

CHAPTER 4

A CASE STUDY REVIEW OF INTERNATIONAL AND REGIONAL TRENDS IN TECHNICAL REGULATORY REFORM

4.1 INTRODUCTION

The previous chapter reviewed relevant literature on Public Administration in general and public policy and institutional development in particular. This section of the study review policy options instigated by governments at international and regional level to effect technical regulatory reform and the institutional capacity that is required for implementation of the policy options.

This chapter reviews both international and regional cases with a view to identify policy trends in technical regulatory reform as well as developments around institutional arrangements influencing policy implementation. At international level, the case study reviews the World Trade Organisation Agreement on Technical Barriers to Trade as a key policy instrument for technical regulatory reform with a view to develop recommendations for an African approach. At regional level, policies on technical regulations and standards of the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development are reviewed with a view to make comparisons or propose generalisations.

The chapter investigates the institutional arrangements at international level and provides a general explanation of standards, metrology and accreditation requirements at national and regional level more specifically reflects on the arrangement and status of technical institutional capacity in the Southern African Development Community.

4.2 INTERNATIONAL TECHNICAL REGULATORY REFORM

The Uruguay Round of multilateral trade negotiations significantly reduced tariff barriers to trade. During the same round, the World Trade Organisation Agreement on Technical Barriers to Trade was negotiated with a view to ensure that countries use technical regulations (non-tariff barriers) for no other purpose than to protect the health and safety of the public and the environment. Many of the developing countries have not yet been able to take full advantage of this agreement which may support economic recovery for the continent. Exporters from developing countries therefore continue to face non-tariff barriers in the form of standards, technical regulations and conformity assessment procedures.

4.2.1 The World Trade Organisation Agreement on Technical Barriers to Trade

The World Trade Organisation was established in 1995 after the Uruguay Round of multilateral trade negotiations, which took place from 1986 to 1994. The main objective of the World Trade Organisation is to help trade flow freely, fairly and predictably. It does this by administering trade agreements and by assisting developing countries in trade policy issues through technical assistance and training programmes. The World Trade Organisation is a forum for governments. Businesses can be represented only through their governments. Businesses can also obtain direct assistance from the World Trade Organisation through participation in the training programmes of the World Trade Organisation. Businesses also benefit from the implementation of the agreements, which seeks to facilitate international trade (ITC, 2004:1).

The World Trade Organisation members agree on the rules and regulations that are to be applied multilaterally by consensus. They, however, do not lose their sovereignty when they take decisions with their partners on these rules. In addition the agreements take account of the different levels of economic

development in member countries as well as the difference in commercial and economic policies of member country governments (ITC, 2004:2).

The rules and regulations developed by the World Trade Organisation also aim to eliminate unnecessary barriers to trade. These barriers make it difficult for an exporter to sell his/her products. These measures are often considered undesirable in the context of world trade, because they restrict the flow of goods and they are detrimental to the consumer because they drive prices up.

At the end of the Uruguay Round of multilateral negotiations, the World Trade Organisation Secretariat estimated that implementing the World Trade Organisation Agreements and the consequent reduction of trade barriers could increase world trade by up to US\$ 510 billion by 2005 (WTO, 2008). These barriers take many forms and are generally divided into two broad types, namely tariff barriers and non-tariff barriers. Standards and technical regulations are considered non-tariff barriers (ITC, 2004:5).

Historically, every country has developed national standards to deal with the needs of industry and society at national level. These standards may or may not have been aligned to international best practice. The result has been that national standards for the same product differed from country to country. However, due to the increase in world trade and the increased concentration of manufacturing in certain parts of the world, these differences soon became a real problem for manufacturing industries, especially those in countries that were major exporters. On the other hand, local industries were quick to realise that the differences could protect them from imports, and these local manufacturers therefore continued to support these differences. The local manufacturers, however, ignored the fact that local industries using different standards would, in turn, find it difficult to export to other countries because of the differences (ITC , 2004:17).

In addition, national regulators, driven by the need to solve a specific problem at national level, often developed technical regulations without considering international practices or even their own national standards. The result was that technical regulations all over the world were different and it was becoming increasingly difficult in general for imported products to meet all the different requirements (ITC, 2004:17).

Negotiators at multilateral trade negotiations, which commenced after World War 2, realised the abovementioned problem. One of the results of the Tokyo Round of negotiations, which ended in 1979, was the publication of a voluntary standards code, which was adopted mainly by developed countries. The code aimed to ensure that standards and technical regulations were based on international best practice, and thereby did not constitute unnecessary barriers to trade. The code was extended and clarified during the Uruguay Round of negotiations, and it was re-established as the World Trade Organisation Agreement on Technical Barriers to Trade. The agreement is compulsory for all World Trade Organisation members. The World Trade Organisation Agreement on Technical Barriers to Trade makes provision for special and differential treatment for developing countries. The problem, however, is that producing to standards lower than those of the rest of the world makes it harder for developing countries to export.

The World Trade Organisation Agreement on Technical Barriers to Trade was negotiated because governments recognised that the number of technical regulations and standards adopted by countries has grown significantly as a result of governments response to demands from the public for safe, high-quality and environmentally friendly products. Governments also accepted that technical regulations facilitate technical harmonisation and trade in economically integrated areas. They, however, also understood the implications of more technical regulations, namely that the need to comply with different foreign technical regulations and standards involves significant costs for manufacturers and

exporters thus impacting negatively on their efforts to grow their enterprises. The second implication is that there is the risk that technical regulations and standards are adopted and applied by governments with the sole purpose to protect domestic industries.

The World Trade Organisation Agreement on Technical Barriers to Trade includes the following key principles that government and regions agreed to during the negotiations:

- **Firstly**, the non-discriminatory principle of the most-favoured nation and national treatment provisions of the agreement (Article 2.1), which provides for the equal treatment of domestic and imported products in terms of technical regulations.
- **Secondly**, the necessity principle, which provides for the use of discriminatory domestic technical regulations if they are considered necessary for the efficient realisation of legitimate domestic policy goals with regard to safety, health, environmental control and consumer protection (Article 2.2).
- **Thirdly**, the trade restrictiveness principle which requires that legislators choose technical regulations that causes the least distortion to trade. This will prevent them from becoming unnecessary technical barriers to international trade (Article 2.3).
- **Fourthly**, the proportionality principle, which implies that the cost of technical regulations should be in proportion to the benefit in terms of health and safety that they are expected to bring. It also implies that domestic technical regulations should not be more onerous to foreign investors and exporters (Article 2.8).

- **Fifthly**, the use of the harmonised measures principle, which encourages the use of international harmonised technical regulations to improve production efficiency, facilitate free trade and minimise any negative effects of domestic technical regulations on trade (Articles 2.4 and 2.5).
- **Sixthly**, the mutual recognition of equivalence of regulatory measures principle, which recognises that regulatory objectives of trading partners are often equivalent although their technical regulations may differ and trade opportunities can be expanded through mutual recognition of the equivalence of each other's technical requirements for products or services and of each other's conformity assessment procedure (Article 2.7).
- **Seventhly**, the transparency principle, which requires that countries publish technical regulations prior to their entry into force and that a reasonable time should be allowed for comment and for consideration of the comments prior to the adoption of a final technical regulation. This will also make it possible for competitors to adapt their products and methods of production in terms of the technical regulation (Articles 2.9 and 2.12).
- **Lastly**, the special and differential treatment principle, which provides that developing countries may adopt technical regulations, standards or test methods aimed at preserving indigenous technologies and production methods and processes compatible with their development needs. It also recognises that developing countries are not obliged to use international standards in view of their particular technological and socio-economic conditions. In addition, developing countries can request international standards bodies to prepare international standards for products that developing countries want to trade in (Articles 12.4 and 12.6).

The policy implications of these principles are important. Different countries may have different technical regulations and may require different conformity assessment procedures because of differences in local tastes or levels of income, as well as geographical or other factors. Countries therefore still have a high degree of flexibility in the preparation, adoption and application of their national technical regulations at the levels they consider appropriate.

This regulatory flexibility is, however, limited by the requirement that technical regulations should not create unnecessary obstacles to trade. In this regard the World Trade Organisation Agreement on Technical Barriers to Trade recommends that product regulations should prescribe performance rather than design or descriptive characteristics (Article 2.8). A further implication is that countries need to regularly review technical regulations for relevance in terms of the policy objective. Obligations to avoid unnecessary obstacles to trade also apply to conformity assessment procedures (Articles 5.2.3 and 5.2.6). This means that imported and locally manufactured products must be treated in the same way with respect to any fees charged to assess their conformity with regulations and the confidentiality of information about the results of conformity assessment procedures (Articles 5.2.4 and 5.2.5).

In terms of harmonisation, the World Trade Organisation Agreement on Technical Barriers to Trade encourages countries to use existing international standards or parts of them for their national regulations. The argument is that relevant international standards are presumed not to create an unnecessary obstacle to international trade. Similar provisions apply to conformity assessment procedures. The implication, however, is that countries need to participate actively and constructively in international standardisation bodies to ensure that the international standards reflect country-specific production and trade interests.

In terms of transparency, countries must notify draft regulations to the World Trade Organisation Secretariat for other countries to make comments (Article 2.10). In addition, each country must set up a national enquiry point

which acts as a focal point where other World Trade Organisation members can request and obtain information and documentation on notified technical regulations, standards and test procedures, whether impending or adopted.

In terms of mutual recognition, Article 6.3 of the World Trade Organisation Agreement on Technical Barriers to Trade encourages countries to negotiate with other countries for the mutual acceptance of conformity assessment results. These arrangements require a high degree of mutual confidence in testing and certification bodies as a prerequisite. Additionally, Article 6.1 of the World Trade Organisation Agreement on Technical Barriers to Trade recognises the need for conformity assessment bodies to comply with relevant guides or recommendations issued by international standardisation and accreditation bodies in order to validate their technical competence.

In conclusion, the World Trade Organisation Agreement on Technical Barriers to Trade provides exporters with the following benefits (ITC, 2004:194-195):

- The World Trade Organisation Agreement on Technical Barriers has alleviated the problem that enterprises have to obtaining information on technical regulations and conformity assessment procedures in export markets by requiring the World Trade Organisation members to establish enquiry points from which exporters can obtain information on these issues. Exporters can get information relevant to their export products direct from the national enquiry points of the countries to which their products are being exported or through their national enquiry point.
- When a proposed technical regulation or conformity assessment procedure is introduced in a country which is not in accordance with the relevant international standard and that may have a significant impact on the trade of other exporters, it must be notified to World Trade Organisation. Exporters that may be affected can submit

comments on such proposals. The comments must be submitted through their governments.

- Standards bodies in World Trade Organisation member countries are required to publish their standards work programmes at least once every six months in terms of the provisions of the Code of Good Practice for the Preparation, Adoption and Application of Standards (Annex 3 of the World Trade Organisation Agreement on Technical Barriers). This may enable exporters to keep track of proposed standards in the markets to which they wish to export. They can obtain the required information through their own national standards body or through the relevant standards body.
- Members of the World Trade Organisation are generally required to harmonise their technical regulations by basing them on international standards. This may ultimately lead to a situation where businesses will be able to export the same product to various markets without having to redesign it.
- Conformity assessment procedures to proof compliance with technical regulations have to be the same for both domestic and imported products. For example, a certification mark for a group of product group should be available to domestic producers and foreign manufacturers under the same conditions. This enables foreign producers to compete on an equal footing with domestic producers.
- Member countries are encouraged to negotiate agreements for the mutual recognition of the results of each other's conformity assessment procedures. Mutual recognition agreements eliminate the need for re-testing or re-certification of the product in an importing country.
- Members are required to consider accepting as equivalent the technical regulations of other members, even if these regulations differ from their own. An important condition for equivalence is that members should be satisfied that these regulations adequately fulfil the

objectives of their own regulations. The process of harmonising existing technical regulations is lengthy but if successful it does facilitate trade.

- If exporters are convinced that their product is being denied entry into a foreign market because of unjustified technical regulations or conformity assessment procedures they can take the matter up with their government. Their government can then deal with the matter on a bilateral basis with the government of the importing country. If the problem is not solved bilaterally the matter may be raised with the Dispute Settlement Body of the World Trade Organisation.

4.2.2 Committee on Technical Barriers to Trade

The World Trade Organisation Agreement on Technical Barriers to Trade Agreement is administered by a committee known as the Committee on Technical Barriers to Trade. The Committee on Technical Barriers to Trade is tasked with the promotion of common practices amongst countries when they formulate and administer technical regulations. The Committee on Technical Barriers to Trade is critical in that it provides advice to countries to improve the quality and cost-effectiveness of national technical regulations. The absence of a public policy on technical regulatory reform may exclude countries from global trade opportunities and thus impact negatively on economic growth. The onus is thus on countries to pace the reform of their technical regulations and harmonise them with world trade standards. Article 15.4 of the World Trade Organisation Agreement on Technical Barriers to Trade provides for a three-yearly review of the operation and implementation of the agreement with a view to ensure mutual economic advantage and a balance of rights and obligations

4.2.3 Tri Annual Reviews of the World Trade Organisation Agreement on Technical Barriers to Trade

The implementation of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement is reviewed every three years. The Committee on Technical Barriers to Trade Committee concluded four reviews in November 1997, November 2000, November 2003 and November 2006 respectively (WTO:2008). It is important to take note of the elements considered during each review. Each of the reviews covered implementation and administration of the agreement, good regulatory practice, conformity assessment procedures, transparency, technical assistance and special and differential treatment at national level. The reviews also reflect the work areas of the Committee on Technical Barriers to Trade.

With regard to the implementation and administration of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement, countries are required to submit statements of implementation and administration of the World Trade Organisation Agreement on Technical Barriers to Trade. In total, 108 members have submitted their statements.

With regard to work areas, good regulatory practice is promoted by the Committee on Technical Barriers to Trade because the view is that it can be used to avoid unnecessary obstacles to trade in the preparation, adoption and application of technical regulations, standards and conformity assessment procedures. Initially, good regulatory practices focused on benefits for openness, transparency and accountability. Lately, the focus moved towards the identification of elements of good regulatory practice such as necessity, that technical regulations should not be more trade-restrictive than necessary to fulfil a legitimate health and safety objective, that the same conformity assessment procedures should apply to local producers and importers and that an assessment of the costs and benefits of proposed regulations, including likely impact on consumers, trade and industry, should be considered.

In terms of the use of conformity assessment procedures, the focus is on non-discrimination, preventing unnecessary obstacles to trade, the use of international standards, transparency, technical assistance and special and differential treatment. Experiences on the use of different types of conformity assessment procedures, such as the use of supplier's declaration of conformity, which is of particular importance to developed countries, were also covered in the last two reviews. Supplier's declaration of conformity is, however, difficult for developing countries to implement. The use of accreditation to verify the competence of conformity assessment bodies was also covered because accreditation is widely recognised as a tool to demonstrate the technical competence of conformity assessment bodies in exporting countries. Problems in relation to accreditation experienced in developing countries include insufficient number of accredited bodies for the assessment of conformity at domestic or regional level, high costs in obtaining foreign accreditation, difficulties in establishing internationally recognised accreditation bodies and insufficient conformity assessment capacity ready for accreditation.

In terms of international standards, the World Trade Organisation Agreement on Technical Barriers to Trade reviews continue throughout to promote the use of relevant international standards as a basis for the technical requirements and for conformity assessment procedures. In this regard, the review identifies the importance for developing countries to play a full part in the preparation by appropriate international standardising bodies of international standards and for conformity assessment procedures. The fact that limited resources available to developing countries may impact on effective participation was recognised.

With regard to the transparency obligations under the World Trade Organisation Agreement on Technical Barriers to Trade, the focus relates to the obligation of countries to notify the World Trade Organisation if new or amended national technical regulations and conformity assessment procedures are introduced and to the establishment and maintenance of a national enquiry point, which is able

to answer all reasonable enquiries from other interested parties regarding the notifications.

The reviews also advise that developed countries provide differential and more favourable treatment to developing countries. It appears from the reviews that this element does not receive as much attention as the other elements and only a voluntary exchange of information is encouraged. This might be an indication of the lack of attention given to the interests of developing countries. The fourth triannual review, however, identified the need for a more focused exchange of information, specifically on how special and differential treatment provisions are taken into account in the preparation of technical regulations and conformity assessment procedures. The review also highlighted the need to link discussions on special and differential treatment with the need for technical assistance.

To conclude, the reviews also showed that standards and technical regulations remain barriers to trade. The reasons are that especially developing countries lack the knowledge, institutions and finances to meet the requirements of developed countries.

4.2.4 The relationship between standards and technical regulations

Technical regulations and standards are two distinct concepts. There is nevertheless a link between standards, which determine product characteristics that and may be used on a voluntary basis, and technical regulations, which use standards as the basis for imposing compulsory product characteristics.

The World Trade Organisation Agreement on Technical Barriers to Trade Agreement provides the following definitions (WTO: 2006):

- *Technical regulation*: A document which lays down product characteristics or their related processes and production methods, including administrative provisions, with which compliance is mandatory. It may also cover

terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

- *Standard*: A document approved by a recognised body that provides, for common and repeated use, rules, guidelines or characteristics for products and their related processes or production methods, with which compliance is not mandatory. It may also cover terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

Technical regulations are thus mandatory and in the context of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement this means that they form part of legislation. If a company exports a product to a market that imposes technical regulations on that product, the product needs to comply with them, or it will be denied market entry. Technical regulations are the responsibility of governments and cover the following two aspects. **Firstly**, product characteristics (which might be given in a standard) that products or processes have to comply with; and **secondly**, administrative procedures (e.g. testing, certification, inspection, approvals, sanctions) that suppliers have to follow (ITC, 2004:3-4).

Standards, on the other hand, are voluntary in nature. They do not form part of legislation. Standards may be developed by a variety of bodies in the public or private sector. The governments of World Trade Organisation member countries however need to ensure that these bodies develop national standards in accordance with the requirements of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement as set out in annex 3 of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement in terms of the *Code of Good Practice for the Preparation, Adoption and Application of Standards*. Standards specify only the product characteristics, or technical

requirements, with which products or processes have to comply in order to meet the standards (ITC, 2004:3-4)

While technical regulations and standards are not the same, the World Trade Organisation Agreement on Technical Barriers to Trade Agreement stipulates in article 2 that the product characteristics imposed by technical regulations should be based on international standards.

The term *based on* may be defined in a number of ways. **Firstly**, it may refer to the direct referencing of a standard in the technical regulation. **Secondly**, it may refer to the use of a standard that will be regarded to satisfy the requirements of a technical regulation. **Lastly**, it may refer to the use of the contents of a standard as a basis for the text in the technical regulation. In this regard the text from the standard on the technical requirements for a product would be inserted in the body of the regulation (ITC, 2004:4)

A country's legislative framework and its historical developments determine the choice of route to follow. Sometimes the preferences of regulators may have an influence on how standards are used. No clear common trend can be identified (ITC, 2004:4).

4.2.5 Influencing standards development and technical regulations

An important principle underpinning the development of standards is that it must be an open, transparent, impartial, stakeholder-driven and consensual process. It is stakeholder-driven in that interested parties are given the chance to provide input during the process (ITC, 2004:10).

Many developed countries and many developing countries have national standards bodies responsible for publishing national standards. The size and capacity of these institutions differs substantially between developed countries

and developing countries. Many developed countries have standards bodies that participate actively in international and regionally standards development processes, regularly publish national standards that were developed through technical committees, sell national regional and international standards and provide standards information to manufacturers and exporters in their countries. Many developing countries and specifically least developing countries have limited standards activities that include not having a dedicated standards body, limited participation in international and regionally standards development processes and rudimentary standards information available to manufacturers and exporters in their countries. Most of these bodies are members of the International Standards Organisation and the International Electrical Commission. The International Standards Organisation and the International Electrical Commission statutes require that their members should follow the stakeholder consensus principle in developing national standards (ITC, 2004:10).

Standards bodies in World Trade Organisation member countries are also required to follow the Code of Good Practice for the Preparation, Adoption and Application of Standards, which forms annex 3 of the World Trade Organisation Agreement on Technical Barriers to Trade Agreement. This code of practice also requires the standards-making process to be open and transparent. Member countries are therefore obliged to ensure that national standards-making processes are stakeholder-driven and consensus-based (ITC, 2004:11).

Work on national standards is often used to influence work in international standards bodies. If the national standards body is a member of an international standards body it may take part in the work of related international technical committees (ITC, 2004:11). It is, however, important to realise that international standards are at the moment very much a product of the private sector. Around the time that the European Single Market came into force in 1992, approximately 70% of standards were set nationally, with the rest coming from regional and international sources. Ten years later the proportions were exactly reversed

(O'Brien, 2003:14). In addition, the European standards bodies, such as the European Committee for Standardisation, the European Committee for Electrotechnical Standardisation and the European Telecommunications Standards Institute, as well as the International Standards Organisation, develop and amend standards with the participation of large numbers of technical experts and interested parties that are often from the private sector.

Standards development processes are time consuming and expensive. The European Committee for Standardisation, for example, needs about 8 years to draft and obtain consensus on a standard. According to O'Brien (2003:15.) the returns may be substantial, **firstly**, because producers, users and others who might be affected, have partial ownership of the standard and are aware of what has gone into its formulation and **secondly**, there may be widespread awareness of the alternatives that were examined and the reasons why they were eventually rejected.

Influencing technical regulations is far more difficult. The reason is that technical regulations deal with the sovereign rights of countries. If national technical regulations are based on international or national standards, a private company or a private person may influence the part of the technical regulation that deals with product characteristics through the standards-development process. However, in terms of the administrative procedures, an individual private company or private person has little chance of influencing the process as this is a government responsibility. In some countries, the government or regulators do seek the views of industry, consumers and other stakeholders before implementing technical regulations (ITC, 2004:10).

O'Brien (2003:14) is of the opinion that the growing privatisation and internationalisation of standards development may help to eliminate the fragmentation that has characterised technical regulations around the world. Because companies and markets are increasingly internationalised they are also

keen to see common technical regulations across national boundaries. Common technical regulations are beneficial because it increases predictability for exporters and increase the potential of economies of scale from production runs (O' Brien, 2003:17).

