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**STANDARDS, CONFORMITY ASSESSMENT
AND DEVELOPING COUNTRIES**

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STANDARDS, CONFORMITY ASSESSMENT AND DEVELOPING COUNTRIES

Summary of Findings

The danger of standards and technical regulations acting as non-tariff barriers to trade, particularly through duplicative conformity assessment testing procedures, is an increasing one which developing countries should take seriously, as it has the capacity to restrain trade growth considerably as well as impact on economic efficiency.

There appears to be a growing awareness of the potential deterrence to trade posed by differing national standards and technical regulations, along with an equal lack of knowledge and awareness as to the impact which the choice of standards may have on trade and economic development. In terms of standards development, the first priority of developing countries should be the adoption of international standards, as they exist, along with the international standardizing Guides of the International Organization for Standardization (ISO) and the International Electrical Commission (IEC). Both would facilitate the integration of their manufactured exports into world markets and would reduce the costs of the required conformity assessment procedures. As to the bulk of standards which have not been internationally harmonized, since developing countries are on the whole “standards takers” rather than “standards makers” their best choice, both from a cost and an efficiency point of view, is the adoption of those standards used in the markets of their major trading partners rather than the elaboration of their own indigenous standards.

On a national level, most developing countries lack adequate infrastructure and human capital at present for the functioning and maintenance of adequate laboratory testing facilities. The level of sophistication and awareness with respect to standards development is very low in most developing countries and it may take several years and considerable investment to improve this situation. On an international level, while many developing countries are members of the International Organization for Standardization and the International Electrical Commission, they do not participate actively in their working committees nor in the elaboration of internationally agreed standards. The same is true of the World Trade Organization (WTO) and the Agreement on Technical Barriers to Trade, where ratification of the Uruguay Round Agreement and entry into force of the World Trade Organization in January 1995 has not brought with it implementation of the obligations and disciplines contained in this Agreement by the large majority of more than 80 developing members.

On a regional basis, although most developing countries are members of various regional standardizing bodies, some of which have existed for many years (for example, the Comision Panamericana de Normas Tecnicas, or COPANT, in the Western Hemisphere and the Pacific Area Standards Congress, or PASC, in the Asia-Pacific), these bodies have not been very active or successful in carrying out coordination of national standardizing activities nor in moving towards a regional approach to reduction of technical barriers to trade. More recently, the two major regional initiatives which have appeared on the world economic scene, namely the Asia Pacific Economic Cooperation (APEC) grouping in the Asia Pacific with 13 developing members and the Free Trade Area of the Americas (FTAA) grouping in the Western Hemisphere with 32 developing members, have set out ambitious objectives in the area of standards and conformity assessment procedures, as well as in other non-tariff areas. Although these integration initiatives are still in their beginning phases, they would seem to represent the potential for going much further towards reducing technical barriers to trade than does the multilateral WTO Agreement on Technical Barriers to Trade, particularly in the area of trade facilitation through the elaboration of mutual recognition agreements.

It would be desirable for developing countries to act more forcefully in the area of standards and conformity assessment in a number of areas. Firstly, in the area of adoption of standards, a more active and concerted participation in the committee work of the international standardizing bodies would ensure that new international standards which are adopted would more closely reflect developing-country needs and would reduce the predominantly European influence found at present in the new standards which are agreed. For the adoption of national standards in the case where no international standard exists, there is little economic rationale for developing countries to invest in the elaboration of their own standards in the case of traded products. These standards should consequently in most cases be taken from their major trading partners, in order to better promote trade flows and international technology transfer. A more active participation of private sector firms in the standardizing process for all non-mandatory or voluntary standards would likely ensure that this happens de facto.

With respect to existing multilateral disciplines for standards and conformity assessment, developing countries should strive for a more effective implementation of the disciplines and obligations contained in the WTO Agreement on Technical Barriers to Trade, particularly with respect to notification of national practices. This would be of benefit to their own economies as well as to those of others, as the enhanced transparency should assist domestic producers and exporters in commercializing their products in foreign markets. Moreover, complying with the requirement to establish a national enquiry point would oblige government officials in developing countries to put into practice a system of national standards

information which should benefit local producers and exporters as much as foreign ones. Collection and systematization of this information by a national standards information center would also oblige governments to be more aware of the choices that they are making and imposing on their private sector with respect to standards development.

In terms of trade liberalization and increased trade facilitation, the study finds that developing countries should continue to actively push for greater liberalization in the two major regional integration initiatives at present, namely APEC and the FTAA. This is not due to the impression that the regional approach to liberalization is superior to the multilateral approach (on the contrary, it is generally agreed by economists that regional trading arrangements will be welfare-enhancing for their members and for the world as a whole only under certain very specific conditions), but because two of the major experiences with regional integration - the European Union and NAFTA - have obtained results which go much further in requiring movement towards harmonization and/or convergence of national standards and technical regulations than does the WTO Agreement on Technical Barriers to Trade. This is also the case of these regional integration arrangements with respect to promoting work on the development of mutual recognition or equivalency agreements, which are the major tools for achieving trade facilitation in the important area of conformity assessment procedures. Regional approaches to the removal of technical barriers to trade (although confined primarily to developed country experience to date in their actual results) have generally contributed to liberalization both within the region and vis-a-vis third countries. This has also raised interest in the area of standards and technical barriers.

The stated objectives of APEC and of the FTAA (as well as other smaller sub-regional integration arrangements such as ASEAN and MERCOSUR) are much more ambitious in the area of standards and conformity assessment than is the WTO TBT Agreement. This is true with respect to selective harmonization of product standards (ongoing work in APEC) as well as with respect to the elaboration of mutual recognition agreements for acceptance of the equivalency of foreign standards in domestic markets (strongly supported in the work of APEC and the FTAA but not figuring to present in the work program of the WTO Committee on Technical Barriers to Trade).

It has proven easier in the past and may continue to prove easier to accomplish substantial trade facilitation and coordination of policy objectives among a smaller subset of countries rather than among the 130 members of the World Trade Organization in an area such as standards and conformity assessment which by its technical nature is quite a technical and challenging one. Both the APEC and the FTAA regional integration movements encompass the most dynamic traders of the world economy and seem to be the focus of considerable policy

attention on the part of participating governments. Due to this fact, the financial support for technical assistance efforts, including both training of personnel and upgrading of laboratory infrastructure and testing facilities (already being explored within APEC), that are so critical to improving the standards systems in developing countries may also be more forthcoming on a regional than a multilateral level.

In summary, the main messages resulting from this study are the following :

1. Standards, technical regulations and conformity assessment procedures have become increasingly important as non-tariff barriers to trade as the more traditional, border barriers have been brought down. However, relatively little is known about the extent and nature of these barriers and even less about their quantitative impact, particularly in developing countries. This area needs considerably more study.
2. Developing countries have not been heavily involved in the development of international and regional standards to present and have thus been on the sidelines of efforts to rationalize this process. In order to have more of an influence on the standards which are adopted, developing countries should take a more pro-active approach in the ISO/IEC and other relevant multilateral and regional bodies.
3. Developing countries should avoid developing their own national standards to the extent possible, for reasons of both efficiency and cost. In order to facilitate entry into their export markets, they should adopt those standards of their major trading partners.
4. For the promotion of trade facilitation in the area of standards and conformity assessment, regional initiatives appear to be a more promising approach than the multilateral trading system due to the elements of increased trust and commonality of interest which are present at the regional level. This is especially true with respect to the elaboration of mutual recognition agreements

Introduction

The issue of standards and conformity assessment and the impact that their adoption and use may have on economic development and trade flows has not been a major concern of policy makers in developing countries until recently. This is due to the fact that more traditional forms of market imperfections and trade barriers have played a predominant role in these economies. Industrial policy has been concentrated on the provision of differential taxes and subsidies to chosen sectors of industry rather than focusing on the impact of harmonizing and/or making compatible differing product standards. Relatively little attention has been given, until very recently, to the establishment of credible and modern infrastructure for laboratory testing and calibration facilities, or to the development of certification methods and accreditation bodies or the provision of systems of quality management control.

In the area of trade, developing countries have concentrated on more traditional forms of commercial policy instruments. Only over the past decade or so have tariff levels and import surcharges begun to fall and import quotas and licenses to be removed on a large scale. Other forms of potential non-tariff measures, including in particular differing national standards and conformity assessment procedures, have begun to surface as barriers to trade as the more obvious layers of trade barriers have been peeled off.

Therefore the question of what role standards and technical regulations may play in promoting or slowing down economic development in developing countries or in facilitating or hampering their participation in international markets has not yet been examined in a serious way, partly due to the lack of interest on the part of policy-makers and partly due to the difficulties in identifying the technical barriers to trade created by incompatible national standards, along with the lack of available information on their sectoral importance and consequent uncertainty over their impact on trade flows and economic welfare.

This study addresses the problem of standards and technical regulations in developing countries and the policy options which such countries have to ensure that standards and conformity assessment procedures both facilitate economic development and do not act as technical barriers to trade. The focus of the study is exclusively on the development of standards for products and on technical barriers to trade in goods; as such it excludes services, though this area would be an important one to include in further research.

II. Definitions

The area of standards and conformity assessment is by its nature a technical one, in which policy makers must take decisions with respect to very specific scientific activities of testing and measurement. Thus it is important to both understand the terminology and to apply it in as precise a manner as possible.

Although this may appear surprising, there is no one single, simple definition of a standard that captures the entire range of meanings and uses of the term. But there are general characteristics of most standards that serve to produce a working definition. A *product standard* may therefore be defined as a specification or set of specifications that relates to some characteristic of a product or its manufacture. These specifications may relate to size, dimensions, weight, design, function, components, or any number of other product attributes. However, the distinguishing feature of a standard is that compliance is *voluntary*. Products that do not conform to a given standard can still be sold without penalty. However, products complying with national standards are often entitled to use a standards mark. Customers rely on this mark for quality assurance and therefore, even though standards may not be mandatory, producers may still have to conform with a given national standard in order to gain access to a given market.

Standards may arise “de facto”, that is without formal commercial sponsorship, but simply through widespread, common usage. When a particular set of product or process specifications acquires a sufficient market share so that it takes on authority or influence, then it can be considered a de facto standard. Standards may also arise through “voluntary consensus” or through a formal coordinated process led by industry in which key participants in a given market (producers, consumers, corporate and/or government purchasing officials, etc.) seek consensus on a standard, which remains voluntary in nature. These standards may be developed on a national or on an international level through international standardizing bodies.

The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement) takes a legalistic approach to defining a standard, namely as a :

“Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristic for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

In contrast, *technical regulations* are standards laid down by regulatory authorities with which compliance is *mandatory*. They may affect both products and/or production processes. Products cannot be sold without compliance to such regulations. These are particularly important and prominent in the area of government ensurance of public health and safety. Such regulations set minimum levels of consumer protection for products, such as in food and drugs for human consumption. Mandatory national safety provisions affect mechanical, electrical and transport equipment (such as the fitting and use of seat belts in automobiles). Technical regulations are also in effect for building materials and construction, fire safety and hazardous substances. There is also an increasing use of technical regulations in the form of process standards which are most often associated with environmental policy objectives (such as setting emission levels for air or water pollution).

The boundary between voluntary and mandatory standards is not always distinct. Often when setting out regulations, government standards writers refer to voluntary standards developed by private bodies. Mandatory standards may cite voluntary standards in whole or in part. And many of the standards which are developed on a consensus basis in the private sector are later made mandatory by governments, depending upon their usage. And there is also an overlap: for example, procurement specifications set by major manufacturers are (from their suppliers) mandatory for doing business in the same way that government procurement standards are mandatory.

The WTO TBT Agreement defines a technical regulation as a :

“Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

Conformity assessment is a very important component of the standards universe, relating not to the determination of a product standard and/or quality but rather to its acceptance and use in a given market. It can be defined as the overall umbrella of measures taken by manufacturers, their customers, regulatory authorities, and independent, third parties to assess that a product meets the requirements set out in a given standard or technical regulation. Conformity assessment can enhance the value of standards by increasing the confidence of consumers and regulators and ensuring that the required health and safety requirements for regulated products on national markets are met by foreign suppliers. In today's world of rapidly integrating markets, measures to evaluate and ensure conformity are of as much or more significance than the standards themselves. In this sense they can also represent a barrier to trade as much as can a non-compatible national standard, since the requirement for additional testing procedures (in the host or export country as well as the home country) imposes an additional cost on exporters not borne by local suppliers. These costs are in the form of testing, inspection, audit, and related procedures.

The WTO TBT Agreement defines conformity assessment procedures as :

“Any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled.” The Agreement goes on to say that conformity assessment procedures include, *inter alia*, procedures for sampling, testing, evaluation, verification and assurance of conformity; registration, accreditation and approval, as well as their combinations.

