Technical Infrastructure

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Contents

The Technical Infrastructure System

Economic importance of technical infrastructure

Structure and mandates of the system

Governance, WTO linkage and the role of the department

Conclusions
What is the Technical Infrastructure

• Globalisation is increasing the demands on countries to demonstrate that they have the quality system to guarantee that products originating in their territories are safe and ‘fit for purpose’.

• The Quality Infrastructure system allows an economy to set norms and standards, and test against those standards to determine whether products or services are fit for their intended purpose.

• In South Africa, we refer to the quality system as the Technical Infrastructure.

• It is also referred to as SQAM - standards, quality assurance, accreditation and metrology.
Technical Infrastructure cont’d

• Although we frame our discussions on globalization needs, even in ancient times quality systems were critical for development.
• The picture here is an ancient (1336 B.C) Egypt measurement artifact of length – the cubit. (source: Wikipedia)
Definitions

**Area**

- Standard – a document approved by a recognized body, that provides, for common and repeated use rules, guidelines or characteristics for products and related processes or production methods.
- Conformity assessment – processes of determining whether a product or service or system meets requirements of a particular standard.
- Accreditation – formal procedure by which an authoritative body gives recognition that a facility is competent to carry out specific tasks.
- Metrology – the science of measurement that provides for accurate and precise measurement in all fields.

**Key activities**

- Development document standards and compulsory standards
- Development of documented conformity assessment procedures
- Certify, inspect, calibrate and test against standards and reports thereof
- Accredit facilities or persons and provide certificates thereof
- Develop standards from scientific principles, maintain physical standards and disseminate measurement traceability through calibrations
Technical Infrastructure framework

- **SABS**
  - **Standardisation:**
    - Documentary standards for validated methods used in industry

- **SANAS**
  - **Accreditation:**
    - Provides formal recognition to carry out specific tasks

- **NRCS**
  - **Regulation:**
    - Administers regulation to ensure compliance and protect human health and safety

- **NMISA**
  - **Metrology:**
    - Underpins testing and calibrations through measurement accuracy & measurement traceability
Importance of Technical Infrastructure

• Standards, quality assurance, accreditation and metrology activities are instrumental in developing and growing manufacturing capabilities (industrial policy).
• They are an objective measure of competitiveness of firms based on their products or services.
• Provide, usually as mandatory regulations, risk based requirements for the protection of health, safety, environment and the consumer.
• Thus a vital link to market access and global trade.
Technical infrastructure in Trade

- Measurements/standards are key to economic transactions
  - some products sold by mass or volume

- Product quality may depend on time delivery and standardized processing key – here the standard is a management system (ISO 9001 for instance)
**Technical infrastructure in Trade cont’d**

- Allow for interoperability and thus global dispersed manufacturing value chains
  - automobile manufacturing

- Taken together, the technical infrastructure provides an objective basis for competitive.

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**the dti**

*Department: Trade and Industry*

*Republic of South Africa*
Medical devices

- Syringes
- Blood pressure instruments

Scales

- Baby scales
  - Incorrect diagnosis
  - Death
Technical Infrastructure in Safety

- Building codes or uniform building standards
- Workplace safety
Technical Infrastructure and Environmental Protection

- Climate Change
- Water quality
- Energy efficiency
- Pollution Control
- Remediation Work etc.
SOUTH AFRICA’S TECHNICAL INFRASTRUCTURE

VOLUNTARY SECTOR
Customer/Market Requirements

SABS - STANDARDS
Specific technical requirement of a product or a system

CONFORMITY ASSESSMENT
Prove technical requirements are met
Testing, Inspection & Certification

SUPPLIER

NMISA - MEASUREMENT
Underpins testing & calibration through national measurement standards

CUSTOMER

REGULATED SECTOR

GOVERNMENT
Set policy, laws & technical regulations

REGULATORS (including NRCS)
Administer regulations

SANAS - ACCREDITATION
Assures competence
Relevant Acts

- Measurement Units and Measurement Standards Act, 18 of 2006
- Legal Metrology Act, 9 of 2014
- Standards Act, 8 of 2008
- Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 19 of 2006
- National Building Regulations and Building Standards Act, 103 of 1977
Measurement Act 18 of 2006

Measurement Units and Measurement Standards Act, 18 of 2006.

- Established the NMISA to
  - connect national measurement system to the international international system
  - maintain national measurements standards
  - disseminate measurement traceability to industry
Legal Metrology Act, 9 of 2014

Legal Metrology Act, 9 of 2014.

- strengthens enforcement of metrology
- protects consumers against short measure
- support competitiveness of industry by levelling the playing field

The National Regulator for Compulsory Specifications is the administrator of this Act.
Is it really a kilo?

Sure, let me explain how we guarantee that you get the kilo you pay for!

The original “kilo” is kept by the International Bureau of Weights and Measures in France. Copies of this “kilo” are sent to reference laboratories worldwide and used for comparison and calibration purposes.

The balance at your supermarket should have a valid calibration seal showing you that it weights accurately – so look for it!

If you find the seal, be happy! You are taking home a kilo of your product and value for your money!
Standards Act, 8 of 2008

Standards Act, 8 of 2008.

- Established the SABS as the peak national institutions to
  - to develop standards
  - perform conformity assessment services
  - promote quality
Let me explain how raw materials and products are tested to ensure your safety as a consumer.

Imported raw materials are tested to make sure that they meet market requirements (standards, hygiene, etc.).

Manufacturers test the quality of their unfinished products at different stages during the production process.

Final testing is carried out to ensure that the finished products meet all requirements before delivery to the customer.

A government authority regularly takes samples from your supermarket to check the quality of the products.
Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006

The Act established SANAS as the sole national accreditation body to:

- maintain an international recognized system
- promote the competence of accredited facilities
- accredit qualifying facilities
Accreditation

Gain entry into overseas markets and acceptance by regulators and major users.
National Building Regulations and Building Standards Act, 103 of 1977

• The Act is administered by the NRCS and its purpose is to

- promote uniformity in the law relating to the erection of buildings

- for the prescribing of building standards

- require that building be approved by local authorities prior to erections

- require local authorities to employ building control officers

- establishes and appeal mechanism against decisions of local authorities
The Act is there to avoid events such as this:

(August 19, 2014 building collapse in Alberton. Source- Citizen newspaper)
The National Regulator for Compulsory Specifications Act

Establishes the NRCS to
- approve placement of sensitive products on the market
- administer compulsory specifications
- protects the consumer against unsafe and unhealthy products
- level the playing field for industry
Regional and International Linkages

Source: PAQI
World Trade Organisation

- WTO deals with global rules of trade between nations

- To ensure that regulations, standards, conformity assessment services are not obstacles to trade, the TBT agreement provide rules

- The agreement promotes use of international standards

- There is a Code of Good Practice for the preparation, adoption and implementation of standards.
Government Coordination

- Organizational Capabilities
- Business Processes
- Financial Results
- Public Results

- Talented, hardworking and honest employees
- Friendly service
- Lower costs, remuneration aligned to the public service
- Responsive to industry needs and appropriate protection of consumers – service delivery

Steering strategies, advocacy and performance of administrative functions to achieve results above.
Reporting Structure

Parliament of South Africa

Minister of Trade and Industry

- Metrology
- Standards
- Accreditation
Conclusions

- The technical infrastructure is important in our daily lives
- It provides the confidence that the economy requires for all kinds of transactions
- It allows for participation in global activities
Thank YOU

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