4.2.6 Technical regulations from country to country

Notwithstanding the objectives set out in the World Trade Organisation Agreement on Technical Barriers to Trade to harmonise technical regulations countries are not anywhere near to meeting this aim. The following examples from the study, *An Assessment of the Costs for International Trade in Meeting Regulatory Requirements*, issued by the Organisation for Economic Co-operation and Development (OECD: 2000) serve to illustrate the problem. The study compares the technical regulations of Japan, Germany, the United Kingdom and the United States on a number of products. The following findings were made for terminal telecommunications equipment and speciality dairy products:

For terminal telecommunications equipment a fairly high level of harmonisation was found. Although differences in standards still exist, the effect of these differences has been reduced by mutual acceptance of foreign standards. The conformity assessment procedures have been streamlined and the deregulation process has led to competition between the conformity assessment service providers in each country authorised to conduct conformity assessment. These service providers are for the most part accredited for several countries or have partnerships across national borders, allowing for a one-stop-shop approach. A remaining problem for exporters is to identify local industry voluntary standards and customer requirements (ITC, 2004:12).

For speciality dairy products, the picture is very different. The standards and conformity assessment procedures are a major issue for speciality products, but less so for bulk goods. The strict compulsory sanitary requirements lead to

significant costs of compliance and are particularly onerous for importers because of differences in the mandatory standards of the importing and the exporting country. The systems of conformity assessment are based on rigorous border inspections which impose further costs. The problem of long storage times at the border also results in reduced shelf life in the shops. Lastly, standards and conformity assessment requirements may change at short notice and access to such information is not always possible. The exported product is then denied entry to the market because it does not comply with the new rules and has to be destroyed (ITC, 2004:12).

4.2.7 Equivalence of national standards

The World Trade Organisation Agreement on Technical Barriers to Trade requires members to consider the acceptance of the technical regulations of other members as being equivalent to their own. This applies even when these technical regulations are different provided the objectives of their own regulations are adequately fulfilled. This means the following.

Product characteristics make up the technical elements of a technical regulation. The technical regulations are often based on standards or make reference to parts of standards. The World Trade Organisation Agreement on Technical Barriers requires the use of international standards in technical regulations. However, where the relevant international standards do not exist countries develop national standards and used the national standard as the basis for technical regulations. Because national standards may be different from country to country it is argued that in the absence of an international standard, the notion of equivalency of technical regulations ought to be extended to differing national standards (ITC, 2004:20). Following are examples that illustrate the acceptance of equivalence in practice.

One example of the acceptance of equivalence is the Australia and New Zealand Trans Tasman Mutual Recognition Arrangement, concluded in 1996. The key principle in this agreement is that a product covered in the agreement that can be legally sold in one country may also be legally sold in the other. The agreement benefits the two countries and countries that trade with both Australia and New Zealand because the end consequence is that two separate sets of national requirements are replaced by one set of requirements (ERMA, 2006).

Another example is in the pressure vessel industry. No international standards exist for the design and manufacture of pressurised equipment. Various national standards (for example, the British Standards Institution's BS 5500, *Specifications for unfired fusion welded pressure vessels*, and the American Society of Mechanical Engineers' *ASME Pressure Vessel Codes*) are, however, used throughout the world (EC, 1999). Although these standards differ completely in their approach, it is recognised that using either will ensure that the pressure vessels are safe. In view of this, a number of countries have accepted these standards as being equivalent. Therefore either set can be used in meeting national technical regulations.

4.2.8 More international standards for technical regulations

There are indications that more international standards will be developed in the future for use as a basis for technical regulations because of the political will of some of the major trading countries to do so (Iida and Schonfeld, 2000). There is, however, still a problem in that many regulators are not yet using international standards as the basis for technical regulations. In an Organisation for Economic Co-operation and Development study that was conducted over a period of two years in 1998 and 1999, the Organisation for Economic Co-operation and Development looked at how the link between standards and technical regulations works (OECD, 2000).

This study found that using international standards is not always unproblematic and the following reasons were identified. **Firstly**, many international standards universally accepted under that name are developed by bodies dominated by industry as voluntary text. While this may provide benefits to the market, national regulators may lack confidence in them, either because their countries were not involved in their preparation or because they have public policy objectives that go beyond those of industry. **Secondly**, the World Trade Organisation Agreement on Technical Barriers to Trade allows member countries to apply higher levels of protection for legitimate policy objectives such as the protection of the public and the environment than those required in the relevant international standards. This opens the door to differences. **Thirdly**, there are not enough international standards available to provide a complete set of standards to meet the needs of regulators that may want to use standards as a basis for technical regulations. Reasons why the international standards may not be available are that consensus has not yet been reached internationally or no request for the development of such standards has been submitted by a national standards body or there is a lack of interest in standardising the product internationally.

4.2.9 Conformity assessment requirements for technical regulations and standards

In order to deal with the problem that technical regulations may differ from country to country exporters' needs to contact regulators in the countries that they want to export to. These regulators would generally have a clear idea of the conformity assessment requirements that they want for proof of compliance with the technical regulations. The following methods of conformity assessment are generally used (ITC, 1998):

- Testing by independent or government recognised laboratories.

- Product certification from certification organisations acceptable to the regulator.
- Quality system certification from certification organisations acceptable to the regulator.
- Homologation (a specific conformity assurance system used for example in the automotive industry) through governmental mechanisms or regulators.
- Consignment inspection by either governmental or acceptable third-party organisations.
- Supplier's declaration of conformity.

The acceptability of test reports, product certification, quality system certification and homologation may be a major hurdle for exporters. Exporters have to make sure that the requirements are met in order to prevent costly mistakes and wasting of time (ITC, 1998).

Exporters need to know the following when they contemplate exporting to another country:

- What information does the regulator require?
- Which laboratories are acceptable to the regulator?
- Which certification organisation is acceptable to the regulator?
- In which language should the results be presented?
- Is inspection required by the regulator or its agent and, if so, who is the agent?
- Are the goods kept in bond for inspection and certification before they can be released in the market?

- Can the goods be inspected and approved in the factory before shipment, and if so, by whom?
- Are there fees, charges, levies or other expenses payable for approvals, and if so, what are they?

4.2.9 (a) *Quality management systems*

It is often argued that quality management systems should be required for compliance with any technical regulation. The argument is that technical regulations deal with product characteristics and these product characteristics can be assured with confidence if the manufacturing process is controlled. International quality management systems are one way of achieving such control. In general regulators, however, have made quality management systems a requirement for complying with technical regulations (ITC, 2004:14-15).

In some fields, such as medical devices, compliance with quality management systems, often ISO 9001, is required in some countries. In the United States a lack of attention to quality management systems may result in fines and other indirect costs. The requirements of the United States Food and Drug Administration for medical device quality management systems are found in a revised regulation of the United States Food and Drug Administration called the Current Good Manufacturing Practices Regulation on Medical Devices dated December 1978. The Quality System Regulation of the United States Food and Drug Administration for Medical Devices incorporates many of the quality management system concepts of ISO 9001:1994 (Tsiakals, 2001).

Japan's approach to regulating medical devices is similar to that of United States Food and Drug Administration and ISO 9000 requirements are entrenched in Japan's regulations (ITC, 2004:14).

The European Union approach is different. ISO 9000 is not mandatory for trading with the European Union (EC, 2000). When exporting products covered by the European regulations in term of the New Approach and the Global Approach manufacturers may choose between various alternatives to satisfy the European Union regulators. If a manufacturer chooses a quality management system, compliance with ISO 9001 gives an assumption of conformity, provided that the quality management system takes into account, as necessary, the specific requirements of the products for which it is implemented (EC, 1990).

4.2.9 (b) Product certification

Product certification is a third-party conformity assessment procedure in terms of which a third party gives written assurance that a product, process or service conforms to specified technical requirements. Product certification may involve the issuing of a certificate or a mark or both to demonstrate that a specific product meets a set of technical requirements as specified in a standard. A product certification process confirms that the product has been produced according to an applicable standard, the production process has been supervised and the product has been tested and inspected (ITC, 2004: 29).

Product certification bodies use evaluation techniques when deciding whether or not to award a certificate. The evaluation techniques used may include the following: type testing of the product, assessing, auditing the quality management systems of manufacturers and exporters and sampling products from the factory of the manufacturers and exporters and the open market to test for compliance (ITC, 1998).

The acceptance of product certification is, however, still limited to the national or the regional level. No product certification scheme enjoys universal acceptance. In addition the acceptance of certificates also differs depending on whether the

product falls within the scope of a technical regulation or whether an exporter only needs to satisfy the demands of the marketplace and not those of a technical regulation (ITC, 2004:38).

The types of certification required by regulators of technical regulations are often problematic for exporters because approaches in this regard vary substantially from country to country, within countries from product to product and even from regulator to regulator. The approaches can even depend on the regulatory officials that exporters are dealing with. For example, one company may be required to meet requirements that differ from those imposed on other companies. These problems are often the reasons for many disputes being dealt with through World Trade Organisation mechanisms (ITC, 2004:36-37).

The main problem is that although technical regulations should clearly set out the conformity assessment requirements that have to be met in order to satisfy the regulator administering the regulation, this is seldom the case. This thus leaves the definition of proof to the regulator or, even, to the supplier, who has to guess what is required. These problems have been highlighted in the World Trade Organisation Committee on Technical Barriers to Trade. The view is that this will continue to be the subject of much debate and work within the context of the implementation of the World Trade Organisation Agreement on Technical Barriers (ITC, 2004:36-37).

Various possibilities for the recognition of product certification schemes exist. Examples of these possibilities are the following:

- *Mutual recognition agreements*

During trade negotiations between countries and trading blocks governments may sign mutual recognition agreements to facilitate the acceptance of

certification between the parties. Such mutual recognition agreements make provision for regulators in one country to accept products that are certified in accordance with the recognised system in the other signatory countries (ITC, 2004:38).

An example is the 1958 agreement called the *Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescription*. The agreement concern the adoption of standardised technical requirements for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and reciprocal recognition of approvals granted on the basis of these requirements. Countries that signed the agreement have to comply with the agreement by accepting the certification of motor vehicles and motor vehicle components from any of the other signatory countries (ITC, 2004:38).

- *Cooperative (voluntary) arrangements*

Domestic and foreign conformity assessment service providers may enter into voluntary recognition arrangements. These voluntary arrangements include arrangements between individual laboratories, certification bodies and inspection bodies. The abovementioned voluntary arrangements have been common for years and have been developed for the commercial benefits of the participants. Governments or regulators have recognised some of these arrangements as a basis for the acceptance of test results and certification in the technical regulatory area (ITC, 2004:39).

An example of a voluntary arrangement at the international level is the International Electrotechnical Commission System for Conformity Testing and Certification of Electrical Equipment (IEC, 2007). This scheme is a multilateral

agreement between participating countries and certification organisations. An exporter using a test report issued by one of the above organisations can obtain national product certification in all other countries that are members of the scheme. Regulators in many countries accept such certification.

Another example is the International Electrotechnical Commission Quality Assessment System for Electronic Components scheme (IEC, 2007). This scheme is a third-party approval and certification programme that assesses electronic components to quality requirements. It has been operating since 1982. Supplier's declaration of conformity, under third-party supervision, is an essential element of this scheme. In terms of this scheme a company is approved to the scheme and to ISO 9000. Approved companies also obtain recognition from all members, since every member is obliged to recognise all approvals

A third example is the International Organisation of Legal Metrology (OIML) Certificate System (ITC, 2004:42) which promotes mutual acceptance by International Organisation of Legal Metrology members of instruments and measurement results that comply with the International Organisation of Legal Metrology requirements. This certification system was established in 1991. An exporter of a measuring instrument covered by the system may apply for an International Organisation of Legal Metrology certificate in a country participating in the system and may use the certificate as proof of conformity with International Organisation of Legal Metrology requirements (ITC, 2004:42).

Other certification schemes, that operate at national or regional level, but that are widely used the world over includes the European Union's CE marking scheme for certain products that may present safety or health hazards. CE marking is compulsory for such products to be marketed in European Union, regardless of whether they are produced in the European Union or outside it. There are customers and importers outside of the Europe Union who also prefer products bearing the CE

mark. The use of the mark is regulated by various European Union directives (ITC, 2004:43).

Another example is the seal of Underwriters Laboratories, which was founded in 1894 in the United States of America. The seal has become a recognised symbol of safety against fire, electrical and other hazards (ITC, 2004:43).

- Government designation

Governments or regulators may designate conformity assessment bodies that are located outside their territories, to undertake testing, certification or inspection in connection with technical regulations. An example concerns the certification of processed fish for export to the European Union. The European Union has designated the laboratories of the South African Bureau of Standards to undertake testing and certification activities in South Africa for fish exports from South Africa to Europe (ITC, 2004:39). The recognition granted to the South African Bureau of Standards as a competent authority in South Africa for verifying and certifying compliance of fishery products was transferred to the National Regulator for Compulsory Specifications in 2008 (NRCS, 2009). If processed fish has not been certified by a designated organisation that is acceptable in the European Union, very stringent and costly re-testing and re-certification takes place within the European Union.

- Accreditation

Accreditation bodies have been working at the international level towards harmonising international practices for accrediting conformity assessment bodies. The result of this work has been the establishment of global networks to facilitate the recognition and acceptance of certification (ITC, 2004:39). The networks have been formalised in terms of multilateral recognition agreements..

In terms of these agreements each participant undertake to recognise the certification issued by another party in the system as being equivalent to that issued by itself. Some governments or regulators have recognised the abovementioned agreements from time to time as a basis for technical regulations.

Two well known accreditation networks are the International Accreditation Forum and the International Laboratory Accreditation Co-operation. The International Accreditation Forum ensures that certification organisations in the management system certification business enjoy international recognition through its system of recognition of accredited organisations (IAF, 2006). The International Laboratory Accreditation Co-operation memorandum of understanding provides the basis for the establishment of multilateral recognition arrangements and facilitates the international acceptance of test and calibration data. These arrangements may assists with the elimination of technical barriers to trade (ILAC, 2006).

4.2.9 (c) Testing reports

The World Trade Organisation regards the lack of acceptance of test reports as a major barrier to trade. The reasons are that test reports are often market specific and regulator specific and the exporter has to comply with in order to enter a particular market (ITC, 2004:52).

Regulators may resort to any one of the following options for accepting test reports (ITC, 2004:55):

- Accept any test report.
- Accept a test report from a laboratory that has established a good reputation with a particular regulatory authority.

- Accept a test report from a laboratory accredited by the national accreditation body in the importing market.
- If mutual recognition arrangements exist between national accreditation bodies, it will accept a test report from a laboratory accredited by one of the mutual recognition partners.
- Accept a report from any of the few laboratories which the regulator has itself recognised.
- Accept test reports only from the laboratory operated by the relevant regulatory authority.

In addition to the above the regulator may sometimes require that the testing laboratory may not be owned by the manufacturer. However, it is increasingly acknowledged that the key issue is competence and independence and not ownership and as mutual recognition arrangements between accreditation bodies develop and mature, some of the barriers to trade are breaking down (ITC, 2004:55).

4.2.9 (d) *Inspections*

Inspection is often viewed as the oldest form of conformity assessment (ITC, 2004:45). The international standard ISO/IEC 17020:1998 that prescribes the general criteria for the operation of various types of bodies performing inspection, defines *inspection* as: ‘Examination of a product design, product, service, process or plant, and determination of their conformity with specific requirements or, on the basis of professional judgement, general requirements’. In ISO/IEC Guide 2 that prescribes general standards vocabulary, *inspection* is defined as: “conformity evaluation by observation and judgement accompanied as appropriate by measurement, testing or gauging.”

The use of inspection usually involves the visual examination of products, services and installations combined with the use of instruments, tools and gauges while taking into account other evidence of conformity such as test results (ITC, 2004:45). The view is of the reliance on visual examination, the outcome of an inspection may be viewed to be more subjective than the result of a more scientific examination. In addition, inspection standards are often less precisely defined than standards for testing in a laboratory and thus give the inspector substantial discretion for judging whether or not a product or installation is suitable for use.

However, inspection is also covered by accreditation processes. The main reason is the links with government regulation and enforcement where the inspector is deemed by law to be competent. There are, however, evidence that as many governments seek to reduce their direct involvement with operational matters, some functions, such as inspections, that were formerly undertaken by government officials are now being contracted to the private sector (ITC, 2004:46). In addition, governments that are involved in operational matters are starting to use accreditation to verify the competency of their inspectors in order to standardise the approach to inspections and to manage risk (ITC, 2004:46). In both cases accreditation is recognised as one way of ensuring that these inspection functions are being carried out by competent organisations and individuals.

Inspections are used in the private and the public sectors. In the public sector, most countries have official inspectorates to support their domestic regulatory systems in the areas of health and safety of the public and the environment. Although these inspectorates may have little direct involvement with trade, they are concerned with the product at the point of installation or use and sometimes at the point of market entry. In terms of market entry, many countries also use regulatory inspectorates to oversee exports from and imports into their countries. The aim is **firstly**, to ensure that no non-conforming product in specific product

categories is actually shipped to its territory. **Secondly**, the aim is to ensure that products are inspected at the points of entry into their territories (ITC, 2004:46).

In the private sector, inspection is used as part of conformity assessment and quality assurance process of companies. This includes both in-process inspections and in-use inspections that are key elements of quality management and plant safety management. Pre-shipment inspection is another part of the quality assurance in companies. It is common to find good working relationships between government inspectorates of exporting and importing countries. This relationship is important because it leads to the acceptance of the results of official export inspections at the point of import. These relationships, however, require mutual confidence, which often take years to establish.

4.3 REGIONAL TECHNICAL REGULATORY REFORM

In recent years, a growing number of regions have embarked on ambitious programmes to improve the quality and cost-effectiveness of national regulations. This is in recognition of the fact that regulations can create unnecessary barriers to trade, economic efficiency and investment. In terms of international trade, the quality of technical regulatory decisions in one government impacts on trade with other cross-border countries (OECD, 1995:12). Regions also initiated co-operation initiatives because of the increasing recognition of the benefits that can be realised from technical regulatory co-operation between governments. Of concern here are the Asian and European countries.

Both the Asian Pacific Economic Community (APEC) and the Organisation for Economic Co-operation and Development (OECD) embarked on a regulatory reform process because they are of the view that “regulatory requirements may actually impede gains from trade liberalisation” and that technical regulatory reform “can generate gains in terms of trade facilitation” (APEC, 2000:1).

4.3.1 Organisation for Economic Co-operation and Development

In 1995, officials of the Organisation for Economic Co-operation and Development countries identified the following problems with their use of technical regulation. **Firstly**, the maturing and expansion of the Organisation for Economic Co-operation and Development regulatory systems has given rise to concerns about the growing quantity and costs of regulation, rising compliance costs and burdensome administrative formalities. **Secondly**, there were concerns about the economic costs due to rigidities and anti-competitive effects. Although many of these costs were justified by the benefits of the regulations the view was that the costs in terms of slowed economic growth, lower levels of job creation and barriers to trade appeared to be larger than necessary. **Thirdly**, internationalisation of technical regulations also forced Organisation for Economic Co-operation and Development governments to question long-standing regulatory practices and they were seeking innovative forms of regulatory co-operation. Internationalisation is also putting pressure on governments to improve the quality of regulatory decisions, because decisions in one government become a matter of concern to other countries that are linked by cross-border trade (OECD, 1995).

The Organisation for Economic Co-operation and Development officials also recognised the opportunity for countries to learn from each other how to improve regulations. In 1995, a network of regulatory policy officials from the Organisation for Economic Co-operation and Development countries met to develop and agree on an Economic Co-operation and Development approach to regulations. The officials developed a guiding checklist called the Economic Co-operation and Development Reference Checklist for Regulatory Decision-making. The Organisation for Economic Co-operation and Development countries agreed on the following principles of good regulatory reform as contained in the 1995 Economic Co-operation and Development Recommendation on Improving the Quality of Government Regulation. The principles that the Organisation for

Economic Co-operation and Development countries agreed to were that countries' technical regulations should be informed by policy goals and effectively support those goals, have a sound legal basis, ensure that the benefits justify costs, consider the distribution of effects across society, minimise costs and market distortions, promote innovation, and be clear, simple and practical for users. The good regulatory features that the Organisation for Economic Co-operation and Development agreed to are transparency, non-discrimination, efficiency, consultation with affected parties, whether domestic or foreign, and creating and updating public registries of regulations (OECD, 1995).

The Organisation for Economic Co-operation and Development regulatory policy officials note that technical regulatory requirements may impede innovation, impact negatively on technology development and create unnecessary barriers to trade, investment and economic efficiency. They also point out that vested interest may seek to use technical regulations to protect them from competition. They highlight the fact that technical regulations that are outdated or poorly designed contribute to inefficient technical regulatory practices. They argue that the direct results of inappropriate technical regulation in a particular sector are likely to be higher costs, higher prices, misallocation of resources, a lack of product innovation and technology development as well as poor service quality. They are also of the opinion that regulatory reform has potential in term of significant gains in job creation, capital productivity and potentially significant economy-wide increases in gross domestic product and real wages (OECD, 1995).

Table 4.1 provides a summary of the checklist and the 10 questions about regulatory decisions that may be applied at all levels of decision and policy-making.

Table 4.1 Organisation for Economic Co-operation and Development Checklist

OECD Checklist

Question No. 1

Is the problem correctly defined?

The problem to be solved should be precisely stated, giving clear evidence of its nature and magnitude, and explaining why it has arisen (identifying the incentives of affected entities).

Question No. 2

Is government action justified?

Government intervention should be based on clear evidence that government action is justified, given the nature of the problem, the likely benefits and costs of action (based on a realistic assessment of government effectiveness), and alternative mechanisms for solving the problem.

Question No. 3

Is regulation the best form of government action?

Regulators should carry out, early in the regulatory process, an informed comparison of a variety of regulatory and non-regulatory policy instruments, considering relevant issues such as costs, benefits, distributional effects and administrative requirements.

Question No. 4

Is there a legal basis for regulation?

Regulatory processes should be structured so that all regulatory decisions rigorously respect the 'rule of law'; that is, responsibility should be explicit for ensuring that all regulations are authorised by higher-level regulations and consistent with treaty obligations, and comply with relevant legal principles such as certainty, proportionality and applicable procedural requirements.

Question No. 5

What is the appropriate level (or levels) of government for this action?

Regulators should choose the most appropriate level of government to take action, or, if multiple levels are involved, should design effective systems of co-ordination between

levels of government.

Question No. 6

Do the benefits of regulation justify the costs?

Regulators should estimate the total expected costs and benefits of each regulatory proposal and of feasible alternatives, and should make the estimates available in accessible format to decision-makers. The costs of government action should be justified by its benefits before action is taken.

Question No. 7

Is the distribution of effects across society transparent?

To the extent that distributive and equity values are affected by government intervention, regulators should make transparent the distribution of regulatory costs and benefits across social groups.

Question No. 8

Is the regulation clear, consistent, comprehensible and accessible to users?

Regulators should assess whether rules will be understood by likely users, and to that end should take steps to ensure that the text and structure of rules are as clear as possible.

Question No. 9

Have all interested parties had the opportunity to present their views?

