

# Climate and the Impact on Standards

ISO Technical Committee 67

Materials, equipment and offshore  
structures for petroleum,  
petrochemical and natural gas  
industries, excluding ships and marine  
technology (TC8)

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1999-present

# Petroleum, petrochemical and natural gas industries

## ■ Upstream and Pipelines

- Exploration & Development
- Exploitation
- Transportation

- ## ■ Downstream → Petrochemicals
- Refining
    - Plastics
  - Marketing
    - Fabrics raw mtl.

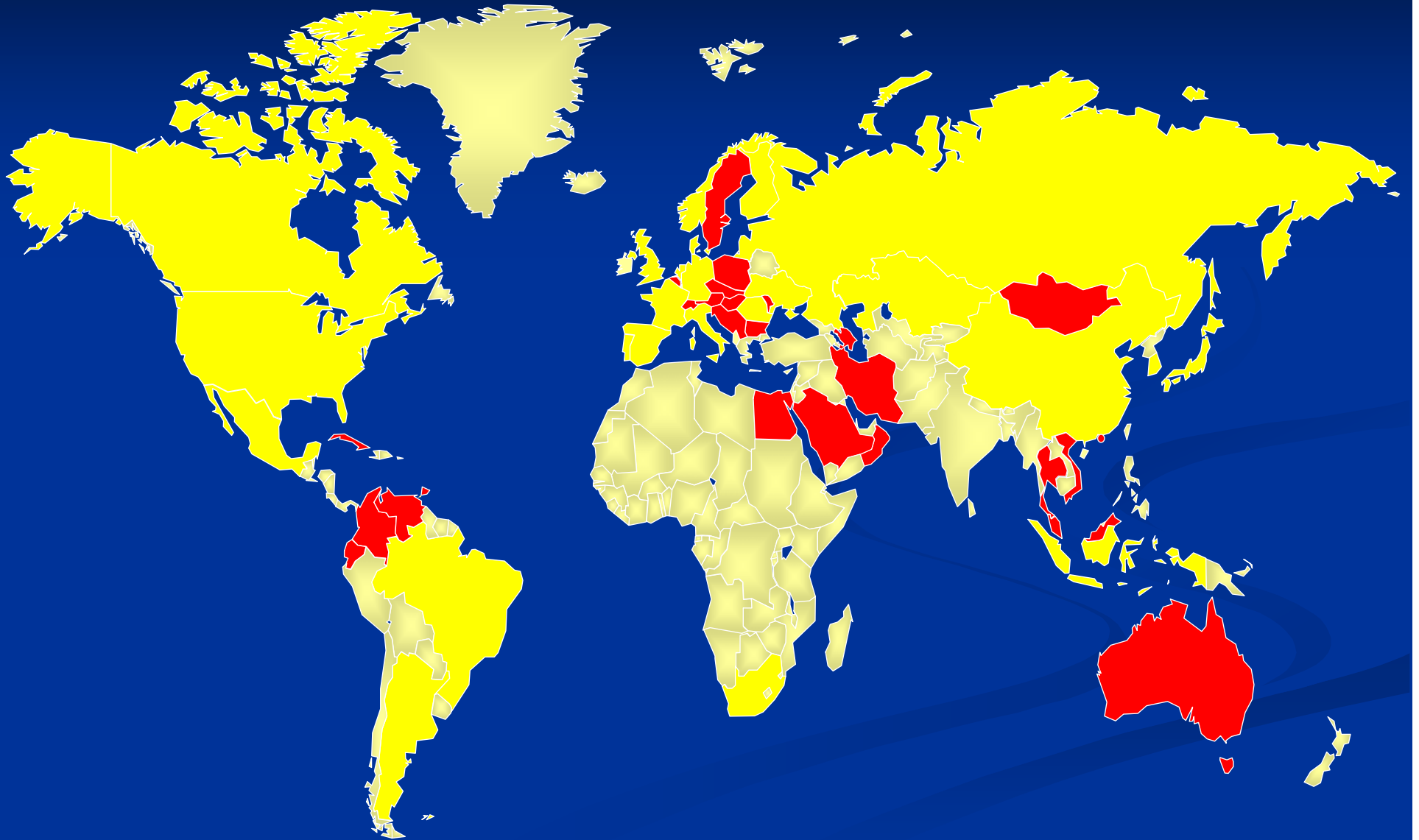
# Geographic Locations

- Upstream and pipelines
  - Over 130 countries for exploration & production
  - Globally diverse
  - Must be able to move product to downstream
- Downstream and petrochemical
  - Predominantly in temperate regions
  - Urban or near urban areas
  - Land-based with government restrictions

# ISO / TC 67

- Twenty-six “P”articipating members
- Twenty-six “O”bserving members
- Six subcommittees
- Five TC working groups
- Management committee
- Joint working groups with five TCs
- Estimated project members – over 1000

# TC67 - P & O Members



# ISO / TC 67

- 155 items on work program
- 109 published to date
- Average 15 standards published annually
- Average 10-12 new work items annually
  - Augment current standards
  - New technology
  - Five year review

# Types of Standards

- Equipment and hardware
  - Casing, tubing, and drill strings
  - Blow-out preventer and production equipment
  - Subsurface and downhole equipment
  - Piping and pipelines
  - Offshore structures
  - Fluids
  - Valves and compressors
- Informational
  - Corrosion resistant alloys
  - Life cycle analysis
  - Reliability and measurement
  - Quality management

# Impact of Climate

- Climate has many forms
  - Temperature
  - Elevation
  - Habitat and access
  - Geologic conditions
  - Political
- All influence the service level and applicability of equipment

# Climate – Temperature

- Desert
- Jungle
- Arctic
- Temperate
- Tundra

# Temperature



# Temperature



# Climate – Elevation

- Marsh and wetlands
- Bays and lakes
- Mountains
- Offshore – negative elevation

# Elevation



# Elevation



# Climate – Habitat and Access

- Remote, undeveloped
- Rural
- Urban
- Ecologically sensitive

# Habitat



# Habitat



# Climate – Geologic Conditions

- Exploration and Production
  - Ice and permafrost
  - Shale
  - Carbonate
  - Sand
  - Granitic
  - Alluvial
  - Acid gases – H<sub>2</sub>S and CO<sub>2</sub>
  - Water, gas, and oil

# Geologic Conditions



# Geologic Conditions



# Climate - Political

- Safety and health of workers
- Protection of indigenous population
- Preservation of local livelihood
- Capture and transport of product
- Management of waste streams
- Wide variety of attitudes about oil and gas activity

# Examples Standards with Climatic Conditions

- 15156-series – Materials for H<sub>2</sub>S environments
- 14310 – Downhole equipment – packer and bridge plugs
- 19906 – Arctic offshore structures
- 3183 – Steel for pipelines
- 13709/13710 – Centrifugal and reciprocating positive displacement pumps

# TC67 Approach Standards

- Global utility – World Trade Organisation
  - Buy and trade from one area to another
  - Interchangeable parts
  - Compatible and fit for purpose
  - HSSE factors
- Local utility
  - Product service levels
  - Multiple choice designs
  - Government restrictions/acceptance

# TC 67 Motto

*“Global standards used locally,  
worldwide.”*

# The End and Any Questions?

