PRESIDENTIAL INFRASTRUCTURE COORDINATING COMMISSION

# Refining skills profiles for SIP Skills Plan

16 September 2013








# The SIPs projects

| SIPs 1 - 9 | SIPs 10 - 18 |
|---|---|
| **SIP 1:** Unlocking the Northern Mineral Belt with Waterberg as the Catalyst | **SIP 10:** Electricity transmission and distribution for all |
| **SIP 2:** Durban- Free State– Gauteng Logistics and Industrial Corridor | **SIP 11**: Agri-logistics and rural infrastructure |
| **SIP 3:** South Eastern node & corridor development | **SIP 12:** Revitalisation of public hospitals and other health facilities |
| **SIP 4:** Unlocking economic opportunities in the NW Province | **SIP 13:** National school build programme |
| **SIP 5:** Saldanha-Northern Cape Development Corridor | **SIP 14:** Higher Education infrastructure |
| **SIP 6:** Integrated Municipal Infrastructure Project | **SIP 15**: Expanding access to communication technology |
| **SIP 7:** Integrated Urban Space and Public Transport Programme | **SIP 16:** SKA and Meerkat |
| **SIP** 8: Green energy in support of the South African economy | **SIP 17**: Regional integration for African cooperation and development |
| **SIP 9:** Electricity generation in support of socio-economic development | **SIP 18:** Bulk water supply and distribution |

# PICC Skills Plan: Focus Areas

**Vision of SIPs Skills Plan:**
Skilling South Africans *for* SIPs and *through* SIPs

**Core Principle:**
Building people *is as critical as* building physical assets

1. Information (Demand, Supply, Gap)
2. Meeting the demand
3. Building education & training capacity
4. Access & equity at the local level
5. Future (looking beyond the building)

Short, medium and long term strategies

Most of the work in Version 1 of the Skills plan falls in Focus Area 1.

# Developing skills profiles – using the OFO

- **Used Organisational Framework for Occupations (OFO) definitions**
  - Managers
  - Professionals
  - Technicians and associate professionals
  - Clerical support workers
  - Service and sales workers
  - Skilled agricultural, forestry, fishery, craft and related trades workers
  - Plant and machine operators and assemblers
  - Elementary occupations

# Developing skills profiles - Sectors

- Energy
- Ports, rail, pipelines
- Roads
- Correctional services
- Justice
- Tourism
- Social Services
- Crime prevention (SAPS)
- Other (e.g. Public Works – parliamentary villages, etc.)
- Basic Education
- Higher Education & Training
- Health
- Agriculture, Forestries and Fisheries
- Communication
- Commercial and Office Buildings
- Manufacturing
- Human Settlements
- Mining
- Public Transport
- Water & Sanitation

# Developing skills profiles – the project life cycle

- **Required skills for whole life cycle – used IDMS definitions**
  - Infrastructure planning
  - Programme management
  - Implementation planning
  - Design
  - OEM
  - Works
  - Maintenance
  - Mobilisation for Facilities Mgt
  - Operations
  - Demobilisation for Facilities Mgt

