



# MANAGEMENT SYSTEM STANDARDS

SURVEYING PROFESSION

**ISSUES AND RISKS**



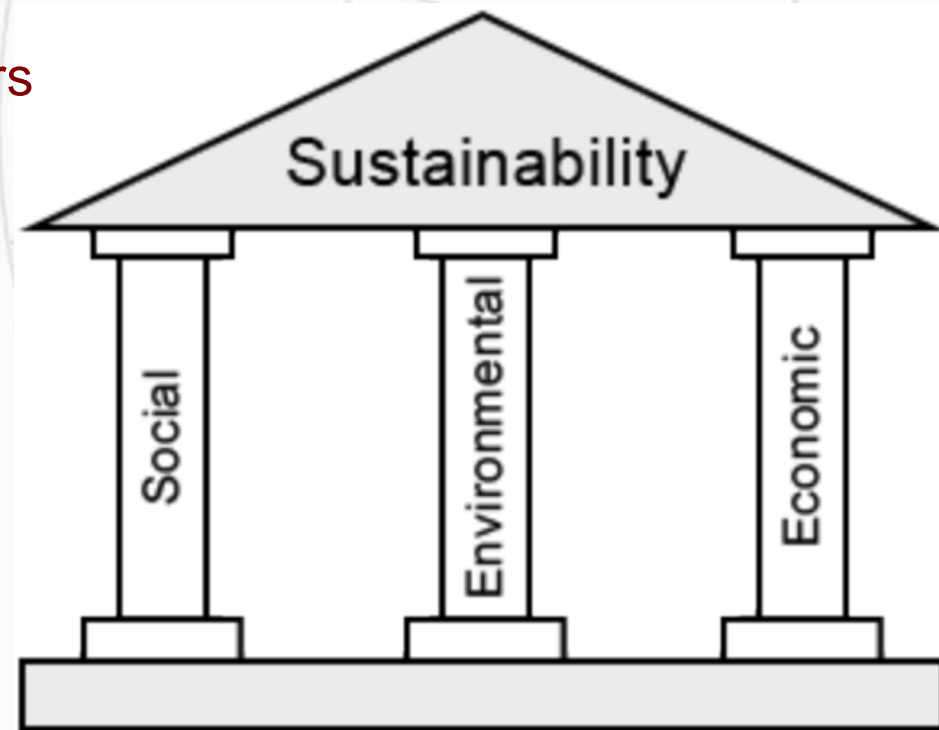
# United Nations Sustainable Development

- ✓ *However, integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future*

*Preamble to Agenda 21: Programme for Action for Sustainable Development  
United Nations Conference on Environment & Development  
Rio de Janeiro, Brazil, 3 to 14 June 1992*

# Sustainable development

- ✓ Essential to meet the needs of the present without compromising the ability of future generations to meet their own needs
- ✓ Balance between the three pillars
  - ☑ environment
  - ☑ society and
  - ☑ economy





# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

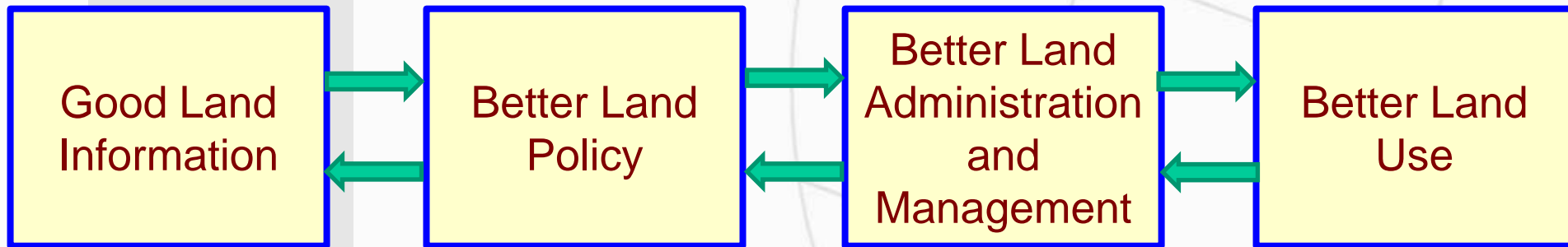
- ✓ On September 25th 2015, countries adopted a set of goals to **end poverty, protect the planet, and ensure prosperity** for all as part of a new **sustainable development** agenda. Each goal has specific targets to be achieved over the next 15 years
- ✓ For the goals to be reached, everyone needs to do their part: governments, the private sector and civil society