Regulations should be developed in an open and transparent fashion, with appropriate procedures for effective and timely input from interested parties such as affected businesses and trade unions, other interest groups, or other levels of government.

Question No. 10

How will compliance be achieved?

Regulators should assess the incentives and institutions through which the regulation will take effect, and should design responsive implementation strategies that make the best use of them.

Source: OECD (1995:9-10)

The questions in Table 4.1 reflect the good regulatory decision-making principles that the Organisation for Economic Co-operation and Development countries agreed to use in their reform efforts. The aim of the reforms is to improve the quality of government regulation in terms of their effectiveness and efficiency while maintaining and improving the quality of life of the public (OECD, 2005:5). The Organisation for Economic Co-operation and Development officials, highlight the important fact that the checklist should be applied to a broader technical regulatory management system because technical regulatory systems are often complex and multifaceted. In addition the technical regulatory systems of countries also reflect governing responses to the diverse interests and values of society. It is therefore significant to realise that regulatory principles of a technical regulatory system differ from country to country, since issues of concern will arise from specific economic, social, and political environments and values. Some countries may emphasise economic analysis and cost reduction through the use of impact and risk assessment tools, other may concentrate on due process to facilitate effective public and stakeholder participation while others may focus on quality issues such as transparency, simplicity, clearness, the minimisation of formalities and the use of administrative processes that are user friendly and cost-effective (OECD, 1995:13).

In order to assist Organisation for Economic Co-operation and Development countries with the implementation of the principles the Organisation for Economic Co-operation and Development officials developed the following additional guidance (OECD, 1995) to improve the quality of Organisation for Economic Co-operation and Development regulations:

4.3 1(a) Defining the problem correctly (OECD, 1995:14)

The Organisation for Economic Co-operation and Development officials pointed out the importance of defining a technical regulatory problem correctly. They advised that the technical regulatory problem should be stated clearly and

evidence should be provided of the problems nature and magnitude. An explanation of why the problem has arisen should include the identification of the incentives of the affected parties and their consequent results. Correct problem definition may itself suggest potential solutions and eliminate others that may not be suitable. Most problems are multi-faceted and they may affect a variety of stakeholders in different ways. Regulators, therefore, should document the full scope of the issue. When regulators reviewing existing regulations they should also assess whether the nature or scope of the problem has changed since the regulation was adopted.

The Organisation for Economic Co-operation and Development officials, however, also highlighted the fact that not all problems are resolvable by government action. The major benefit of correct problem definition is that it isolates the relevant factors that government may be able influence through intervention, or, alternatively, to illustrate that the government may have little capacity to address the issue.

4.3.1 (b) Justifying government action (OECD, 1995:14)

The Organisation for Economic Co-operation and Development officials emphasised that government intervention should be based on clear evidence that a problem exists and that government action is justified. The evidence should be based on the values at stake, current government policies, the likely benefits and costs of action and alternative mechanisms for addressing the problem. The justification for actions should be empirical and transparent.

When assessing the need for action consideration should be given to the use of international standards to deal with the problem. In addition governments should establish processes for systematic and periodic review of the need for existing regulations.

4.3.1 (c) Ways of intervening (OECD, 1995:15)

According to the Organisation for Economic Co-operation and Development officials the decision about how to intervene may be as important as the decision on whether to intervene. Work in Organisation for Economic Co-operation and Development countries on alternatives to regulations suggests that the use of alternatives may reduce costs and increase the effectiveness of government action. Alternative forms of action include using economic instruments, voluntary agreements, self-regulation, information disclosure and persuasion. They, therefore, recommend that regulators should be encouraged to consider both regulatory and non-regulatory instruments. Their view is this should practice will support a process of systematic and open decision-making by policy-makers in order for them to identify a range of policy instruments available to achieve specific policy objectives.

4.3.1(d) Legal base for regulation (OECD, 1995:15)

The Organisation for Economic Co-operation and Development countries agreed that any restrictions on private action through regulations should be based on valid legal authority. In addition, a key consideration is whether the regulation is compatible with existing legislation, including international standards or agreements. The consideration of international standards or agreements may also indicate whether the problem has been dealt with elsewhere and may support regulatory coordination.

The Organisation for Economic Co-operation and Development officials also advised that regulatory proposals should comply with legal principles such as certainty, proportionality and equality before the law. Compliance with administrative procedure laws that set out specific steps such as review by legal experts, publication, or public consultation is also important.

4.3.1(e) Appropriate levels of government action (OECD, 1995:16)

The issue of appropriate levels of action by government is both legal and pragmatic in nature. For example, competencies to regulate may be designated by higher-level regulations and regulators have no discretion.

However, governments often delegate to regulators at sub-national, national and international levels of government. Choosing who to delegate to is informed by criteria such as the following: whether the problem extends across legal and political boundaries, whether the problem involves issues of a primarily regional or local character, whether there economies of scale in regulating across a larger territory, what the institutional capacities of various levels of administration are and whether the need for international uniformity of regulatory standards must be balanced by sensitivities to local differences. The Organisation for Economic Co-operation and Development officials point out that harmonisation may achieve efficiency gains by removing regulatory barriers to trade, but over-harmonisation may be as inefficient as under-harmonisation.

Because multiple levels of government are often involved in regulatory development or implementation the regulator should always consider how consultation and coordination may be carried out between different governments or between different levels in government and whether regulatory action may require cooperative action between levels of government. If co-operation is required it may mean that new forms of administrative partnerships and relationships need to be built.

4.3.1(f) Assessing the costs and benefits of regulations (OECD, 1995:16)

The Organisation for Economic Co-operation and Development officials recommended that policy-makers should assess the total costs and benefits of regulations including those to businesses, the public and government. Costs and

benefits analysis are needed by policy-makers to make decisions about the reasonableness of a technical regulation and its practicality for those companies that will have to comply. The analysis should also inform the design of a technical regulation and assist with the assessment of its effectiveness in solving the policy problem. Cost benefit analysis should also include the administrative or fiscal costs of regulation and non regulatory alternatives.

The Organisation for Economic Co-operation and Development officials are of the opinion that governments should take a pragmatic and realistic approach to cost benefit analysis. Resources used for cost and benefit analysis should increase with the potential impact of the regulation.

4.3.1(g) The distribution of effects of technical regulations across society (OECD, 1995:17)

The Organisation for Economic Co-operation and Development officials advised that regulators should consider the distribution of regulatory costs and benefits across social groups. The reason is that there may be disproportionate effects on particular groups, such as small and medium-sized enterprises or on certain regions. Identification of distributional effects may not mean that policy action is undesirable for society as a whole, but, rather, that policy officials should consider the issues to determine, for example, if compensation is needed for disadvantaged groups.

4.3.1(h) Clarity, consistency and accessibility to users (OECD, 1995:17)

It is important that regulators should assess whether technical regulations will be understood by likely users. The text and structure of technical regulations therefore needs to be as clear as possible, the precise language precise and consistent with language and format of other regulations and the use of technical

jargon should be minimised. Standards incorporated by reference should be easily available. In addition a strategy for disseminating technical regulations to affected user groups should be considered.

4.3.1(i) Consulting all interested parties (OECD, 1995:18)

Regulations should be developed in an open and transparent process that facilitate input from all interested parties such as other levels of government, affected businesses, trade unions, wider interest groups such as consumer and non-governmental organisation. In order for consultation processes to be effective government should make available to the public as much information as is feasible, including proposed texts, reasons for the need for government action, and assessments of the benefits and costs. Transparency is also important when regulations may have effects on international trade or on international treaties or other co-operative agreements.

Benefits of consultation and public participation in technical regulatory development are the following:

- Improving regulatory quality.
- Bringing into the discussion the expertise, perspectives, and ideas for alternative actions of those directly affected.
- Helping regulators to balance opposing interests.
- Identifying unintended effects and practical problems.
- Providing a quality check on the administration's assessment of costs and benefits.
- Identifying interactions between regulations.
- Enhancing voluntary compliance.
- Reducing reliance on enforcement and sanctions.

4.3.1(j) *Achieving compliance (OECD, 1995:18)*

Achieving compliance with technical regulations is the most important test for the quality of technical regulations. The Organisation for Economic Co-operation and Development officials recommended strategies such as education, assistance, persuasion, promotion, economic incentives, monitoring, enforcement and sanctions. They are of the opinion that information disclosed through consumer alerts may be more effective than fines or warnings. Cooperative relations with enterprises that have to comply may produce good results. Third parties, such as communities, trade unions, or even business competitors may be empowered to monitor compliance.

Common sources of non-compliance are failure of affected groups to understand the regulations, poorly-drafted or too-complex regulations or inconsistent interpretations by regulatory officials. Efforts to improve implementation strategies will assist in detecting problems and in adjusting implementation strategies. If necessary the technical regulations themselves needs to be improved.

4.3.2 Asian Pacific Economic Community

Asian Pacific Economic Community officials are of the opinion that while technical regulations continue to be an important tool for protecting the health and safety of the public and the environment, it should be recognised that technical regulations can become a barrier to achieving the economic and social security for which they are intended (APEC, 2002:8). Since 1997, the Asian Pacific Economic Community has taken significant steps in dealing with standards, technical regulations and conformity assessment-related barriers to trade. These steps include a Guide for Alignment of Asian Pacific Economic Community Member Economies' Standards with International Standards, Asian Pacific Economic Community Guidelines for the Preparation, Adoption and

Review of Technical Regulations and information notes that aims to provide member countries with reference material that can be used when preparing, adopting or reviewing technical regulations according to the principles and features of good practice for technical regulations which were developed by an Asian Pacific Economic Community Sub-Committee on Standards and Conformance (SCSC) (APEC, 1997).

The three principles that the Asian Pacific Economic Community agreed to were **firstly**, that countries will consider alternatives to technical regulations. These alternative mechanisms relate to the use other laws such as consumer protection laws and product liability laws. Other alternatives include the use of economic instruments such as taxes, fees and charges, education programmes, self-regulation, and codes of practice. **Secondly**, the Asian Pacific Economic Community agreed to use technical regulations that are the least interventionist and the least trade-restrictive necessary to achieve the regulatory objective. **Thirdly**, the Asian Pacific Economic Community agreed to take into account the risks of non-compliance by manufacturers and importers when they determine the conformity assessment requirements.

The good regulatory principles that they agreed to are the following: transparency, non-discrimination, the use of performance-based standards rather than prescriptive standards, referencing of international standards or internationally aligned standards where applicable, the use of international conformity assessment requirements and continuous review of regulations to ensure flexibility and adaptability to modern needs.

According to the terms of reference of the Asian Pacific Economic Community Sub-Committee on Standards and Conformance, their objectives are to reduce the negative effects on trade and investment flows in the region as a result of different standards and conformance assessment requirements in the region, to facilitate the further economic development of the region, to encourage alignment

of member economies' standards with international standards, to liaise and cooperate on the development of consistent approaches to standards and conformity assessment matters in relevant regional and international bodies, to make progress on the issue of mutual recognition of conformity assessment arrangements, to co-operate on technical infrastructure development, to increase the transparency of standards, technical regulations and conformance assessment in the region and lastly, to encourage the involvement of business and other stakeholders in standards and conformance activities.

Table 4.2 Asian Pacific Economic Community technical regulatory checklist

1. Start with a clear definition of the problem. Problems described in broad terms may lead to unnecessarily restrictive regulatory responses.
2. Assess the relative merits of a range of possible regulatory responses. The regulatory response chosen should be the one with the greatest net benefit, which is not more restrictive than necessary, to fulfil the regulatory objective.
3. Prepare, adopt or apply technical regulations that will not create unnecessary barriers to trade. Member economies should therefore consider:
 - the use of performance-based regulations;
 - the appropriateness of referencing voluntary standards;
 - the use of international standards; and
 - the use of standards of other member economies where international standards do not exist or are inappropriate.
4. Member economies should give consideration to recognising the results of conformity assessment activities undertaken by technically competent conformity assessment bodies.

5. Where member economies have chosen low interventionist conformity assessment regimes (e.g. type approvals and suppliers declaration) post-market surveillance regimes may be necessary to ensure that products comply, or continue to comply, with the relevant technical regulations.

6. The world is a dynamic environment and member economies should have in place formalised mechanisms for review of the chosen regulatory response and conformity assessment regimes to ensure that they take into account technological and other changes.

Source: APEC (1997:31)

The Asian Pacific Economic Community Sub-Committee on Standards and Conformance is of the opinion that the abovementioned guides and notes may assist member countries in the adoption of efficient technical regulatory arrangements, which should lead to reductions in regulatory barriers to trade (APEC, 1997:1). It should also assist member countries in meeting their international obligations under the World Trade Organisation Technical Barriers to Trade Agreement. The Asian Pacific Economic Community Sub-Committee on Standards and Conformance summarises its efforts in the following words “more harmonised standards and conformance will improve the efficiency of production and facilitate the conduct of international trade, resulting in more rapid trade flows, reduced costs and greater integration of production networks in the region” (APEC, 2006:2).

The above mentioned “Asian Pacific Economic Community Guidelines for the Preparation, Adoption and Review of Technical Regulations” and information notes (APEC, 2000) identifies a number of steps which can be taken to minimise the trade-restrictive effects of technical regulations. These steps include:

- Adopting performance-based technical regulations, rather than prescriptive, technical regulations.,

- Ensuring that, when voluntary standards are referenced, only those standards, or parts of standards that are necessary to achieve the legitimate objectives in terms of health, safety and the environment are referenced.
- Reducing the differences in regulatory requirements by adopting international standards or aligning with international standards.
- Accepting the standards and/or technical regulations used by other Asian Pacific Economic Community economies, provided these standards and/or technical regulations adequately meet the objectives of the accepting economy's regulations.

The following paragraphs describe each of the abovementioned steps:

4.3.2 (a) Performance-based technical regulations

The Asian Pacific Economic Community officials distinguish between two main types of technical regulations, namely prescriptive-based regulations which specify the means for achieving the specified outcome of the regulations and performance-based regulations which specify the desired objective of the regulations in precise terms but allow businesses that are regulated to determine their own techniques for achieving the outcome of the regulations (APEC, 2000:11).

Prescriptive regulations, therefore, determine only one means of achieving the objective of a regulation. The main problem with this approach to technical regulations is that it may create an obstacle to trade and economic development as well as barriers to innovation and the development or uptake of new technology because businesses are locked into a single solution with no opportunity to utilise alternative or more cost efficient, compliance solutions (APEC, 2000:11). One benefit of prescriptive regulations, however, is that it

provides certainty for those businesses that are being regulated and for the conformity assessment service providers whose role it is to determine whether the desired objective has been met.

Performance regulations, determine only the desired outcome of the regulations and not the means of achieving the objective of a regulation. This approach to technical regulations, therefore, leaves it open for business to choose how they will meet the technical regulation and may not create obstacle to trade and economic development as well as barriers to innovation and the development or uptake of new technology.

The Asian Pacific Economic Community officials (APEC, 2000:12) recommend that countries only use the inflexible approach of prescriptive regulations when there are extremely limited ways of achieving the objective of a regulation. The reasons are that performance-based regulations represent a more flexible approach, allow the businesses that are regulated to devise the most efficient and effective method of compliance and they may accommodate a range of technical solutions provided the regulatory outcomes are the same.

4.3.2 (b) Referencing voluntary standards

With regard to the referencing of voluntary standards as a basis for the technical requirements of a regulation, the Asian Pacific Economic Community officials (APEC, 2000:12) highlight the fact that voluntary standards, that are developed by both domestic and international standardisation bodies, are not necessarily written with a view to be used as mandatory requirements. They recommend that only those parts of a voluntary standard that represent the minimum necessary to fulfil the regulatory objective of the technical regulation should be referenced by the regulation.

4.3.2 (c) Alignment with international standards

The Asian Pacific Economic Community officials (APEC, 2000:12-13) endorse the adoption of common international standards because it may reduce the trade-restrictive effects of regulation. The benefit to exporters is the removal of the artificial segmentation between markets that differences in national standards may create. The adoption of common international standards allow exporters to produce a single version of the product that is acceptable in all markets instead of having to produce numerous smaller batches for each of the markets they may wish to export to. This may lead to significant cost savings through economies of scale. The Asian Pacific Economic Community officials, however, agree that international standards should be drafted in a transparent, open and non-discriminatory manner if they want to be relevant to market and regulatory needs.

4.3.2 (d) Equivalency

The Asian Pacific Economic Community officials (APEC, 2000:13-14) are of the opinion that Asian Pacific countries may achieve similar benefits through the use or recognition of standards from other Asian Pacific countries even if international standards are not available. They argue that the acceptance of the technical regulations or standards of another country, even where the standards are not exactly identical, may result in significant efficiency gains for industry and government regulators.

For industry, the acceptance of equivalence may result in the removal of segmentation effects caused by different standards. For regulators it may be possible to reference compliance with the standards of another country as an acceptable solution provided they are satisfied that these standards adequately fulfil the health, safety and environmental objectives of their own regulations.

4.3.2 (e) *Conformity assessment requirements*

Conformity assessment requirements mainly fall into two broad types (APEC, 2000:15). The **first** type includes requirements that products need to be assessed against prior to entry into the market. These conformity assessment requirements are often called pre-market conformity assessment requirements and may take the form of product approvals, product registrations, licences or inspections.

One problem with pre-market conformity assessment requirements is that they delay the entry of goods onto the market. The Asian Pacific Economic Community officials are of the opinion that these delays may constitute a significant barrier to entry and may prevent the uptake of new, innovative and more efficient technologies. They, however, acknowledge that in high risk regulatory areas, for example medical devices and pharmaceuticals, pre-market assessment of a product's conformity to technical regulations may be essential to give adequate assurance that the products do not pose a risk to the health or safety of the public.

The **second** type of conformity assessment requirements relies on the manufacturer or supplier to take on the responsibility to ensure that products entering the market comply with the relevant mandatory requirements of the technical regulations and not the regulator. Conformity assessment requirement in this case is typically referred to as supplier declaration. Supplier declaration still includes the undertaking of some form of conformity assessment to show that the product complies with the technical regulations before the product is exported. Third party conformity assessment or internal conformity assessment also makes it possible for exporters to proof compliance should the conformity of their products with the required technical regulations ever be questioned by a regulator, during the course of a post-market surveillance exercise or by the courts in the case of a product liability or negligence action. Some of the benefits

of supplier declarations to industry are that it eliminates the need for approvals from a regulator prior to exporting and that exporters may choose from any number of conformity assessment bodies or in some cases, use their own internal conformity assessment mechanisms to ensure compliance (APEC, 2000:15).

4.3.2 (f) *Types of conformity assessment*

The Asian Pacific Economic Community officials (APEC, 2000:16-18) identified the following forms of conformity assessment requirements available to governments:

- Inspection involves the assessment of each individual product. In cases where a product may deteriorate over time (for example: gas cylinders, motor vehicles and marine vessels), inspection may occur a number of times over the product lifecycle.
- Licensing involves the assessment of the competence of an individual or a company to undertake a specific task. Licensing is used in situations where the performance characteristics of the product are not readily discernible and confidence that the product complies with the regulation can only be achieved if the product was manufactured by appropriately qualified individuals or companies.
- Batch testing involves a sample test of each batch or shipment of mass produced product.
- Approvals involve the assessment of a sample of a product by competent test facilities or laboratories.
- Certification involves initial testing of products and ongoing product surveillance and may include the assessment of a manufacturer's quality management system for certification.
- Listing/registration involves the submission of the prescribed documentation, together with supporting evidence, such as test reports, to

the regulator who assess the documentation before the product is listed on a register or gazette as approved/recognised products.

- Supplier declaration involves, as indicated previously, an assessment of the product, at the choice of the supplier, by any one of a number of conformity assessment bodies, or by the supplier's own internal test facility in some cases.

Comparatively (APEC, 2000:19) inspection is a highly stringent conformity assessment requirement and places a significant burden on industry and consumers. Typically, licensing applies to trade professionals and quality management systems of companies. Batch testing is declining in popularity as a conformity assessment requirement because of the uptake of quality management systems by manufacturers that ensure that each product manufactured is of the same quality, and has the same characteristics, as the original batch or sample. Batch testing is, therefore, only recommended where the regulator has little confidence that each individual product will be of the same quality as the original or sample product. Approvals are currently the most common form of pre-market conformity assessment. Approval requirements are often complemented with post-market surveillance to ensure that the products that are placed on the market are the same as those for which the original approval was given. Governments regulators in a number of countries are choosing to rely on certification programs delivered by competent third party product certification bodies that provide services to industry in a competitive environment. Listing/registration of products provides the regulatory body with a quick reference for identifying the manufacturer/supplier of any product on the market should an instance of non-conformity arise. Supplier declarations provide significant advantages to industry that may lead to significant time and cost savings to industry and may represent a significant reduction in regulatory cost and effort.

4.3.2 (g) Choosing the appropriate conformity assessment requirements

The Asian Pacific Economic Community officials (APEC, 2000:18) promote that regulators should choose appropriate regulatory measures which may ensure the greatest degree of compliance at the lowest level of government intervention. The argument is that such approach may encourage the establishment of effective and open markets that will, in turn, provide economic benefits. It is, however, recognised that the risk that non-compliance may pose problems to the health and safety of the public and the environment and therefore the least interventionist conformity assessment approach may not be the most appropriate in specific circumstances. In addition to the type of conformity assessment requirement chosen, the number of licenses, certifications and approvals should be kept to the minimum necessary to achieve regulatory objectives and the level of interaction between individuals or companies and the government, should be kept to a minimum.

4.3.2 (h) Recognising the results of conformity assessment activities

The Asian Pacific Economic Community officials (APEC, 2000:18-19) accept that countries may require assurance that products exported to their market comply with the technical regulations they have determined as essential to ensure the health and safety of the public. They, however, are concerned that the need for assurance of conformity with technical regulations may place an inherent burden on exporters.

This may require that exporters have to re-tested or re-certified products even though they have already been tested or certified in another country and as a result manufacturers may choose not to enter a particular market. This may mean the number of products available in a country can be limited, the degree of domestic competition is reduced and hence the level of innovation and technological advances made may be restricted. This may impact negatively on the prosperity and economic stability of a country.

The Asian Pacific Economic Community officials (APEC, 2000), however, argue that the costs of compliance can be reduced if countries unilaterally accept the results of conformity assessment activities undertaken by competent bodies in another country. Acceptance of results should reduce the amount of re-testing that occurs, and therefore the cost, in addition to reducing the workload for the regulators.

A key factor, however, for governing a recognition arrangement that accepts results from another country, is confidence between the two or more governments that regulators have access to technically competent conformity assessment bodies to assess the product to the importing country's requirements. There exist a number of commonly used mechanisms for determining the technical competence of conformity assessment bodies, including accreditation, peer assessment and government designation.