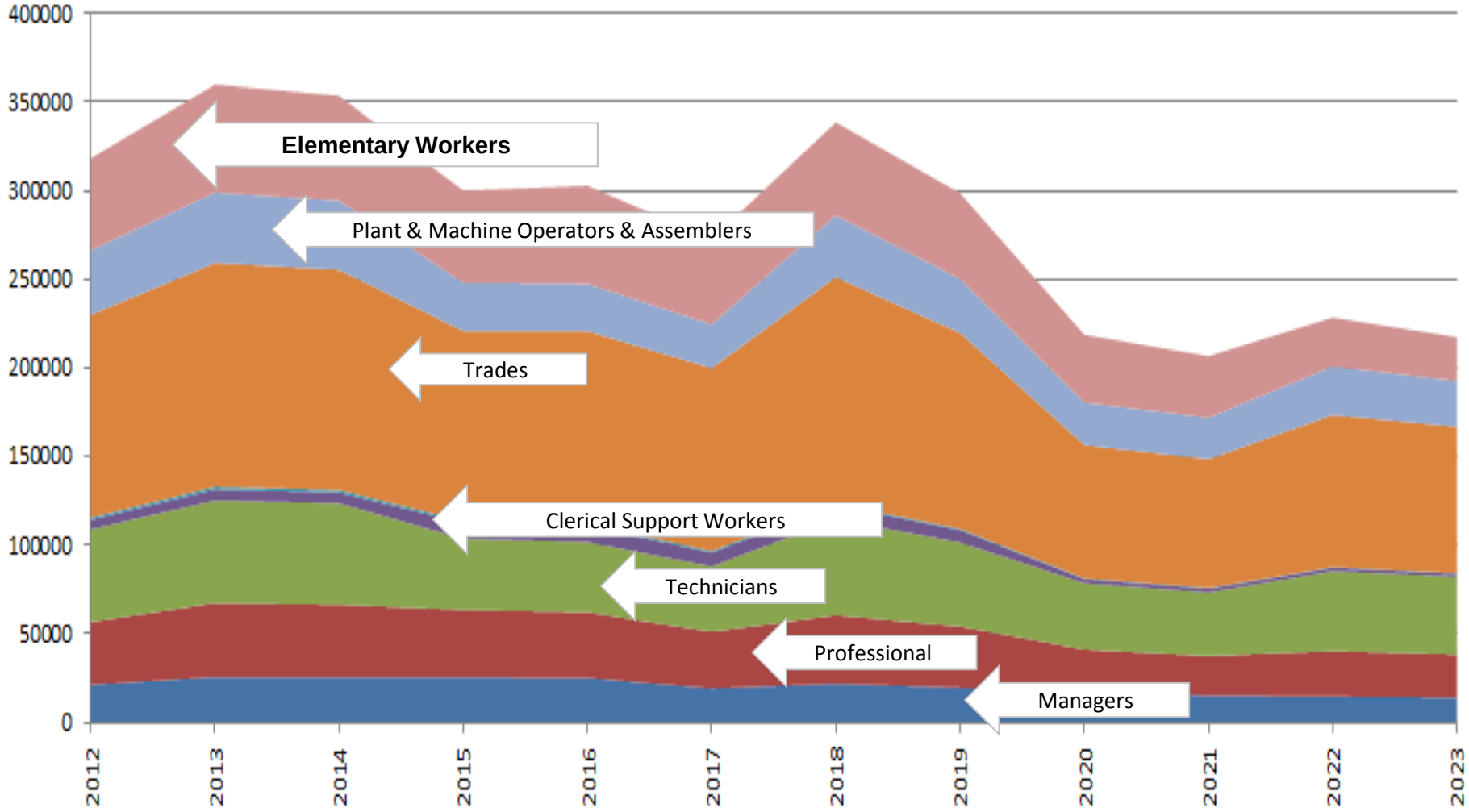
# Developing skills profiles - scarcity

- **Asked to rate scarcity of skills**
  - Available
  - 0-20% short
  - 20-50%
  - 50-99%
  - 100% - absolute scarcity

