



TBT PROGRAMME
OVERCOMING TECHNICAL BARRIERS TO TRADE



ACP-EU TBT Programme

Strengthening the Quality Infrastructure Institutions of Ethiopia

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How to write a national standard



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Some principles from the TBT Agreement

- Transparency
- Openness
- Impartiality
- Consensus
- Effectiveness and Relevance
- Coherence
- Awareness of the Development Dimension
(special relaxations for developing countries)

National Standards Body

- Established in terms of a Standards Act
- Different models, often partly financed by Government
- Sets standards, through its committees
- Tests against standards ?
- Certifies against standards ?
- “Policies” compulsory standards

Examples of standards

- “Compulsory standards” for food, motor vehicles, electrical fittings
- Voluntary standards for commodities
- Codes of practice
- Test methods
- Government purchasing

Why would we need a standard on ...

- How to make a perfect cup of tea ?
- Bungee jumping ?

Standards can be ...

- International (ISO/IEC/ITU/Codex Alimentarius)
- Regional (CEN/CENELEC/SADC/EAC)
- National (BS/DIN/AS/ANSI)
- Company or Consortium Standards (ASME/API/ASTM)

Benefits of standardization

- Better communication
- Simplification
- Economy/cost saving

- Safety, health, protection of life
- Consumer protection
- Elimination of trade barriers

Standardization

- Definition from ISO Guide 2:
- “Activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum order in a given context”

Guidance on standardization

- ISO/IEC Guide 59: 1994 -
“Code of good practice for standardization”
- “Fast Forward” (ISO/UNIDO)
Free download from ISO website

Some concepts

- Standards development
- Conformity assessment
 - Testing
 - Certification (First, second, third party)
 - Inspection
 - Accreditation

Standards and trade

- World Trade Organization
- Technical Barriers to Trade Agreement
- The Code of Good Practice (Annex 3)
- International/Regional Standards Organizations:
 - ISO
 - IEC
 - UN-ECE
 - CEN/CENELEC

WTO - successor to GATT

- GATT reduced tariff barriers
- Remaining barriers are non-tariff:
 - Standards
 - Technical regulations
- New, or proposed, technical regulations shall be reported to WTO
- WTO-TBT Enquiry Point in each country
- Standards shall not impose TBTs

What is a Technical Barrier to Trade ?

- A discrepancy in product requirements or in approval and control procedures, from one country to another
- Examples:
 - Bovine / growth hormone imports to EU
 - Environmental attributes, or eco-labelling
 - Insistence on testing for approval in the receiving country (no MRA's)
 - Testing taking longer than product shelf-life

National Standards

- Developed by a National Standards Body (Empowered under a Standards law)
- Standards are developed by representative committees
- Principle of consensus
- Alignment with international standards wherever possible
- Most are voluntary in most countries, but
 - Can be used in contracts, or as a reference
 - Standards can be incorporated into legislation

Possible Standards Body Structure

- Non-commercial activities:
 - Standards development
 - Regulatory activities on behalf of Government
- Commercial activities:
 - Testing, inspection
 - Certification
 - Commercial training

Committees

- Balanced representation of:
 - Users (Groups)
 - Manufacturers (Groups, various levels)
 - Other interested parties
 - The State
- Often chaired by an elected member
- Secretariat from the NSB

Concepts of standardization

- National, not NSB, standards
- Committee-driven
- NSB maintains and channels requests to committees
- NSB acts as facilitator/publishing house
- Project-based approach

Principles

- Modern technology and programme management
- Consensus
- Discipline
- Cost-effectiveness

Consensus

- “General agreement, characterized by the absence of sustained opposition to substantial issues by any of the important interests, and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments”

Note: Consensus need not imply unanimity.

Consensus is NOT necessarily the same as Majority Vote

- What's for dinner ?