Conformity assessment covers four areas, which are set out in Chart 1. The first area of conformity assessment is that of the manufacturer's declaration of conformity which involves assessment by the manufacturer of the quality of his product based on his own, internal testing and quality assurance mechanisms. The second area is that of the testing of products, parts and materials which is performed by independent laboratories upon the request of manufacturers. The third area is certification, or formal evaluation by an unbiased third party that a product conforms to specific standards. The fourth area is quality system registration which involves an independent audit and approval of the manufacturer's quality system or the system of management used for ensuring consistency in product quality, including procedures, training and documentation. Outside of the first area, all activities are carried out by third parties, or parties exterior to the manufacturer.

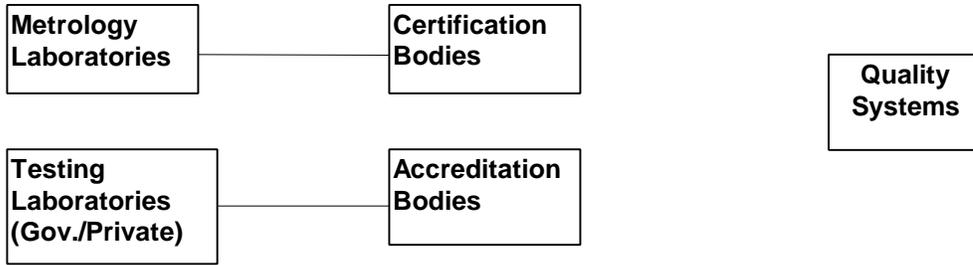
Chart 1

CONFORMITY ASSESSMENT FRAMEWORK

Level 1: Testing

Level 2: Certification

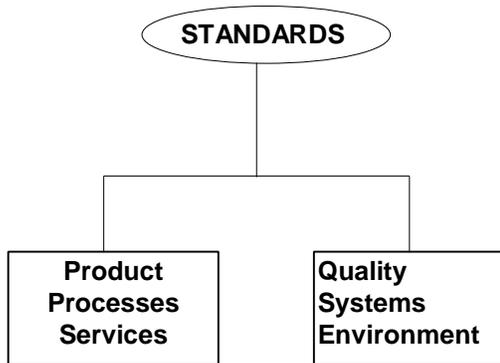
Level 3: Quality Systems



What is tested and certified?

Mutual Recognition

At what level?



- Testing Laboratories
- Metrology Laboratories
- Certification
- Accreditation
- Quality system registrars

/Under ISO/IEC Guide 65/

Under ISO/IEC Guide 62 and ISO 9000

Each area covered by conformity assessment activities can be carried out at three different levels, namely : that of *assessment* or evaluation; that of *accreditation*; and that of *recognition*. At the first level of assessment, products and processes are evaluated by manufacturers, testing laboratories, certifiers, and quality system registrars. These evaluations involve the comparison of a product to a given standard. At the second level of accreditation, the competence of the testing laboratories, certifiers, and quality system registrars are evaluated and formally documented. *Accreditation* is the process of evaluating testing facilities for competence to perform specific tests using specified test methods. The accreditation process determines whether a particular testing facility has the required personnel qualifications, equipment and/or ability to perform tests. The test methods for which a facility seeks accreditation may or may not be associated with a particular certification program. While assessment may be carried out by second parties or third parties, accreditation is always carried out by third parties, independent of both the manufacturer and the purchaser or consumer. The third level of conformity assessment activities is that of recognition.

Certification is an important part of the conformity assessment process and can be defined as the provision of assurance that a product or service conforms to one or more standards or specifications. Some, but not all, certification programs require that an accredited laboratory perform any required testing. Certification typically involves testing by an organization that is independent from any link to a manufacturer or purchaser. Certification marks are often affixed to products to certify that they have been tested and evaluated in a particular manner. For example, in the United States a well-known mark certifying product safety is the Underwriters Laboratories “UL” mark; in Canada the Canada Standards Association (CSA) performs a similar function. Manufacturers may take the initiative to “self certify” their products through issuing a *declaration of conformity* through which the manufacturer or supplier declares that the product meets one or more standards based on (i) confidence in the manufacturer’s own quality assurance program, and/or (ii) the results of testing the manufacturer performs or has performed on the product.¹

Not all levels of conformity assessment activity as shown in Chart 1 necessarily involve the government. Assessment, accreditation and quality system registration may be carried out by either private or government bodies. In several countries of the Western Hemisphere conformity assessment activities are in the hands of private entities, especially in the voluntary area. Private independent laboratories carry out product testing and accreditation of laboratory competence. Private certifying bodies often carry out product certification and accreditation while private quality system registrars are entrusted with quality system control and

¹ The definitions were taken from the recent study by the National Research Council entitled *Standards, Conformity Assessment, and Trade* (1995), Washington D.C.: National Academy Press.

accreditation of quality system registrars. The government must designate the authority to private bodies for these activities only when they involve regulated products.

The role of government is unique in the area of technical, or mandatory regulations, which are promulgated for the protection of the health and safety of consumers. Recognition of bodies for testing and accreditation purposes with respect to mandatory regulations rests in the hands of government. Such recognition involves assessment of the competence of programs that accredit conformity assessment organizations, such as laboratories, certifiers, and quality system registrars and has the effect of conferring official acceptance of the results of testing and certification activities performed by any laboratory accredited by a government-recognized accreditor. As stated above, the laboratories and testing facilities may be private agencies, allowing the public sector to reduce costs of this service. However, as concerns regulated products, the government is responsible for negotiating mutual recognition agreements.

III. The Importance of Standards in Economic Development and Trade

Standards are ubiquitous. There are literally thousands of standards in existence that affect all aspects of daily activity by consumers and producers in all countries and which have an impact on the processes, products and services which make up a nation's gross domestic product. Standardization is a key element in promoting industrial and economic development and trade, and covers nearly the entire spectrum of the economy. In terms of international commerce, standards and conformity assessment can facilitate trade or frustrate and impede its expansion. However, the potential to use standards as hidden trade barriers is immense. And it is unfortunately very difficult to determine whether standards are being implemented to achieve the legitimate interests of protecting the public from unsafe or sub-standard products in ways that also minimize any adverse effects on trade flows. This is underscored by the lack of objective information and quantitative estimates of the impact of technical barriers on trade flows and on consumer welfare. The ways in which standards can affect the trade of developing countries is examined later in this study. This section examines the role of standards in economic development.

A. Role of Standards in Promoting Economic Development

In terms of economic development, standards play an important role in many aspects of the economy. Table 1, shows the various ways in which standards contribute to enhanced welfare for both consumers and producers. The categories listed in the table and discussed below are not mutually exclusive and most standards serve more than one purpose.²

Standards serve to communicate information to consumers in a consistent and reliable manner which lowers the transactions costs for both buyer and seller, since the buyer is spared the effort of having to find out for himself about the characteristics of the product. Standards permit the comparison of products on a common basis. Standards enhance competition in any given marketplace through allowing products that conform to a given standard to compete directly with each other. The consumer is spared the difficulty of having to determine the equivalency of products and can concentrate on a price comparison alone.

Standards allow for the interfacing of products and the ability of the consumer to mix and match components of a given system (for example, stereo equipment or computer installation) which is especially important in industries that are organized into networks.

Table 1

²The discussion in this section draws from those categories outlined in the National Research Council study on *Standards, Conformity Assessment and Trade* (1995), op.cit., pp. 11-17.

ROLE OF STANDARDS IN PROMOTING WELFARE

--For Consumers

1. Standards transmit information in a consistent and predictable format
2. Standards permit the comparison of products and/or services on a common basis
3. Standards allow the mixing and matching of products
4. Standards ensure environmental cleanliness and product safety
5. Standards enhance the quality of life

--For Producers

1. Standards allow economies of scale in output
2. Standards enable parts and components to be combined efficiently in production
3. Standards diffuse technology embodied in products and processes
4. Standards provide a reference tool for organizing the production process
5. Standards enhance the quality of the

For producers, standards enhance productive efficiency. The manufacturing process itself is organized according to standards, many of which are internal to the firm. The standardization of parts and processes allows for repetitive production, reduced inventories and flexibility in substituting components on the assembly line. Production of standardized goods brings about great economies of scale, and the resulting reduction in cost is passed on to the consumer in the form of lowered prices. Standards embody technology and thus play a key part in the process of technology diffusion as other firms in the industry use the technological advance incorporated into a standards by the developer. This process raises productivity and industrial competitiveness through increasing efficiency as firms are able to adopt standardized approaches rather than having to reinvent a similar technology.

Lastly, standards are an important means of promoting the protection of health, safety and the environment as they ensure for the general public that certain levels of cleanliness in air and water quality as well as food safety will be maintained. Standards help to ensure product quality, as compliance to given standards in the manufacturing process (for example, according to those in the ISO 9000 system which set out standards for quality management) allows for procedures which ensure resulting product quality. For consumers and producers alike, standards help to enhance the quality of life.

Thus, standards serve an important role in promoting welfare and economic development. Standards are often seen by economists as having characteristics of “public goods”, that is goods, the consumption of which by one party does not diminish their value for another, nor change their price.³ The multiple, repeated use of a standard does not alter its value or utility. Use by one party often enhances the value of the standard for the others. In their quality as public goods, the social marginal value of standards exceeds their private marginal value, which means that left to the market alone, there is no guarantee that private actors will supply the needed quantity of standards, particularly in areas where health, safety and environmental quality are concerned. A single firm that develops a standard by itself has no guarantee of being able to reap the overall social and economic benefits that derive from standardization, yet it must incur the costs. It is for this reason that the need is often felt for the government to intervene in the development of standards that will be most economically beneficial to industry or society at large.

One area of standards which has been extensively addressed in the literature is that of market failure due to externalities and the necessity for government regulation of product safety, quality, and labeling. There is basic agreement on the need for this type of intervention due to the public good nature of standards, and the argument for a strong government role in this area holds equally true for developing as for developed economies.

However, in other product areas where health and safety concerns are not predominant, it is questionable as to how much government intervention is appropriate in the selection and development of standards for use in the marketplace. Should governments in developing countries ensure product compatibility and oversee aspects of product quality for manufactured and agricultural products in general, when these standards are more of a private than a public good nature? There is no single answer to this question and a great deal of variation exists at present across countries in the areas involving the development of product and process standards that have been left to the market and those that have been subject to regulation. This continues to be a controversial issue and one which is not the focus of this study but which could be the object of a further study.

B. Problems Posed by Product Incompatibilities across Countries

³ See Charles P. Kindleberger (1983), “Standards as Public, Collective and Private Goods”, *Kyklos*, 36, pp. 377-396.

When markets do not generate solutions to compatibility differences within industries, then this poses problems not only within countries, but also for international trade flows. Incompatible products give rise to technical barriers to trade. When this is not the result of the development of more advanced technology, then the effect of incompatibilities will be to reduce consumer welfare, both nationally and internationally, through a variety of ways.⁴ These include : the reduction of product variety in the marketplace; the consequent increase in production costs and final goods prices; the segmentation of markets due to incompatibilities which results in entry barriers; and the inability to create network externalities.

Sykes suggests that many of these incompatibilities will be eliminated through private firms, acting on the incentive to reduce costs and expand sales. Firms may eliminate incompatibilities through choosing to make their products compatible with those of the industry leader or through engaging in mergers. The private sector may also undertake cooperative efforts to develop compatibility standards, for example, through the creation of standards-setting entities within their product sector.

This is certainly the case in the developed economies of the United States, Canada, Western Europe and Japan, where hundreds of private standards-developing entities exist as the result of industry initiative in various product sectors (see below for the U.S. and the European Union). However, this appears to be much less true in the case of developing economies, where such private standards-setting entities are much less common and widespread and often do not exist at all. Thus the problem of resolving product and quality incompatibility on the national level takes on a different character in developing as opposed to developed economies as the preferred market solution may be less viable.

Even if the market can generate compatibility standards on the national level through firm cooperative behavior within an industry, on an international level this solution is subjected to further difficulty and probably no longer holds true in the same manner. This is easy to understand in autarchy, where differences between countries in resource endowments or in technology can lead to different methods of production for the same products. Thus compatibility standards for the same products would consequently be different from country to country. For many developing countries which had closed markets for two or three decades before they began to open to international trade in the mid-1980s, this can present a serious problem, as the opening to trade has presumably revealed incompatibilities in products and processes which were previously ignored or unimportant in a closed economy framework.

⁴ Discussion in this section is based on chapter 3 in Alan O. Sykes (1995), *Product Standards for Internationally Integrated Goods Markets*, Washington D.C.: Brookings Institution.

Sykes again suggests that powerful incentives exist in the marketplace to eliminate undesirable incompatibilities once economies are open to international trade, but that this may nevertheless be frustrated by competitive imperfections such as the problem of imperfect competition and/or imperfect information. However, the issue of the “installed base” remains important and particularly so for developing countries. In spite of market incentives which are present for large firms, in an open economy it would appear that product heterogeneity will remain due to differences in national tastes, wealth and/or income distribution across countries which justify different regulations respecting product quality and regulatory initiatives. Equally complicating is the fact that similar objectives for legitimate product or quality regulation may be attained in a variety of ways, such as through different production processes and product designs. This will serve to complicate international trade flows and enhance the danger of differing standards acting as non-tariff barriers to trade.