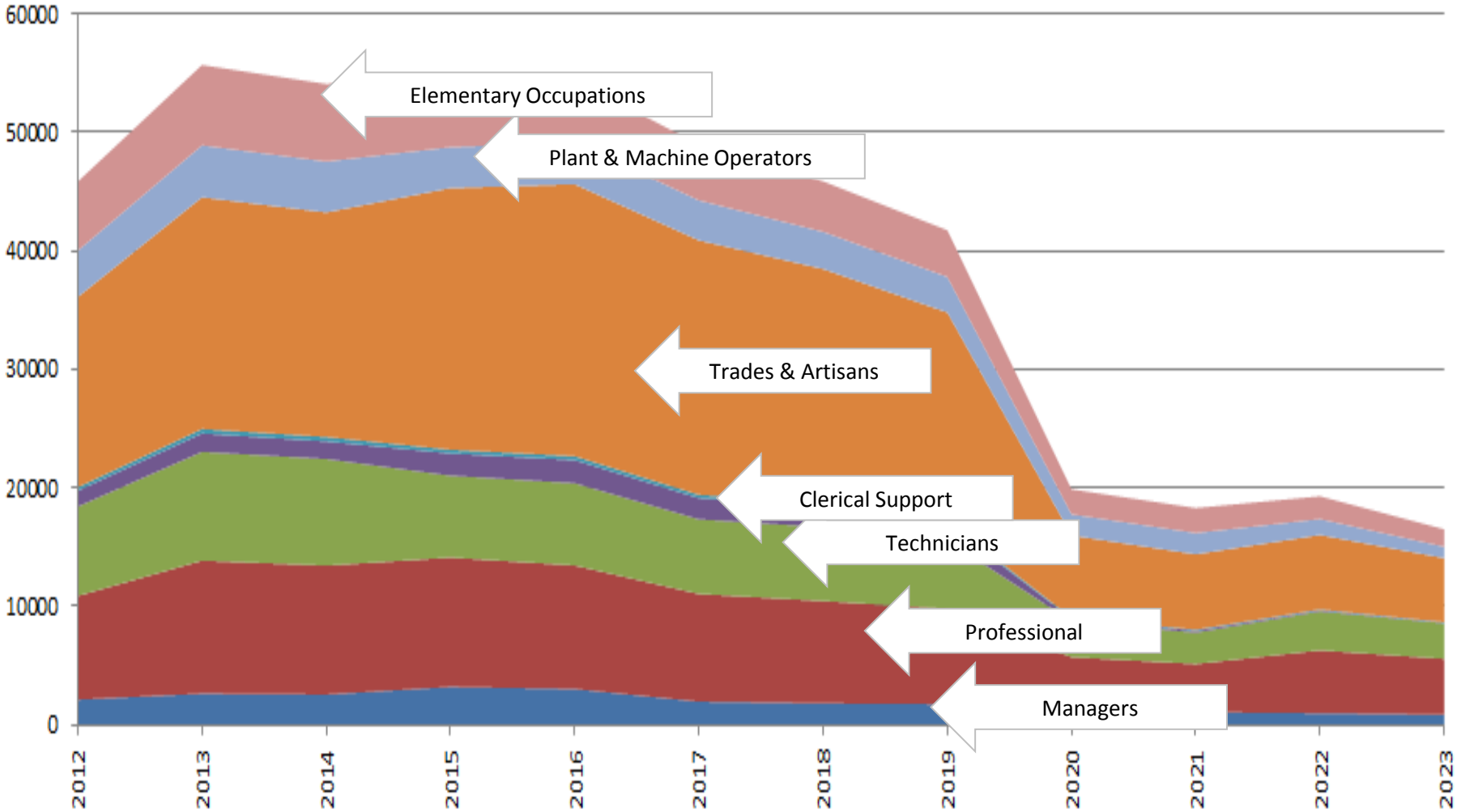
# Developing skills profiles – scaling

- Profiles based on prototypes are scaled up and down according to ratio of duration and size relative to project skills for actual projects
- Actual projects modelled when size several orders larger than the prototype
- Professional teams scaled up differently from construction phase depending on type of project

