"Skills challenges in ensuring the increase and improvement of Scientific Skills in operations for quality drinking water"





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Rand Water - Strategic Human Capital

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Rand Water's Strategy

Vision

To be a provider of sustainable, universally competitive water and sanitation solutions for Africa

Mission

- Attract, develop and retain leading edge skills in water services
- Sustain a robust financial performance
- Develop and sustain globally competitive capabilities in core areas
- Enter and sustain productive partnerships
- Develop, test and deploy cost-effective technologies

Values

- Caring
- Excellence
- Integrity
- Spirit of Partnership
- Equity

Strategic Objectives

- Achieve Growth
- Achieve Operational Integrity
- Achieve a High Performance Culture
- Positively Engage Stakeholder Base
- Maintain Financial Health & Sustainability

Current Proposed Legislation – NSDS IV

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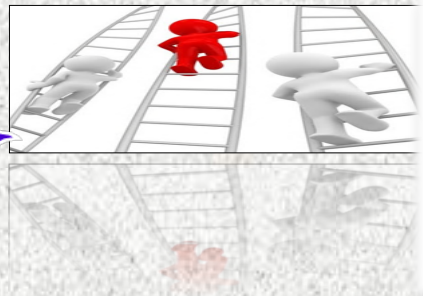
- SETAs are mandated to improve their understanding of skills development needs and supply for occupations
- Organisations have to plan for all their current employees and prospective employees aligning to occupations and looking at their future growth
- An understanding between Higher Education institutions and Employers that employees, students and unemployed individuals need to be trained into specific occupations in order to build a focused workforce
- Funding will be distributed across sectors with the introduction of NSDS IV, by 2018 for an integrated strategy that moves the workforce and economy collectively forward
- Improved skills development requires that we look at the complete framework of education not from the top but from the bottom up
- Formal governmental schooling is realising the importance increasing scientific skills and more importantly training learners' mind for critical thinking



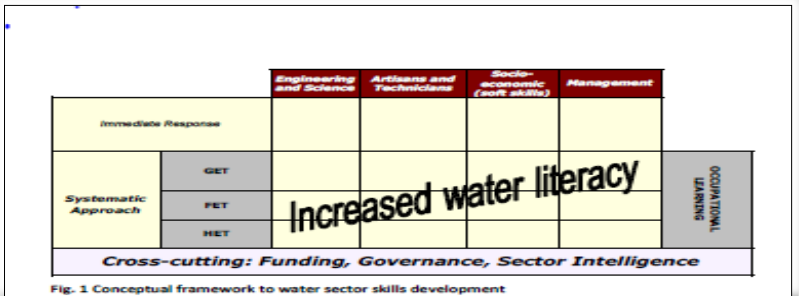


Fig. 1 Conceptual framework to water sector skills development

Rand Water's Talent Framework

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Model is a dynamic and can from time to time undergo redefining and new development for future organisational needs and growth, the model was developed in 2010, with projections for the next 5 years and beyond:

Organisational Deliverables:

- **Water supply infrastructure meets current water demands**
- **Population statistic in 2010 was 50 million in South Africa; it is estimated to rise to 54 million by 2030 increasing demand**
- **Sustaining South Africa's water resources for the growth in the provinces more especially for Gauteng which is the fastest growing province**

Current Talent Planning Imperatives

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- Quality drinking water production is an old concept requiring innovation for sustainability and the monitoring of equity in supply for now and into the future
- The focus must not be lost in thinking that it is a privilege rather than a right of all people in South Africa. The challenge is maintaining production costs of quality drinking water at the lowest
- Government is committed to increase access to quality drinking water in all areas of the country
- Skills Development is critical to grow and empower societies to be able to use the finite water source wisely in spite of the challenges the country faces with regards to low rainfall patterns
- Scientists are trained to understand the production standards to be the minimum measure and all systems and equipment are thus configured to measure compliance against the organisation's production standards in a complete way

Background to Drinking Water Quality Assurance

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- Conversations on Water Quality began around the world and in South Africa even before the First World War when authorities realised that clean water could not be taken for granted from the water suppliers
- Rand Water's regulation of Quality Water began in 1903; along within realisation that governance of water and water suppliers was vital
- The understanding that water sources were crucial to the future and it also needed regulation and governance.
- In South Africa and most parts of the world source water regulation came much later than initially planned
- Integrated partnership of government and bulk water suppliers is always critical for success in delivering quality drinking water to all…