C. Standards and Conformity Assessment as Non-tariff Barriers to Trade

Technical barriers to trade in the area of standards can arise in several different ways. They may result from heterogeneity across national markets in the type of product and process standards, technical regulations or conformity assessment procedures. Or they may result from the duplication of effort associated with separate conformity assessment requirements and because of unnecessary costly testing and procedures.

Although most government-to-government disputes over technical barriers concern mandatory government requirements for standards (and these are the object of most of the disciplines of the WTO TBT Agreement), voluntary standards may often constitute an important source of technical barriers. For example, product incompatibility is created by the differences between the imperial and the metric systems of weights and measures. Or between different voltage standards for electrical appliances. When government procurement is undertaken with reference to voluntary standards, then those foreign producers who do not manufacture according to such standards are excluded from the bidding process.

With respect to mandatory standards or technical regulations, technical barriers to trade can arise due to differing national interpretations of the reasonableness of the regulations in question such as the scientific interpretation of tolerable health and safety risks for consumers in various products or the disagreement over labeling requirements which means that a mandatory product design or content regulations for one market may result in the exclusion of some products from the market that can legally be marketed elsewhere.

Disputes over technical barriers to trade are taking on increased importance in the trade field. Indeed, of the 48 requests for consultations submitted to the Dispute Settlement Body of the World Trade Organization during 1995 and 1996, its first two years of operation, 11 of these, or one-fourth, have involved issues concerning standards and/or invoked the Technical Barriers to Trade Agreement. The list of these 11 cases is shown in Table 2. What is also of interest to note is that disputes have involved five developing countries (namely, Malaysia, Singapore, Venezuela, Korea, Brazil) as either complainant or defender.

The most widespread and possibly more costly type of non-tariff barrier to trade in the standards area has never been the object of a dispute to present within the WTO and for this reason its importance as an NTB is not widely understood. This is the problem posed by demonstrating compliance with either standards or technical regulations through conformity assessment procedures. It does no good for a producer to comply with a standard if a seller

Table 2

DISPUTES INVOLVING STANDARDS BROUGHT TO THE WORLD TRADE ORGANIZATION
(During 1995 and 1996)

<u>Subject of Dispute</u>	<u>Complainant</u>	<u>Status</u>	
Malaysia: Prohibition of panel imports of polythylene	Singapore	Settled	without
United States: Standards for adopted; reformulated and conventional adopted gasoline	Venezuela	Panel	Report
		Appellate	Report
United States: Standards for adopted; reformulated and conventional adopted gasoline	Brazil		Panel Report
		Appellate	Report
Korea: Measures concerning the consultations testing and inspection of agricultural products	United States		Under
Korea: Measures concerning the shelf-life of products	United States		Settled case
Australia: Measures affecting the importation of salmon	Canada		Under consultations
Australia: Measures affecting consultations the importation of salmonids	United States		Under
Korea: Measures concerning bottled water	Canada		Settled case
EC: Trade description of scallops	Canada		Settled case
EC: Measures affecting meat & meat products (hormones)	United States		Active panel
EC: Measures affecting livestock and meat (hormones)	Canada		Active panel

Source: [WTO Home](http://wto.org/wto/dispute/bulletin.htm) Page: [Disputes](#) [Overview](#)
(wto.org/wto/dispute/bulletin.htm) January 1997.

cannot demonstrate this to the satisfaction of the purchaser, and it is equally useless to comply with a regulation if the regulatory authorities cannot be persuaded of this at a reasonable cost. Conformity assessment enters into step 2 of the schema in Chart 2 which outlines the way in which standards affect trade flows. Conformity assessment comes into play during the testing procedures, and certification, accreditation and recognition are all linked to this activity which ultimately determines the product's acceptance in national and/or international markets.

Conformity assessment procedures are carried out either by the regulatory authority of the country importing the product (government) or by quasi-public or private bodies operating on their behalf and constitute a significant additional cost to firms selling in multiple markets. Although separate certification is needed in cases where mandatory product specifications differ from country to country, even where countries rely on internationally harmonized rules or accept as equivalent another country's standards, reliance on the exporting country's tests and conformity certificates is rarely practiced.⁵ And because conformity assessment is much more prone to bureaucratic discretion and industry influence, non-tariff barriers can easily arise through :

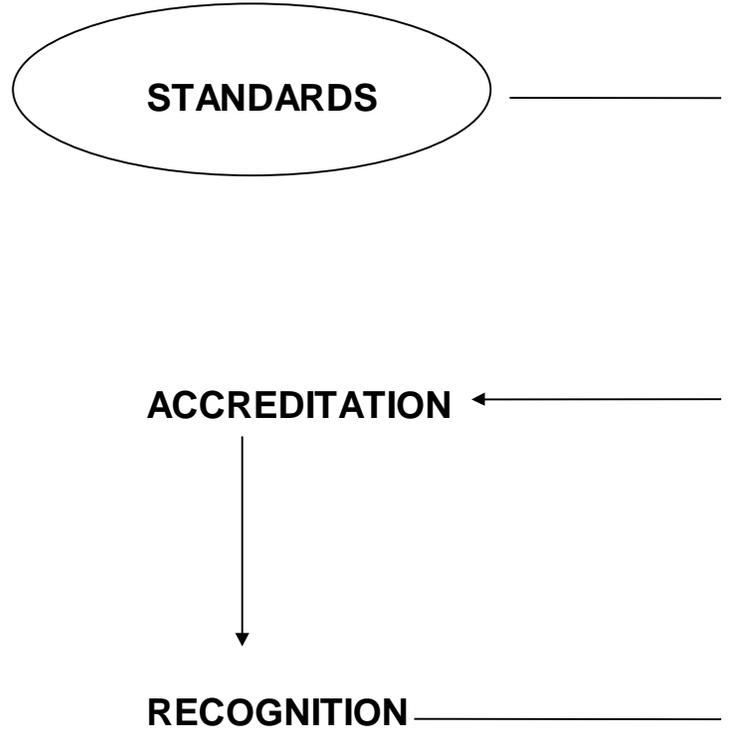
- i) increased product costs created by the often redundant repetition of testing and certification for different national markets;
- ii) increased transportation costs if the product is deemed not to comply with the importer's regulatory requirements;
- iii) time and administrative delays caused by costly and time-consuming inspection visits by the importing country's authorities.

It is often the case that such testing and certification requirements are used to frustrate imports and shelter domestic companies from competition rather than serving to legitimately protect national consumers, although the line between the two can be very fine. However, statistics show that conformity assessment has become a growth industry, particularly in developed countries and the present size of this activity gives some indication of what type of obstacle it may pose in international trade.⁶

⁵ See John Clarke (1996), "Mutual Recognition Agreements", *International Trade Letter*, No. 2, Brussels.

⁶ The National Research Council study pointed to an annual expansion of 13.5 percent of the activities of testing laboratories in the United States which carried out conformity assessment evaluation from 1985 to 1992. Adding the revenue from all firms involved in testing activities shows that this industry is estimated to involve around \$10.5 billion annually. See chapter 3 of the National Research Council (1995), *Standards, Conformity Assessment and Trade*, op.cit.

HOW STANDARDS



Conformity assessment requirements, to the extent that they are redundant and excessively costly, serve to partially negate and reduce the benefits from international trade. A recent OECD study has found that differing standards and technical regulations in various national markets, combined with the costs of testing and certifying compliance with those requirements, can constitute between 2 and 10 percent of the firm's overall production costs.⁷ And both industry representatives and economic studies cite conformity assessment and certification requirements at the top of their list as an impediment to trade whose growing complexity threatens to undermine future trade expansion due to the duplicative and often discriminatory requirements for product testing, certification, and quality system registration.⁸

⁷ Organization for Economic Cooperation and Development (1996), Proceedings from the Conference on Consumer Product Safety Standard and Conformity Assessment: Their Effect on International Trade, Paris: OECD.

⁸ Although there have been only a limited number of attempts to estimate the impact of standards and conformity assessment procedures as barriers to U.S. trade, a recent study by the U.S. Department of Commerce indicates that \$300 of the \$465 billion in U.S. merchandise exports in 1993 were affected by foreign technical regulations and standards. A total of \$180 billion was stated to be subject to certification to non-U.S. standards in such sectors as automotive, aerospace, computers, telecommunications, pharmaceuticals, and chemicals. An additional \$70 billion was subject to quality or environmental management system registration. In U.S. exports to Europe alone, the International Trade Administration estimates that more than half (\$66 of \$110 billion) of U.S. exports to Europe in 1993 was subject to some form of required EU-product certification. Such estimates do not exist for developing-country exports. Cited in the National Research Council study (1995) on *Standards, Conformity Assessment, and Trade*, *op.cit.*, pp. 111-112.

IV. The State of Standards Development in Developing Countries

Although four major studies have been completed within the past several years examining the linkages between trade and the development of product standards, no literature exists which specifically focuses upon the link between adoption of standards, the impact on economic development this may have, and the policy options facing developing countries in this area.

Likewise, only very scanty information exists on the actual state of standards development in developing countries and of their activities with respect to standards and conformity assessment, both at the national and the regional level. The issue of standards has remained basically a focus of industrialized-country concern to present. This section attempts to partially fill this gap through examining the present state of standards development in certain major developing countries and regions. The status and functions of national standards bodies are examined, for those countries where information is available, and the scope of conformity assessment activities and accreditation is reviewed when this exists. Finally, the participation of developing countries in regional standardizing bodies is considered.

Most of the information reviewed below has been drawn from two recent surveys carried out for the first time in the Asia Pacific Economic Cooperation (APEC) Subcommittee on Standards and Conformance (1994) and the Free Trade Area of the Americas (FTAA) Working Group on Standards and Technical Barriers to Trade (1996).⁹ These two surveys have put together for the first time comparative information on standards, technical regulations and conformity assessment activities in the economies of the respective regions. However, these surveys are only a first approach to this broad and complex question, and they are also incomplete due to the varying nature and coverage of the responses to the respective questionnaires. A total of 10 developing economies responded to the APEC questionnaire, while 30 responded to the FTAA Working Group questionnaire, but not all countries completed all questions. Nor do the two surveys contain identical information.

⁹This information has only recently become available on a comparative basis for developing countries in Asia and in the Western Hemisphere due to the efforts of information collection on the part of the APEC Subcommittee on Standards and Conformance and the FTAA Working Group on Standards and Technical Barriers to Trade. The former has established a report on "Asia Pacific Economic Cooperation, Standards, Technical Regulations and Conformance Survey," in September 1994, and the latter has compiled an "Inventory of National Practices on Standards, Technical Regulations and Conformity Assessment in the Western Hemisphere" in September 1996 which is to be published in May 1997. Both the survey and the inventory put together information on national practices in developing country members in these areas for the first time.

Therefore the information set out below can only provide a incomplete overview of the state of standards development in developing countries. Unfortunately it is still not possible to compare activities on standards, technical regulations and conformity assessment (including certification and accreditation) in the same way across all countries. This underlines the need for additional research and data gathering which would investigate the nature and functioning of the standards systems in developing countries within a comparable framework of analysis.