4.3.2 (i) Regulatory safety nets

The nature and strength of a country's regulatory safety nets, such as the general consumer protection or product liability requirements and whether these requirements are based in legislation or civil law, plays a significant role in the choices of regulatory responses and conformity assessment requirements that a country makes (APEC, 2000:20).

If strong regulatory safety nets are not available in a country, governments may consider it necessary to adopt a more interventionist approach such as mandatory pre-market conformity assessment requirements with stringent post market surveillance techniques to ensure that there is no possibility of non-compliant product entering their market. However, if strong regulatory safety nets are available, governments may adopt lighter approaches to product regulation such as listings and supplier's declarations.

4.3.3 Comparison of principles and guides of the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development

The Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development developed guides and principles in order to steer implementation of a common approach to technical regulations and standards. The Organisation for Economic Co-operation and Development's guide highlight the importance of a clear definition of the problem that has to be solved. The Asian Pacific Economic Community's guides point out that policy problems that are described too generally may lead to unnecessarily restrictive technical regulatory responses. The Organisation for Economic Co-operation and Development's guides point out that the problem that needs to be solved should be precisely stated. Clear evidence of the nature and magnitude of the problem must be provided as well an explanation of why it has arisen.

The Economic Co-operation and Development's guide recommends that government intervention should be justified given the nature of the problem, the likely benefits and costs of action and that alternative mechanisms for solving the problem should always be considered. Government should make sure that the distribution of technical regulatory costs and benefits across social groups is transparent. Disproportional effects on particular groups, such as small and medium enterprises, should be investigated.

The Asian Pacific Economic Community's guide recommends that other mechanisms be considered first. These mechanisms include considering the status quo, reliance on common law, the use of liability laws, the application of economic instruments, e.g. through a tax or user charge, education and persuasion, government support for a voluntary standard, industry self-regulation and establishment of codes of practices. They argue that the technical regulatory

response chosen should be the one with the greatest net benefit, which is not more restrictive than necessary to fulfil the regulatory objective.

The Asian Pacific Economic Community's guide stresses the fact that technical regulations should not be prepared, adopted or applied with the effect of creating unnecessary barriers to trade. The following should be considered: the use of performance-based regulations, the appropriateness of referencing voluntary standards and the use of international standards.

The guides of both the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development's point out that legislators should assess the incentives through which the technical regulation will take effect and should clearly define the conformity assessment requirements, reflecting the risk levels identified, which may be necessary to ensure that products comply, or continue to comply, with the relevant technical regulations. Conformity assessment requirements could be inspection, licensing, batch-testing, approvals, certification, listing, and registration and/or supplier declarations.

The guides of both the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development support the fact that a country's regulatory system influences the types of technical regulatory responses taken and conformity assessment requirements implemented by that country. When consumer protection laws are used, governments may consider it necessary to adopt a more interventionist approach such as mandatory pre-market conformity assessment with stringent post-market surveillance techniques to ensure that there is no possibility of non-compliant products entering their market. However, where a regulatory system use product liability laws governments can adopt less stringent approaches to product regulation such as supplier's declarations.

The Economic Co-operation and Development's guide highlights the fact that technical regulations should be clear, consistent, comprehensible and accessible

to users. In addition, the guide also emphasises that technical regulations should be developed in an open and transparent manner, with procedures that ensure the effective and timely input from interested parties such as affected businesses and trade unions, other interest groups, or other levels of government. Impacts on small and medium-sized enterprises should be given special attention.

The guides of both the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development agree that consultation carried out at all stages of the process has the following benefits:

- Increases the transparency of the process;
- Ensures that all perspectives on the issues have been considered;
- Highlights alternative approaches to achieve objectives;
- May be a useful means of evaluating the accuracy of regulators' assessment of the costs and benefits; and
- Enhances awareness and therefore encourages compliance.

The Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development also agree as a principle of good technical regulatory practice that it is necessary to ensure that technical regulations are no more trade-restrictive than necessary, and therefore it is important that provisions exist for the review of technical regulations. Monitoring is essential to assess whether the circumstances or objectives giving rise to the adoption of the technical regulation have changed. Monitoring is also essential to assess whether the technical regulation achieves the desired objectives. The Asian Pacific Economic Community's guide proposes the inclusion of a sunset clause that establishes a specific date on which the regulation will expire. If at the time at which the technical regulation expires, the regulation is still required, then the regulation can be re-promulgated.

O'Brien (2003:11) notes, **firstly** that the technical regulatory activities in the Organisation for Economic Co-operation and Development have raised many

conflicts among the Organisation for Economic Co-operation and Development countries. He points out that although the Organisation for Economic Co-operation and Development countries may share broad principles they are still firmly attached to their national approaches of doing technical regulations. While they promote that international standard should cover as much of global trade as possible, they have a strong preference such standards should reflect their own practice. **Secondly**, he advises that the structures and processes for technical regulatory reform within the Organisation for Economic Co-operation and Development are far from settled. He is of the view that the change has been cautious and a kind of trial and error to find satisfactory ways to agree to technical regulations that will apply in the Organisation for Economic Co-operation and Development. He, therefore, advises that other regions that are developing technical regulatory reform policies should not simply draw down from the Organisation for Economic Co-operation and Development approaches but should critically look at approaches that will suit their circumstances. **Thirdly**, he promotes a continuous approach to technical regulatory reform that is based on flexibility.

In terms of Asian Pacific Economic Community, O'Brien (2003:13) notes that there exist among several countries of Asian Pacific Economic Community trust in the quality of products which they trade. For this reason there has been some development of mutual recognition agreements through which testing, certification, calibration and inspections services in one country can be recognised as fit to carry out conformity assessment according to the procedures of the trading partner in selected sectors.

4.3.4 Implementation of technical regulatory guidelines

The 1995 Economic Co-operation and Development report commented that technical regulatory officials have not welcomed the disciplined framework that the guides brought to decision-making. Government departments did not

generally follow up with necessary investments in information and human resources. A systematically organised approach and high-level support for the implementation of such principles are essential. Management strategies for giving effect to the use of the guidelines should include designating ministers or senior officials as responsible for the application of guidelines, clarifying management responsibilities for compliance with the technical regulatory principles, establishing central oversight bodies or independent technical regulatory review processes, developing training and disclosing responses to guidelines.

It is a necessary condition for success that regulatory officials at all levels of administration be familiar with the quality principles established for regulatory decisions, which places special emphasis on training and incentive programmes in the public service. Finally, governments should develop processes for the systematic evaluation of existing regulations to ensure that they continue to be relevant and consistent with current conditions.

4.3.5 Southern African Development Community

Southern Africa negotiated a Southern African Development Community Technical Barriers to Trade Annex from 2005 to 2008 because these countries recognised the need to move towards more transparency, participation and attention to economic costs as well as more sharing of institutional capacity in the area of technical regulations and standards. The Southern African Development Community also identified the need for Southern African Development Community policy-makers to give serious political attention to regulatory reform because of its importance for the future of the sub-region (O'Brien, 2003:3-7).

Southern African Development Community officials also recognised the importance of establishing a common approach to technical regulations in southern Africa. During the 20th SADC Committee of Ministers of Trade and

Industry meeting on 12 July 2008, the ministers adopted the Technical Barriers to Trade Annex to the Southern African Development Community's Protocol on Trade (SADC, 2008). The aim of the annex is to create a framework in terms of which Southern African Development Community countries can identify, prevent and eliminate unnecessary technical barriers to trade among themselves (SADC, 2008:8). The focus of the annex is on harmonising standards, technical regulations and conformity assessment procedures with a view to facilitate and increase trade.

In terms of the provisions of the Technical Barriers to Trade Annex, the Southern African Development Community countries agreed to use consultation and information exchange processes when they develop, amend and implement technical regulations (SADC:2008:8). Southern African Development Community countries also agreed to use international standards and in particular to use of standards that determine the performance of the product rather than prescriptive technical requirements that the product has to comply with (SADC, 2008:9). The Southern African Development Community Technical Barriers to Trade Annex requires that national standards have to be withdrawn if they differ from the regional Southern African Development Community standards (SADC, 2008:11). The Southern African Development Community's Technical Barriers to Trade Annex also requires that officials use impact and risk assessment tools to inform their technical regulatory decisions (SADC, 2008:10). Provision is made for the acceptance of conformity assessment results among members which means that the products are tested, inspected or certified once for compliance to technical regulations (SADC, 2008:12). The review of technical regulations to ensure that they are still valid to meet changing needs is included. The Southern African Development Community's Technical Barriers to Trade Annex also recognises the need for co-ordination between various institutions that are responsible for and may support effective and efficient technical regulatory approaches.

In terms of rights and obligations, the southern African countries confirmed their commitment to the World Trade Organisation Technical Barriers to Trade Agreement principles of non-discrimination, necessity, and the prevention of trade-restrictiveness, proportionality, the use of equivalent and internationally harmonised measures, transparency and special and differential treatment (SADC, 2008:8). The Southern African Development Community Technical Barriers to Trade Annex requires that officials consider the nature of the problem that a technical regulation aims to solve, alternatives for solving the problem and the socio-economic costs and benefits to society.

The Southern African Development Community Technical Barriers to Trade Annex provides for the establishment of a Southern African Development Community Technical Regulation Liaison Committee (SADCTRLC) (SADC, 2008:16). This committee will be responsible for promoting and facilitating implementation of the Southern African Development Community Technical Barriers to Trade Annex. The responsibility includes that the committee will make recommendations on Southern African Development Community technical regulation policy issues, develop guidelines and tools to assist countries with implementation at national level. Provision is also made for implementation of common technical regulations in order to facilitate trade.

The Southern African Development Community Technical Barriers to Trade Annex links the work on technical regulations with the work on standards, accreditation and metrology (SADC, 2008:17-23). The aim is to ensure that the institutions responsible for standardisation develop appropriate standards and conformity assessment procedures to respond to the needs of the regulatory domain.

The Southern African Development Community's Technical Barriers to Trade Annex highlights the importance of a clear definition of the problem that has to be solved (SADC, 2008:10). The Southern African Development Community's

Technical Barriers to Trade Annex requires a clear understanding of the nature of the policy problem that a technical regulation aims to solve.

The Southern African Development Community's Technical Barriers to Trade Annex requires that governments need to justify technical regulations taking into account the nature of the problem. Government is also required to consider other suitable alternatives for technical regulations for solving the problem. The Southern African Development Community's Technical Barriers to Trade Annex also requires that governments evaluate the socio-economic benefits to society as a whole as well as the costs of proposed actions. Governments have to provide evidence that they fulfilled the above requirements in order to make the technical regulatory process more transparent and to increase compliance with the objectives of the Southern African Development Community Protocol on Trade to increase trade in the sub-region.

The Southern African Development Community's Technical Barriers to Trade Annex also promotes the use of performance-based standards based on international standards rather than prescriptive standards as a basis for technical regulations and includes a requirement that countries have to withdraw conflicting national standards once the text of a regional standard has been developed and approved in accordance with the agreed Southern African Development Community standardisation procedures (SADC, 2008:11).

The Southern African Development Community's Technical Barriers to Trade Annex requires that technical regulations should include clear conformity assessment provisions and recommends the use of relevant combinations of inspection, testing and certification (SADC, 2008:12). These combinations should be appropriate to the risk that the technical regulation is dealing with and the consequential damages if a product fails to meet the requirements of the technical regulation.

The Southern African Development Community's Technical Barriers to Trade Annex recommends that governments require regulatory approval of products before they are brought into circulation if the risk of non-conformance is high (SADC, 2008:11). The Southern African Development Community's Technical Barriers to Trade Annex emphasises the responsibility of governments and regulatory agencies to ensure transparency in terms of administrative and conformity assessment provisions of the technical regulations under their jurisdiction.

The Southern African Development Community's Technical Barriers to Trade Annex highlights the importance of market surveillance aimed at establishing whether products meet the technical regulatory requirements once they are in the marketplace (SADC, 2008:12). It also emphasises the need for sanctions to ensure that suppliers that do not meet the provisions of the technical regulations are discouraged. The sanctions recommended in the Southern African Development Community's Technical Barriers to Trade Annex include administrative sanctions whereby suppliers are required to rectify the problem identified before the product is put into the market, recall of the non-complying products from the market for repairs and replacements before it is put back into the market, recall of the non-complying commodities from the market to be destroyed, advertising campaigns to warn and inform the public about the problem and lastly, legal sanctions if the supplier fails to respond positively to administrative sanctions.

The Southern African Development Community's Technical Barriers to Trade Annex requires that countries have to implement programmes to update their existing technical regulations developed before the annex came into force (SADC, 2008:13). It recommends that such a programme may include the identification of all existing technical regulations, a review to establish whether these technical regulations are still required and, if not, have them removed as well as a review to ensure that all technical regulations meet the requirements of

the Southern African Development Community's Technical Barriers to Trade Annex.

4.4 INTERNATIONALLY RECOGNISED INSTITUTIONS

The need for national institutions, namely institutions for standardisation, metrology and accreditation, also collectively known as technical institutions, which are internationally recognised, is becoming increasingly important in the light of the rate of globalisation that has accelerated over the past decade. The international institutions include the International Standards Organisation (ISO), the International Electro-technical Committee (IEC), the International Bureau of Weights and Measures (BIPM), the International Laboratory Accreditation Co-operation (ILAC) and the International Accreditation Forum (IAF) (SADC, 2004:34).

In addition to the need for international recognition, governments in developed and developing countries often mandate public entities to provide these strategic technical services. Governments are therefore under increased pressure to reform and develop these institutions in order for the institutions to meet the needs of their economies. In addition the national economies are becoming increasingly integrated as a result of the expansion of international trade, greater global investment flows, and the emergence of global telecommunications and transportation systems. The integration puts greater demands on trading partners to demonstrate equivalence of their technical infrastructure in support of trade and to guarantee that products exported from them are safe and 'fit for purpose'. There is also an increased need for regions to verify the technical competence of their conformity assessment service providers, e.g. test laboratories, certification bodies and inspection services, which provide proof of compliance with technical regulations and standards (UNIDO, 2003:87-97).

Furthermore, the technical infrastructure institutions support the production of quality goods and service, which producers can supply competitively into global manufacturing supply chains. The institutions are also required to enable government to meet its obligations in terms of health and safety of the public and protection of the environment. It, therefore, becomes conditional for governments to modernise their technical infrastructure and to secure international recognition for their systems, if they want to participate competitively in international trade.

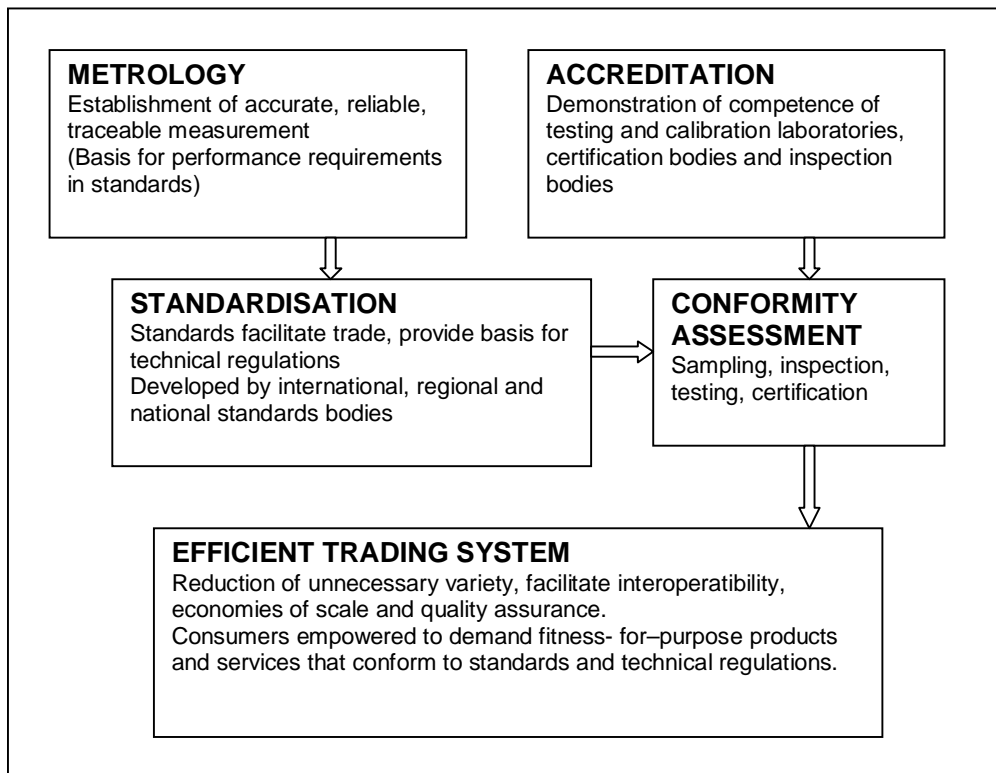
The abovementioned demands offer both opportunities and competitive challenges to the sustainable development of the African region. When considered in the light of Africa's economic strategies, e.g. the Market Access Initiative and the Productive Capacity Initiative, which aim to facilitate market access for African products through improved production capacity, the important role of infrastructure for standardisation, accreditation and metrology should not be underestimated. As a result, the reform of the African technical infrastructure becomes urgent and a priority.

4.4.1 Three key technical institutions

Kammer (NIST:2000) notes that “although most people do not realise it, standards and the methods used to assess conformity to standards are absolutely critical”. The technical institutions of a country are vital for industry and trade, for health and safety of the consumer and the protection of the environment and for the basic performance of economies. The infrastructure also ensures effectiveness, efficiency, quality, reliability, compatibility and interoperability. Furthermore, it facilitates trade, knowledge and technology transfer as well as good management practices (ISO, 2005). It is, however, necessary to recognise that competitiveness gains from trade, knowledge and technology transfer can only materialise if high quality institutions are in place (Busse, Borrman and Neuhaus, 2006). Figure 4.1 illustrates the building blocks

of a technical infrastructure system and the linkages between metrology, standardisation and accreditation.

Figure 4.1: The building blocks of a technical infrastructure system and the linkages between metrology, standardisation and accreditation.



Source: Adapted from ISO (2008:11)

The capacity of a country's technical institutions, namely the national standards body, accreditation body and measurement metrology institute impacts directly on the competitiveness of the private sector of the specific country. It can raise or lower economic efficiency, facilitate or constrain exports, enable or exclude the participation of small and medium enterprises and block or promote competitiveness (UNIDO, 2006:94). It is particularly during the early phase of sector development that effective technical institution support is necessary to

support private sector entrepreneurial efforts. Technical standards help to focus the direction of collective technology search efforts. Standards foster diffusion of new innovation and technology. It also fosters efficiency gains from specialisation, which enlarges the scope of mass production, reduces costs and prices and enlarges the potential market (UNIDO, 2006:85).

There are various international institutions in the area of standardisation, metrology and accreditation of conformity assessment services, which are investigated in the following section.

4.4.2 Metrology

Metrology is crucial in international trade because it provides the necessary technical means to ensure correct measurements through the implementation of a harmonised system of measurement which consist of the international system of units of measurement and is called the Systeme International (SI). One example to illustrate the importance is that modern production processes are characterised by the assembly of parts and components bought from different parts of the world. This requires the application of uniform and reliable measurement systems that guarantee interchangeability of the mechanical dimensions and compatibility of different components and parts. It is the task of national metrology institutes to maintain the national measurement standards so that measuring equipment can be related to these standards.

At international level, the increase in international trade in manufactured goods in the nineteenth century led to the signing of the treaty of the metre (*Convention du mètre*) in Paris in 1875. The treaty established the metric system as the international system of units for international trade, and founded the Bureau International des Poids et Mesures (BIPM). It has 51 members. African member countries are Egypt and South Africa. The Bureau International des Poids et Mesures is responsible for the establishment and maintenance of

reference standards in order to have good long-term stability, the organisation and participation in international comparisons and the carrying out of calibrations as well as investigations that may result in improved reference standards or measurement techniques. Participation in these international comparisons is of growing importance for national metrology institutes (NMIs) which have signed mutual recognition agreements in terms of which they accept each other's calibration certificates and demonstrate equivalence between their national measurement standards and those of other countries (SADC, 2004:38).

Governments of developing and developed countries generally accept the responsibility for the establishment of national metrology institutes and these public entities are mandated to develop and maintain the national metrology systems. The establishment of metrology infrastructure is often the first priority when a technical infrastructure system is developed because it provides the foundation for standardisation, accreditation and conformity assessment. It is essential because it facilitates the acceptance of measurements related to exported products, law enforcement related to measurements and it supports scientific results (BIPM, 2006). Governments often fund the activities to maintain the national primary standards. It is important that the level of metrology available to the country meets the needs of the industry and the government. This is, however, an area that requires substantial investment and, thus, careful planning and a sound knowledge of what is actually needed are important. Table 4.3 provides a summary of the metrology infrastructure costs, financing, needs and planning considerations.

Table 4.3: Summary of the metrology infrastructure costs, financing, needs and planning considerations

Costs	Financing	National needs	Planning considerations
<p>Measurement and traceability infrastructure and operating expenditure can vary from moderate to costly depending on the needs.</p> <p>The availability of suitable reference material is often a problem and can be moderately expensive. Regional solutions to this problem should be sought.</p>	<p>Metrology infrastructure is in the public interest; therefore it is normally financed by national government.</p>	<p>Appropriate legislation to establish a national measuring standards institute is necessary.</p> <p>Some degree of national measurement infrastructure is essential and what is appropriate will depend on the prevalent industries in the country.</p>	<p>First priority is to establish a national measurement system.</p> <p>Some elements can be obtained regionally.</p> <p>International recognition should follow establishment.</p>

Source: Adapted from ISO (2008: 22)

4.4.3 Standardisation

Standardisation is a process whereby acceptable levels of quality and performance characteristics are agreed to by technical committees and adopted as national standards. These national standards are consensus documents issued by an approved national standards body, which provides uniform rules and guidelines for the production of goods. The process of standardisation is closely associated with industrial development and it is generally accepted that a competitive economy cannot function without standards (DTI, 2004a).

The scope of standards is captured in the definition of *standards* in the World Trade Organisation Technical Barriers to Trade Agreement, namely: “A document approved by a recognised body that provides, for common and repeated use, rules, guidelines or characteristics for products and their related processes or production methods, with which compliance is not mandatory. It may also cover terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method” (WTO, 2006). These standards are used either as voluntary standards or as a basis for technical regulations.