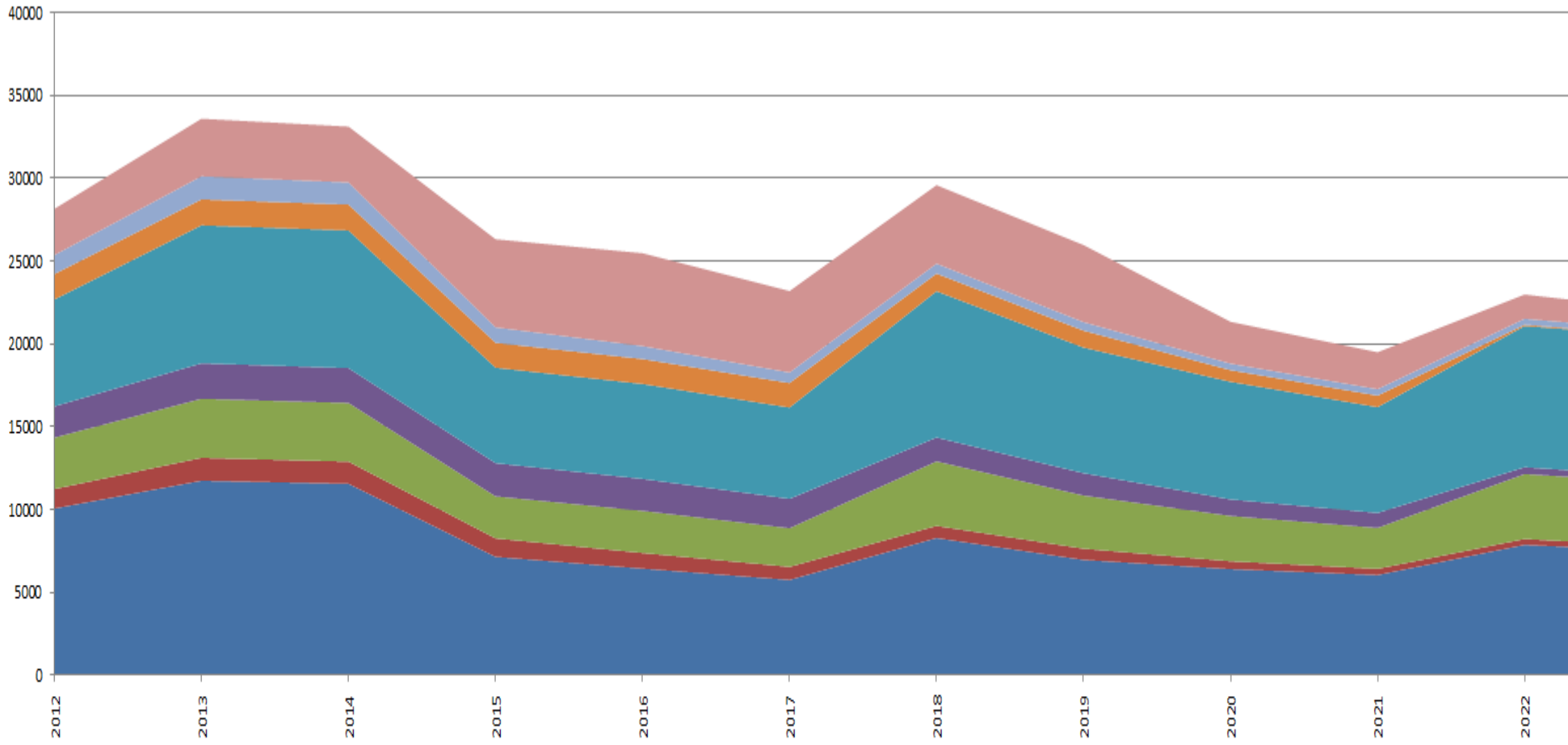
# Skills Demand for All SIPs



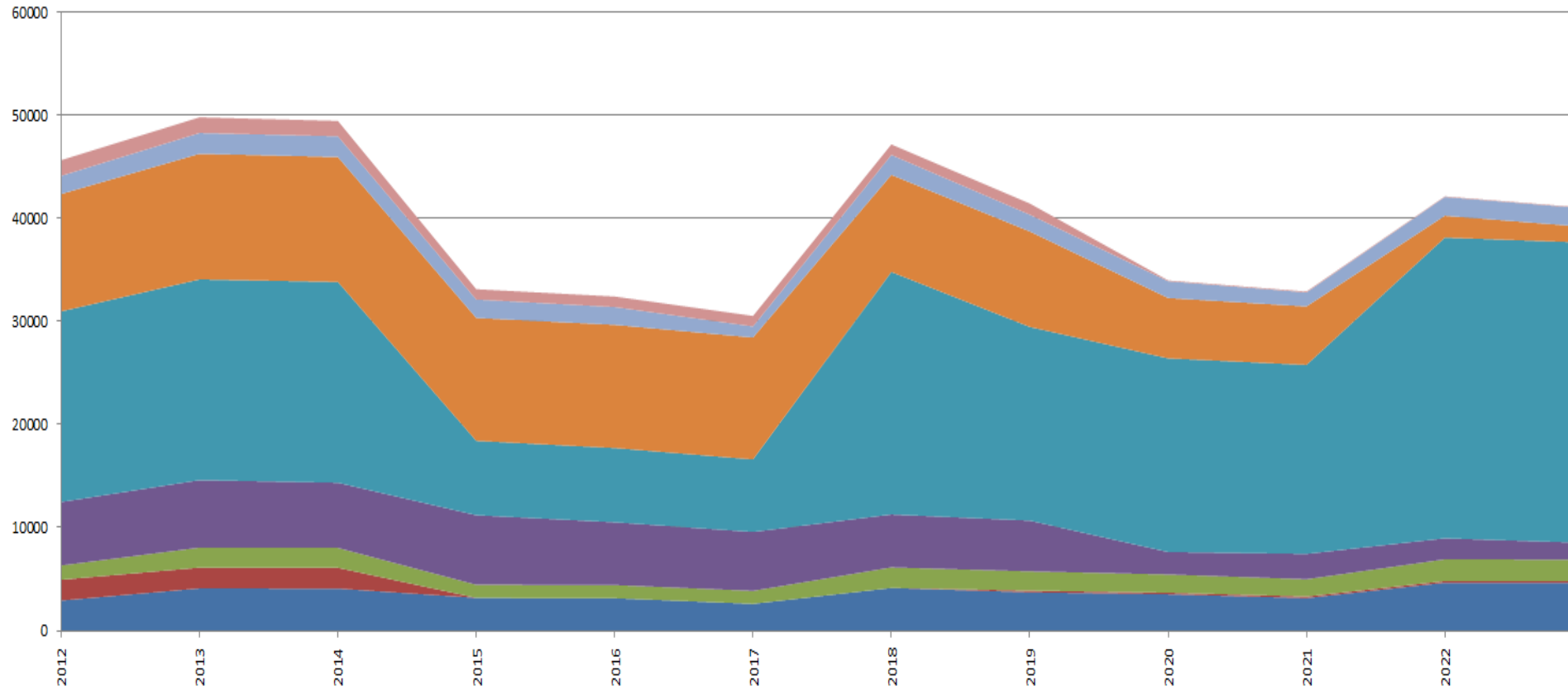