A. National Standardizing Bodies in Developing Countries

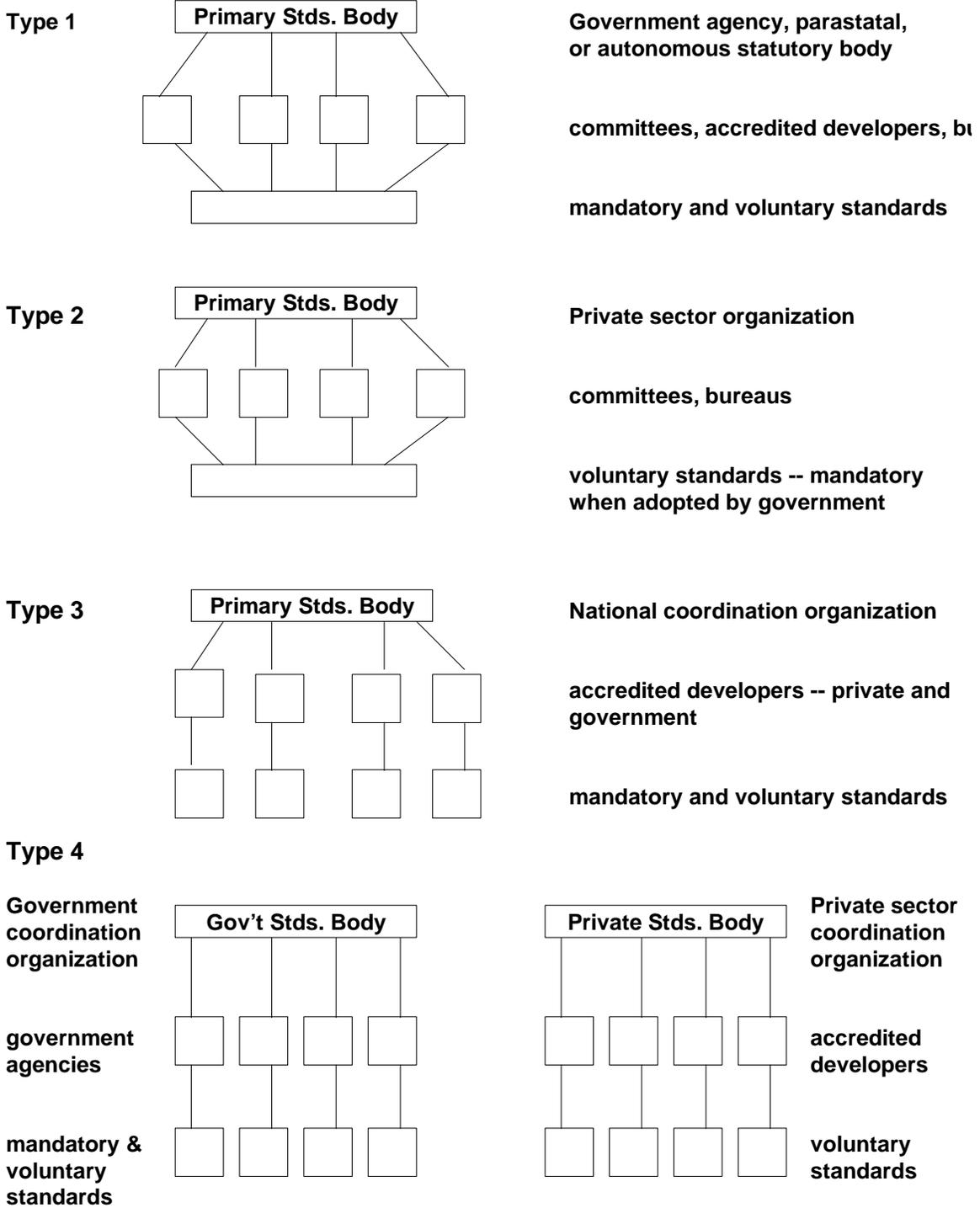
Developing countries are as diverse in the processes through which they create standards as are other countries throughout the world. In fact, as there is no single process worldwide for creating and adopting standards, this is very much at the discretion of the individual country as to the type of system it chooses to follow. There exists great variety among standards, even within the same product group, in such characteristics as purpose, scope, specificity of requirements and relative technological sophistication, all of which are determined by the type of standards-setting system in place. Many different types of organizations influence the development of standards, but their relative weight in this process varies from country to country. The variables that affect the pattern of standards development in a sector include : (i) industry size and concentration; (ii) dominance of specific suppliers or buyers; (iii) level and speed of technological advance; and (iv) public interests such as safety, health, and environmental protection.¹⁰

Developing countries have been confronted with quite different types of standardizing systems to use as models. Chart 3 sets out four different types of standards development frameworks, all with a different mixture of government versus private sector involvement. The North American model for standards development is a very decentralized, market-oriented one with an incredibly large number of private-sector, standards developing organizations, in addition to the numerous regulatory agencies of the U.S. Government. There are over 750 organizations in the United States that develop and implement national standards, and the number of private-sector, voluntary consensus standards elaborated by technical and professional societies, industry associations and standards-developing membership organizations, reaches nearly as many as the number of federal procurement and regulator

¹⁰ See William Lehr, *Standardization: Understanding the Process*, 550-555.

Chart 3

ALTERNATIVE APPROACHES TO STANDARDS DEVELOPMENT



Source> R.B. Toth Associates, April 1996.

standards which have been developed by the U.S. Government.¹¹ In Canada the private sector is also very active in the development of standards, though the central government still plays a strong role. The Standards Council of Canada (SCC) is a Crown corporation, with a joint private-public statute. In Western Europe, however, standards-developing activity has traditionally been much more centralized within most member states of the European Union (the Netherlands being an exception), and continues to be so on a community-wide level under the European Commission. The latter body is charged with the objective of harmonizing standards of European Union members when possible, or with setting out the “essential requirements” that products must meet to ensure adequate health, safety, environmental and consumer protection.

Information on national standardizing bodies in developing countries is limited. The International Organization for Standardization (ISO) publishes a Directory of ISO Member Bodies but this has not been updated since 1991. This Directory lists 45 national standardizing bodies for developing countries in Asia and the Western Hemisphere. Information on the status and activities for 16 of these national standardizing bodies is set out in Tables 3 and 4.

The number of national standards which have been developed in various developing countries on the basis of a selection of developing countries for which such information was available differs widely, ranging from 600 in Singapore and around 1,000 in Uruguay and the Philippines to around 8,000 in Argentina, Brazil and Turkey, as shown in Table 3. These are modest numbers however compared with the nearly 100,000 standards having been developed in the United States. Also interesting is the relatively small proportion of standards in Latin America which are mandatory (i.e., technical regulations). For the larger countries of South America, these represent less than 30 percent (Argentina, Brazil, Columbia, Mexico, Peru and Venezuela), which can be compared to roughly 50 percent for the United States and Western Europe.

Consequently, not only are there absolutely fewer standards overall in developing countries, even when placed on a per capita basis, but there are also many fewer mandatory standards with which industry is obliged to comply. This situation most likely reflects a

¹¹ Although it is difficult to identify the number of U.S. standard at any given point in time, as of 1991 the total of U.S. government standards (federal procurement and regulatory) stood at around 52,000, while the number of private-sector, voluntary consensus standards numbered around 42,000. See Robert Toth, editor (1991), *Standards Activities of Organizations in the United States*, NIST Special Publication 806, NIST: U.S. Dept. of Commerce, Washington D.C., U.S. Government Printing Office, 1991.

Table 3

**NUMBER OF NATIONAL STANDARDS IN SELECTED
DEVELOPING COUNTRIES**

COUNTRY	NUMBER OF NATIONAL STANDARDS	MANDATORY PORTION (%)
Argentina	7900	5
Brazil	8000	7
Chile	2000	30
Colombia	3500	8
Cuba	5700	95
Ecuador	2000	95
Indonesia	3600	
Korea	8500	
Mexico	5500	4
Peru	3300	1
Philippines	1400	
Singapore	600	
Turkey	8500	
Uruguay	1200	10
Venezuela	3000	10

Source: ISO Member Bodies (1991), Geneva.

number of factors, including a less active stance on the part of national standardizing bodies, a relatively less developed and diversified manufacturing sector, and the lack of a perceived need by industry to develop additional standards at the present time.

The size, status and staffing of standardizing bodies in developing countries appear to be very diverse in developing countries. Table 4 sets out various statistics on standardizing bodies in developing countries for which information is available. The annual budget of such bodies (in 1991) varied from a low of \$1.3 million in Korea and \$6.8 million in Brazil to nearly \$20 million in Turkey, with the average being around \$15 million. Most of the national standardizing bodies are responsible for all four functions in the area of standards and conformity assessment, that is metrology, standards, product certification and quality control.

The size of the staff employed in national standardizing bodies varies widely also, from around 30 persons in Chile and Indonesia to over 1000 in Turkey and India. Government funding for standardizing bodies covers 100 percent of the activities of these bodies in China, Korea, Indonesia, Mexico, the Philippines and Thailand, but less than 1 percent in Turkey, 12 percent in India and 16 percent in Brazil. For those countries where the government contribution is of lesser importance, standardizing bodies draw their funding primarily from the testing and certification activities which they perform for private firms. However, some standardizing bodies also earn income from the sale of publications.

There appears to be no generalization which can be drawn about either importance, funding structure, or staff size of standardizing bodies in developing countries, either by region or by relative level of economic development. In national measurement and metrology services there appears to be a greater similarity of activity and structure across developing countries. In Asia, as in Central and Latin America, all countries administer a single facility run by government that maintains physical standards and their traceability through calibration laboratories.

B. Certification and Accreditation Activities in Developing Countries

Beyond the diversity in standardizing institutions and approaches, a great deal of diversity is also evident in the current state of development in national certification and laboratory accreditation capabilities. On the basis of information available only for developing countries in the Western Hemisphere, it seems that while a few countries have established

Table 4
STATUS AND ACTIVITIES OF NATIONAL STANDARDIZING BODIES
IN SELECTED DEVELOPING COUNTRIES

	Argentina	Brazil	Chile	Colombia	Jamaica	Mexico	Trinidad & Tobago	Venezuela	China	India	Indonesia	Korea
Founded	1935	1940	1944	1963	1968		1974	1958	1957	1947	1984	1961
Staff (number)	160	259	30	131	210	722	68	103	360	2400	38	100
Responsibilities:												
- Metrology					•		•		•	•		•
- Standards	•	•	•	•	•		•	•	•	•	•	•
- Product Certification	•	•	•	•	•		•	•	•	•		•
- Quality	•		•	•	•		•	•	•	•		
Annual Budget (\$ million)	2.0	6.8	.3	1.1	1.3	16.2	.8	15.6		15.6		1.3
Revenue (%)												
- Government	10	16	70		90	100	93,4	15	100	12	100	100
- Industry												
- Sale of Publications	10	16,5	8	12	0,05		0,9	6		6		
- Testing / Certification	50	19		25	9,95		2,6	48		64		
- Other	30	4	22	28			3,1	15		18		

Source: ISO Member Bodies, (1991), Geneva.

(*) Two developing countries - Costa Rica and Ecuador- have become ISO members since the Guide was published.

national accreditation programs for laboratories that perform product testing, most have not, as is shown in Table 5. The number of countries which have either certification and/or accreditation systems in place in Latin America and the Caribbean totals only seven (Argentina, Brazil, Chile, Colombia, Costa Rica, Peru, and Venezuela).

From the list in Table 5 it is evident that no developing country in either Central America or the Caribbean outside of Costa Rica has a national system for certification and accreditation at the present time. Most countries have indeed only recently put this into operation. Colombia created its National System for Standardization, Certification and Metrology in 1994, and Argentina created a National Accreditation Agency in 1995 which has not yet begun to fully function, both for the purpose of accrediting certification organizations and building a network of testing laboratories. Ecuador is working at present to put in a national system of accredited laboratories, and Bolivia is also in the process of drafting legislation to create the Bolivian System for Standardization, Metrology, Accreditation and Certification in order to accredit inspection and certification offices, testing and calibration laboratories. In Central America and the Caribbean, Panama and Trinidad and Tobago are in the process of establishing national systems of accreditation.¹²

The lack of capacity at present on the part of many developing countries to carry out the functions of certification and accreditation of laboratory testing is a very revealing fact with serious implications for the objective of trade liberalization and facilitation in the area of standards, since without a system of certification and accreditation for laboratory testing facilities, it is impossible for developing countries to move towards reciprocity in testing results through the elaboration of bilateral or multilateral mutual recognition agreements. This is reflected in the very small number of agreements that have been signed between countries to accept the tests performed by other national testing laboratories, in either Asia or the Western Hemisphere.

Almost all of the Latin American countries with national accreditation systems in place allow for the accreditation and certification of both public and private testing agencies. All make reference to the use of ISO/IEC Guides relevant to conformity assessment and related activities for the way in which certification and accreditation systems are structured.¹³ Some

¹² This information was drawn from the *Inventory of National Practices on Standards, Technical Regulations and Conformity Assessment Procedures in the Western Hemisphere* (1996), prepared for the Free Trade Area of the Americas (FTAA) Working Group on Standards and Technical Barriers to Trade, OAS Trade Unit.

¹³ For more details on the participation of developing countries in the international standardizing activities of the ISO and IEC, refer to section VI below.

Table 5

**DEVELOPING COUNTRIES WITH CERTIFICATION
AND/OR ACCREDITATION CAPACITY IN THE WESTERN HEMISPHERE**

Country	Certification	Accreditation	Testing Agencies		Reference to International Guides ISO/IEC
			Public	Private	
Argentina	x	Argentine Accreditation Agency (1995)	x		Guides 25 & 58
Brazil	INMETRO	x	x	x	Guides 25, 58, 39 & 61
Chile	x	x	x	x	x
Colombia	National System for Standardization, Certification and Metrology (1997)	x	x	x	Guides 25, 39, 40 & 57
Costa Rica		National Accreditation Entity	x		x
Peru	INDECOPI	x	x	x	Guide 25
Venezuela	Bureau for Standardization and Quality Certification (SENORCA)				

Source: National Practices on Standards, Technical Regulations and Conformity Assessment Procedures in the Western Hemisphere (1997), OAS Trade Unit, Washington, D.C.

countries in Latin America also reference the accreditation system model put in place by the European Union (EN 45000) in the development of their national systems. The structure of product certification and laboratory accreditation activities, when they exist, also appears to be very different as between countries. In several countries the government alone exercises control over laboratories that test and certify products while in a few countries this function is shared with private organizations.