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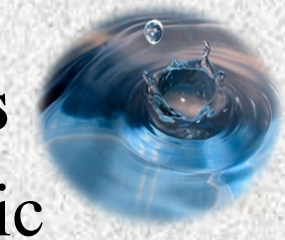
Focus of the discussion today…

- Skills Development planning within operations and in **Scientific Services** for the **Assurance of Quality Drinking Water**
- Developing Skills for accurate testing of the National Drinking Water Quality Standard:

  SANS 0241
- **Retaining and increasing scientific skills**
- **Sustainable Pipeline** of skills for Scientific Services and operations, the Organisation and the Sector



Assuring Drinking Water Quality in Scientific Services

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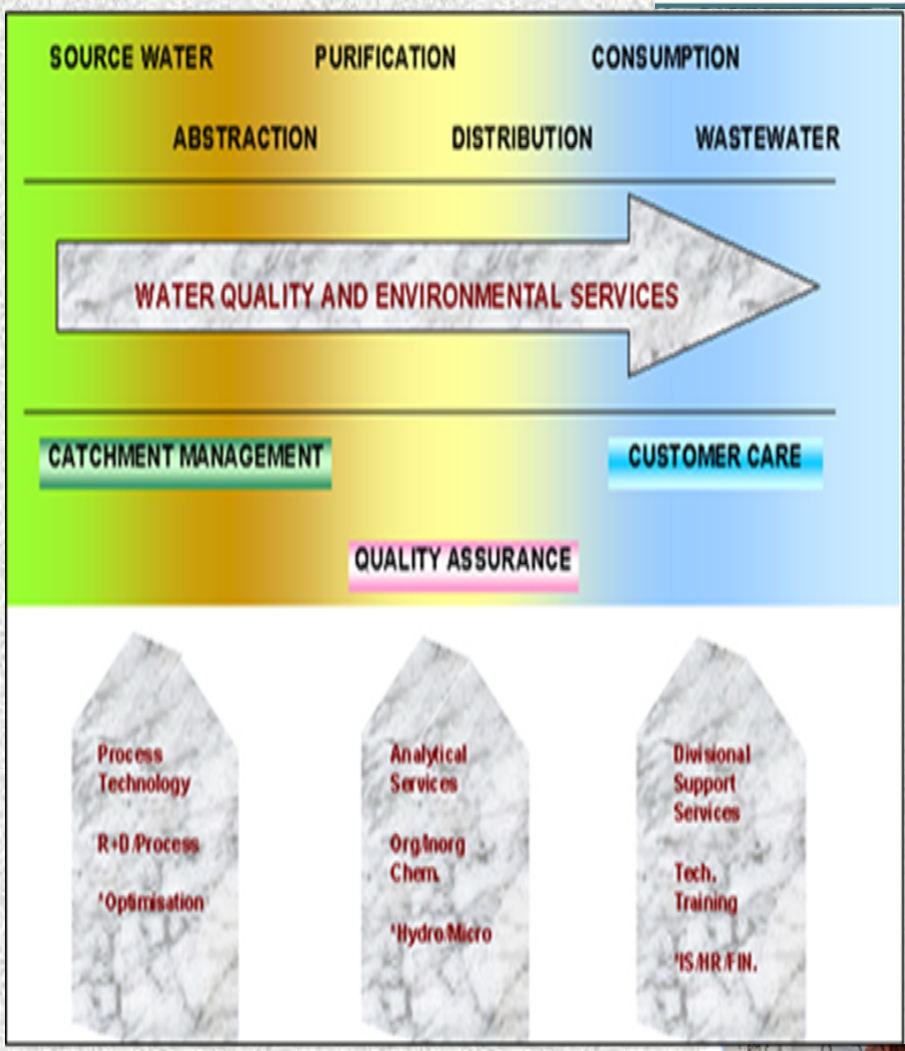
- The Divisional Framework is designed around the core functions of Water Quality
- Scientific Services' role in the operations of Rand Water is to monitor the drinking water quality from the catchment (source) to the consumers' taps
- Scientific Services' Business Plan for the next 5 years talks to advising and providing services related to all aspects of water quality management for public health protection across the entire drinking water supply chain.