# Skills Shortage for all SIPs



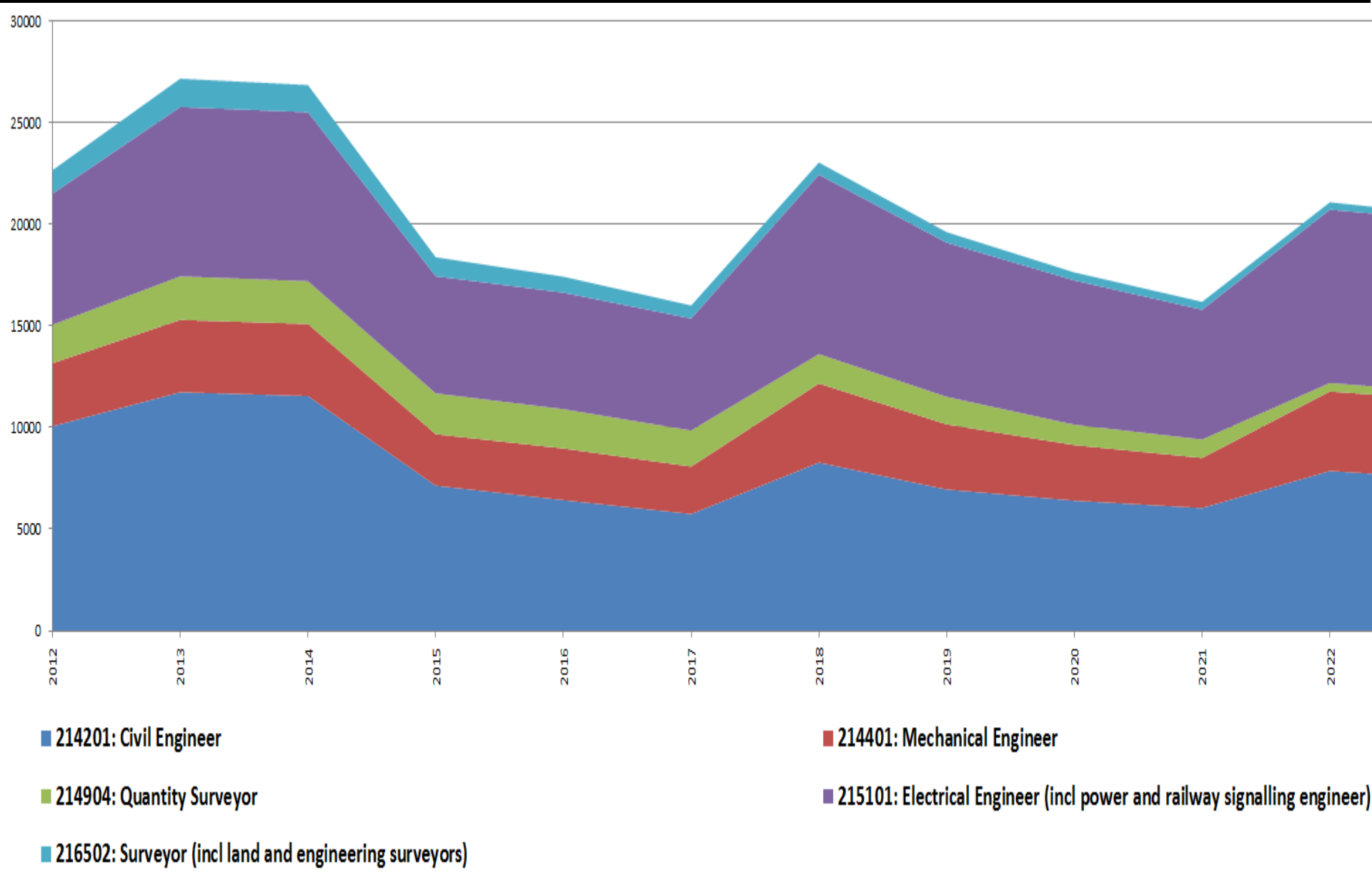
# Demand (Professionals)