<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>



International Federation of Surveyors  
Fédération Internationale des Géomètres  
Internationale Vereinigung der Vermessungsingenieure

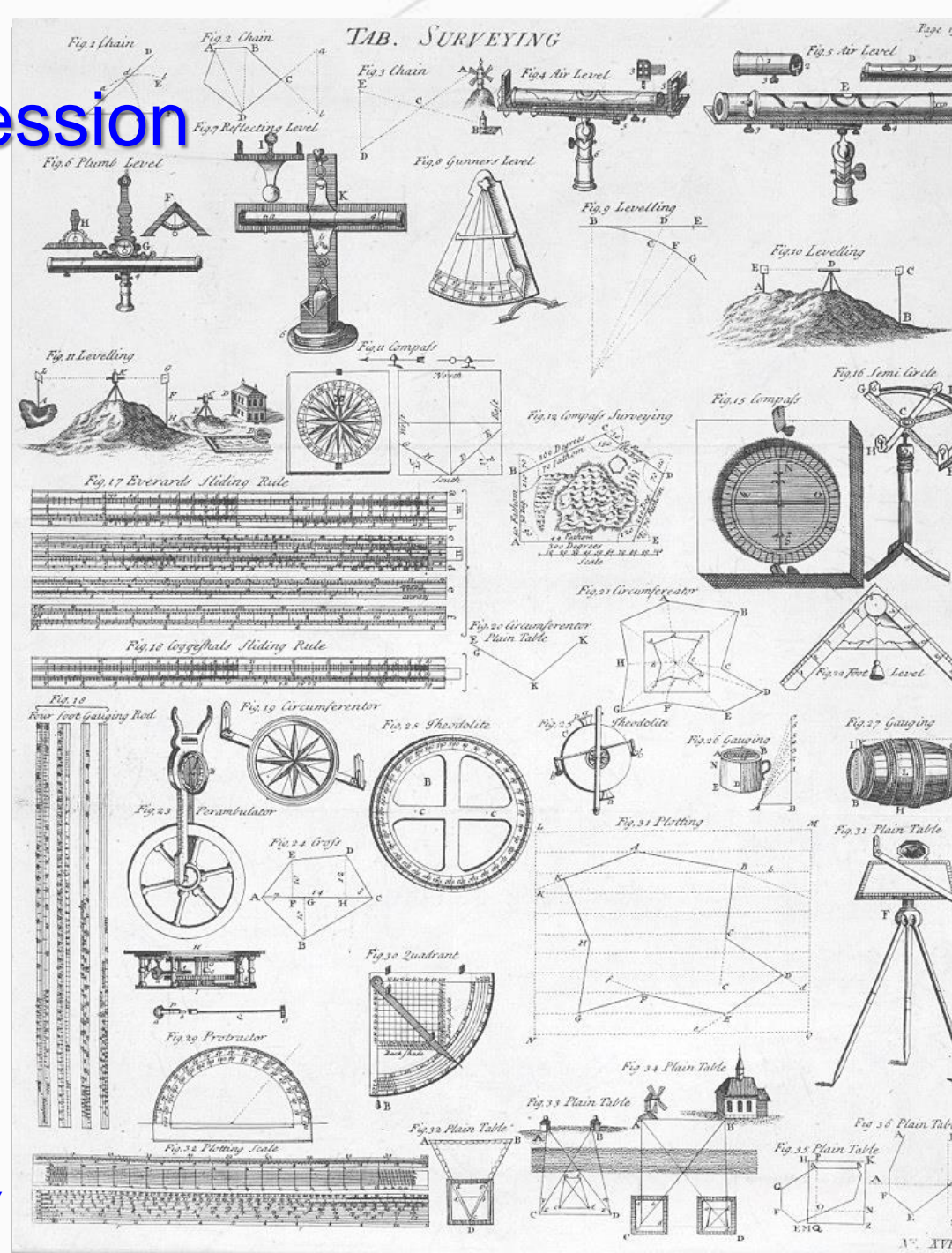
- ✓ Sustainable development is not attainable without sound land administration



*The Bathurst Declaration on Land Administration for Sustainable Development*  
25-27 October 1999