A number of international organisations are involved in developing and publishing standards. There are two key non-governmental international standardisation bodies, the International Standards Organisation (ISO) and the International Electro-technical Committee (IEC), which are responsible for the development of international consensus documents published as international standards. The International Electro-technical Committee was founded in 1906. The membership (in the year 2000) stands at about 50 participating countries, of which only a small number are developing countries. The International Electro-technical Committee has published some 11 000 International Electro-technical Committee standards in the electro-technical field, covering electronics, magnetics and electro-magnetics, electro-acoustics, telecommunications and energy production and distribution. The International Standards Organisation was established in 1947 and is a worldwide federation of national standards bodies from some 140 countries, over 100 of which are developing countries. Almost all African countries are members. International Standards Organisation has published around 12 500 International Standards Organisation standards dealing with most fields, products and systems not falling in the International Electro-technical Committee is domain or the telecommunications domain served by the International Telecommunication Union.

Some of the major intergovernmental organisations that publish documents used as international standards or as a basis for technical regulations are the International Telecommunication Union and the International Organisation of Legal Metrology. The International Telecommunication Union was established in 1865 as the International Telegraph Union, changing its name to its current one in 1934 and becoming a specialised United Nations agency in 1947. It has 189 member states and over 650 sectoral members (from industry). The International Telecommunication Union has published a vast number of recommendations that are generally complied with because they guarantee the interconnectivity of networks and technically enable services to be provided on a worldwide scale (ITU, 2009). The International Organisation of Legal Metrology was established in 1955 to promote the global harmonisation of legal metrology procedures. It is an intergovernmental treaty organisation whose membership consists of states and corresponding members. The International Organisation of Legal Metrology publishes international recommendations for metrological performance and the testing of measuring equipment used in trade or in the application of legal requirements (OIML: 2009).

In most developing and some developed economies, national standards organisations are public institutions mandated through legislation. The reason for this is that governments recognise that standards form an important element of economic policy and therefore accept the responsibility that the national standards organisation needs to be appropriately guided, based on national needs.

In addition, it is important to have a nominated standards body to represent a country at international level. Representation in technical committees at international level is important because technical committees of national standards bodies often adopt or adapt international standards for national conditions. It is also important to note that national standards or parts of national standards can be called up in technical regulations to protect the health and

safety of the public and the environment. Governments often provide the bulk of the funding for these public institutions. These institutions are responsible for managing the technical committees charged with the development of national standards, attendance of international and regional standardisation-related meetings, printing and publishing costs and the provision of a standard information centre (ISO, 2005). Table 4.4 provides a summary of the standards infrastructure costs, financing, needs and planning considerations.

Table 4.4: Summary of the standards infrastructure costs, financing, needs and planning considerations

Costs	Financing – four size	National needs	Planning considerations
Cheap, especially in the case of harmonising with existing regional or international standards and provision of information on them.	Standards information provision and sale are normally by national governments, as they often focus on standards for national good.	Adoption, development, maintenance and harmonisation mechanisms. Fairly limited infrastructure (computers, website, ability to set up and co-ordinate mirror committees). Establish TBT enquiry point, which requires capacity-building and an appropriate level of communication and	Providing national standards provision is recommended by whichever means is appropriate and affordable. Appropriate legislation is necessary to establish a national standards body, its governance and financing. The benefits of working regionally to develop standards where needed can be
Slightly more costly where purely national standards need to be developed.	Often falls under trade or industry ministry or equivalent.		
Additional costs arise when international and regional	Costs can be partially off-set by income from sales of standards or conformity		

<p>participation in standards-setting is envisaged.</p> <p>Additional costs arise for the establishment of WTO TBT enquiry points.</p>	<p>assessment activities.</p> <p>As the economy develops, other income can be generated through the development of other standards for industry or through subscription from industry to standards committees, but this is a long-term possibility.</p>	<p>IT function.</p>	<p>considered in areas of common interest.</p> <p>The cost of participation in international or regional standardisation committees and of setting up a national enquiry point can be significant but can start from a low base.</p>
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Source: Adapted from ISO (2008: 23)

4.4.4 Accreditation

Accreditation is the process by which an independent national accreditation body formally recognises the technical competency of conformity assessment service providers (ILAC, 2006). These conformity assessment service providers, which could be public or private, include laboratories, inspection bodies and certification bodies, which perform specific types of testing, measurement, certification and inspection. International mutual recognition arrangements between national accreditation bodies facilitate mutual recognition of conformity assessment certificates, inspections and test reports. It therefore means that test data, certificates or inspection reports that go with exported goods are more readily accepted in overseas markets. The result of these arrangements is that it reduces cost of testing because manufacturers can test in their own countries and it eliminates the need for products to be retested in another country (DTI, 2004b).

At international level, the International Laboratory Accreditation Co-operation (ILAC) is an international co-operation between laboratory accreditation schemes operated throughout the world. It was formalised in 1996, when 44 national bodies signed a memorandum of understanding. South Africa and Egypt are signatories of the memorandum. The International Laboratory Accreditation Co-operation is responsible for the harmonisation of laboratory accreditation procedures. In addition, the memorandum of understanding provides the basis for further development of the co-operation and the establishment of multilateral recognition arrangements between the International Laboratory Accreditation Co-operation member bodies. In this regard, the International Laboratory Accreditation Co-operation Arrangement enhances and facilitates the international acceptance of test and calibration data and the elimination of technical barriers to trade. It was signed by 36 laboratory accreditation bodies from 28 economies on 2 November 2000 and went into effect on 31 January 2001 (ILAC, 2006).

International co-operation in the area of certification is carried out through the International Accreditation Forum (IAF). The IAF was established in 1992 as an informal co-operation and was incorporated in the United States in 1998. It is a world association of accreditation bodies working on the certification or registration of management systems, product certification and inspection. The IAF operates the IAF Multilateral Recognition Arrangement, whose member accreditation bodies recognise the results of each others accreditations as equivalent (IAF, 2008).

National accreditation bodies, which provide accreditation services for laboratories, certification bodies and inspection bodies, need to be recognised as competent in terms of the international mutual recognition mechanisms as managed by the International Laboratory Accreditation Co-operation (ILAC) and the International Accreditation Forum (IAF) (SADC, 2004:34). The national

accreditation body also has to be recognised by the government. Governments in developing countries often fund the international recognition activities because it recognises the importance of providing assurance to trading partners that suppliers of tests and certificates are competent and to overcome technical barriers to trade (ISO, 2006). Table 4.5 provides a summary of the standards infrastructure costs, financing, needs and planning considerations.

Table 4.5: Summary of the accreditation infrastructure costs, financing, needs and planning considerations

Costs	Financing	National needs	Planning considerations
Costly, in view of the need for ILAC and IAF mutual recognition and the expertise required.	Creation and operation of a single national accreditation body for laboratory, inspection and certification should be financed by government at least during the first phase and to maintain the international recognition. Where the scale of national requirements is insufficient to justify the cost, a regional solution should be	See the column to the left.	The viability of a regional or sub-regional accreditation infrastructure as an alternative to national infrastructure should be carefully considered.

	<p>sought.</p> <p>Industry should pay for the accreditation services, possibly on a reduced subsidy basis as the economy grows.</p>		
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Source: Adapted from ISO (2008:24)

4.5 INSTITUTIONAL CAPACITY IN SOUTHERN AFRICA

African countries face critical challenges in terms of improving domestic capacity to meet the quality standards, safety and environmental technical regulations, which are required in global markets. Institutional reform and investment in human capital as well as infrastructure improvements in testing laboratories and certification facilities are necessary. Wilson and Abiola (2003:57,136-137, 204, 290, 401-404) highlight the following common challenges facing African countries:

- African enterprises looking for export opportunities find the international requirements of developed countries difficult to meet.
- The absence of effective technical regulatory authorities is putting pressure on local producers to substitute quality for price.
- African participation in the formulation of international standards and technical regulations is ineffective because of low political support and inadequate participation.
- African enterprises are therefore standards-takers and are always reacting to changing standards and technical regulations formulated by developed countries that do not accommodate unique African constraints.
- Government institutions, such as the standards bodies, often lack human, financial and infrastructure to assist enterprises.
- There is a lack of understanding of technical regulations in policy-making.

- There is a proliferation of technical regulatory responsibilities and roles across national regulatory institutions.
- Local technical regulations are out of date and enforcement mechanisms are ineffective.
- Local testing bodies, certification facilities and inspection bodies are not internationally recognised.
- Developed countries require compliance with more sophisticated best practice requirements. For example, many farmers in Africa are required to invest in the Euro Retailers Produce Working Group Good Agricultural Practices principles and Hazard Analysis of Critical Control Point protocols, which require, among other things, better supply chain management for traceability, record-keeping, detailed labelling and calibrated equipment. African countries find it difficult to comply with these requirements.

It is evident from the above that non-compliance with international standards and technical regulatory requirements is depressing Africa's access to global markets and is preventing African countries from taking advantage of market access initiatives such as the United States Growth and Opportunity Act and the European Union's Everything but Arms initiative. The case on the Southern African Development Community helps to illustrate this point.

Intra-regional trade in Southern African Development Community has been growing slowly but steadily over the past few years. Export, however, remains stagnant at about 20% of trade. A 2004 southern African Development Community report on regional non-tariff barriers in southern Africa found that most of the barriers to trade such as price control, state marketing, currency controls and export licensing have been eliminated as a result of the Southern African Development Community Trade Protocol. What prevail are barriers to trade as a result of arbitrary actions and non-transparency by member countries which continues to impact negatively on intra-regional trade (SADC, 2004:5-8).

In terms of technical barriers to trade, the abovementioned report highlights the following problems:

- Non-acceptance of national standards;
- Inability to do verification of compliance at national level;
- Lack of regional accreditation process;
- Temporary bans on selected products to protect local vested interest;
- protection of a small number of producers at the expense of the consumer;
- Inadequate technical barriers to trade inspections;
- Poor technical regulatory administration capacity;
- Unharmonised regional rules and procedures;
- Misuse of food safety and technical regulations; and
- Lack of capacity to meet international standards and regulations.

In an attempt to support efforts to facilitate trade and eliminate unnecessary barriers to trade, the Southern African Development Community's regional technical infrastructure consisting of the Southern African Development Community Co-operation for Metrology (SADCMET), the Southern African Development Community Co-operation for Standardisation (SADCSTAN) and the Southern African Development Community Co-operation for Accreditation (SADCA) have agreed that it is important to co-operate. Therefore policy-makers formalised the co-operation through a Southern African Development Community Standards, Quality Assurance, Accreditation and Metrology Memorandum of Understanding (SADC SQAM MOU), which was signed by the Southern African Development Community Ministers responsible for Trade and Industry in 2000.

In general, however, progress on technical infrastructure development in southern Africa is slow. The current status of technical infrastructure institutional capacity in the Southern African Development Community illustrates this point.

4.5.1 Metrology

The Southern African Development Community region identified five developmental stages for metrology. These stages were used to classify current national metrology activities in each of the countries. The classification is also useful because it helps with the identification of national metrology development needs. Table 4.6 identifies the five stages and the Southern African Development Community member states.

Table 4.6: Developmental stages for metrology and current status of SADC countries

Stage	Description	Country
A	<u>Non-existing</u> No metrology facilities.	Lesotho
B	<u>Rudimentary</u> Some metrology facilities. Some elements of SQAM legislation.	Angola DRC Mozambique Namibia Swaziland
C	<u>Existing</u> Established trade metrology system. Some national measurement standards. Traceable standards.	Botswana Malawi Tanzania Zambia Zimbabwe

Stage	Description	Country
D	<u>Almost recognised</u> Engaged in accreditation process. Participation in regional or international comparisons.	Mauritius
	<u>Recognised</u> Measurement services accredited by internationally recognised accreditation body. Comprehensive SQAM legislation.	
E	<u>Reference</u> Signatory to MRA between NMIs. CMCs in BIPM MRA database. Realisation of primary standards. NMI experts serve on CIPM consultative committees.	South Africa

Source: SADCMET (2003)

Table 4.6 indicates that almost all of the metrology bodies in the Southern African Development Community region still have a long way to go to be recognised internationally.

In the context of southern Africa, only South Africa is a member of the International Bureau of Weights and Measures (BIPM) and participates in the mutual recognition arrangement of the International Committee for Weights and Measures (CIPM). Therefore, only one Southern African Development Community country out of a total of 14 countries benefits from the membership, which provides a technical basis for wider trade, commerce and regulatory negotiations (BIPM, 2006).

4.5.2 Standardisation

In order to support the development of national standards bodies in a meaningful way, the Southern African Development Community region also identified five developmental stages for national standardisation activities. Table 4.7 describes the five stages and lists the status of the Southern African Development Community member states.

Table 4.7: Developmental stages for national standardisation activities and current status of SADC countries

Stage	Description	Countries
A	A national focal point; no national standards body; no standards development activity; no standards information.	DRC Lesotho Namibia Swaziland
B	A national focal point; no national standards body; national/regional standards publication; rudimentary standards information.	-
C	A national standards body; national/regional standards publication; rudimentary standards information; associate (or similar) membership of ISO/IEC but no meaningful participation in regional/international standards development process.	Angola Mozambique Zambia
D	A national standards body; national/regional standards publication; advanced standards information; meaningful participation in regional standards development process; limited participation in international standards development process.	Botswana Malawi Mauritius Tanzania Zimbabwe
E	A national standards body; national/regional standards	South Africa

	publication; standards information; meaningful participation in regional standards development process; meaningful participation in international standards development process.	
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Source: SADCSTAN (2003).

Table 4.7 shows that the national standardisation infrastructure is more developed. The only country with a mature standardisation body is South Africa with a fully functional standards body, which can participate meaningfully in the international standards development processes. Botswana, Malawi, Mauritius, Tanzania and Zimbabwe have functional standards bodies but with very limited participation in the international standards development processes.

Developed countries invest a substantial amount of money in the international and national standards development process (UNIDO, 2005:101-103). Specifications of international standards are therefore strongly influenced by the large international companies of the developed world. There is a growing concern about the use of international standards and technical regulations as discriminatory technical barriers to trade. Although standards and technical regulations should be designed taking into account risk and scientific evidence, dominant groups can manipulate the standards development process to protect their interests.

In addition to the manipulation of international standards development processes by developed countries, developing countries lack the capacity to participate actively in international standards development activities. Developing countries also have limited capacity to provide credible information to defend their interests, which puts developing country enterprises at a disadvantage. This, therefore, makes developing countries standards-takers and thus reactive players in the international trade system. Developing countries enterprises are therefore at a plural constant disadvantage, which creates an asymmetric playing

field. Additionally, developing countries often have to comply with numerous technical requirements of different trading partners (Wilson & Abiola, 2003:xxxv).

4.5.3 Accreditation

In terms of accreditation infrastructure, only South Africa is a signatory to the International Laboratory Accreditation Co-operation and the International Accreditation Forum international mutual recognition mechanisms and therefore only South Africa's benefits because trading partners accept national tests and certificates.

The current efforts to establish a Southern African Development Community regional accreditation body, which will be internationally recognised, may solve the international recognition problem for those countries that cannot set up a national accreditation body.

4.5.4 Investment in technical institutions in the Southern Africa Development Community (SADC)

The European Union and the Southern African Development Community agreed in December 2005 to roll out a four-year project funded by the European Union to contribute to the development and implementation of a Southern African Development Community framework for technical regulations, and the establishment of a more effective, efficient and functioning technical infrastructure. The European Union will fund the project to an amount of 14 200 000 euros (SADC, 2006). The main objectives of the project are the following:

- The development and finalisation of a Southern African Development Community regional policy framework on technical regulations;

- The agreement by all member countries on Southern African Development Community Technical Barriers to Trade Annex to the Southern African Development Community Trade Protocol;
- The establishment of national focal points for standardisation and the strengthening of national standards bodies' capacity to comply with the obligations of the World Trade Organisation Technical Barriers to Trade Agreement;
- Securing Southern African Development Community National Metrology Institutes accreditation in core metrology fields by internationally recognised accreditation bodies;
- The establishment of an internationally recognised regional accreditation body for Southern African Development Community countries that choose not to have national accreditation bodies; and
- The strengthening of the capacities of public and private conformity assessment service providers.

The abovementioned investment in technical institutional capacity in the Southern African Development Community (excluding South Africa) will put the basic minimum technical infrastructure in place to facilitate trade. The development of a Southern African Development Community technical regulatory framework and the implementation of the Southern African Development Community Technical Barriers to Trade Annex will aim to improve technical regulatory practices in the sub-region with a view to deepen integration. The establishment of national focal points for standardisation will assist with the dissemination of international standards information to the Southern African Development Community enterprises.

The establishment of the Southern African Development Community Accreditation Body will facilitate mutual recognition of conformity assessment results at sub-regional level. The establishment of a sub-regional accreditation

body is unique to the Southern African Development Community and other sub-regions are currently investigating the approach as a cost-effective solution if countries choose not to have national accreditation bodies. The accreditation of key metrology fields will ensure traceability of all measures. Member countries will, however, be required to ensure consistent budgets to maintain the technical infrastructure to meet changing domestic needs in future.

At the signing ceremony of the European Union-Southern African Development Community Financing Agreement, Anders Henriksson, Director Horn of Africa, eastern and southern Africa, Indian Ocean and Pacific, Directorate General for Development, European Commission, commented that the project is a concrete outcome of the joint European Union-Southern African Development Community efforts to closely link trade and development. He also said that the project will facilitate exploitation of trading opportunities, which exist under the Economic Partnership Agreements.

Although South Africa cannot benefit from the above agreement, it went through an extensive technical regulatory and technical institutional reform process over the past two years. The following section provides an overview.

4.5.5 South Africa

The South African technical infrastructure is the most sophisticated in southern African. All three pillars, namely standardisation, metrology and accreditation, are in place and are internationally recognised (Jooste, Kruger and Kotze, 2003:235-290). The country, however, experiences the following problems (Jooste, Kruger and Kotze, 2003:290):

- Fragmentation in the technical regulatory system, which results in duplication and gaps;
- Keeping up with increased international demands in terms of more and more technical regulations as tariffs are reduced;

- Lack of effective participation by government in international standards development activities due to a lack of capacity stemming from the fact that too few people are responsible for too much work;
- Increased demands from developed country importers in the retail sector resulting in requirements that are becoming moving targets;
- Outdated standardisation, metrology and compulsory specification legislation;
- Peculiarity in the budgeting system in terms of which the National Metrology Laboratory and the South African Accreditation System submit budget and business plans to the Department of Trade and Industry and the South African Bureau of Standards submit budget and business plans to the Department of Science and Technology;
- Limited strategic interaction between the standards body of South Africa and government departments to identify issues of common interest in standards, accreditation, metrology and technical regulations;
- Small and medium enterprises find compliance costs high and their inability to invest in upgraded equipment hampers their ability to produce for international markets; and
- No effective mechanism to notify the South African industry of foreign technical regulations.

Examples of specific industry sectors in South Africa that have to adhere to international technical requirements are the following (Jooste, Kruger and Kotze, 2003:264-270):

- The high cost of compliance is illustrated by the cost of Hazard Analysis of Critical Control Point-related investment that the fisheries industry had to incur. A R15 million investment was required in the late 1990s to upgrade canning plants to comply with the European Union Hazard Analysis of Critical Control Point requirements. An additional R8–12 million investment was required to upgrade fishing trawlers and

factory vessels to comply with the European Union requirement for whole fish exports. The fishery industry also pays a levy to the South African Bureau of Standards. This levy funds the administration and enforcement of technical regulation in the industry. In 2001/2002, the industry paid R39 million to the South African Bureau of Standards. The South African Bureau of Standards, which is the formally notified body for export certification to the European Union, charges R275 to R300 per hour and the cost of each consignment certification is R94.

- The fruit industry in South Africa has to comply with various technical regulations such as quality standards, packaging marking and label requirements, traceability requirements, as well as food safety and phytosanitary requirement. Other requirements are the Euro Retailers Produce Working Group Good Agricultural Practices and the Hazard Analysis of Critical Control requirements of overseas supermarkets, which farmers and pack houses have to comply with. These requirements include environmental management, responsible agricultural practices, responsible use of agrochemicals as well as occupational health and safety and welfare of the worker. Table 4.8 sets out the estimated costs of compliance on selected farms in South Africa for selected standards (Jooste, Kruger and Kotze, 2003, 270).

Table 4.8: Estimated costs of compliance on selected farms in South Africa for selected standards

Costs and other details	Whyte Citrus	Riverside Enterprises	Patensie Citrus	Average
Tons of citrus growth (2001)	2,700	11,000	15,000	9,567
Hectares used	40	150	200	130
Revenue received per ton (2001) – rand	2,520	1,675	1,525	1,907
Per year costs of compliance per ton (2001-2002) with CBS – rand	19	68	27	38
Per year costs of compliance per ton				

(2001-2002) with EUREP GAP regulations – rand	37	9	47	31
Percentage of revenue lost due to costs incurred in compliance with CBS and EUREP GAP regulations	2.2 %	4.6 %	4.9 %	3.9 %
A foregone earnings per year estimate of the cost of US CBS regulations (percentage of total revenue)	-	-	R10 million (10 %)	-

Source : Jooste, Kruger and Kotze (2003:270)

In 2004, the South African Government finalised a South African policy position to modernise the South African technical infrastructure (DTI, 2004a). The main elements of the policy position include the updating of the legislative environment by the development of new legislation for standardisation, metrology, accreditation and compulsory specifications. The policy position for metrology resulted in the repositioning of the South African national metrology body as a separate public entity. The National Metrology Institute of South Africa was established on 1 May 2007 in terms of the Measurement Units and Measurement Standards Act, No 18 of 2006. The National Metrology Institute of South Africa is now in a position where it can align its activities with that of the South African National Accreditation Body and the South African Bureau of Standards. The South African National Accreditation Body was established as a public entity in order to strengthen government's recognition of the institution in terms of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, No 19 of 2006.

The South African Bureau of Standards was re-established on 1 September 2008 in terms of the Standards Act, No 5 of 2007 as the peak body responsible for standardisation and conformity assessment, which also receives its budget from the Department of Trade and Industry. Allowing other standard development organisations to develop sector standards and have them published by the South Africa Bureau of Standards will extend the standardisation activity. The policy

also proposes a review of South Africa's involvement in international standards to ensure that resources are targeted at the areas that are most relevant to South African industry and development (DTI, 2004a). Government also moved the regulatory responsibilities from the old SABS to the new National Regulator for Compulsory Specifications in terms of new the National Regulator for Compulsory Specifications Act, No 8 of 2007.