# Demand (Technicians & Associate Professionals)



# Demand for professions said to be in short supply



# Top 6 scarce skills (critical)

| | |
|---|---|
| **Surveyor** (including land and eng. surveyors) | 500 |
| **Materials Engineer** | **450** |
| **Grader Operator** | **450** |
| **Programme / Project Manager** | **350** |
| **Electronic Eng Technician** | **300** |
| Welders | 220 |

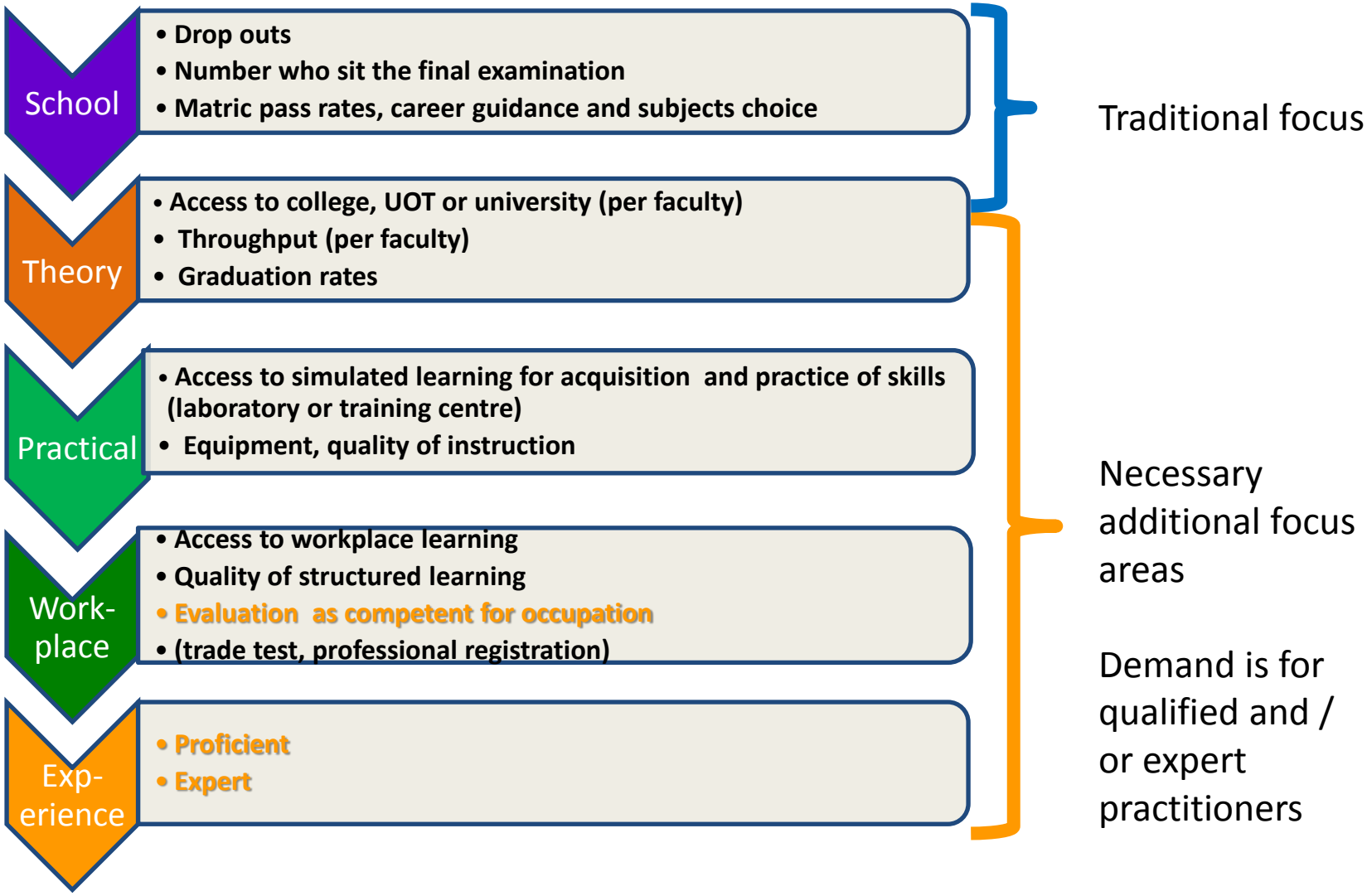
Scarce implies more than 50% probability of scarcity