# Surveying profession

- ✓ Surveying is the discipline of gathering, storing, processing, and delivering geographic information or spatially referenced information
- ✓ In other words, it "consists of products, services and tools involved in the collection, integration and management of geographic data"



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<http://www.landsurveyors.com/resources/land-surveyor-employment/>

# Surveying profession

- ✓ Usually surveyors are not identified with the final product
- ✓ Poor public understanding of the essential role of surveyors
- ✓ Fundamental contribution to key socio-political issues and global megatrends

*Karl-Friedrich Thoene (Germany)  
President of the DVW – German Society for Geodesy  
Geoinformation and Land Management*

# Facing the Challenges of the Future

- ✓ All environmental issues, such as energy provision, climatic changes, demography, bio-diversity, societal modernization, disaster risk prevention and security policy, **relate to governance and management of land and spatial information**
- ✓ **Surveyors have to act as change managers**



# Issues and Risks

- ✓ Social Impact
  - ☑ Land Acquisition, conversion and Compensation
  - ☑ Impacts on urban land and housing markets

# Issues and Risks

## ✓ Social Impact

### ☑ Interested party

- Person or organization that can affect, **be affected by, or perceive themselves to be affected** by a proposed project
  - Access to Information
  - Public Involvement

# Issues and Risks

## ✓ Health & Safety

### ☑ Distracted motorists

Surveying by roadsides, close to fast moving traffic

Motorists can often become distracted and can and does often result in traffic collisions and can be dangerous for surveyors standing nearby

- place safety signs and cones in the appropriate places
- wear **High-Visibility Safety Apparel**

# Issues and Risks

## ✓ Health & Safety

### ☑ Snakes, crocodiles and insects

It is not uncommon for surveyors working in places like jungles and deserts to come into contact with insects, spiders, crocodiles and snakes

- wear snake-proof boots and clothing that covers as much bare skin as possible
- carry a first aid kit as well as a bite kit

### ☑ Hot humid environments provide ideal conditions for a number of diseases, transmitted by insects, others are water borne

# Issues and Risks

## ✓ Health & Safety

### ☑ Heat exhaustion

Work carried out in hot climates represents a number of health hazards, sunstroke, dehydration and sunburn

- wear hats, heat reflective clothing, apply sunscreen and drink plenty of water
- appropriate thermal clothing should be worn
- take regular break in the shade
- bring canvas umbrellas

Mad Dogs and Englishmen go out in the midday sun  
*Sir Noël Peirce Coward*

# Issues and Risks

## ✓ Health & Safety

- ✓ Unexploded ordnance

- ✓ Construction hazards

- ✓ Underground cables

- brief on that site's safety procedures

- wear appropriate safety gear such as hard hats, tough work boots, High-Visibility Safety Apparel and any additional gear that is required, such as eye and hearing protection

# Issues and Risks

- ✓ Health & Safety
  - ☑ Unstable surfaces
  - ☑ Mountain ranges
  - ☑ Unstable rock faces
    - safety harnesses and cables should be used

# Issues and Risks

## ✓ Health & Safety

### ☑ Remote locations

- ensure all equipment and vehicles are tested before the journey begins
- pack a spare tire, a first aid kit, food and water, GPS system and phones will come in handy in emergency situations



# Issues and Risks

- ✓ **Historical data**
  - ☑ **Adoption of historical data** into a modern exact electronic environment
  - ☑ Measurement records may be **over a hundred years old** and by comparison with modern tools, **have poor accuracy but they still have the same legal status**
  - ☑ Most of the resurveys which are made today must have a former description as a basis of the resurvey. **Interpretation of an old description**, and the following of the description out on the ground, may become a major problem
  - ☑ **There are occasional gaps and overlaps in the real world**

# Issues and Risks

- ✓ **Internal processes**
  - ☑ not easy to understand
  - ☑ too complicated
  - ☑ too long to carry out assigned tasks
  - ☑ too many changes
  - ☑ Inter-organization communication
  
- ✓ **Outsourced processes**
  - ☑ not completed on time
  - ☑ too costly
  - ☑ incompatible data format

# Issues and Risks

- ✓ **Tools and equipment**
  - ☑ costly maintenance
  - ☑ costly calibration



# Issues and Risks

- ✓ **Customer requirements**
  - ☑ incomplete information provided
  - ☑ inconsistent customer requests
  - ☑ not tally with actual situation on site
  - ☑ urgent requests