The extent to which developing countries accept the test results of other countries is also indicative of the state of development of their standards framework and their degree of integration with other markets. The extent of this acceptance at present is limited at best. Information on the acceptance of standards and on certification issued in other countries for developing economies in Asia is found in Table 6 as concerns mandatory technical regulations for several different product sectors. This information has been drawn from the APEC Standards, Technical Regulations and Conformance Survey of 1994.

It can be seen that the Asian developing countries who replied to the survey questionnaire indicated to a large extent their acceptance of both standards used in other countries (dependent of course upon the results of conformity assessment testing), and the certification issued in other countries. However, a note of caution must be sounded, as there are often qualifications attached to such acceptance which mean that in practice such certification is actually not allowed on face value but needs to pass a further layer of requirements. For example, in the chemical sector Korea accepts certifications issued in other countries, but only in cases in which certifications meet “local requirements”, specified by the government. In the food sector Korea accepts other certifications only through negotiated bilateral arrangements. A similar situation prevails in Thailand where chemical certifications are accepted only where bilateral agreements have been negotiated. In China, certifications from abroad are only acceptable on a case-by-case basis by the State Administration of Import/Export Commodity Inspection.¹⁴ For these three countries, the acceptance of foreign certifications of product quality and conformance to a given standard is actually very limited in practice due to these additional requirements. Thus there remains great diversity not only between countries in terms of conditions for acceptance of foreign certification within national administrative structures, but also between countries in terms of actual practice.

¹⁴ Developed countries are in no better situation in this regard, as neither Canada, Japan nor the United States have any mechanism for acceptance of certifications granted in other markets. For this and the other examples cited in the paragraph, see John Wilson (1995), *Standards and APEC: An Action Agenda*, Washington DC: Institute for International Economics, chapter 3.

Table 6

ACCEPTANCE OF FOREIGN CERTIFICATION BY DEVELOPING COUNTRIES IN ASIA IN SELECTED SECTORS

Country	Building		Chemicals		Energy		Food		Health & Safety	
	Accepts	Qualifies	Accepts	Qualifies	Accepts	Qualifies	Accepts	Qualifies	Accepts	Qualifies
China	x	x	x		x	x	x	x	x	x
Chinese Taipei	x	x	x		x	x	No			
Hong Kong	x	x	x	x						
Korea			x	x		x	x	x	x	x
Indonesia					x	x				
Philippines	x		x		x		x		x	
Thailand	x	x	x	x						

Notes: The following represent qualifications to the acceptance of foreign certification listed above.

1. **China:** For building supplies, energy and food, acceptance of foreign certification is conditional upon recognition by the State Administration of Import/Export Commodity Inspection by the People's Republic of China. For health and safety, this acceptance is conditional upon existence of a mutual recognition agreement.
2. **Chinese Taipei:** For building supplies and energy, acceptance of foreign certification is conditional upon bilateral recognition arrangements. For energy, acceptance is on a bilateral basis.
3. **Hong Kong:** For building supplies, acceptance is unilateral with the limitation that it will be in respect of standards acceptable to the regulatory agency. For chemicals, foreign certification is accepted if issued by national laboratory or accredited laboratory of that economy. For energy, on a unilateral basis, varies according to product and country of origin. For food, generally recognized on a bilateral basis. For health and safety, only through recognition agreements.
4. **Indonesia:** For energy, on a unilateral basis.
5. **Korea:** For chemicals, if certifications meet local requirements. For food, recognized through bilateral arrangements and multilateral treaty.
6. **Philippines:**
7. **Thailand:** For building supplies, on basis of unilateral and mutual recognition agreement. For chemicals, on the basis of unilateral and mutual recognition agreement.

Source: Drawn from Table B.5 in John S. Wilson, (1995) Standards and APEC: An Action Agenda, Washington, D.C.: Institute for International Economics, and based upon the "Asia Pacific Economic Cooperation, Standards, Technical Regulations and Conformance Survey, September 1994.

Table 7 shows agreements which have been concluded in the areas of metrology, testing and/or certification by developing countries in the Western Hemisphere. From the table it is clear that there are very few such agreements of either an informal, cooperative nature or of a more formal memorandum of understanding. Only Argentina, Brazil, Mexico, Uruguay and Venezuela have concluded such agreements in the area of metrology, primarily with the United States and Germany. No developing country in the Western Hemisphere has an agreement with another in the area of product testing.¹⁵ In the area of certification only two agreements exist which allow for some form of mutual recognition with other national bodies, one between Colombia and Venezuela and another between Brazil and Uruguay. On a broader level there exists an agreement among CARICOM members to accept certification marks of the Bureau of Standards for CARICOM countries without further internal tests.

On the whole, it can be stated that the extent of integration of developing countries in Central and Latin America with each other's markets through coordination of standards activities and cooperative agreements is extremely limited at the present time. Further research would be needed to determine the situation in Asia in this respect.

C. Regional Standardizing Activity by Developing Countries

Developing countries are members of certain regional standardizing bodies, a few of which have been in existence for some years. Six regional standardizing bodies exist in Asia, an equal number in the Western Hemisphere, and one in Africa and are set out in **Table 8**.¹⁶ These various bodies have been working towards the elaboration of common policies covering non-regulated goods or for voluntary product standards, as these types of policies are easier to elaborate than are common policies for technical standards in the regulated areas. The majority of bodies involved in standards-related activities in **Table 8** are fairly recent in date, having been established since 1992. Some of the older standardizing bodies such as COPANT or the PASC have seen their activities re-vitalized over this period. This push has partially resulted from the creation of the regional integration groupings, APEC and the FTAA, and partially from private-sector efforts to promote reform. Taken together, this has given a greater dynamism to the standardizing process.

¹⁵ The only two reciprocal testing agreements in the Western Hemisphere, both in the form of mutual recognition agreements, are between Canada and the United States. One agreement has been elaborated between two government testing laboratories (the NVLAP Program of NIST in the U.S. and the Standards Council of Canada), while the other is between two private bodies (A2LA of the U.S. and the SCC). No agreement exists on the part of developing countries.

¹⁶ The listing of these bodies is drawn from the International Trade Centre's *World Directory of Information Sources on Standards, Technical Regulations, Certification, Eco-labelling and Quality Management Schemes* (March 1996).

Table 7

AGREEMENTS ON METROLOGY, TESTING AND/OR CERTIFICATION BY DEVELOPING COUNTRIES IN THE WESTERN HEMISPHERE

A. METROLOGY: Type of Agreement (Partner)		
	Cooperation Agreement	Memorandum of Understanding
Argentina	Germany	Brazil
Brazil		Argentina, Germany, Italy, South Africa, Switzerland, USA
CARICOM	Regional Collaboration Agreement on National Measurement	
Mexico		United States
Uruguay	Brazil, Germany, USA	
Venezuela	Argentina, Cuba, Germany, Mexico, USA	

Note: The Andean Group has established a Network of Product Testing Laboratories which is in the process of development (la Red Andina de Laboratorios de Ensayo; Decisión 376 de la JUNAC, Sistema Andino de Normalización).

B. TESTING: Type of Agreement (Partner)		
	Cooperation Agreement	Mutual Recognition

Note: The only two mutual recognition agreements in the Western Hemisphere are between Canada and the United States: one between Standards Council of Canada (SCC) and NIST NVLAP Program (USA) and between SCC and A2LA (USA) - the first MRA is between governments and the second between private sector bodies.

Note: The Andean Group is developing a Network of Accreditation Bodies with the view of elaborating MRAs under the Cartagena Agreement (Decision 376 of the “Sistema Andino de Normalización, Acreditación, Ensayos, Certificación, Reglamentos Técnicos y Metrología”).

Table continued -

C. CERTIFICATION: Type of Agreement (Partner)		
	Approved Certification Bodies	Affiliation with Other National Bodies
Argentina	x	
Barbados	x	
Bolivia	x	
Brazil	x (10 bodies)	
Colombia	x	x (Venezuela)
Costa Rica	x	
Mexico	x	
Peru	x	
Uruguay	x	x (Brazil for electrical products)
Venezuela	x	x (Colombia)

Note: Among CARICOM members there an agreement to accept Certification Marks of the Bureau of Standards for CARICOM members without further internal tests.

Note: The Andean Group is working on the development of a Network of Accreditation Bodies, with the aim of reaching mutual recognition among members for certification of conformity assessment. (Red Andina de Organismos de Acreditación) Decision 376 of the Cartagena Agreement.

Source: Inventory of National Practices on Standards, Technical Regulations and Conformity Assessment Procedures in the Western Hemisphere (1997), OAS Trade Unit, Washington D.C.

Table 8

**REGIONAL STANDARDIZING BODIES WITH
DEVELOPING COUNTRY PARTICIPATION**

I.	AFRICA (1)	African Regional Organization for Standardization (ARSO)
II.	AMERICAS (9)	1. Comisión Panamericana de Normas Técnicas (COPANT) 2. Inter-American Metrology Program (SIM) 3. Inter-American Accreditation Cooperation (IAAC) 4. Organización Latinoamericana para la Calidad (OLAC) 5. Federación Latinoamericana de Organizaciones de Control de Calidad 6. Andean Committee for Standardization, Accreditation, Testing, Certification, Technical Regulations and Metrology 7. Group of Three's Committee on Standards-Related Measures 8. Mercosur's Technical Standards Working Group 9. Caribbean Standards Council
III.	ASIA (6) (APLAC)	1. Asia Pacific Quality Control Organization (APQCO) 2. Pacific Accreditation Cooperation (PAC) 3. Pacific Area Standards Congress (PASC) 4. Asia-Pacific Laboratory Accreditation Conference 5. Asia-Pacific Metrology Program (APMP) 6. ASEAN Consultative Committee for Standardization and Quality (ACCSQ)

**CONTRAST WITH WESTERN EUROPE
(35 Different Standardizing Bodies and Associations)**

Source: ITC (International Trade Centre), Geneva, *World Directory of information sources on standards, technical regulations, certification, eco-labelling and quality management schemes*, March 1996 and John Wilson (1995), *Standards and APEC: An Action Agenda*, op.cit., p. 67.

The regional standardizing bodies that exist for developing countries are the following

Africa : African Regional Organization for Standardization;

Asia : Pacific Area Standards Congress (PASC); Asia-Pacific Laboratory Accreditation Cooperation (APLAC); Asia-Pacific Metrology Programme (APMP); Pacific Accreditation Cooperation (PAC); Asia-Pacific Legal Metrology Forum (APLMF); and with more restrictive membership, the ASEAN Consultative Committee for Standardization and Quality (ACCSQ); and

Western Hemisphere : Comision Panamericana de Normas Tecnicas (COPANT); Sistema Inter-americana de Metrologia (SIM); Inter-American Accreditation Cooperation (IAAC); and Organizacion LatinoAmericana para la Calidad (OLAC). Several sub-regional standardizing councils also exist under various trade and integration arrangements, for example, under the Andean Group, Mercosur, the Group of Three and the Caribbean Common Market.

Of the above, two of the recently established bodies are notable for their attempt to facilitate the acceptance of testing results throughout the region. APLAC attempts to do this through mutual recognition of laboratory accreditation bodies, while the PAC is an association of accreditation bodies that promotes global acceptance of certificates of conformity. The PASC is also working towards developing mutual recognition in the non-regulated sectors and is re-evaluating its structure, priorities and operations in order to launch new programs. The IAAC was also recently established in the Western Hemisphere to carry out a function similar to that of the APLAC through promoting the mutual recognition of laboratory accreditation bodies. It recently held its second meeting in Brazil (May 1996) where members agreed upon a set of objectives and actions, to be coordinated with the ongoing work of COPANT in the area of standards and conformity assessment.

The earlier organizations were not able to come to any concrete results in terms of fostering mutual recognition between their member standardizing bodies and/or councils. The more recent organizations have likewise not yet been able to foster concrete results in this area, although they have made some progress in reducing duplication of certain requirements for laboratory accreditation. Importantly, they have begun to coordinate the activities of their members in an area which was not addressed previously. As such, they hold promise to further government efforts towards trade facilitation through promoting mutual recognition of conformity assessment activities in non-regulated sectors.

V. Multilateral Disciplines on Standards and Developing Countries

Standards and technical regulations were the object of one of the non-tariff codes which arose from the Tokyo Round of Multilateral Trade Negotiations (1979) and have thus been under certain multilateral disciplines for many years. However, the Standards Code had many shortcomings, the main one of which was its lack of membership. Adherence to the Standards Code was voluntary, and at the end of 1993 there were only 46 signatories to the Code, most of them industrialized countries.¹⁷ The increasing importance of standards and conformity assessment in international trade placed this as one of the negotiating groups of the Uruguay Round of Multilateral Trade Negotiations. In fact, the negotiations (and subsequent agreements) were divided into two parts, which are closely related : measures relating to standards and technical barriers to trade for goods (addressed in the WTO Agreement on Technical Barriers to Trade) and measures relating to standards on animal, plant material, and human health (addressed in the WTO Agreement on the Application of Sanitary and Phytosanitary Measures). Although the issues are similar in the two Agreements, as are the standards-related trade barriers which arise, only the first agreement will be discussed in this study. It is in fact common practice to deal with the two Agreements separately.

