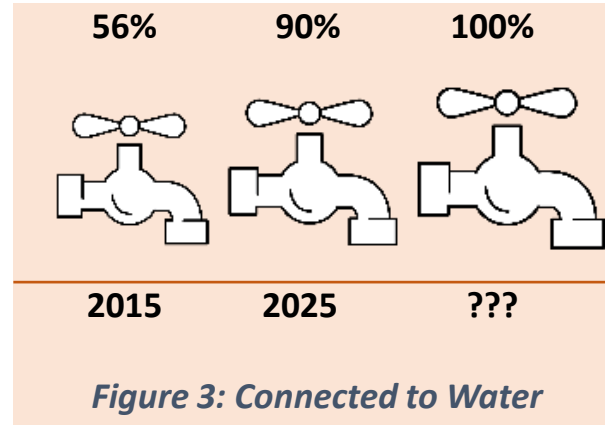
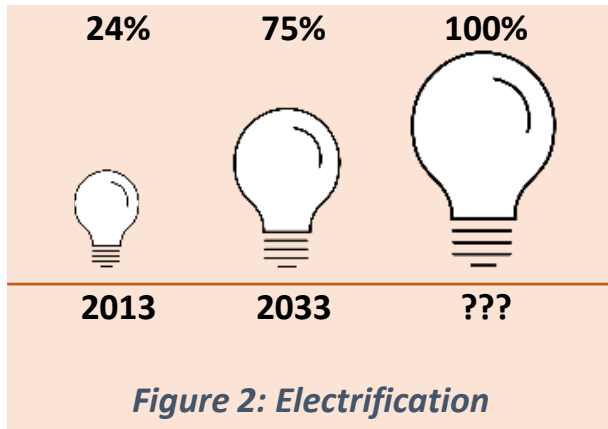


Table 2: Electrification targets

Year	2016	2020
Installed Generation Capacity	?? GW	?? GW
Transmission Infrastructure	?? km	?? km

Table 3: Road and rail targets

Year	2016	2020
Roads	?? km	?? km
Rail	?? km	?? km

Table 4: ICT

Year	2016	2020
Mobile connections	??	??
Internet users	??	??

Table 1: Growth in the mining sector

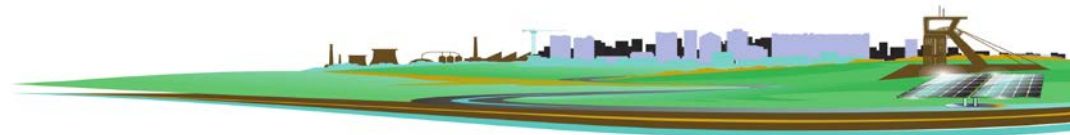
Year	2016	2020
	???	???

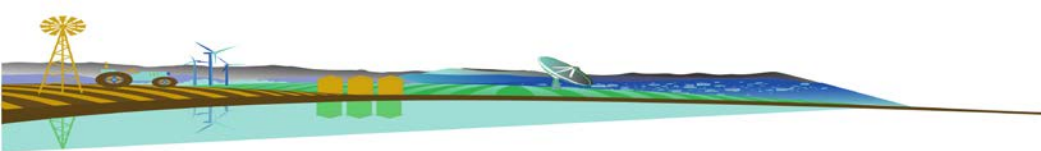
Table 5: Growth in agro-processing and the manufacturing sector

Year	2016	2020
	???	???



What about housing?





Please complete questionnaire

- How many engineers, technicians and technologists do you employ, and what % are foreign
- What disciplines are employed and do you offer bursaries and train?
- What roles are played by engineering staff?
- Do you have major vacancies? If so, why and what to do about them?
- What plans are in place for new infrastructure or developing your organisation – for projects can we have a schedule with values, start and end dates?
- Please provide targets
- Will development be at a higher rate than in the past? If so, what to do about extra skills?
- Is it necessary to outsource a lot of your work?
- If using foreign service providers, must they partner with local companies and offer any training ?