# Issues and Risks

- ✓ **Statutory and regulatory requirements**
  - ☑ change in laws and regulations
  - ☑ rules occasionally conflict with one another
  - ☑ use of **GIS without recognition from established legal frameworks**
  - ☑ measurement records may be over a hundred years old and by comparison with modern tools, have poor accuracy but they still have the same legal status

# Issues and Risks

- ✓ **Updating data and information**
  - ☑ new developments and new roads
  - ☑ road names and House numbers
  
- ✓ **Modify as-builts during the construction process**
  - ☑ mapping and alteration of property boundaries and other lines missing or insufficient as-builts may open the door to boundary disputes, code violations and other serious issues

# Issues and Risks

- ✓ **Continuous Professional Development**
  - ☑ inadequate Career Path Plan
  - ☑ costly programmes
  
  - ☑ Reluctance to change

# Issues and Risks

- ✓ **IT Hardware and Software**
  - ✓ too many commercial Apps
  - ✓ obsolete items
  - ✓ limited capacity
  - ✓ software updates
  - ✓ virus attacks
  - ✓ internet access
  - ✓ data storage and backup
  - ✓ replenishment of consumables



# Issues and Risks

- ✓ Positive Issues and Positive Risks (opportunities)
  - ☑ Land surveying is one of the world's oldest professions and dates back as far as the ancient Egyptians
  - ☑ Surveying has been an essential element in the development of the human environment and it is a requirement in the planning and execution of nearly every form of construction

# Issues and Risks

- ✓ Positive Issues and Positive Risks (opportunities)
  - ☑ Geometric data are used to establish areas that are likely to flood or monitor the spread of pollutants
  - ☑ Finding boundaries for wetlands is important because wetlands are necessary to protect in our environment
  - ☑ Formations on the land such as hazardous waste locations which can harm animals and people
  - ☑ Map the areas of certain rain forests and determine what the status is of deforestation

# Issues and Risks

- ✓ Positive Issues and Positive Risks (opportunities)
  - ☑ Essentially land survey techniques have remained very much the same - using fundamentals of mathematics including geometry, calculus and trigonometry
  - ☑ The basics fundamentals of land surveying have not changed since it first began, however the land survey equipment has changed drastically over the years
  - ☑ Modern land survey techniques are incredibly precise largely due to advanced technology available to create the tools used to perform the land survey techniques

# MSS - Management System Standard

- ✓ Standard that provides requirements or guidelines for organizations to develop and systematically manage their policies, processes and procedures in order to achieve specific objectives
- ✓ Everyone is clear about who is responsible for doing what, when, how, why and where
- ✓ MSS has moved beyond product specifications and now encompasses organisational strategies, policies, objectives and risk management

# Context of the organization

- ✓ Understanding the organization and its context
  - ☑ Determine **external and internal issues** include environmental conditions being **affected by or capable of affecting** the organization

# Context of the organization

- ✓ Understanding the needs and expectations of interested parties
  - ☑ Determine
    - the **interested parties** that are relevant to the EMS
    - the relevant **needs and expectations**
    - which of these become its **compliance obligations**

# Risk-based thinking

- ✓ Organization needs to plan and implement **actions to address risks and opportunities** to establish a basis for increasing the effectiveness of the quality management system, achieving improved results and preventing negative effects