South Africa has recently finalised a strategy to ensure that its national technical regulatory framework complies with international requirements (DTI, 2006a). This strategy was developed because the South African government was of the opinion that the absence of a common approach to technical regulations is creating technical regulatory inefficiencies. The South African technical regulatory model makes provision for regular review, update and modification of technical regulations, the use of a consultation and stakeholder participation approach to ensure transparency of the process and to facilitate input by all stakeholders, the use of impact and risk assessment and other analytical tools to inform decisions by policy-makers and regulators (DTI, 2006a:8).

The Department of Trade and Industry in South Africa is responsible for ensuring that the national technical infrastructure system in South Africa operates optimally to support national interest and that it has strategic direction. The Department of Trade and Industry also provides the appropriate administrative and financial support to the technical infrastructure institutions, namely the National Metrology Institute of South Africa, the South African National Accreditation Body and the South African Bureau of Standards. Tables 4.9 and 4.10 set out the government financial support for South Africa's technical infrastructure institutions as well as the turnover of each institution.

Table 4.9: Financial support by South African government as percentage of turnover

	2005		2006	
NMI	R 34 860 000	74,8%	R 30 554 386	64,5%
SANAS	R 9 000 000	48%	R 9 530 000	45,5%
SABS	R 97 075 000	26,9%	R 96 075 000	29,3%
Total	R140 935 000		R136 159 386	

Sources: Annual reports SANAS, SABS and NMI (2005/2006)

Table 4.10: Turnover of the South African technical infrastructure institutions

	2005	2006
NMI	R 46 604 874	R 47 387 277
SANAS	R 18 722 693	R 21 075 426
SABS	R 360 594 000	R 330 227 000
Total	R 425 921 567	R398 689 703

Sources: Annual reports of SANAS, SABS and NMI (2005/2006)

The government of South Africa provides financial support and other relevant support to its technical infrastructure institutions because it is of the opinion that the technical infrastructure of South Africa has an extremely valuable role to play in underpinning the ability of the country to conduct trade (domestic and international) as well as the ability of a nation to build world-class competitive business enterprises that can compete effectively on the international stage (DTI, 2004a:24).

4.6 CONCLUSION

To conclude, the World Trade Organisation Technical Barriers to Trade Agreement provides the following key principles which countries needs to apply when developing technical regulations. The necessity principle, which determines that countries can use technical regulations, to attain the legitimate protection for their consumers and the environment. The non-discriminatory principle, which

requires that countries treat domestic and foreign products similarly when technical regulations are prepared, adopted and applied. The trade restrictiveness principle, which requires that countries choose technical regulations that do not create unnecessary barriers to trade. The proportionality principle, which implies that countries consider the costs and benefits of technical regulations. The transparency principle, which requires publication of technical regulations before they come into force and makes provision for comment periods. This principle provides for predictability and allows competitors to adopt their products timely. The last principle, which provides for the use of internationally harmonised measures, standards and conformity assessment requirements.

The World Trade Organisation Agreement on Technical Barriers to Trade has assisted enterprises to have access to information on technical regulations and conformity assessment procedures in export markets, to provide exporters with notifications on new technical regulatory proposals that may be affected them and to keep track of proposed standards in the markets to which they wish to export.

The programmes of the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development are regional co-operation activities, which build onto the World Trade Organisation Technical Barriers to Trade Agreement in an effort to find innovative solutions for technical regulatory harmonisation, mutual recognition and co-ordination. The three initiatives have common approaches to clear problem definition, the use of alternative mechanisms to technical regulations, , the use of performance-based regulations and international standards and the need to clearly defined conformity assessment requirements. that A transparent and predictability technical regulatory system is important..Intergovernmental and inter-regulatory co-ordination and participation have to be promoted to avoid inconsistency, incompatibility or duplicative technical regulations. .Impact and risk assessment

analysis is important tools that policy-makers and regulators can use to choose appropriate technical regulatory responses. Technical regulations have to be monitored and reviewed.

In terms of institutional capacity, it can be concluded that the Southern African Development Community is still at the early stage of technical institutional development. The low development stage may be a reflection of the highly technocratic nature of standards, technical regulations and conformity assessment, which policy-makers often find difficult to understand thus resulting in limited political support as well as the relatively high investment requirements. There is, however, an opportunity for the Southern African Development Community to approach the upgrading and reform of the Southern African Development Community's technical infrastructure more holistically with a view to finding a cost-effective solution for southern African. This will require some political trade-offs.

The case study information on South Africa helps to demonstrate where the investment in technical infrastructure is necessary, should African countries want to facilitate trade and eliminate technical barriers to trade (TBTs).

CHAPTER 5

AN ANALYSIS OF TECHNICAL REGULATORY REFORM AND STATE INSTITUTIONAL CAPACITY: IMPLICATIONS FOR AN AFRICAN TECHNICAL REGULATORY FRAMEWORK

5.1 INTRODUCTION

The purpose of this chapter is to analyse the case studies described in Chapter 4. The analysis will focus on the multiple case studies of the World Trade Organisation and the Asian Pacific Economic Community, the Organisation for Economic Co-operation and Development with a view to draw conclusions about possibilities to generalise the findings or best practices for an African programme taking into account the historical, economic or social factors that impact on such a programme. The analysis will aim to identify emerging best technical regulatory practices and emerging areas for improvement in the area of technical regulatory practices.

5.2 TECHNICAL REGULATORY REFORM

In a particular market, several companies may provide similar products. Consumers will buy specific products to the exclusion of others because the products meet their needs based on their preferences in terms of design, quality, service and price. As a general rule, consumers take the safety of the product for granted. In an ideal world, no product will jeopardise the health and safety of consumers or impact negatively on the environment (ITC, 2004:3).

However, internationally it may occur that markets sometimes let the consumer down and products fail or harm consumers or damage the environment. One of the reasons is that manufacturers of products may be enticed to cut costs and keep their prices low in order to gain or maintain market share. Because

individual consumers seldom have the resources to deal with product failures they rely on their governments for protection. Thus, governments have the right and the obligation to intervene in the marketplace. This intervention in terms of which government determines and controls the technical requirements of products that have health, safety and environmental implications takes the form of technical regulations (WTO, 2006).

Governments and their regulators adopt various approaches when imposing technical regulations. These technical regulations may involve product standards, conformity assessment such as product certification, testing and inspection, pre- or post-market requirements as well as sanctions if the products fail to meet the technical regulations. As a result of the multiplicity of approaches used by different governments and their regulators, it is difficult for companies, specifically companies from developing countries, to meet requirements in both the domestic and the export market (ITC, 2004:6, 14).

In view of the abovementioned complexities, many governments and regions started with policy reviews that focused on technical regulatory reform. The point of departure for technical regulatory reform is a technical regulatory reform policy for a region. Such a policy usually sets out the principles that govern the reform and provides the domestic and foreign public with information on what can be expected from government (APEC-OECD, 2005:5). The policy also forms the basis for government action and identifies substantive areas for analysis. In addition, the policy provides an opportunity for political leaders and senior government officials to express support and interest in the technical regulatory reform activities.

This support and interest is crucial because technical regulatory reform may threaten powerful interest groups inside and outside government. Therefore, a strong message that confirms commitment is needed to build and maintain public consensus for the reforms. Often the short term of cost of the reform process

may be considered expensive; however, maintaining the status quo may increase cost of reform over the long term (APEC-OECD, 2005:3). In addition if change of the culture of economic actors, regulators and institutions is required, high-level commitment needs to be sustained over time. Political leadership in public policy-setting will thus help to balance social and environmental factors with economic, competitive and market openness objectives of regulatory reform activities.

In order to assure effective implementation of the technical regulatory reform policy, it is necessary to assign specific responsibilities for different aspects of the reform and to create a framework for accountability. In addition, effective implementation requires co-ordination between various stakeholders such as departments, ministries, regulators, public and political leaders across a number of areas with a clear understanding of the role of each stakeholder.

O'Brien (2003) confirms the need for effective implementation that is co-ordinated and points out that technical regulatory reforms are complex because it involves intersecting physical and natural information with cost and benefit analysis of economists within the context of intricate laws and jurisprudence, the methods of public administration, and, to the force of public opinion. The challenge for a region is to develop a technical regulatory region's system that accommodates the region's specific challenges. The system should take account of the legislative and political system of the countries in the region and the system should respect the policy-maker's discretion to balance the complexities and trade-off between achieving legitimate technical regulatory objectives and market competitiveness and openness (OECD, 2003).

It is recognised that generalising findings and identifying best practice are difficult because of different views, different approaches and even gaps in terms of knowledge. Best practice is generally understood as adaptable and not a one-size-fits-all concept that may be used by specific regions to suit their specific

technical regulatory needs and challenges and objectives. In the context of this study, *best practice* means identifying common patterns in technical regulatory policy approaches by various regions as well as emerging areas for improvement.

There are particular core trends that can be identified based on international and regional information and guidance and can be used to develop flexible regional policy approaches. The case studies of the World Trade Organisation, the Asian Pacific Economic Community, the Organisation for Economic Co-operation and Development and the Southern African Development Community identify emerging best technical regulatory practices and emerging areas for improvement in the area of technical regulatory practices with the focus on non-discrimination, transparent and open decision-making processes, the avoidance of unnecessary trade-restrictiveness, the use of extensive impact assessment and risk assessment tools, the use of internationally harmonised measures and the streamlining of conformity assessment processes.

The following sections analyse each of the abovementioned technical regulatory areas in detail.

5.3 NON-DISCRIMINATION

Non-discrimination means that technical regulations should not be applied differently to different companies or different countries. It also means that technical regulations should not be developed to favour a particular company or category of companies (APEC-OECD, 2005:6).

In order to eliminate discrimination in technical regulations, it is important that new and proposed technical regulations are examined to ensure that such requirements that may be discriminatory are avoided. Such unintended effects can be avoided through effective consultation with all relevant stakeholders as

well as impact analysis of the effect of a new technical regulation on trade and investment.

It is important for regions to assure compliance with this principle because it can impede negatively on regional and foreign investment, competition, access to higher quality products, lower prices and technology transfer (APEC-OECD, 2005:30).

5.4 TRANSPARENCY

Transparency is one of the most important building blocks of a good technical regulatory system. A transparent system should make provision for effective access to existing technical regulations for all market participants and stakeholders, domestic and foreign. The system should also provide systematic information of technical regulations in the making. Predictability and clarity of the technical regulatory-making process also provide for participation by stakeholders at appropriate times in the process (APEC-OECD, 2005:8).

Participation through public consultation should be open to all interested parties, including other governments, non-governmental organisations, trade unions, the private sector, consumers, accreditation bodies and standardisation organisations. These consultation processes are important because they improve the quality of technical regulations and may reduce enforcement costs for government (APEC-OECD, 2005:6).

Transparency may be achieved through publication of information, national enquiry points, notification to the World Trade Organisation (WTO, 2006), providing online information, compendiums of technical regulations and prior consultation and comment procedures. The codification of the technical regulatory process, supplemented with policies relating to the technical regulatory activities and detailed guidance on processes can be used successfully.

Regions also commit to periodic reviews of the existing technical regulation with a view to confirm whether the technical regulations are still relevant. Systematic and rigorous processes to facilitate public consultation are implemented by regions. These processes include prior notification and sufficient comment periods and are open for all interested stakeholders.

Transparency has the benefit that it ensures compliance and thus the achievement of public policy objectives. Other benefits are that it promotes public confidence, predictability and fairness. In addition, it contributes positively to the attractiveness of the investment climate for both domestic and foreign investors as well as new market entrances including small and medium enterprises (APEC-OECD, 2005:29).

A transparent approach to technical regulations, however, recognises that government policy action often involves trade-offs in order to maximise social welfare and therefore these trade-offs need to be assessed and discussed in an accountable manner.

5.5 AVOIDING UNNECESSARY TRADE-RESTRICTIVENESS

It is important for policy-makers to promote approaches to technical regulations and their implementation which avoid unnecessary barriers on economic actors. This requires an assessment of whether a proposed technical regulation is the least trade-restrictive option available for the achievement of the regulatory objective (APEC-OECD, 2005:26). It also requires the use of performance requirements as well as taking into account the equivalence of countries' technical regulatory requirements in meeting the specific regulatory objective (APEC: 2000). It also entails allowing for flexibility in the way the technical regulations are met and thus avoiding prescribing how it should be done. This approach to technical regulations is positive for the development of new, innovative and cost-effective solutions and technologies (ITC, 2005:21).

Many countries rely on technical regulatory impact analysis to avoid unnecessary trade-restrictiveness. Systematic assessment of the impacts of proposed technical regulations includes cost and benefit analysis, investigation of possible feasible alternatives to the proposed technical regulation and an analysis of the impact of such a regulation on trade and investment and small enterprises.

Guidance and checklists for policy-makers on impact assessments, quality control standards for the preparation of thorough impact assessment as well as the publication of impact assessment analyses in the public domain are tools used to ensure consistently high quality and effective technical regulations. This should be complemented with the training of technical regulatory officials who are responsible for the preparation of technical regulatory impact assessment. The training should also include improved awareness amongst technical regulatory officials for trade-friendly regulations that do not compromise the technical regulatory objectives (APEC-OECD, 2005:10). The efficient co-ordination at interdepartmental level through appropriate consultation and the creation of new forums where appropriate mechanisms do not exist are also vitally important.

5.6 USE OF INTERNATIONALLY HARMONISED MEASURES

International standards play an important role in global trade. Compliance with different national standards and technical regulations increases the cost of companies to operate in different markets. The development of international standards may offer a solution to fragmented technical regulatory systems and the World Trade Organisation agreements encourage the use of international standards as a basis for domestic regulations wherever it is feasible and appropriate for the achievement of a specific regulatory objective (ISO, 2008:15). Such reliance should be a pertinent principle of technical regulatory reform policies. Active participation in the development of international standards and ongoing national commitment of resources or participation in international

standards setting is a good indicator of the preference to use international harmonised standards as a basis for domestic regulations.

In terms of choosing between prescriptive technical regulations or performance-based technical regulations, performance-based technical regulations are generally preferred because they represent a more flexible approach and allow those that are regulated to determine their own technique for achieving compliance with the technical regulations. Performance-based technical regulations provide flexibility while ensuring that the objective is achieved (APEC, 2000). The Asian Pacific Economic Community, the Organisation for Economic Co-operation and Development endorse performance-based technical regulations because they are considered to be a less trade-restrictive form of technical regulation.

The use of international standards as a basis for technical regulations also facilitates the acceptance of foreign measures as equivalent to domestic measures (APEC, 2000). Experiences in the area of equivalence are limited even in developed countries and best-practice approaches are not forthcoming. The European approach is to test equivalence based on an essential requirement test. There are, however, many operational and interpretation challenges that appear to hinder acceptance of equivalence.

In addition to the above, the concept of internationally harmonised standards also covers the streamlining of the conformity assessment process internationally to facilitate mutual recognition, mutual acceptance and reliance on supplier's declarations of conformity assessment results.

5.7 CONFORMITY ASSESSMENT

Best practice patterns are difficult to identify as a variety of approaches to streamline conformity assessment processes is in use. The European approach

to streamline conformity assessment requirements is prescriptive and highly rules-based. The Asian Pacific Economic Community accepts that governments may require assurance that products placed on their markets comply with the technical regulations to ensure the health and safety of the public and the environment. The Asian Pacific Economic Community, however, also recognises that the need for assurance of conformity with technical regulations places an inherent burden on manufacturers specifically if manufacturers are required to have products re-tested or re-certified even though they have already been tested or certified in the country of origin. The Asian Pacific Economic Community recommends acceptance of the results of conformity assessment activities undertaken by competent bodies in other countries. The key factor for acceptance of conformity results is the confidence that regulatory authorities in the importing countries have in the technical competence of the conformity assessment bodies in the exporting country to assess products to the importing economy's requirements.

National and regional accreditation mechanisms that inspect and acknowledge the competency and reliability of conformity assessment bodies have sought to enhance confidence in the efficiency of conformity assessment activities. These accreditation institutions are actively establishing an international network that allows the acceptance of results and eliminate duplicative efforts. The aim of these streamlining efforts is to have a test-once, certify-once or inspect-once approach that is accepted by others. It also aims to introduce competition to the conformity assessment market and potentially reduces the cost borne by manufacturers in certifying and testing their products (ISO, 2008:17-18).

5.8 IMPACT AND RISK ASSESSMENT

Governments are increasingly presented with the need to identify and respond to a multitude of risks that prevail in the marketplace in terms of health and safety of the consumer and the environment. Once the nature of the problem is established, the magnitude of the problem must be assessed. A commonly used tool to do this is risk assessment (APEC-OECD, 2005:18). This is the process of considering the various risks associated with a particular situation, procedure or operation. It should include assessing the risk of not doing anything and of following a particular course of action. The World Trade Organisation Technical Barriers to Trade Agreement confirms the importance of risk assessments and advises that consideration must be given to the risks that the non-fulfilment of the legitimate objectives may create. Further, the agreement suggests that: "In assessing such risks, relevant elements of consideration are, inter alia: available scientific, technical information, related processing technology or intended end-uses of products" (WTO: 2006).

In support of the risk assessment, impact assessment analysis is a useful tool for policy-makers and regulators to decide which particular technical regulatory response is the most appropriate given the specific social, economic and political environment. The analysis enables decision-makers to make judgements about the reasonableness of a technical regulation and the practicalities for those who will be required to comply. Impact assessment analysis also allows technical regulations to be designed so that they impose the lowest costs and yield the greatest benefits (APEC, 2002).

Impact assessment analysis should therefore not be thought of as an after-the-fact exercise when the technical regulatory decision has been made. Impact assessment analysis should rather be used to inform the policy investigation and analysis throughout the development process; also be proportional in terms of complexity and level of analysis to the problem that it wants to solve; and should

consider the sources of risks. The Asian Pacific Economic Community Information Notes of September 2002 (APEC, 2002) identify the following sources of risk: the ability of regulators and of injured parties to take action, the possibility that small opportunistic enterprises might produce defective products, or that large businesses might systematically undermine the regulatory system based on their own risk strategies, the degree to which the public rely on the government to ensure product safety, the extent to which the rate of technological growth can introduce new products into the market, the possibility of internal industry controls to self-regulate and lastly, the extent to which businesses need to protect their tradenames and trademarks.

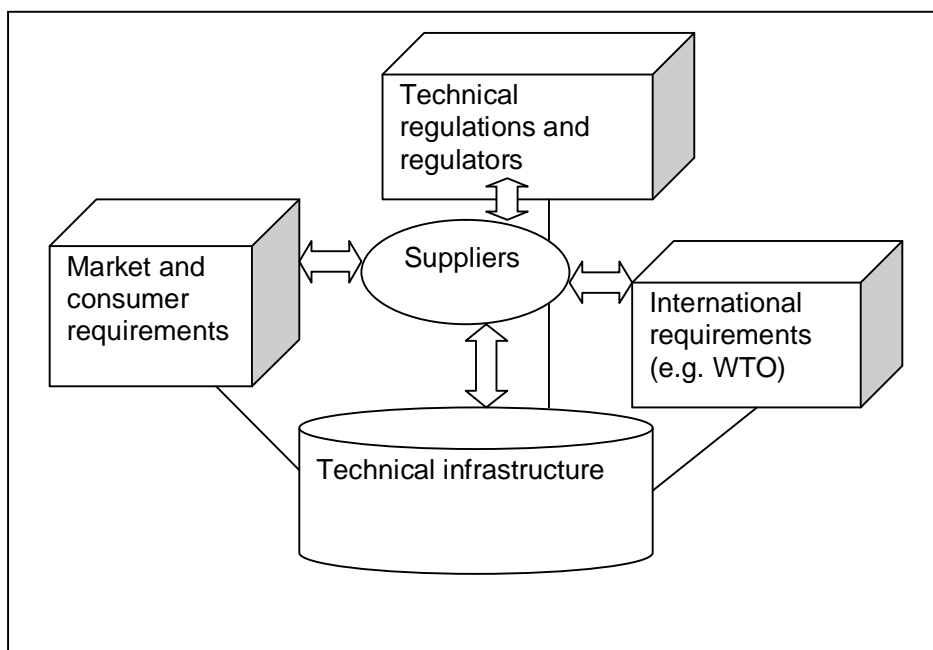
Impact and risk assessment, however, remains subjective and is often informed by judgements and assumptions where information may be incomplete. The challenge for the policy-maker is to minimise subjective biases by analysing relevant information gathered from published literature, regulatory experiences, industry practice, market research, economic and other models as well as expert knowledge.

5.9 TECHNICAL INFRASTRUCTURE CAPACITY IN AFRICA

The technical infrastructure capacity of a country and a region facilitates trade, regional integration and industrial development. These are tools that may be used by government to enable it to meet policy obligations to protect the health and safety of the public and the environment. It, therefore, becomes necessary for governments to establish and maintain their technical infrastructure and to secure international recognition for their systems if they want to participate competitively in international trade and if they want to facilitate regional trade in Africa (ISO, 2008:19-21). African countries that envisage export-led economic development and improved industrial development should establish adequate technical infrastructure (ITC, 2005:30) The technical infrastructure institutions also need to be signatories of the various international mutual recognition

arrangements of the International Accreditation Forum, the International Laboratory Accreditation Co-operation and the Bureau International des Poids et Mesures (ITC, 2005:36). Figure 5.1 illustrates how the technical infrastructure supports activities of manufacturers and exporters and therefore facilitates trade and export.

Figure 5.1: Supporting technical infrastructure



Source: Adapted from ITC (2005:6)

The technical infrastructure capacity demands offer both opportunities and competitive challenges to the sustainable development of the African region. When considered in the light of Africa's economic strategies, e.g. the Market Access Initiative and the Productive Capacity Initiative, which aim to facilitate market access for African products through improved production capacity, the important role of infrastructure for standardisation, accreditation and metrology

should not be underestimated. As a result, the reform of the African technical infrastructure becomes urgent and a priority (UNIDO, 2007:14).

The abovementioned case studies highlight the fact that African enterprises wishing to export to developed countries have to comply with international standards and technical regulations. Non-compliance resulted in bans that impacted negatively on their economies. Tables 5.1 and 5.2 identify the reasons for banning of exports from Africa by the European Union and the United States of America over a period of two years (UNIDO, 2007:15,16).