Background of Skills Development in Scientific Service

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- **Skills Development framework within Scientific Services:**
  - Employee specific Development Plan using the Skills Audit/Analysis Model Employee academic profile of highest qualification and current studies
  - Divisional Technical and Leadership Ladder of Learning
  - Functional Skills Development prioritised to the **employee's current role**
  - Legislative Skills Development for compliance to all required quality standards
  - Skills Development aligned for the employee's growth and further development within the Divisional Dual Career Path
  - **Ensuring employee's comfort to perform all duties**

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Current Skills for Assuring Drinking Water Quality

- Scientists – Environmental Sciences, Water Care, Process Scientists, Chemists Organic & Inorganic, Microbiology & Hydrobiology, Hydrology, Limnology

- Information Technology & Statistics specialists within the divisional for the Laboratory Information Management System to ensure results are generated into a system and reported as required by the SANS 0241 Standard.

Scientific Positions

Scientific Operations Position	Positions in November 2013	Positions in May 2015
Chemist	18	18
Microbiologist	12	12
Biologist	8	8
Process Scientist	8	8
IT/ LIMS/Statistician	10	10
Water Quality Scientist	24	26
Total	80	82

Scientific Services forward planning

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- Scientific Services' current skills pipeline is the Graduate Development Program, Experiential Learners and Bursars
- Effectiveness of the current pipeline for the Organisation, Sector and the continent – Scientific Services produces in excess of 50% more graduates that can be retained
- Aging workforce in core functions of water quality in Scientific Services, is a concern but not a crisis
- Employees engaged in further study provide the solutions for the projections of sustainability of the essential high level of skills
- On-going analysis of skills gaps within Scientific Services
- Skills recruited currently are being specifically developed in the various water science streams: Chemistry – Organic and Inorganic; Biology – Microbiology and Hydrobiology; Process Scientist, Environmental Sciences, Hydrology, Human Health and Water Care

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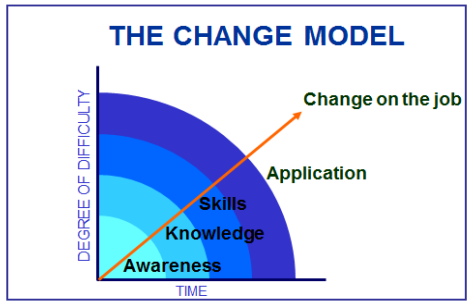
Future Projection Planning Concept

- **Graduates training ensures thorough understanding of the business and sector as a whole; the full supply chain of water treatment processes and water quality assurance from the catchment to the consumer**
- **The division has over the last 10 years recruited 20% of the required skills from its pipeline programs**

Operations Scientific Skills	Positions in May 2015	Scientific Skills Required in 2020	Scientific Skills Required in 2025
Chemist	20	22	25
Microbiologist	14	16	18
Biologist	10	11	12
Process Scientist	9	10	11
IT/ LIMS/Statistician	12	13	15
Water Quality Scientist	27	30	34
Total	92	102	114



Some Conclusions for the Division and Organisation

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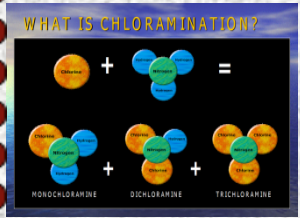
- Scientific Services' skills development framework for drinking water quality assurance is sustainable with the relevant human resource capacity to drive it consistently
- Prediction of the quantity of water scientists required into the next 5 years has been calculated and can be used as indicators for recruitment
- Organisation's risks have been determined and strategic planning is streamlined to priority activities
- Scientific Services' projects done by graduates and scientists for the organisation's operations adds value to the sector with the potential to continuously increase operational integrity
- Analysis done in Scientific Services to show that skills development for the assurance of quality drinking water is achievable is in the context of Rand Water emphasising the organisation's commitment to an environment of a high performance culture



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SKILLS DEVELOPMENT SUMMIT ACHIEVER AWARDS

In partnership with fp&m seta

Fibre Processing & Manufacturing Sector Education and Training Authority

Acknowledgements…

Rand Water for the opportunity to do the research and present it…

Thanks