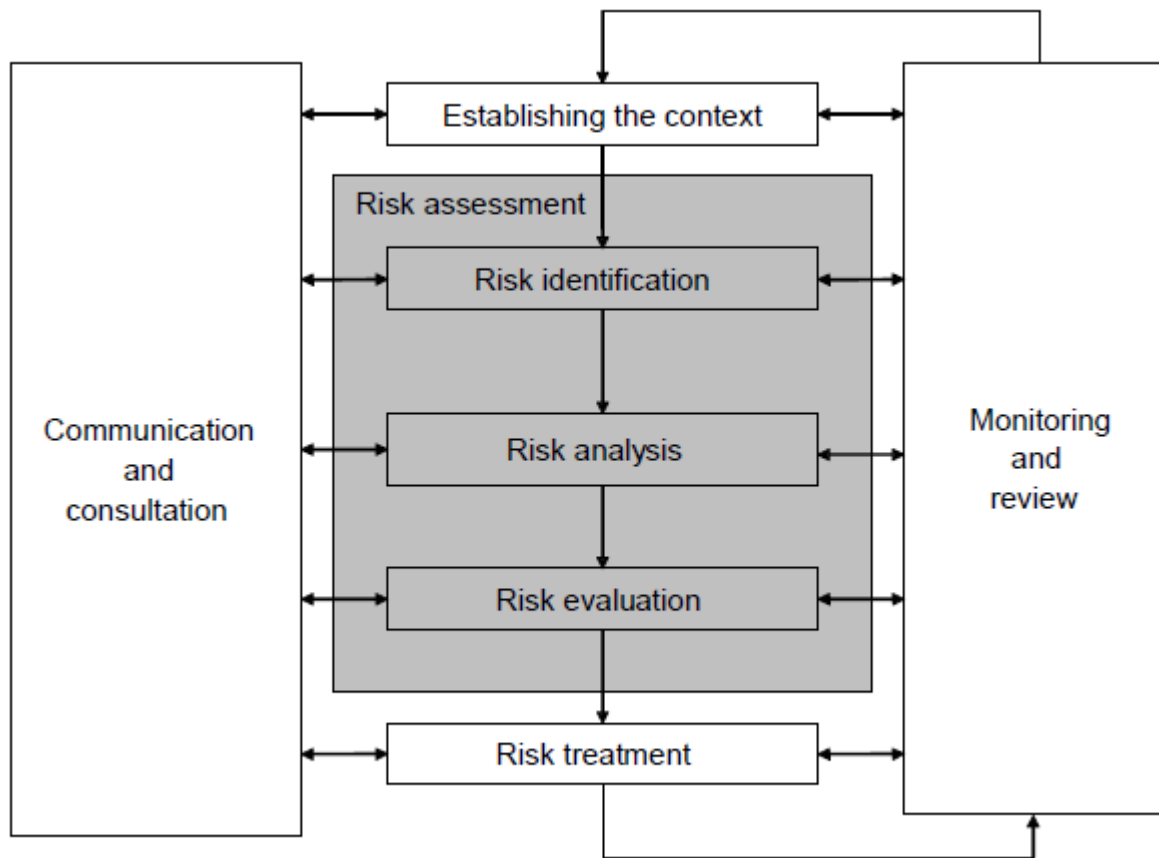
# Risk-based thinking

- ✓ Risk is the **effect of uncertainty** and any such uncertainty can have positive or negative effects
  - ☑ Effect is a **deviation from the expected** – positive or negative
  - ☑ Uncertainty is the lack of information related to understanding or knowledge of an event, its **consequence, or likelihood**



# Risk-based thinking

- ✓ ISO 31000: 2009 Risk management — Principles and guidelines



# Risk Treatment

- ✓ Negative Risks
  - ✓ avoiding risk,
  - ✓ taking risk in order to pursue an opportunity,
  - ✓ eliminating the risk source,
  - ✓ changing the likelihood or consequences,
  - ✓ sharing the risk,
  - ✓ retaining risk by informed decision

# Risk Treatment

## ✓ Positive Risks

- ✓ the adoption of new practices,
- ✓ launching new products,
- ✓ opening new markets,
- ✓ addressing new customers,
- ✓ building partnerships,
- ✓ using new technology,
- ✓ other desirable and viable possibilities to address the organization's or its customers' needs

# RISK

- ✓ To laugh is to risk appearing the fool
- ✓ To weep is to risk appearing sentimental
- ✓ To expose feelings is to risk exposing your true self
- ✓ To reach out to another is to risk involvement
- ✓ To place your ideas, your dreams before a crowd is to risk their loss
- ✓ To love is to risk not being loved in return
- ✓ To hope is to risk despair
- ✓ To try is to risk failure
- ✓ To live is to risk dying

# RISK

- ✓ But risks must be taken, because the greatest hazard in life is to risk nothing
- ✓ The person who risks nothing, does nothing, has nothing, and is nothing
- ✓ They may avoid suffering and sorrow, but they cannot learn, feel, change, grow, love, live
- ✓ Chained in by their attitudes, they are a slave, they have forfeited their freedom
- ✓ Only the person who risks is free

# Thank you

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