Table 5.1: Notifications of the European Union rapid alert system for food and feeds concerning African exports - January 2005 to December 2006

Sub-regions	Percentage of notifications related to food safety requirements	Examples of food product categories	Reasons for notifications
EAC	69	Fish, crustaceans and molluscs	Salmonella in fish
ECCAS	100	Fish, crustaceans and molluscs	High content of sulphites in frozen crabs and prawn
ECOWAS	93	Nuts and nut products, spices	High aflatoxin content in peanut butter, groundnuts and chilli spices
SADC	93	Nuts and nut products	High aflatoxin content in peanut butter, groundnuts and chilli spices
UEMOA	78	Coffee	High ochratoxin content in coffee

			beans
COMESA	95	Nuts and nut products, spices	High aflatoxin content in peanut butter, groundnuts and chilli spices

Source: Adapted from UNIDO (2007:15)

Table 5.2: United States Food and Drug Administration import refusals from Africa - January 2005 to December 2006

Sub-regions	Percentage of notifications related to food safety requirements	Examples of food product categories	Reasons for notifications
EAC	11	Candy without chocolate	Unsafe food additives
ECCAS	13	Vegetables/vegetable products	Containing filthy substances unfit for human consumption
ECOWAS	15	Fishery/ seafood products	Containing putrid and decomposed substances
SADC	17	Baby food	Containing putrid substances and pesticide chemicals
UEMOA	46	Fishery/ seafood products	Containing putrid and decomposed substances
UMA	19	Fishery/ seafood products	Containing high levels of histamine
COMESA	25	Fruit/fruit products	Containing putrid and decomposed substances

Source: Adapted from UNIDO (2007:16)

The abovementioned information confirms that African exports to developed country markets are often refused for reasons related to product characteristics, safety and health requirements. The implication is that the lack of technical infrastructure capacity means products are refused market access and where African products do enter export markets, it is often at higher cost of compliance, which impacts negatively on the competitiveness of enterprises (UNIDO, 2007:15). It forces exporters from African countries to seek the conformity assessment services at the port of entry for their products, thus placing them at a competitive disadvantage even before they reach their intended market. Where government, however, provided appropriate technical infrastructure, benefits to the domestic enterprises mean lower cost of compliance, which impacts positively on the competitiveness of enterprises.

There are five sub-regional groupings in Africa, which have various arrangements for standards and metrology. The sub-regions are the Common Market for East and Southern Africa, the East African Community, the West African region, the Economic Community of West African States and the Arab Magreb region. These regions are at various stages of co-operation and co-ordination as discussed in the following paragraphs.

The Southern African Development Community's regional technical infrastructure consisting of the Southern African Development Community Co-operation for Metrology (SADCMET), the Southern African Development Community Co-operation for Standardisation (SADCSTAN) and the Southern African Development Community Co-operation for Accreditation (SADCA) is dealing with standards, metrology and accreditation issues respectively. Ratification of the Southern African Development Community Technical Barriers to Trade Annex to the Protocol extended the memorandum of understanding to include technical regulations. Progress on infrastructure development is, however, still too slow and only South Africa has a fully developed and functional technical

infrastructure to support its competitiveness and development strategies. The region established the first regional accreditation body which serves the needs of the Southern African Development Community countries that do not have their own national accreditation body (SADC SQAM, 2006).

The Common Market for East and Southern Africa has standardisation included as a separate chapter in the Common Market for East and Southern Africa Treaty, rather than in an annex in one of the protocols. A Common Market for East and Southern Africa committee dealing with standardisation has to be set up in terms of the overall treaty provisions, which then reports directly to the council of ministers. This committee has not been established yet, but is envisaged in the near future. There is a general lack of progress on technical infrastructure among the Common Market for East and Southern Africa member states, with Egypt and Kenya probably the most advanced. They do not, however, match the development stage of South Africa. Eight countries have dual membership between the Common Market for East and Southern Africa and the Southern African Development Community. Namibia has indicated that it is considering leaving the Common Market for East and Southern Africa (SADC, 2004:20).

The East African Community (EAC) region has established a similar regional programme to the Southern African Development Community Standards, Quality Assurance, Accreditation and Metrology Programme. It is called the East African Community Standards, Quality Assurance, Metrology and Testing Programme and is officially established through an East African Community Protocol. The three members of the East African Community, namely Kenya, Uganda and Tanzania, who are all members of the Common Market for East and Southern Africa, with Tanzania also being a member of the Southern African Development Community, signed a protocol on standardisation, quality assurance, metrology and testing in 2000. They pursue a common policy for standardisation, quality assurance, metrology and the testing of goods and services that are traded

among the three members to foster the process of integration for the mutual benefit of all (SADC, 2004:20).

In 2004 the text for over 200 standards has been agreed upon by East African Community members. They have, however, not been published yet by the East African Community Secretariat and therefore the implementation status of these standards is unclear. The three countries have recently embarked on a project to enhance their metrology and testing capabilities, which are still underdeveloped (SADC, 2004:21).

The West African region (JEMOA) and the Economic Community of West African States (ECOWAS) only recently started with the process of setting up and implementing technical infrastructure programmes on standardisation, accreditation and metrology (SADC, 2004). Informal regional technical infrastructure co-operation has existed in the Arab Magreb region between the neighbouring countries of Algeria, Morocco and Tunisia since 2003. A formalisation of the structures for standard and metrology has been discussed during the last meeting of the region in 2005 (SADCMET, 2006).

A United Nations Industrial Development Organisation report of 2007 (UNIDO, 2007:26), which assessed the specific technical infrastructure needs of African countries, however, confirms that the status of technical infrastructure in the region is cause for concern. This status as detailed in the abovementioned report is depicted in Table 5.3 (for the 32 countries that responded to the assessment).

Table 5.3: Overview of the technical infrastructure situation in Africa and the number of countries that have technical infrastructure

Sub-regions	Countries that have a metrology body	Countries that have an accreditation body	Countries that have a standards body	Countries that have a national certification body	Countries that have a WTO TBT Enquiry Point
EAC	2	1	3	1	3
ECCAS	2	0	2	1	4
ECOWAS	3	0	4	3	4
SADC	7	2	8	3	11
UEMOA	5	1	8	4	6
UMA	3	4	4	2	2
OTHERS	4	1	3	1	2
Total	25	9	32	15	32

Source: Adapted from UNIDO (2007: 26)

It is important to note that the abovementioned survey does not imply that the national bodies for standards, metrology or accreditation that exist are fully operational. These state institutions often are not members of the international technical infrastructure institutions, lack funding, their equipment is old and technical skills are limited (UNIDO, 2007:27). The report (UNIDO, 2007:26) recommends that each sub-region should at least have one country which is a member of one of the most important international technical infrastructure organisations and that that country represents the sub-region. Sub-regional positions at the international meeting, however, need to be informed by sub-regional positions which may require a sub regional consultation mechanism.

To conclude, the Southern African Development Community is the first sub-region in Africa that took the initiative to align the Southern African Development Community activities on standards, metrology and accreditation in order to support the need for common technical regulation in the sub-region. This

approach is in line with that of other regions considering the work of the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development on regulatory reform and its importance for economic development. However, the Southern African Development Community has only just started the process of regulatory reform. The Southern African Development Community officials will have to focus their attention on the development of policy and guidelines to assist their governments with the implementation of the Southern African Development Community Technical Barriers to Trade Annex.

5.10 TECHNICAL INFRASTRUCTURE CO-OPERATION

The need for the establishment of reliable technical infrastructure in Africa through co-operation has many benefits. These benefits may include enhanced export potential for enterprises and increased protection for international and local consumers because products are safe. Other benefits may be in terms of the sharing of cost, specialised knowledge and skills.

5.10.1 Metrology

In the area of metrology, the case study of the Southern African Development Community indicates that it will be necessary for all African countries to at least develop to a stage where they will have an established trade metrology system, some national measurement standards and traceable standards. However because of the high cost of metrology, African countries can secure their international recognition through the more mature metrology institutes in Africa, which are internationally recognised and respected in terms of technical capacity such as the National Metrology Institute of South Africa and which are members of the Bureau International des Poids et Mesures. These institutes will provide a technical basis for wider trade, commerce and regulatory negotiations.

A recent report of United Nations Industrial Development Organisation to the Africa Ministers of Trade confirms the need for a minimum spectrum of calibration capacity at national level for mass, volume and temperature in order for a country to establish a trade metrology system. The report, however, argues in favour of a sub-regional approach to investment in measurement metrology (UNIDO, 2007).

An important development in the area of metrology is the initiative of New Partnership for Africa's Development, which established an Inter-Africa Metrology System aiming to promote inter-African co-operation in metrology and the establishment of a regional measuring system (UNIDO, 2007).

5.10.2 Standardisation

In the area of standardisation, the case study of the Southern African Development Community indicates that there is an opportunity for standards bodies to work together to reach the stage where they target international standards development activities that are of importance for the sub-region thus becoming proactive players in the international trade system and creating a symmetric playing field for African enterprises (ITC, 2005:45). This approach also includes pooling limited capacity to provide credible information to defend Africa's interest. The competitive nature of the standards bodies in the provision of conformity assessment services may, however, make co-operation very difficult. Pressure from government and domestic and regional enterprise associations will be necessary if this is to happen.

At African level, the African Organisation for Standardisation has existed since 1977. The initial aim of the African Organisation for Standardisation was to develop African standards. This, however, did not happen because of the focus of national standards bodies to develop national standards. Recently, it was agreed that the African Organisation for Standardisation should be responsible

for co-ordination and harmonisation of standards and conformity assessment in Africa (UNIDO, 2007).

The 2007 report of the United Nations Industrial Development Organisation found that language remains an issue in the exchange of information and co-operation. The report also highlights that access to international standards is a major problem in many African countries. An example is the many laboratories in Africa, which do not have access to important International Standards Organisation standards such as International Standards Organisation 17025, which determines how laboratories should operate. The view is that there is a breakdown in the standards development process internationally and nationally and the use of the process nationally. The fact, however, is that International Standards Organisation standards are available for immediate use to enterprises, laboratories and other conformity assessment bodies in all countries at a cost even if they have not been adopted as national standards. National standards bodies will usually only adopt those international standards that are most commonly used in their countries as national standards if they are members of an international standards organisation.

5.10.3 Accreditation

In the area of accreditation, the establishment of the Southern African Development Community accreditation body clearly illustrates how countries can pool resources to benefit the sub-region. This is a first in the world but the International Accreditation Forum and the International Laboratory Accreditation Co-operation gave their approval in principle. Other sub-regions are also interested in the approach. It is, however, important to note that the International Accreditation Forum and the International Laboratory Accreditation Co-operation approval needs to translate into mutual recognition once the Southern African Development Community accreditation body is ready for peer review.

However, for the accreditation body of a sub-region to add value, there has to be competent laboratories, certification bodies and inspection authorities. The 2007 United Nations Industrial Development Organisation report found that testing laboratories in Africa, which are mostly part of government, have inadequacies in terms of measurement traceability, use of certified reference material to confirm test results, access to proficiency schemes, trained staff and maintenance of facilities. Other problems include lack of testing equipment, inappropriate environmental conditions and inadequate budget. In South Africa and Nigeria, the majority of laboratories are private, which confirms a commercial demand for testing and therefore a potential market for accreditation services.

There are plans to also start with a co-ordinated approach in accreditation in Africa. The aim of the co-ordination will be to facilitate representation of the African region in international accreditation forums, namely the International Accreditation Forum and the International Laboratory Accreditation Co-operation, to disseminate information on accreditation in the region, to share resources, expertise and experience by member bodies and to provide access to international recognition (SADCA, 2008).

5.11 SOUTH AFRICA

The modernisation and technical regulatory reform attempt in South Africa illustrates the need for continuous improvement in order to ensure that the technical infrastructure continues to support the needs of domestic enterprises competing in a fast-paced global economy. In this regard, the South African government completed a legislative review that established the South African National Accreditation System and the National Metrology Institute of South Africa as two new public entities although both have been operating for 15 and 50 years, respectively. The South African National Accreditation System and the National Metrology Institute of South Africa were established in terms of the Accreditation for Conformity Assessment, Calibration and Good Laboratory

Practice Act, No. 19 of 2006 and the National Measurement Standards and Measurement Units Act, No. 18 of 2006 on 1 May 2007. The South African Bureau of Standards which has been operating for more than 60 years was also re-established in terms of the new Standards Act, No. 8 of 2008 on 1 September 2008. The main change for the South African Bureau of Standards as a public entity is that government removed the institution's regulatory responsibility in order to prevent a conflict of interests between the conformity assessment services, which the institute provided, and the regulatory responsibility, which it had to administer.

At enterprise level, many of South Africa's enterprises have risen to the challenge of competing on a global scale and are successfully exporting goods and services around the world. The technical infrastructure for standards-setting, quality assurance, accreditation and metrology is a crucial element of competitiveness and is also critical in expanding market access and promoting regional integration in southern Africa. As such, South Africa's Draft Industrial Policy identifies the need to leverage the technical infrastructure activities to support the priority sector development initiatives of government throughout the value chain of manufacturing (DTI, 2006b).

5.12 CONCLUSION

In summary, best-practice patterns in terms of technical regulatory approaches are evident in terms of transparency, the use of a less trade-restrictive form of technical regulation and the use of internationally harmonised standards and technical regulations.

Transparency is considered to be one of the most important building blocks of a good technical regulatory system. Transparency is about the provision for effective access to existing technical regulations and systematic information of technical regulations in the making as well as facilitating the effective and

appropriate participation by and consultation with stakeholders. The benefit of a transparent system is that it makes the technical regulatory system predictable and clear. The codification of the technical regulatory process, supplemented with policies relating to the technical regulatory activities and detailed guidance on processes can guide policy-makers when they develop, implement and monitor technical regulation.

In order to avoid unnecessary trade-restrictiveness, policy-makers increasingly use technical regulatory impact and risk analysis to inform their decision-making processes. Guidance and checklists on impact are tools used to ensure a consistently high quality and effective technical regulations. This is often supported by training of technical regulatory officials who are responsible for the preparation of technical regulatory impact assessment. Co-ordination at interdepartmental level prevents duplication, inconsistency and incompatibility. The use of international performance-based standards and conformity assessment requirements as a basis for domestic technical regulations is recognised and accepted as best practice.

It is, however, difficult to identify clear patterns in terms of conformity assessment as a variety of approaches to streamline conformity assessment processes are in use and best-practice approaches in the area of equivalence are also difficult to identify. The establishment of internationally recognised national and regional accreditation mechanisms and networks, however, is increasingly useful to enhance confidence in the efficiency of conformity assessment activities.

Technical regulatory reform in Africa has to take into account that while the needs of the public for consumer protection and fit-for-purpose goods and services are essentially the same for people in developed and developing countries, there are constraints to the implementation of standards in a developing country. These constraints relate to the industrial capacity of the region that might be insufficient to produce local goods of the required quality,

technical regulations that might be insufficient to adequately protect the environment or to prevent the importation or dumping of lower quality or unsafe products and consumer awareness and passion for good quality might be absent or exist only at a low level. For African policy-makers, the means of rectifying the abovementioned situation involves the creation of efficient infrastructure to satisfy the demands and requirements of globalisation and a multilateral and regional trading system.

In terms of technical infrastructure, the case studies illustrated the link between technical regulatory reform and institutional capacity. The benefits of establishing reliable technical infrastructure have been established. These benefits include enhanced export potential for enterprises and increased protection for international and local consumers because products are safe. It is, however, acknowledged that there are problems with the development of the technical infrastructure in Africa. One of the main problems is cost. Another problem relates to the need for specialised knowledge and skills. A regional approach to some of the problems appears to offer a solution. This will require political will and the right decisions by policy-makers to take advantage of current existing institutions, pooling of human and financial resources and the avoidance of expensive duplications.

To conclude, it is important to understand that there is no ready-made model for technical regulatory reform and the development of technical infrastructure to support it, either in terms of the components that are required for the reform or the degree of sophistication that the technical infrastructure institutions should have. There is also no ready-made model for the way that technical infrastructure services can be delivered. Therefore, developing countries themselves must make these policy decisions and provide their ongoing political commitment to those decisions.

CHAPTER 6

RECOMMENDATIONS FOR AN AFRICAN POLICY APPROACH TO TECHNICAL REGULATORY REFORM

6.1 INTRODUCTION

In this chapter, a number of policy recommendations are made for the development of an African policy framework that will respond to the needs of the region. The recommendations are **firstly**, informed by the analysis of the international technical regulatory policies of the World Trade Organisation, the regional policies of the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development, and at African level, the technical regulatory policies of the Southern African Development Community. **Secondly**, the recommendations are informed by the international and Southern African Development Community policy trends in the areas of standardisation, metrology and accreditation.

The recommendations consider policy proposals for a common approach to technical regulatory reform based on the abovementioned best practice, which is applicable and valuable for Africa; for the establishment of an African co-operation and co-ordination on technical regulations, standards, metrology and accreditation; for the development of complementary sub-regional capacity to meet the needs of the sub-regions and to provide building blocks for African co-operation; and lastly, for technical support to enterprises to manufacture and sell quality goods and services, which they can export competitively to other African countries and to countries in other regions.

6.2 RECOMMENDATIONS

The key elements of Africa's regional development policy for technical regulations, standards, metrology and accreditation should focus on the following:

- The development of an African technical regulatory reform policy.
- The establishment of an African institutional arrangement for an African technical regulatory framework.
- The co-ordination of technical regulatory activities and the development of technical infrastructure institutional capacity in the sub-regions of Africa.
- The strengthening of national institutional capacity for standards, conformity assessment and metrology.
- The provision of technical assistance to specific African companies.

Five policy recommendations are made that foresee a situation where an importer can accept proof of compliance with technical requirements in terms of product or service quality either for technical regulations or in the voluntary domain, even if the products were tested, certified or inspected in an African exporting country. In order for conformity assessment procedure to be recognised as equivalent to that prevailing in the importing country, the African technical regulatory frameworks have to be harmonised and the technical competence of the conformity assessment institutions has to be demonstrated.

An African approach to co-ordination should emphasise regional integration of common functions so that these are supplied more cost-effectively to all member states from a regional or sub-regional resource. The approach should aim at

establishing cost-effective institutional capacity at regional and sub-regional level. It would also make sense to use the lessons learnt in the sub-regions in setting up an effective African technical infrastructure. The above mentioned learning could be used in the launching of an African initiative aimed at planning the implementation of these best practice models in the rest of the continent. The advantage of such a coordinated approach may be that the resulting technical infrastructure is mutually compatible and does not have to be harmonised in any major way when the African Union evolves economically into an African free-trade area.

The recommended policy interventions should be based on a thorough needs assessment for all parts of the African economy with the understanding that there is no ready-made model for technical regulatory reform. African policy-makers should provide ongoing political and financial commitment to the policy decisions. After consideration of the assessed needs, policy implementation should be based on planning and appropriate sequencing of interventions in order to ensure that the technical infrastructure in Africa is coordinated and developed in a sustainable manner. This includes a clear articulation of the resources and finance that will be required to sustain the necessary technical regulatory infrastructure taking into consideration regional and sub-regional service delivery options, which may achieve better economies of scale.

6.2.1 Recommendation 1: Develop an African technical regulatory reform policy

6.2.1 (a) Introductory paragraph

Two regions, namely the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development, have policies in place that focus on technical regulatory reform. These policies set out the principles that govern the reforms and provide information to stakeholders on

what may be expected from the reforms. The main aims of the technical regulatory reform policies are to eliminate unnecessary barriers to trade between countries in the regions and thus to create an environment that may facilitate trade liberalisation and be attractive to investors. Benefits of the reforms may be lower cost to the sectors that are regulated, lower prices to consumers, product innovation and technology development as well as effective use of government resources.

There is also the potential for gains in terms of job creation, capital productivity and economic-wide increases in the gross domestic product and real wages in countries. It is however important to keep in mind that technical regulatory reform is complex and multifaceted. In addition countries in Africa have different technical regulatory responses because of different interest and values that arise from specific economic, social and political environments.

Particular core trends in the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development regulatory reform efforts appear to be useful for an African approach to technical regulatory reform. The before mentioned common trends include the building onto the World Trade Organisation Technical Barriers to Trade Agreement in an effort to find innovative solutions for technical regulatory harmonisation, mutual recognition and co-ordination. Other trends include the use of performance-based regulations and international standards, the identification of conformity assessment requirements that have to be complied with, transparency, predictability and provision for participation, consultation, publications and comment periods. The use of impact and risk assessment analysis to inform policy-makers and regulators in order for them to choose appropriate technical regulatory responses is another common trend.

6.2.1 (b) Recommendation

The current African technical regulatory system is in need of an extensive reform process because the current African approach is fragmented, inefficient and ineffective. A well-structured technical regulatory framework is of crucial importance to the development and competitiveness of the regional economy. The following principles may be used to develop a flexible African regional technical regulatory reform policy approach:

Transparency is one of the most important building blocks of a good technical regulatory system in Africa. A transparent system should make provision for effective access to existing technical regulations for all market participants and stakeholders, domestic and foreign. The system should also provide systematic information of technical regulations in the making. Predictability and clarity of the technical regulatory-making process also provide for participation by stakeholders at appropriate times in the process.

African countries should rely on technical regulatory impact analysis to avoid unnecessary trade-restrictiveness. Systematic assessment of the impacts of proposed technical regulations includes cost/benefit analyses, investigation of possible feasible alternatives to the proposed technical regulation and an analysis of the impact of such a regulation on trade and investment and small businesses.

The approach to use internationally harmonised standards and technical regulations as a basis for domestic regulations wherever they are feasible and appropriate should be promoted. In this regard, supporting active participation in the development of international standards and ongoing national commitment of resources or participation in international standards setting will be a good indicator of the will to use international harmonised standards as a basis for domestic regulations.

In terms of choosing between prescriptive technical regulations or performance-based technical regulations, performance-based technical regulations should be preferred in the African approach to regulatory reform because they represent a more flexible approach and allow those that are regulated to devise the most efficient and effective method of compliance. Performance-based technical regulations provide flexibility while ensuring that the objective is achieved.

In addition to the above, the use of internationally harmonised requirements also covers the streamlining of the conformity assessment processes in the region with a view to facilitate mutual recognition, mutual acceptance and acceptance of supplier's declarations of conformity. Although, best-practice patterns are difficult to identify because a variety of approaches to streamline conformity assessment processes is in use, the development and use of sub-regional accreditation bodies in Africa as a vehicle to confirm competence and to recognise conformity assessment results appear to offer a sustainable solution.

Finally, the following recommendations are made to establish a technical regulatory framework for Africa with a view to provide for an effective and efficient technical regulatory system that would expedite investment in and economic recovery of the continent:

- A technical regulatory reform strategy should be developed for the reform of primary and secondary technical regulatory legislation by an African Technical Regulatory Framework Committee.
- The African technical regulatory framework should be built on the following principles: transparency, proportionality, necessity, targeted principle, non-discriminatory principle and the use of appropriate internationally harmonised measures principles.
- The African technical regulatory framework should consider inclusion of the abovementioned core trends in terms of transparency, avoiding

unnecessary trade-restrictiveness, use of international harmonised measures including accreditation to develop flexible regional approaches.