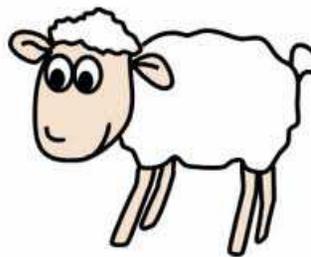
Wolf 1



Wolf 2



Sheep 1



New project options:

- Produce from scratch:
 - Advantages - more focused
addresses needs better
 - Disadvantages - time, cost
“reinvent wheel”
- Adopt Regional/International Standard:
 - Advantages: - cheap, quick, easy
 - Disadvantage: - not the best standard ?

Incorporation into legislation

- All standards are voluntary unless incorporated into legislation
- Incorporation by reference
- “Compulsory Standard” (In some countries)

Project Management

- Project leader or Secretariat appointed by the NSB
- TC/SC (associations, organizations)
- WG (individual experts)
- Time and cost budgeting per project
- Structured approach to standards development

Typical Project Stages

- New work item proposal (NWIP) - vote establishes need, market relevance)
- Working draft (WD)
 - NB Look at possible International/Regional sources
- Committee draft(s) (CD) - consensus building, resolution of comments
- Draft National Standard - public enquiry / WTO
- Approval at technical level by committee
- Ratification by “Standards Approvals Committee”
- Publication

Other possible deliverables

- **Sectoral technical agreements**
 - Independent of any TC/SC
 - Low consensus, speedy delivery
 - Can be input to the national standards process
- **Technical specifications**
 - Published with consent of TC/SC...
 - ... but not necessarily full technical consensus
 - Medium consensus, medium speed of delivery
- **Technical reports, PAS etc., as required**

What type of standard is needed ?

- Define the aim and purpose of the standard
- What ? / Who ? / How ? - questions determine the type of standard to be written

What ... is being standardized ?

- - a product ?
- - a process ?
- - a method ?

Who ... will use the standard ?

- Manufacturers -----> Specification
- Laboratories -----> Test Method
- Service Industry -----> Code of Practice

How ... to achieve standardization ?

- ... specification (prescriptive)
- ...code of practice (prescriptive/non-prescriptive)
- ... test method (prescriptive)
- ...vocabulary (descriptive/prescriptive)
- ...guide (non-prescriptive)

Types of standard

Prescriptive	Non-prescriptive
Specifications	Recommendations
Codes of Practice	Codes of practice
Test methods	Guides
Vocabularies	

Specifications:

- Set out detailed requirements for a product, material, process or system, and the procedures for checking conformity to these requirements
- Shall facilitate and not retard the development of technology

Specifications:

- Requirement = A provision that conveys criteria to be fulfilled
 - Descriptive requirement: What ought to be (not to be used indiscriminately)
 - Performance requirement: What it ought to do
- Performance requirements are often specified, rather than design requirements
- Standardize at a level that represents **fitness for purpose**

Specifications:

- Requirements have to be verifiable
- Examples:
 - “All cylinders shall have a safety valve fitted”
 - “ The viscosity of the paint, determined in accordance with 6.1.4, shall not exceed ...”

Specifications:

- Requirements:
 - The means of verification of every requirement must be made clear (unless intuitively obvious)
 - Laboratories must be able to interpret requirements and their means of verification uniformly
- Example of an ambiguous statement:
 - “Condition the test specimen in boiling water for one hour ...”

Specifications - clarity & consistency

- There should be no contradiction between one passage of text and another
- Requirements, once specified, should not be varied or undermined by subsequent text
- Requirements should be expressed in terms consistent with the objectives of the standard

Example:

- “Parts of the housing that directly or indirectly separate a gas-carrying compartment from the atmosphere shall be manufactured from only metallic materials.
A gas-carrying compartment may be made of non-metallic material, provided that upon removal or fracture of the compartment not more than 30 dm³ /h of air can escape at maximum working pressure. This clause is not intended to cover O-rings, gaskets and seals. ”

Example:

- “With the exception of O-rings, gaskets and seals, any part of the housing that directly or indirectly separates a gas-carrying compartment from the atmosphere shall be manufactured from either:
 - metallic materials; or
 - non-metallic materials, provided that, upon removal or fracture of the part, not more than
....”