# Next 28 scarce skills (significant)

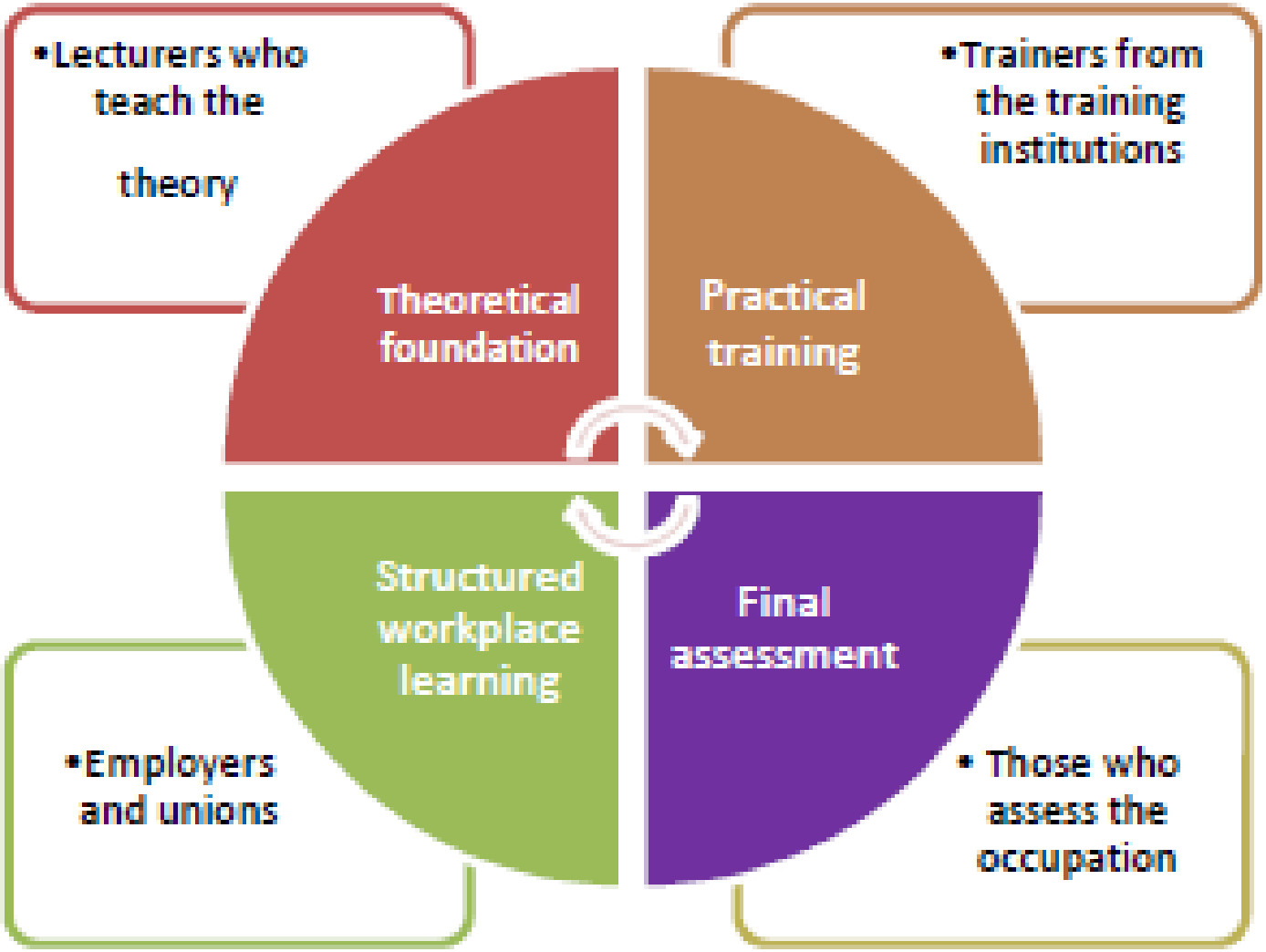
| | | |
|---|---|---|
| 1 | Concreter | 2 500 |
| 2 | Bricklayer | 1 700 |
| 3 | Civil Engineer | 1 400 |
| 4 | Electrician | 1 200 |
| 5 | Electrical Engineer | 1 100 |
| 6 | Construction supervisor /clerk of works | 1 100 |
| 7 | Electrical Engineering Technician | 950 |
| 8 | Millwright (incl.. electromechanician) | 600 |
| 9 | Safety, Health, Environment and Quality Practitioner | 550 |
| 10 | Boilermaker | 500 |
| 11 | Carpenter and Joiner | 500 |
| 12 | Mechanical Engineer | 450 |
| 13 | Ind. Machinery Mechanic | 450 |
| 14 | Construction Project Manager / Site Manager | 450 |
| 15 | Plumber | 400 |
| 16 | Painter | 400 |
| 17 | Mechanical Engineer Technician | 350 |
| 18 | Draughtsperson | 350 |
| 19 | Excavator Operator | 300 |
| 20 | Environmental Engineer | 300 |
| 21 | Chemical Engineer Technician | 300 |
| 22 | Pipe Fitter | 300 |
| 23 | Concrete Plant Worker | 250 |
| 24 | Earthmoving Plant Operator | 250 |
| 25 | Plasterer | 250 |
| 26 | Quantity Surveyor | 200 |
| 27 | Rigger | 200 |
| 28 | Crane or Hoist Operator | 200 |