- The African technical regulatory framework should provide for the development of a technical regulatory checklist, guidelines for technical regulatory impact and risk assessment and code of practices for consultation, the technical regulatory process, enforcement and for the publication and notification of technical regulations.
- The strategy should explore the institutional capacity that will be required to roll out the strategy.

6.2.2. Recommendation 2: Establish institutional arrangements for an African technical regulatory framework

6.2.2 (a) Introductory paragraph

The Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development regions recognised the need to establish an institutional arrangement to assure effective implementation of the technical regulatory reform policies. An institutional arrangement is necessary for co-ordination of different aspects of the reform policies and it creates a framework for accountability.

The Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development officials also recognised the benefits from technical regulatory co-operation between governments. Through co-operation the abovementioned regions developed guides to steer implementation of a common approach to technical regulations and standards.

6.2.2 (b) Recommendation

The need for co-ordination of the technical regulatory reform and the development of technical infrastructure capacity at African level is recognised. Currently the Inter-Africa Metrology System and the African Organisation for Standardisation are operational with various levels of progress. Co-ordination is, however, becoming increasingly important for accreditation and technical regulations. Additionally, co-ordination is required between the four elements of the technical infrastructure in order for the technical infrastructure to be able to respond to the needs of Africa's industrialisation efforts.

The policy objectives of the co-ordination are the promotion of co-operation and collaboration between the sub-regions of Africa in the area of technical regulations and technical infrastructure, the provision of a suitable environment for the production of quality goods and services, thus contributing to the industrial development in Africa and the progressive elimination of technical barriers to trade amongst the African sub-regions.

The existing and new structures that need to be coordinated are:

- The Inter-Africa Metrology System (established)
The Inter-Africa Metrology System, which has been established to promote international, particularly inter-African and regional co-operation in metrology to facilitate the implementation of a global measurement system in the whole of Africa, in which all users can have confidence and work towards the establishment of a robust regional measuring system.
- The African Organisation for Standardisation (established)
The African Organisation for Standardisation has been established to facilitate intra-African and global trade by promoting quality through co-

ordination and harmonisation of standards and conformity assessment in Africa.

- Inter-African Co-operation for Accreditation (to be established)
The Inter-African Co-operation for Accreditation will facilitate coordination and co-operation between the sub-regional accreditation systems and establishment of the mutual recognition of the competence between accreditation bodies that operate in Africa.

- The African Technical Regulation Co-operation Committee (to be established)
The African Technical Regulation Co-operation Committee will promote and facilitate implementation of the common approach to technical regulation for health, safety and the environment.

The work at African level should build on and support work on technical infrastructure development at sub-regional level with a view to ensure alignment and co-operation in areas of common interest on standards, accreditation, metrology and technical regulations and to minimise duplication of efforts.

The approach to co-ordination should emphasise regional integration of common functions so that these are supplied cost-effectively to all member states from a sub-regional or regional resource. The approach should aim at establishing sustainable institutional capacity at sub-regional or regional level. The co-ordination approach should also advance the implementation of sub-regional best practice models in the rest of the continent. The advantage of such a co-ordinated approach would be that the resulting technical infrastructure would be mutually compatible and would not have to be harmonised in any major way when the African Union evolves economically into an African free-trade area.

6.2.3 Recommendation 3: Establish and strengthen co-ordination of technical regulatory activities in the sub-region

6.2.3 (a) Introductory paragraph

The need for coordination of national and sub-regional technical regulatory reform and the development of technical infrastructure institutional capacity in the area of technical regulations, metrology, accreditation and conformity assessment is increasingly important to support economic growth, industrial development and regional integration. There are evidence that African exports to developed country markets are often refused for reasons related to product characteristics, safety and health requirements.

One of the challenges facing African enterprises includes that they find it difficult to international requirements of developed countries. African participation in the formulation of international standards and technical regulations is ineffective because of low political support and inadequate participation. African enterprises are therefore standards-takers and are always reacting to changing standards and technical regulations formulated by developed countries that do not accommodate unique African constraints. Technical infrastructure institutions such as the standards and metrology bodies often lack human, financial and infrastructure to assist enterprises. Local testing bodies, certification facilities and inspection bodies are not internationally recognised.

In terms of technical regulations the challenge facing African entrepreneurs involves the absence of effective technical regulatory authorities that is putting pressure on local producers to substitute quality for price. There is a lack of understanding of technical regulations in policy-making. There is a proliferation of technical regulatory responsibilities and roles across national regulatory institutions. Often local technical regulations are out of date and enforcement mechanisms are ineffective.

Some sub-regions in Africa already have sub-regional technical regulatory reform co-ordination structures in place others, however, have informal structures. The sub-regional technical regulatory reform activities in Africa include the following: the Southern African Development Community, the Common Market for East and Southern Africa Community, the East African Community, the West African Community and the Economic Community of West African States and the Maghreb Community. The reform activities in Africa are still in the early stage and therefore low in terms of development.

6.2.3 (b) Recommendation

The aim of this policy recommendation is to improve co-ordination of Africa's sub-regional technical regulatory reform efforts. The sub-regional co-ordination will be the building blocks for African co-operation. Specific actions should therefore be required to develop co-operation frameworks for those sub-regions that has not formalised a sub-regional arrangement for co-operation in the area of standards, metrology, accreditation and technical regulations.

The sub-regional co-operation activities may focus on the exchange of professional and technical information and transfer of expertise in the sub-region. Co-operation may also include co-operation amongst the sub-regional countries to implement sub-regional programs related to technical regulation, metrology, standards and accreditation and to identify technical problems which might form the subject of joint projects. Other activities may include coordination, endorsement and harmonisation of sub-regional training, establishment of communication channels and dissemination of information on sub-regional technical infrastructure activities. The co-operation should aim to effectively utilise technical and financial resources and services of the countries in the sub-region and of the deployment of these towards identified regional development needs.

In terms of technical regulations the focus may be on the development and roll out of guidelines and other tools for the national implementation of a sub-regional technical regulatory framework. The co-operation efforts on technical regulations could aim to identify common technical regulations to be implemented in the sub-region and the development of mechanisms to facilitate the incorporation of international standards in technical regulations.

In terms of accreditation the co-operation efforts may focus on the creation of an internationally recognised sub-regional accreditation system that could be used to establish a pool of internationally acceptable accredited inspection bodies, laboratories and certification bodies in the sub-region and provide countries in the sub-region with accreditation as a tool for the removal of technical barriers to trade in both the voluntary and regulatory areas. The accreditation co-operation could facilitate the implementation of a sub-regional system that complies with international practice while taking into account the specific circumstances, opportunities and needs of the sub-region. Co-operation includes coordinating inputs to and liaising with regional organisations such as the Inter-African Co-operation for Accreditation and international organisations concerned with accreditation, such as the International Laboratory Accreditation Co-operation (ILAC) and the International Accreditation Forum (IAF). The aim is to create an environment for the conclusion of mutual recognition agreements between qualifying accreditation institutions within the framework of and consistent with global mutual recognition agreements.

The co-operation in metrology may focus on coordination of metrology activities and services in the sub-region, in order to provide sub-regional calibration and testing services with traceability to the Systeme International (SI) units of measurement. The coordination could promote closer collaboration countries to improve existing national measurement standards and facilities and co-operate with regard to major investments in national metrology facilities in the sub-region.

Co-operation includes the responsibility for liaison with the Inter-Africa Metrology System, the International Bureau of Weights and Measures and other regional and international organisations concerned with measurement traceability. Other activities may include the organisation of both intra- and inter-regional laboratory test inter-comparisons and the creation of an environment for the conclusion of mutual recognition agreements.

The co-operation in standardisation may promote the coordination of standardisation activities and services in the sub-region with the aim of achieving harmonisation of standardisation. The co-operation could promote regional co-operation in the development of harmonised standards and technical regulations, facilitate the exchange of information on existing standards, draft standards and technical regulations, facilitate the adoption of sub-regional standards. The co-operation includes the coordination of inputs to and liaison with the African Organisation for Standardisation and other regional and international standardisation organisations. Other activities may include providing technical assistance and training in standards development and providing standards information services.

The current lack of technical infrastructure in Africa undermines the region's efforts to upgrade its production and trade capacities, increases the cost of doing business and impacts negatively on regional integration. The inability of African countries to meet technical standards set by trading partners is a barrier to taking advantage of the benefits of market access for processed and manufactured goods. In this regard, the policy recommendation relates to the establishment of one accreditation body per sub-region to ensure the competency of testing, certification, calibration and inspection services provided to industry; the development and training of a pool of accreditation assessors which will provide assessor capacity to the sub-regional accreditation body; and obtaining international recognition for the sub-regional accreditation bodies from the

International Laboratory Accreditation Co-operation and the International Accreditation Forum.

6.2.4 Recommendation 4: Strengthening national institutional capacity for standards, conformity assessment and metrology

6.2.4 (a) Introductory paragraph

African countries face challenges in terms of improving domestic capacity to assist domestic manufacturers to meet the quality standards, safety and environmental technical regulations, which are required in global markets. Institutional reform and investment in human capital as well as infrastructure improvements in testing laboratories and certification facilities are becoming increasingly important.

Governments of African countries thus need to accept the responsibility for the establishment of national metrology institutes because it provides the foundation for standardisation, accreditation and conformity assessment. It is essential because it facilitates the acceptance of measurements related to products that manufactures may want to export, law enforcement related to measurements and it supports scientific results. The level of metrology available to the country needs to be informed by the needs of the industry and the government. This area requires substantial investment and, thus, careful planning and a sound knowledge of what is actually needed are important.

Standards form an important element of economic policy and African countries need to accept the responsibility that national standards organisation needs to be appropriately guided based on national needs. Governments are required to provide the bulk of the funding for these public institutions.

National or sub-regional accreditation bodies, which provide accreditation services for laboratories, certification bodies and inspection bodies need to be

recognised as competent internationally and nationally by the government. Governments in Africa need fund the international recognition activities because of the importance of providing assurance to trading partners that suppliers of tests and certificates are competent and to overcome technical barriers to trade.

6.2.4 (b) Recommendation

Given the complexity of organisations, linkages and national, regional and international relationships as well as limited resources policy-makers in African will have to make important strategic policy choices.

This policy recommendation thus focuses on national support for technical regulatory reform initiative and the establishment of national technical infrastructure capacity that may contribute to the maintenance and enhanced competitiveness of the local manufactures. Investments should be made in those institutions that are vital for economic development. The organisational structures should be suitable to provide the necessary outputs required at a national level. Funding mechanisms should be strengthen to enable sustainability and should include mobilising donor funding to supplement national funding.

6.2.5 Recommendation 5: Provide specific companies with technical assistance

6.2.5 (a) Introductory paragraph

One of the implications of global trade is that many of today's products are built with components sourced from around the world. These components must fit together, perform as expected and comply with international standards and technical regulations. High compliance costs to international standards and technical regulations impacts negatively on the international competitiveness of African entrepreneurs.

Africa entrepreneurs often need to incur high quality assurance compliance costs because they have to source these services from other regions. The conformity assessment services may include testing by competent laboratories, product and quality system certification from certification organisations acceptable to the regulator or homologation (a specific conformity assurance system used for example in the automotive industry) through governmental mechanisms or regulators. It is important that African exporters make sure that the requirements of the import country are met in order to prevent costly mistakes and wasting of time.

6.2.5 (b) Recommendation

Success in most of the priority sectors at the global export level lies in the access that these sectors have to world-class technical infrastructure. To achieve success in these sectors in Africa, a prerequisite before a company can even begin to contemplate export is quality assurance. In view thereof, a lot of effort is needed in the following areas: certification, inspection, control and testing of products.

This policy recommendation thus focuses on support for specific African companies that need financial and technical assistance to meet standards and technical regulations for export. Specific actions include identifying a number of companies per priority sector, which have the potential to export. The activities include analysing the quality needs of each company's through a diagnostic process and developing as well as financing of a restructuring plan. Assistance may include providing technical support, as well as coaching for the implementation of the upgrading activities in the beneficiary companies.

To conclude, the above-mentioned policy recommendations are made with a view to reform the African technical infrastructure and to secure international

recognition, which may support Africa's efforts to participate in the global economy. The aim is to provide companies with technical assistance in implementing projects to meet international standards and technical regulatory requirements to improve their competitiveness and to better respond to the new challenges of liberalised market. A further aim is to co-ordinate and aligns the technical regulatory reform activities in the region (standards, metrology institutions, accreditation and conformity assessment services) in order to provide a suitable environment for the production of quality goods and services, thus contributing to the industrial development in Africa and the progressive elimination of technical barriers to trade among the African subregions. The co-ordination in Africa will target strengthening of technical regulatory reform and the development of activities in the subregion (standards, metrology institutions, accreditation and conformity assessment services) in order to provide a suitable sub-regional environment for the production of quality goods and services, thus contributing to the industrial development in Africa and the progressive elimination of technical barriers to trade amongst the African subregions. Policy recommendations are made for technical assistance (in the form of institutional support and equipment) in establishing metrology, standardisation and accreditation capacity as well as conformity assessment services for testing, certification, calibration and inspection that will meet the needs of the region. Lastly, the recommendations also aim to enhance the competitiveness of the region's priority industrial sectors and support the diversification of the regional economy and local processing of raw material by identifying and developing appropriate sector-specific standards, traceability and accreditation.

Given the complexity of organisations, linkages and national, regional and international relationships, policy-makers in Africa will have to make important strategic policy choices. Because of limited resources, the following issues need to be taken into account with a view to implementing the technical regulatory reform initiative and establishing a technical infrastructure that contributes to the maintenance and enhanced competitiveness of the continent: How are these

various components and organisations arranged internationally? Is it vital to have all of these organisations in a developing country? Are some organisations more important than others? Which ones should be established first? Which ones should be established at regional level? Which type of organisational structure is best suitable to provide the various outputs? Should the organisations be in the public domain? Or could private organisations be used? Who should fund such organisations, the state or industry or both? How can the region mobilise donor funding to supplement regional funding?

6.3 SUMMARY

A holistic African policy strategy on technical regulatory reform coupled to significant target investment in the necessary technical infrastructure will be required if African countries aim to create an environment that is conducive to supporting exports from Africa and productive capacity development in Africa. In addition to the need for a holistic policy strategy, it is recognised that state institutional reforms have policy implications. Political support will therefore be necessary because most of the African countries have to start from a very low level of formal institutional development and they are facing a huge scope of different reform requirements. It can be concluded that the regional technical infrastructure reform initiative is unlikely to be successful without political support.

It is thus recognised that an African policy initiative places a responsibility on all African countries to reform their approach to technical regulations and technical infrastructure capacity-building. Hence, a well-structured regional technical framework for co-operation is of crucial importance to the implementation of the African policy initiatives because it can benefit national and regional economies in terms of effective participation in international trade through improved regional competitiveness.

The African region has no alternative but to reform and implement a functioning regional technical regulatory framework and to develop the institutional capacity in the technical standards, metrology and accreditation domain. Economies of countries may benefit as market forces will start recognising the competency of national and regional technical infrastructure and will increasingly accept African products.

African countries face critical challenges in terms of improving domestic capacity to meet the quality standards, safety, health and environmental technical regulations that are required in global markets. Technical infrastructure institutional reform and investment in human capital as well as improvements in testing laboratories and certification facilities are necessary.

Investment in technical infrastructure capacity is the responsibility of both the private and the public sector. The three basic building blocks that governments are responsible for are standardisation, accreditation and measurement metrology infrastructure. Investment in conformity assessment services e.g. laboratories, certification and verification bodies and inspection services may be shared between the private and public sector.

In the short term, enterprises in African countries will continue to be standards-takers that are forced to accept and continuously try to meet international standards. These enterprises will thus depend on their national technical infrastructure institutions to facilitate fast access to relevant standards information. In the long term, it would, however, be important for African countries to influence relevant international standardisation negotiations to ensure that the standards reflect unique African needs and constraints. This will require scientific and technical input from African countries supported by a clear and collective articulation of their position.

Current trends show that technical regulations are increasing. Although the initial focus of developed countries' technical regulations was on health and safety of

the public, developed countries' consumer influence is shifting the focus to environmental protection and labour standards. Compliance with international standards and technical regulations is therefore becoming increasingly complex. Sophisticated best-practice requirements necessitate investment in highly skilled human resources, new product design, new or upgraded equipment, management systems, labelling, traceability and record systems.

In the sub-regional context, the technical infrastructure for standards-setting, quality assurance, accreditation and metrology is a crucial element of sub-regional competitiveness and critical in expanding market access and promoting regional integration in sub-regions.

At national level, the appropriate technical infrastructure has an extremely valuable role to play in underpinning the ability of the country to improve its productive capacity. Many of Africa's enterprises had to rise to the challenge of complying with international standards and technical regulations and competing on a global scale and are now successfully exporting goods around the world.

In summary, for African enterprises to participate fully in global trade, they must develop capacity to make certain that they are able to comply with international standards and technical regulations. Careful investment by government into technical infrastructure based on needs analysis and economic appraisal is necessary. Both the efforts of the private and the public sector in this field can lead to deeper integration into Africa and of Africa into the rest of world.

6.4 CONCLUSION

The preceding chapters dealt with the objective of this study. This conclusion therefore recapitulates the objective and how it has been met.

The objective of the study was to contribute to scientific knowledge and to provide an input into public policies on technical regulatory reform in Africa

through a process of discussion of technical regulatory reform practices in the World Trade Organisation, the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development and technical infrastructure institutional capacity- building initiatives, which are taking place all over the world and to make policy recommendations for an African approach to technical regulatory reform and technical infrastructure institutional capacity- building.

Chapter 1 of the thesis outlined the relevant historical, economic or social factors that impact on African public policy initiatives including reform and state institutional capacity-building initiatives. The chapter highlighted the fact that many of the reforms and changes failed and this is impacting negatively, on among others, the state institutional capacity, which is crucial for development. The chapter also confirmed the responsibility of government to invest in specific state institutions and to manage them effectively.

Chapter 2 of the thesis outlined the need for the study, the nature of the study, the problem statement, the research methodology and the research limitations. This was done against a background of the importance of the research problem, the various types of research approaches available to researchers as well as the many research designs that can be utilised by researchers to choose the most appropriate research methodology to solve research problems.

The third chapter of the thesis focused on the theoretical aspects of Public Administration and reviewed relevant literature on Public Administration, the generic administrative functions of public administration and one specific function of public administration namely public policy-making. The chapter also assessed the origins and historical development of public policy studies. Different policy types, levels and models for policy-making were investigated, followed by an overview of the various approaches to policy analysis, reasons for public policy analysis and advantages and limitations of public policy analysis.

The chapter revealed the differences in policy processes between developed and developing countries and provided an overview of public policy in Africa. The chapter concluded that although African public policy initiatives were still very fundamental, the policy space needs to be created for new public policy initiatives, which may support development and allow for a pragmatic approach to policy reform creating a balance between macroeconomic reform policies and economic policies.

In terms of institutional development, the chapter included a literature review of characteristics of state institutions, models of institutional theory and approaches to institutional development. The chapter also considered institutional development in developing countries and concluded with an overview of institutional development in Africa. In terms of institutional development in Africa, the chapter revealed that Africa has the opportunity to respond in a creative manner to establish regional institutions, which meet regional needs and demands for public services.

Chapter 4 reviewed the international response to technical regulatory reform and compared the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development regional cases in order to identify policy trends in technical regulatory reforms. The chapter also identified the state institutional capacity requirements that are needed to implement technical regulatory reform policies. The review covered the World Trade Organisation Technical Barrier to Trade Agreement and identified the principles that need to be applied when technical regulatory reform is undertaken. The review also considered the relationship between standards and technical regulations and how these standards and technical regulations can be influenced.

The review also compared the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development approaches to

technical regulations and standards. The chapter also reviewed the Southern African Development Community's approach to technical regulations and standards.

The chapter concluded that regions such as the Asian Pacific Economic Community and the Organisation for Economic Co-operation and Development started in the middle 1990s with regulatory reforms because they were of the view that unnecessary regulatory requirements impact negatively on trade liberalisation and regional integration gains and that technical regulatory reform can generate trade facilitation gains in terms of trade. The Southern African Development Community laid the foundation for regulatory reform in 2008 when these countries negotiated the Southern African Development Community's Technical Barriers to Trade Annex, which recognised the need for moving towards a common approach to technical regulations and sharing intuitional capacity in the area of technical regulations and standards.

The chapter also investigated the institutional arrangements at international level and reflected more specifically on the arrangement and status of technical institutional capacity in southern Africa. The chapter revealed that regional capacity in standards, accreditation and metrology impacts directly on the competitiveness of its private sector because it can raise or lower economic efficiency and facilitate or constrain exports.

The fifth chapter has showed that many regions started with technical regulatory reform and that the point of departure for technical regulatory reform is a technical regulatory reform policy for a region. Such policies usually set out the principles such as non-discrimination, transparent and open-decision-making processes, the avoidance of unnecessary trade-restrictiveness, the use of internationally harmonised measures and the streamlining of conformity assessment processes, which govern the reform.

The chapter highlighted the challenge for regions to develop a technical regulatory system, which accommodates the region's specific challenges and taking account of the legislative and political system of the countries in the region.

In terms of technical infrastructure, the chapter illustrated the link between technical regulatory reform policy and institutional capacity-building policy and the benefits of establishing reliable technical infrastructure to enhance export potential for enterprises and increase protection for international and local consumers because products are safe. The chapter advocates a regional approach of pooling human and financial resources in order to overcome problems of costs, skills and knowledge.

Chapter 6 concluded with a number of policy recommendations such as the development of an African policy framework, which includes policies on a common approach to technical regulatory reform based on best practice that is applicable and valuable for Africa, the establishment of regional and sub-regional co-operation and coordination on technical regulations, standards, metrology and accreditation, the development of complementary regional and sub-regional capacity to meet the needs of the region, the development of national technical infrastructure capacity and lastly, technical support to enterprises to manufacture and sell quality goods and services, which they can export competitively to other African countries and to countries in other regions.

The chapter highlighted the importance of a needs assessment for all parts of the African economy because there is no ready-made model for technical regulatory reform, ongoing political and financial commitment for the reform as well as careful planning and appropriate sequencing of interventions in order to ensure that the technical infrastructure in Africa is coordinated and developed in a sustainable manner.

In view of the above, it is concluded that the thesis addressed the problem statement regarding, which technical regulatory policy reforms and what institutional capacity Africa needed to repositioned their economies for sustainable grow and to increase Africa's share of global trade. The thesis made a clear case for an African public policy framework for regulatory reform, which will provide African solutions for current unsupportive regulatory frameworks. The thesis also made a clear case for the establishment of appropriate technical infrastructure capacity in Africa that may impact positively on economic growth, regional integration and access to global markets.