The Uruguay Round resulted in a new set of disciplines on technical barriers to trade which go much further than did those under the previous Tokyo Round Standards Code and which now enjoy universal adherence as part of the single undertaking by all those countries to ratify the Uruguay Round Agreement and thus take on the WTO disciplines and obligations.

At present the membership of the World Trade Organization stands at 130 countries. This means that adherence to the WTO Agreement on Technical Barriers to Trade now has nearly three times as many members as before, of which nearly two-thirds (or around 80 members) are developing countries. This represents a considerable increase as well in the volume of trade covered by the new disciplines.¹⁸

¹⁷ Developing country signatories to the Tokyo Round Standards Code as of end 1993 included the following countries: Argentina, Brazil, Chile, Egypt, Hong Kong, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Pakistan, Philippines, Singapore, Thailand and Tunisia. In addition, 21 other developing countries were listed as observers but not required to follow the disciplines of the Code. See *GATT Activities* (1994-95), Geneva: GATT Secretariat.

¹⁸ It has been estimated that new signatories to the WTO Agreement on Technical Barriers to Trade (at the end of the Uruguay Round) represent an expansion of approximately \$182 billion in global imports subject to new multilateral disciplines. This is nearly an 18 percent increase over total imports covered under the Tokyo Round Standards Code. See John Wilson (1995), *Standards and APEC: An Action Agenda*, *op.cit.*, p. 35.

A. WTO Agreement on Technical Barriers to Trade

Standards and conformity assessment as technical barriers to trade are essentially problems of economic regulation. As such, they are far less clear-cut than, for example, tariffs and quotas, and their “liberalization” is necessarily of a different nature. It is practically impossible to apply the GATT tradition of liberalization through reciprocal concessions in negotiations to the area of standards and technical regulations. This was not attempted in either the Tokyo Round or the more recent Uruguay Round of Multilateral Trade Negotiations. Instead, a framework for economic regulation through agreed principles and derived rules was established and backed up by institutional mechanisms to give them credibility and resolve conflicts.

The new WTO TBT Agreement retains the original Standards Code obligations but refines or adds to them in several important respects.¹⁹ The new Agreement reiterates the principles of application of both most-favoured nation treatment and national treatment and the interdiction of the “sham” principle (or the attempt to use standards to discriminate against foreign suppliers). However, the WTO Agreement is superior to the Tokyo Round Code in several ways. These include the following:

- i) application of disciplines on standards to both process and production methods as well as to manufactured products (Annex I, Definitions);
- ii) extension of the rules to non-governmental or private standards organizations, and requiring the central government to be responsible for good faith implementation of the agreement and application of its principles at any level of government or by any private-sector body involved in the standards system (Article 3);
- iii) extension of the obligations of national treatment and non-discrimination to all forms of conformity assessment, including laboratory testing, accreditation, recognition, and quality system registration programs (Articles 5 through 9);
- iv) inclusion of a “Code of Good Practice for the Preparation, Adoption and Application of Standards” which outlines for the first time general principles for development and application of standards by non-governmental organizations (Article 4 and Annex 3);

¹⁹ GATT Secretariat (1994), “Agreement on Technical Barriers to Trade”, published in *The Results of the Uruguay Round of Multilateral Trade Negotiations*, Geneva.

- v) the obligation for governments to ensure that technical regulations will not be more trade-restrictive than necessary to fulfil a legitimate objective, along with the requirement that these are not “prepared, adopted or applied with a view to . . . creating unnecessary obstacles to international trade” (Article 2);
- vi) the commitment (non-binding) of national governments to harmonize national standards with international ones (Article 2);
- vii) the admonition for reciprocity in conformity assessment procedures through requiring governments to accept the results of such testing procedures from third countries , provided that they are satisfied with their equivalency (Article 6);
- vii) provision of a binding framework for the settlement of disputes arising from differing technical regulations under the WTO Integrated Dispute Settlement Procedures so that noncompliance with provisions of the TBT Agreement found by a panel will require modification of the practice in question, failing which retaliatory tariffs can be imposed (Article 14).

Three of the above are particularly important for the objective of trade facilitation. These are the commitments for governments to attempt to harmonize national standards with international ones, the exhortation to apply reciprocity in the area of conformity assessment procedures and the inclusion of a Code of Good Practice. However, none of these may prove to be very effective in influencing practices by governments or national standardizing bodies. This is because the language used for harmonization of standards is vague and non-binding. Moreover, Article 2.4 contains a form of “escape clause” which states that international standards are not required to be used as the basis of technical regulations when they would be “an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued”. However, what is considered ineffective or inappropriate is not defined in the Agreement. There is no admonition in the Agreement to harmonize any standards other than international ones.

With respect to reciprocity in the area of conformity assessment procedures and acceptance of test results from other Members, the WTO Agreement appears to be moderately supportive but certainly not proactive. Article 6.3 “encourages” Members to be “willing to enter into negotiations for the conclusion of agreements for the mutual recognition of results of each other’s conformity assessment procedures”. But they are only required to accept these if they are satisfied that those procedures “offer an assurance of conformity . . . equivalent to their own procedures” (Article 6.1). In actual practice this issue has not figured among those discussed so far by WTO Members. The TBT Committee has been established to oversee implementation of the Agreement (Article 13). Although the Committee met seven times during its first two years of existence (1995 and 1996), the question of elaborating mutual

recognition agreements was not addressed.

Lastly, although the Code of Good Practice represents a considerable step forward through extending for the first time a common mode of operation for private standards bodies consistent with the disciplines of the multilateral trading system, the Code remains voluntary and lacks an enforcement mechanism. Compliance with the disciplines and procedures it sets out for private standardizing bodies is not an obligatory part of the TBT Agreement.²⁰

B. Treatment of Developing Countries under the WTO TBT Agreement

The WTO TBT Agreement contains one article on differential treatment of developing country members (Article 12). However, unlike several other agreements in the Uruguay Round, the TBT Agreement makes no general allowance for a longer transition period for developing countries in terms of their compliance with the disciplines on standards and technical regulations, or the establishment of enquiry points and submission of all relevant notifications.

Article 12 allows for differential treatment of developing countries in three important ways. Developing members are not expected to use international standards as a basis for their standards and technical regulations which are “not appropriate to their development, financial and trade needs” (Article 12.4). The justification for this provision is to allow developing members to preserve indigenous technology and production methods in line with their level of development. However, as will be seen later in this study, such a dispensation is clearly not in the interest of developing countries, as the adoption of national standards which are not internationally compatible makes the eventual integration of such products into global markets more difficult. And it reduces the economic efficiency of production processes in developing countries, which remain segregated from those of the dominant and most technologically advanced firms.

In the case that a developing country member feels unable to fully comply with the obligations of the TBT Agreement, Article 12.8 provides for the possibility of a request for specified, time-limited exceptions in whole or part from these obligations. The TBT Committee

²⁰ The Code of Good Practice outlines general principles for development and applications of standards by nongovernmental organizations. These principles include : national treatment of products from foreign suppliers; treatment no less favorable than that accorded to domestic products or imports; publication and dissemination of work in progress; institution of a 60-day comment period prior to adoption of standards; and refraining from applying standards that could serve as barriers to international trade.

is authorized to grant such exceptions after consideration, according to the “special development and trade needs of the developing country Member, as well as its stage of technological development”. To date the TBT Committee has received no such requests, which means that developing countries should already be complying with the obligations and disciplines of the TBT Agreement. The section below evaluates compliance to present with these obligations. Lastly, Article 12.7 provides for technical assistance to be given to developing countries for the preparation and application of technical regulations, standards and conformity assessment procedures.

C. Implementation of WTO TBT Agreement by Developing Countries

The WTO TBT Agreement contains some very specific requirements with respect to implementation. Some of these are one-time obligations such as the necessity to establish an enquiry point and to notify national implementing legislation for the new Agreement. However, other obligations are ongoing ones, particularly with respect to notification. Such requirements are pervasive throughout the Agreement and include an obligation to notify the following :

- i) all new technical regulations by central and local government bodies, when these may have a “significant effect on trade of other Members” (Articles 2.9.1; 2.10.1; and 3.2);**
- ii) all conformity assessment procedures by central and local government bodies when these may have a “significant effect on trade of other Members” (Articles 5.6; 5.7; and 7.2);**
- i) agreements with any other country or countries on standards, technical regulations or conformity assessment procedures “which may have a significant effect on trade” (Article 10.7);**
- i) measures taken to ensure the implementation and administration of the Agreement (Article 15.2);**
- ii) acceptance or withdrawal from the Code of Good Practice (Annex 3.C);**
- iii) notification of the work programmes of the standardizing bodies who have accepted the Code of Good Practice, to be made every six months, as well as information on the standards under preparation and those which have recently been adopted (Annex 3.J).**

As stated earlier, the new WTO TBT Agreement is universal in its membership. More than 80 developing countries are now members of the Agreement by virtue of their ratification of the Uruguay Round Agreement, all of which are thus required to carry out the requirements

of the Agreement listed above. In practice, however, compliance by developing country members with the obligations and requirements of the TBT Agreement has been lax at best. Table 9 sets out four different areas of obligations of the Agreement, along with the listing of developing countries that have fulfilled each.

The obligation to establish an enquiry point is set out in Article 10 under information and assistance. Such enquiry points are to provide answers to enquiries from other Members and to distribute relevant documents concerning standards, technical regulations and conformity assessment procedures, in existence or proposed, by central or local government bodies. One single body is to be designated in each Member country as responsible for the notification requirements under the Agreement, except those in Annex 3 on the Code of Good Practice. As of end 1996 only 42 of the more than 90 developing members had established enquiry points. And during the first seven months of 1996, only 9 developing countries submitted notifications of new or changed technical regulations (four countries in the Western Hemisphere and five in Asia), as compared with 18 developed country members. The notifications by developing members numbered 46 out of a total of 233, or less than 20 percent.

Few developing countries have submitted obligatory statements of implementation of the TBT Agreement : this is the case for only 17 members (six countries in the Western Hemisphere and seven in Asia), indicating a remarkable laxity in compliance with one of the most basic obligations of the Agreement. Lastly, in terms of the Code of Good Practice, which is a non-binding commitment, standardizing bodies from 21 developing countries indicated acceptance of this Code as of December 1996, out of a total of 60 acceptances (of which nine countries in the Western Hemisphere and six countries in Asia) . Once again, this is a very limited number of countries, indicating that standards bodies in other developing countries are either not aware of this Code of Good Practice, or do not wish to be bound by its provisions in the elaboration of national standards.

Table 9

**COMPLIANCE BY DEVELOPING COUNTRIES WITH
WTO TBT AGREEMENT OBLIGATIONS
(As of October 1996)**

I. COUNTRIES HAVING ESTABLISHED ENQUIRY POINTS		
Argentina Bahrain Benin Bolivia Brazil Chile Colombia Costa Rica Cuba Cyprus Dominican Republic Egypt El Salvador Fiji Ghana	Hong Kong India Indonesia Jamaica Kenya Korea, Rep. Of Macau Malawi Malaysia Mauritius Mexico Morocco Myanmar Nigeria Pakistan	Peru Philippines Singapore Sri Lanka Tanzania Thailand Trinidad & Tobago Tunisia Turkey Uganda Zambia Zimbabwe (42 out of 73 total)

II. COUNTRIES HAVING SUBMITTED STATEMENTS OF IMPLEMENTATION UNDER ARTICLE 15.2		
Argentina Bahrain Brazil Chile Colombia Cuba Hong Kong	Indonesia Korea, Rep. Of Malaysia Mexico Nigeria Philippines Singapore	Sri Lanka Tunisia Uganda (17 out of 44 total)

III. COUNTRIES HAVING SUBMITTED TBT NOTIFICATIONS DURING 1996 (January-August)		
Argentina (1) Brazil (3) Hong Kong (4)	Jamaica (1) Korea (6) Malaysia (8)	Mexico (7) Philippines (11) Thailand (5) (46 out of 233 total)

IV. STANDARDIZING BODIES THAT HAVE ACCEPTED THE WTO TBT AGREEMENT CODE OF GOOD PRACTICE		
Brazil Chile Colombia Cuba Ecuador Egypt India Indonesia	Jamaica Kenya Malaysia Peru Philippines Senegal Singapore Thailand	Trinidad & Tobago Tunisia Turkey Venezuela Zimbabwe (21 out of 60 total)

Source: *Report of the WTO Committee on TBT for Consideration by the Singapore Ministerial Conference, Geneva, 22 October 1996.*

VI. International Standardizing Bodies and Developing Countries

Some 28 international bodies are involved in standards-setting on a global level, with the participation of hundreds of organizations from around the world, the majority of them however from developed countries. Of these organizations, three account for 85 percent of all international standards, issuing between them nearly 1,000 new or revised standards each year.²¹ The oldest of the three is the International Electrotechnical Commission (IEC), founded in 1908 to prepare standards in the electrotechnology field. The main organization is the International Organization for Standardization (ISO), founded in 1946, and which prepares standards in all other fields except electrical and electrotechnical standards and telecommunications. The scope of activity of the ISO is unlimited, and in principle, it may undertake standardization initiatives relating to any product or service market. However, in several specialized fields the ISO defers to other organizations such as the International Telecommunications Union (ITU) that covers international telecommunication standardization and the Codex Alimentarius Commission, founded in 1962 to develop standards for food safety and labeling issues.²²

Though a part of the community of international organizations, the ISO and IEC are different in terms of status, as they are private, non-governmental organizations. Each member country designates its own representative, and the 114 ISO members are composed of the main national standards bodies from each country which may be either government agencies or private sector standards entities. Similarly, the IEC has a membership of around 50 national committees representing both private and public sector interests. In contrast, the ITU is a treaty organization under the United Nations, whose membership is made up of government representatives only and not industry.