Significant implies between 20% and 50% probability of scarcity

# The skills pipeline



# Harness Occupational Teams



# Role of Occupational Teams

- Determine pipeline
- Determine delivery site, enrolments & throughputs
- Align curriculum along pipeline
- Identify RPL opportunities, gap training, support from retirees etc
- Workplace development of graduates
- Identify Centres of Excellence to support others and improve throughputs
- Interface with demand side – ESSA and Portal

# Support/help needed

- Demand
  - Comment on numbers suggested
  - Input on other disciplines that are scarce?
  - Advise on new skills required for new jobs
- Workforce
  - Determine current workforce
  - Determine % employed in private sector vs public
- Gap
  - Determine gap and how to increase supply
- Supply
  - Advise on learning pathways
  - Advise on throughput issues and other methods of increasing numbers
  - Advise on and support initiatives across the pipeline to develop skills
  - Advise on need for support to import skills where necessary

# Occupational Team

| | Name | Institution | Contact Tel. | Email |
|---|---|---|---|---|
| **Overall Convener:** | | | | |
| **Theory convener:** | | | | |
| **Practical convener:** | | | | |
| **Workplace convener:** | | | | |
| **Assessor convener:** | | | | |

# First report – 31 October 2013

- Is there a need to increase the number to enrol on programmes that provide the theoretical foundation for this occupation? Please indicate the level of increase required?
- For 2014, note the current prioritisation of SETAs for 2014 and the SETA Grant Regulations on the SIP Skills Portal, and consider whether there is a need to expand the number of structured workplace training grants provided by the SETAs for your occupation? Can you quantify the number of grants required
- Using the formula provided, estimate the size of the grant that would desirably be offered for workplace training for this occupation.
- Outline any other funding required for equipment, curricula development etc

# Second report - 31 March 2014

- Determine nature and size of scarcity
- How to address scarcity e.g.
  - Short-term
    - Emigration
    - Retirees back
    - RPL
  - Medium-term
    - Increase throughput – what is required
  - Long-term
    - Develop new qualifications or specialisations etc and associated certification or registration

# Need for technicians and technologists

- Senior Materials Tech/Technologist
  - Qualification and registration required?
  - Need to also design and not just test – reference to construction techniques
- Laboratory Manager and testers
  - Qualification needed?
  - Register under National Laboratory Association or get a qualification in its own right?
  - Use QCTO route?

# New qualifications

- Determine demand and requirement
- Identify institutions prepared to offer qualification
- Curriculum development and approval
- Enrolment planning and approval (3 year cycle)
- Provide facilities including classrooms, laboratories etc
- Acquire equipment
- Appoint lecturers and develop detailed material
- Advertise course

# Your views ….

- Occupational team?
- Help needed?