Specifications - typical structure

- Preliminary pages (Foreword, contents, committee)
- Scope
- Normative references
- Definitions
- Requirements
- Inspection and testing
- Marking
- Normative/informative annexes(sampling,etc.)
- Bibliography
- *(Certification, training etc., are NOT normally included, as a standard should not prescribe rules for its own application)*

Specifications - points to remember

- Verifiable (quantifiable)
- Unambiguous - no undermining statements, pay attention to units, terminology, consistency, etc.
- Use “shall” when normative, or safety related
- Use “should” when making a recommendation
- Do not use “must” - this requires an external obligation that the standard cannot enforce

Test methods

- Give a complete account of the way in which an activity is to be performed and conclusions are to be reached, to degrees of accuracy and precision appropriate to the stated purpose.

Structure of a test method

- Scope, or principle, or both
- Reagents, or materials
- Apparatus
- Test samples/specimens
- Procedure
- Calculation/expression of results
- Test report
 - *(Applies to stand-alone test methods - some elements might fall away when incorporated within a specification)*

Test methods - wording

- Instructions, e.g. Procedure, Calculation, Expression of Results - use Imperative
- Descriptions, e.g. Apparatus - use present tense

Non-prescriptive standards

- Codes of Practice/Guides - describe “best practice” as followed by competent people
 - Use “shall” or “should”, depending on the intent, or the likelihood of the standard being referenced in legislation
- Recommendations - give recommended options or courses of action
 - Use “should”

Scope

- Covers the audience, aim, and type of standard
 - who is the standard for ?
 - what type of provisions does it contain ?
 - which products/processes/materials are covered?
 - how are they defined?
 - what is excluded ?

Scope

- The “Scope” clause should be sufficiently self-contained and inclusive to define the function of the standard.
- It might be referred to in resolving a dispute, and has bibliographical and marketing implications.
- It is worded as a statement , and never contains requirements (3-4 paragraphs max.).

Typical Scope

- 1.1 This part of the standard gives recommendations for the material, the methods of construction and the installation of equipment for use in the handling, storage and distribution of liquefied petroleum gas in domestic, commercial and industrial installations that involve gas storage containers of individual water capacity not exceeding 500 l and of a combined water capacity not exceeding 3 000 l.
- 1.2 It also gives recommendations regarding the installation of appliances, piping, fittings, and other components.

Scope -> Title

- The Title should be derived from the Scope
- Title should be concise, and composed of separate elements (generally not more than 3)
- The elements should proceed from the general to the particular (introductory/main/complementary)
- Introductory and complementary elements may be omitted if the main title is clear
- Example: “ Fork-lift trucks - Hook-on type fork arms - Vocabulary”

Title

- At NWIP stage, the intended Scope, and a provisional Title, should be established.

- Other examples:

Sodium perborates for industrial use -
Determination of bulk density

Chemicals - Sodium perborates for industrial use -
Determination of bulk density

Title

- Coffee grinders
- Coffee grinders - Terminology, symbols, material, dimensions, mechanical properties, rated values, test methods, packaging

References ...

- ... are used to avoid repetition of readily available material (e.g. reference in a specification to a test method)
- ... should only be made to material that is current and readily available
- ... dated / undated

Normative References

- **Normative:** those provisions with which it is necessary to conform in order to be able to claim compliance with the standard
 - *Note: A manufacturer complies when his product conforms to the provisions of the standard*

Normative vs Informative

- Informative: everything else !
 - Clarifying, introductory, explanatory elements
 - Additional information included to assist in using or understanding the standard.
- Normative/informative provisions
- Normative/informative annexes
- Practical exercise

Definitions ...