Development of standards by all three main standardizing bodies is a lengthy process which operates through the active and voluntary participation of members with “consensus” required to obtain results. The actual way in which standards are elaborated in the three is similar in its major elements. The ISO, IEC, and the ITU all have administrative structures with

²¹ See article on “Standards for the World”, *Financial Times*, October 13, 1995.

²² Other international bodies with important standardization activities include the International Conference on Weights and Measures, the International Bureau for the Standardization of Man-Made Fibres, the International Commission on Illumination, the International Air Transport Association, the International Institute of Refrigeration, and the International Institute of Welding, among others. See Alan O. Sykes (1995), *Product Standards for Internationally Integrated Goods Markets*, *op.cit.*, pp. 58-60. See also National Research Council, *Standards, Conformity Assessment and Trade into the 21st Century*, *op.cit.*, pp. 46-48.

committees, subcommittees, and working groups which are formed when a sufficient number of members express interest in considering the possibility of developing standards in a particular area. All three rely on consensus as the ultimate form of decision ; if the working group comes to an agreement, it will make a proposal for a standard and the member nations will then vote on whether to accept this proposal as a new, international “standard”. A recommendation becomes a standard after 75 percent of the ISO members accept it. These standards remain “voluntary”, that is member nations are not obligated to adopt them in their national markets; however their approval suggests that broad-based compliance should follow. In all three organizations participation in the standardizing process is voluntary at all levels but once a nation becomes a member, it is expected to participate actively.

In term of scope and impact, the ISO has developed to present around 9,800 voluntary standards.²³ Though this is a large number, it is fairly insignificant compared with the many thousands of standards in effect in the markets of developed countries. However, the ISO work in the area of elaborating a quality system standards series has received substantial attention over the past decade. This consists of a series of five international standards for quality assurance management systems (ISO 9000, 9001, 9002, 9003 and 9004) which were published in in 1986 and revised in 1994 and which are commonly known as the ISO 9000 series. The ISO has also extended its reach to the area of environmental quality management in the form of the ISO 14000 series which is presently being developed.

Both the ISO and the IEC have formal links with the World Trade Organization through the Committee on Technical Barriers to Trade. Both ISO and IEC representatives have spoken at meetings of the TBT Committee on relevant aspects of international standardizing work. The TBT Agreement specifically encourages members to participate in the setting of international standards (Article 2.6). The Code of Good Practice for the Preparation, Adoption and Application of Standards makes several references to ISO/IEC work, and standardizing bodies are required to notify the acceptance of the Code as well as the work programme of national standards bodies to the ISO/IEC Information Centre (ISONET). The ISONET (information network on standards activities) is maintained by the ISO/IEC) rather than by the WTO Secretariat. The objectives of the ISONET are to coordinate and channel the flow of information on standards, technical regulations and standards-related documents both internationally and

²³ Though this number may sound impressive, to put it into perspective it should be remembered that the ISO has been at work now for half a century in developing standards. This represents a rate of elaboration of international standards of only around 280 per year. Also compare the 7,000 or so internationally-agreed standards with the more than 50,000 standards existing at present in the U.S.market, with a similar number in Western Europe. In this context it is clear that the process of international standardization is a slow and tortorous one.

nationally, by linking the information centres of the ISONET members into a coherent information system. There are presently 72 national members of ISONET.

A. Participation by Developing Countries in ISO Work

Out of its total membership of 145 at present, the ISO lists 52 members, or nearly half, from developing countries.²⁴ This list is set out in Appendix II. Although the ISO has several policy development committees, including one devoted exclusively to developing countries and another devoted to conformity assessment, the bulk of the work in ISO/ IEC takes place in working groups and technical committees. ISO has more than 180 active technical committees, some 630 subcommittees, and around 2,000 working groups that are led by 821 secretariats from 35 member countries who act as secretaries or leaders of the technical committees. Each technical committee consists of participating members, observer members, liaison organizations, and delegations of suppliers, user representatives and government. The IEC's work is conducted by over 200 technical committees of similar structure.

The participation of developing countries in the work of these organizations has not been very strong in the past. The list of developing countries which hold secretariats or which are responsible for leading the work on standards development within the ISO working structure is very limited and is shown in Table 10. Only ten developing countries chair a secretariat of some sort within the ISO. Of the total 184 secretariats of ISO technical committees, only 10, or 5.4 percent are held by developing countries; of the 591 secretariats of technical sub-committees, only 19, or 3.2 percent are held by developing countries; of the 1,944 secretariats of working groups, only 29, or 1.5 percent are held by developing countries. Overall, developing country member bodies hold only 2.8 percent of the secretariats of working bodies (i.e. technical committees, sub-committees or working groups) within the ISO. Those developing countries with the relatively larger participation in ISO work are China and India. The only developing country in the entire Western Hemisphere to hold an ISO working group secretariat is Brazil.

This situation carries with it several implications for the development of international standards. The very limited participation of developing countries in the ISO/IEC standardizing process means that most international standards have been skewed towards developed-country requirements, and most of this European. European members have dominated the international standardization process. At present, two-thirds of the ISO secretariats are held by European members, which means that the adoption rate of ISO and IEC standards has been

²⁴ This list includes a few of the formally centrally-planned economies from Eastern Europe as well as some of the states of the former Soviet Union, namely : Albania; Belarus; Bosnia and Herzegovina; Romania; Macedonia; Ukraine and Uzbekistan. If

these seven countries are subtracted from the list, it makes 45 ISO member bodies in developing countries.

Table 10

**PARTICIPATION BY DEVELOPING COUNTRIES IN
THE WORK OF THE ISO**

Number of Secretariats held by Developing Countries

Countries	Technical Committees	Sub-Committees	Working Groups	Total
Brazil	-	3	4	7
China	1	5	15	21
Colombia	-	1	-	1
India	5	5	3	13
Iran	2	1	1	4
Malaysia	1	1	2	4
Mongolia	-	-	1	1
Singapore	-	-	2	2
Tanzania	-	1	-	1
Thailand	-	-	1	1
Total LDCs	9	17	29	55
% of Total ISO Committees and Working Groups	5.4%	3.2%	1.5%	2.0%

Source: ISO Secretariat, Geneva, 1996.

much higher in Europe.²⁵ This European influence makes the process of attempting to align national standards with international standards more problematic for developing countries, as will be seen in section VIII. It also slows down the growth of trade through making the penetration of firms from developing countries into European and U.S. markets more difficult, to the degree that national standards differ and developing-country objectives are not taken up in international standardizing fora.

B. Adoption of ISO Standards and Guides by Developing Countries

Another of the major contributions made by the two international standardizing bodies has been the elaboration of internationally agreed Guides to serve as the basis for the work and activities of standards bodies and conformity assessment procedures. To date a total of nearly 70 different Guides have been elaborated for activities as diverse as: the establishment of national standards bodies; practices for the testing, inspection and certification of products, processes and services; guidelines for acceptance of certification and accreditation bodies; guidelines for laboratory proficiency testing; guidelines for a third-party assessment and registration of a product quality system; guidelines for the presentation of inspection results; requirements for the competence of calibration and testing laboratories; requirements for the acceptance of inspection bodies; requirements for assessment and accreditation of certification/registration bodies; requirements for bodies operating product certification systems; and many others. It is difficult to know the extent to which these international Guides are used as references for national practices in developing countries, as no such information exists.

More concrete information is available on the adoption of the relatively new ISO 9000 series for internal quality management and quality assurance. This series was developed in the mid-1980s in order to bring about greater coherence and similarity in production techniques

²⁵ Predominance of the European influence in international standardization derives from the fact that within the European Union, there exist 18 countries with long established and sophisticated national standards bodies. However, as all of these must abide by the directions of the European Union under the Commission, Western Europe is in a unique position to dictate what work is done in the ISO and IEC and which type of standards are accepted. The rest of the world's standardization community is not nearly as well organized, despite the existence of regional standardization bodies such as the PASC in the Asia Pacific and COPANT in the Americas, as seen above. Even the United States which is a participant or observer in 95 percent of ISO and IEC work, held only 13 percent of the ISO technical committee and sub-committee secretariats in 1992. See "The Development of National and International Standards and the Influence of the WTO/TBT Code", paper presented by Peter Walsh to the APEC Seminar on the Implementation of the Uruguay Round Agreement on Technical Barriers to Trade, May 1996, and National Research Council, *Standards, Conformity Assessment, and Trade* (1995), *op.cit.*, pp. 46-47.

and thus product quality for both industrial output and service sector activity and thus enhance compatibility between trading partners. The ISO 9000 and ISO 9004 models present guidelines on internal quality management, in providing firms with a set of definitions as to what constitutes quality and how to set up a system of quality control in production. The ISO 9001 to 9003 models are applicable to external quality assurance purposes and are applicable to contracts between supplier and client for the design/development, production, installation and servicing of products as well as for final inspection and testing.

The ISO 9000 standards have been adopted by firms in over 70 countries to present, and more than 95,000 certificates had been issued for ISO 9000 worldwide as of mid-1995. However, most of the firms having subscribed to the ISO 9000 series are from developed economies; the participation of firms from developing countries is still very modest.²⁶ In June 1995, of the world total of ISO 9000 certifications, the United Kingdom represented nearly half of these worldwide (47 percent), while other European countries held 29 percent of total certifications, and North American firms 8 percent. Developing countries in Asia and the Western Hemisphere accounted for only 8 percent of total certifications.²⁷

Table 11 sets out the country headquarters for companies which have certified with ISO 9000 quality systems from developing countries in Asia and in the Western Hemisphere. In Asia, a total of 6,513 firms have certified with the ISO 9000 standard. However, firms from Singapore, Taiwan, Hong Kong and South Korea account for nearly two-thirds of this total. Certification by firms from other countries (with the exception of India, Malaysia and more recently China) has not yet been widespread. One explanation given for this is that companies in the newly industrializing or emerging Asian economies were pioneers in operating quality management systems (following the Japanese model) that function somewhat differently from the ISO 9000 standard. This fact, combined with already high levels of international competitiveness has resulted in the relatively low number of companies that have implemented quality systems compatible with the ISO 9000 standard.²⁸ Nevertheless, growth in ISO 9000

²⁶ Western European firms have dominated the ISO 9000 certifications, largely because they were highly instrumental in its development. However, the adoption of the ISO 9000 in 1989 by the European Community, as part of its Global Approach to Testing and Certification, forming a part of the EC 1992 Single Market initiative, was also very significant in promoting the use of the standard on a worldwide basis. The number of companies with certified ISO 9000 quality systems in place as of end 1995 is found in the ISO 9000 News, March 1996.

²⁷ See John Wilson (1995), *Standards and APEC: An Action Agenda*, *op.cit.*, page 43.

²⁸ This observations, along with the statistics on the number of certified firms in Asia and the Western Hemisphere are drawn from a study by Hessel Schuurman on "Quality management and application of the ISO 9000 standards in Latin America", prepared for the Division of Production, Productivity and Management of the ECLAC Secretariat, April 1996.

certifications in developing Asia has been very rapid between 1993 and mid-1995, with the number of certified firms increasing by ninefold during this two and a half year period. In most of the countries in developing Asia the major drive for implementing the ISO 9000 standards has been to facilitate exports, especially to the European Union.

Table 11**ADOPTION OF ISO 9000 STANDARDS BY DEVELOPING COUNTRIES**

A. ASIA: Number of nationally-based companies with certified ISO 9000 quality systems				
	January 1993	June 1994	December 1995	Participation in Total
Singapore	243	662	1180	18.12%
Taiwan	43	337	1354	20.79%
Hong Kong	69	336	739	11.35%
South Korea	27	226	619	9.50%
India	8	328	1023	15.71%
Malaysia	122	258	690	10.59%
China	10	150	507	7.78%
Thailand	3	24	143	2.19%
Indonesia	1	22	125	1.92%
Philippines	-	13	102	1.57%
Brunei	-	3	17	0.26%
Sri Lanka	1	1	7	0.11%
Pakistan	-	1	7	0.11%
Total	527	2361	6513	100.00%

Table continued -

B. LATIN AMERICA: Number of nationally-based companies with certified ISO 9000 quality systems				
	January 1993	June 1994	December 1995	Participation in total
Brazil	19	384	923	64.41%
Mexico	16	85	215	15.00%
Argentina	3	23	86	6.00%
Venezuela	5	28	81	5.65%
Colombia	-	23	49	3.42%
Puerto Rico	-	4	25	1.74%
Chile	-	9	21	1.47%
Trinidad & Tobago	-	-	9	0.63%
Uruguay	-	-	8	0.56%
Peru	-	-	7	0.49%
Dom. Republic	-	-	4	0.28%
Costa Rica	-	2	2	0.14%
Jamaica	-	-	2	0.14%
El Salvador	-	1	1	0.07%
TOTAL		559	1433	100.00%

In brackets; number of companies. The same company can have several certificates for different sites and/or activities.