- Used when a term is not self-explanatory, or well known, or can be interpreted in more than one way
- Common terms are only included if they are used with a specific meaning in the standard
- ... do not contain provisions !!
- ... must not be circular !!
- ... must be used in the standard !!
- (for current style, see relevant style manual of the ISO/IEC Directives, Part 2)

Requirements

- Different products for which conformity is claimed have to satisfy the same requirements
- Requirements have to be verifiable
- Reasonable means of verification have to be given for each requirement
 - Observation, examination, measurement, testing (both destructive and non-destructive)
 - Consistent with the required level of accuracy
 - Clear, unambiguous, equally applicable to first, second, third parties

Requirements - wording

- “When tested in accordance with 5.2, the tendon shall not break, and its tensile strength shall exceed the minimum permissible value given in table 2”
- “When determined in accordance with annex C, the pH value of the solution shall be at least 7,0.
- “The assembly shall pass the test for rigidity given in ISO 1234”

Requirements

- May be listed, or tabulated
- Should be arranged logically and make practical sense
- May be subdivided as necessary, for example
- 4. Requirements
 - 4.1 Requirements for the materials
 - 4.2 Constructional requirements
 - 4.3 Performance requirements

Exercise

List the requirements or provisions you would expect to see in a standard for the following:

- Electric kettles
- Safety shoes for industrial use
- The transportation of dangerous goods
- Good housekeeping in a food factory
- Roofing tiles

Tricks of the trade

- Lists
- Figures and tables
- Notes
- Examples
- Footnotes
- Consistent use of terminology
- Make definitions, annexes, references work for you

Mathematics

- Commas and points
- SI units
- Symbols
- Equations, e.g.
- “Calculate the resistance R in ohms, using the following equation: $R = \frac{k \times V^2}{W}$
-
- Where
- k is the conversion factor;
 V is the rated voltage, in volts (V); and
 W is the rated power, in watts (W).”

Certification

- First party
 - Second party
 - Third party
-
- No voluntary standard should impose a requirement for third party certification - i.e. no standard may include a requirement for a product to bear a certification mark. Certification is a voluntary issue.

Quality verification & assessment of compliance (suggested wording)

- C.1 Quality verification
- C.1.1 When a purchaser requires ongoing verification of the quality of the xxxx, it is suggested that, instead of concentrating solely on the evaluation of the final product, he also direct his attention to the manufacturer's quality system. In this connection, it should be noted that ISO 9001 covers the provision of an integrated quality system.

Quality verification & assessment of compliance

- C.1.2 If the **xxxx** does not bear the certification mark and no information about the implementation of quality control or testing during manufacture is available to help in assessing the quality of a lot, and a purchaser wishes to establish, by inspection and testing of samples of the final product, whether a lot (as defined below) of the product complies with the standard, use the sampling plan given in C.2. It must be noted that such a sampling plan applies to the final product only.

So you've drafted a standard - now what ?

- Comments from committee (consensus building - CD stages)
- Technical review
- Public enquiry stage
- Editing
- Final committee approval (technical level)
- Ratification by the relevant body (NSB / Council)
- Publication

So that's the end of the story :-)

- No !!!!
- Amendments (consolidated editions)
- Revisions (new editions)
- Scheduled reviews
- A standard may be amended at any time....

Summary

- **WHO ?** Is the standard aimed at ?
 - Is its presentation consistent with that aim ?
- **WHAT ?** Does the standard achieve ?
 - Is the scope clear, does it cover the actual content of the standard, and any exclusions ?
 - Is the **TYPE** of standard correct for the purpose ?
 - Is the **CONTENT** appropriate (not too much/little)
 - Is it understandable by the intended audience ?

Summary

- Does the standard conform to relevant rules
- Are those rules documented and understood ?
- Is the standard structured appropriately ?
- Is the form of expression correct ?
- Are the definitions clear, terminology consistent ?
- Is the content clear, concise, unambiguous ?
- Is the committee happy with it ?



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END

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