Source: ISO 9000 News, June 1996.

In the Western Hemisphere, there are far fewer firms which have certified with the ISO 9000 standard. This total stood at 1,433 at end 1995, with firms from just two countries - Brazil and Mexico - making up 80 percent of this total. Of the other countries that show firms with ISO 9000 certification, these numbers are very small (less than 10 firms for Costa Rica, Dominican Republic, El Salvador, Jamaica, Peru, Trinidad and Tobago and Uruguay). In general, ISO and other programs for accreditation, certification and assessment are very recent in Central and South America and have to date made little headway in these areas.

Expected benefits for developing firms from adhering to an ISO 9000 quality system are enlarged markets made possible by increased competitiveness due to a lowering of internal costs through increased efficiency and quality of the firm's operations as well as guarantees to consumers worldwide of a certain product quality. However, these benefits have been questioned by some due to the relatively high costs of such certification (putting into place of complex new layers of duplicative requirements) and the way in which the ISO certification process is carried out in developing countries where national accreditation boards are often under direct government control and thus show a conflict of interest due to the lack of an international regime for recognition of ISO certificates.²⁹

²⁹ See special section on ISO 9000 and ISO 14000 in *Les Affaires*, samedi 25 mai 1996.

VII. Treatment of Standards within Regional Integration Arrangements

Standards, technical regulations and conformity assessment have been concerns of several of the regional trading arrangements. In the case of Western Europe, member countries have been working on standards and technical regulations since the establishment of the European Community in 1957. The evolution of the European Commission's approach towards standards in the mid-1980s as a result of the Cecchini Report on the creation of the European Single Market, proved to be a major factor in allowing member countries to move forward towards a more advanced level of integration. Decisions relating to harmonization and compatibility of standards also form an important part of the NAFTA treaty which came into effect in 1994. Both arrangements have extended the scope of existing multilateral disciplines. Because they provide a model for much of the work that is being carried out on standards in regional trading arrangements involving developing countries, the European Union and the NAFTA approaches to standards are reviewed below before an examination of policies on standards and conformity assessment in the major regional and sub-regional trading arrangements with developing country participation in Asia and the Western Hemisphere.

A. European Community Precedent

The European approach towards standards has evolved over a period of nearly forty years. In the Treaty of Rome the European Council of Ministers was authorized to issue directives to harmonize the measures of member states that "directly affect the establishment or functioning of the common market."³⁰ This proved however to be a laborious process. Proposals for harmonization were considered on a product by product basis and only those products that met the specifications could circulate freely within the Community. Proceeding with harmonization required a unanimous decision by the Council which was extremely difficult to obtain. Nonetheless, harmonization of product standards was pushed at the political level in the European Community during its first twenty years, lasting through the 1970s. On the basis of proposals by the European Commission, efforts were made to harmonize technical regulations for a number of industries, including, in particular, food and food products and certain industrial sectors such as automobiles. Due to the opposition which was manifested from national governments as well as from sectoral interests unwilling to incur the costs involved in changing established regulations, it became clear that progress on European integration would be held up by the impossibility of harmonizing "en bloc" all the differing

³⁰ This discussion is drawn from Alan O. Sykes (1995), *Product Standards for Internationally Integrated Goods Markets*, *op.cit.*, pp. 87-102.

national standards.³¹ Also, private national standards institutions were producing standards far quicker than the Commission was able to obtain agreement on common standards.

As standards became identified with technical barriers to trade and with serious obstacles to integrated markets, the European Commission and Council embraced a “new approach” towards standardization in the mid-1980s ; rather than requiring obligatory harmonization of standards and technical regulations, the Council would limit itself to setting out the “essential requirements” that products must meet (understood to encompass primarily health, safety, environmental protection, and consumer protection). This new approach, based on the concept that a product sold lawfully in one market could be sold freely through the Community, was first set out by the European Court of Justice in its *Cassis de Dijon* ruling in 1979. It was then facilitated by the Single European Act, which amended the Treaty of Rome to allow directives on matters of technical harmonization to be decided through “qualified majority” voting rather than unanimous decisions.

Member states of the European Union are now required to conform their national laws and regulations to an “essential requirements directive”, when issued by the Council. The European Court of Justice is empowered to assess whether national conformity has been achieved, and the Commission may determine that national measures are “equivalent” to the essential requirements.³² When a product conforms to national measures deemed equivalent by the Commission, it is presumed to meet the essential requirements and may be sold freely within the Community. Thus the new approach of the European Union is based upon mutual recognition of equivalent (but not necessarily identical) national standards. In parallel to reciprocal recognition of the equivalence of testing and compliance for product standards, the European Commission instituted a new approach to product regulation by devolving responsibility for a wide range of testing and certification processes from public authorities to private bodies.

³¹ At the end of the 1980s, after laboring more than 40 years, the European Commission had developed some 2,000 European standards, as compared with a stock of some 22,000 standards in the German national standards institution, DIN. As an indication of the time taken to adopt common provisions in EC Directives, it took 11 years to negotiate common requirements for mineral water specifications which would be obligatory in all national EC member markets. See Stephen Woolcock (1995), “Regional Integration and Multilateralism: Technical Barriers to Trade”, paper prepared for the OECD Workshop on Regional Integration and its Place in the Multilateral Trading System, Paris.

³² The Council often elects to allow the European-wide standardizing bodies such as the Comité Européen de Normalisation (CEN), Comité Européen de Normalisation Electrotechnique (CENELEC), and European Telecommunications Standards Institute to formulate detailed standards that meet the essential requirements for a particular product or service.

The “new approach” adopted by the European Community addressed differences in substantive standards and regulations. To tackle the equally, if not more, serious problem of conformity assessment procedures, the Commission introduced a “global approach” to conformity assessment set out in its “Global Approach to Certification and Testing” adopted in December 1989.³³ The first element of this new approach is to encourage all parties involved in certification and testing to adopt European quality control standards when carrying out their activities (such as the EN 29000 and the EN 45000 standards). The second element of this new approach is to promulgate guidelines for when and where the necessary testing and certification for each product will occur. Such guidelines have as a goal to minimize the cost and intrusiveness of testing and certification while still meeting essential regulatory objectives. Those laboratory and other facilities engaged in testing and certification are encouraged to follow the Europe-wide standards and are authorized to grant a generic mark of conformity - the “CE” mark to goods meeting the requirements which can then circulate freely among all EU members. The global approach presumes the existence of “essential requirements” which would harmonize the underlying regulatory requirements in member states.³⁴

The application of mutual recognition through the global approach means that in practice any product from a firm domiciled within an EU country complying with the minimum essential requirements can be put on the market and sold throughout the European Union without the need for further testing or certification. With respect to foreign suppliers, the EC Council Resolution of December 1989 sets out EC policy on the recognition of non-EC test reports or certificates. In the case of products that are subject to mandatory technical regulations, the stated policy of the EU is to encourage mutual recognition. Such an approach has direct implications for third country suppliers. Any non-EC origin product which is found by a certified national body to be in conformity with the EC minimum essential requirements would be allowed for sale throughout the entire European Union (inclusive of the countries of the European Economic Area as well, through an agreement dating from 1992). For example, a developing country supplier would still face the requirements of meeting the prescribed technical regulations, but would face only one conformity test for the whole European Union rather than 15 individual national tests.

³³ “European Commission: A Global Approach to Certification and Testing,” *Official Journal of the European Communities* (1989), C 267/3.

³⁴ Sykes states that the implementation of the system described as the “new approach” coupled with the “global approach” has been slow because of the backlog of standardization work at the European standards organization, but that over the long run, the change in approach to standards-setting and conformity is expected to reduce considerably the extent of technical barriers associated with conformity assessment. See Alan O. Sykes (1995), *Product Standards for internationally Integrated Goods Markets*, *op.cit.*, pp. 94-95.

However, mutual recognition by the European Commission is to be granted on a case-by-case basis, and only when the competence of the non-EC testing and certification bodies is considered to be on a par with those in the European Union. And although negotiations on mutual recognition agreements are currently ongoing with several of the EU's trading partners including the United States, Canada, Japan, Australia and New Zealand, these negotiations have made little progress in actual practice and none have been concluded to present.³⁵ Thus the conformity assessment side of the EU's revised approach to standardization may still present problems to third-country suppliers in obtaining a guaranteed access to the European market although the internal aspect of facilitating intra-EC trade through reducing the barriers caused by differing national standards appears to have been substantially improved.

B. NAFTA's Experience

The provisions in the North American Free Trade Agreement treaty which came into effect in January 1994 and which groups the three countries of Canada, Mexico and the United States, closely follow those in the WTO Agreement on Technical Barriers to Trade, as NAFTA was being negotiated at the same time as the Uruguay Round negotiations with consequent synergy between the two processes. Chapter 9 of NAFTA treats standards other than sanitary and phytosanitary standards, while technical specifications for government procurement are addressed in Chapter 10. NAFTA eschews harmonization of regulations and standards in favor of an approach which encourages the compatibility of regulations and standards. . . "to the greatest extent possible". National sovereignty with regard to the setting of levels of environmental and health protection is explicitly preserved in Article 904 through allowing NAFTA members to establish standards to protect human, animal, plant life, the environment or consumers. However, Article 904 mandates that standards should not be implemented for the purpose of inhibiting trade and for this, all parties must grant national treatment and most-favoured nation treatment. Parties are required to adopt international standards unless those

³⁵ Part of the problem in realizing a mutual recognition agreement lies in the differences in structure in the national standardizing activities. For example, the EU and the U.S. approaches to product certification are very different. The European approach *mandates* product certification by approved, notified bodies designated by governments, while the U.S. approach *allows* product certification by manufacturers, or public or private laboratories. Thus a centralized approach for the former contrasts with a decentralized approach for the latter, which complicates agreement not necessarily on objectives, but on how to achieve them. It also means that a great deal of time must be devoted to an exchange of information and sector-specific data in order to ascertain equivalencies of policy. See Charles Ludolph (1995), "Mutual Recognition Agreements - Access to the European Union", U.S. Department of Commerce, internal paper.

standards are inappropriate in fulfilling “legitimate objectives”.³⁶

³⁶ Such objectives have been defined to include (but are not limited to) “fundamental climatic, geographical, technological or infrastructural factors, scientific justification or the level of protection that the Party considers appropriate.” See the NAFTA Treaty, Article 905.

Implementation of Chapter 9 of NAFTA has been delegated to a *Committee on Standards-Related Measures (CSRM)*, composed of government representatives from each member country. The Committee has met five times to date (April 1996). Main topics which have been discussed relate to the effect of various proposed regulations and their impact on trade between the NAFTA parties. Examples of regulations considered by the CSRM include the U.S.-proposed regulations on seafood and frozen packaged vegetables and Mexico's product certification policy.³⁷

The Committee on Standards-Related Measures is entitled to establish subcommittees and working groups. Four sectors have been singled out in the NAFTA treaty (Article 913) specifically for the purpose of looking into the question of standards compatibility. The Land Transportation Standards Subcommittee is responsible for making relevant standards compatible for bus, truck and rail operations. This committee has established separate working groups to address different areas of concern. The Telecom Standards Subcommittee is responsible for making compatible the standards-related measures for authorized equipment. The Automotive Standards Council is responsible for making compatible standards that apply to automotive goods. It is considering several issues related to standards for the manufacture, maintenance and operation of automotive parts and vehicles.³⁸ Lastly, the Subcommittee on Labelling of Textile and Apparel Goods is responsible for the harmonization of labeling requirements to facilitate trade in textile and apparel goods.

In addition to the government-led committees and subcommittees, a *Trilateral Standardization Forum* was established to facilitate harmonization in the voluntary standards area. It is sponsored by the Standards Council of Canada, the American National Standards Institute, Direccion General de Normas of the Mexican government and the Mexican National Chamber of Industry and Transformation. Some of the areas being pursued by this forum are

³⁷ Selma M. Lussenburg and Jerome Breslin (1996), "Standards as a Barrier to International Trade", Background paper for presentation at the American Bar Association meeting in Montreal, Canada, April.

³⁸ Some of the issues under consideration by the Automotive Standards Council include certification, labelling, controls displays and symbols, daytime running lights, metric conversion and language, motor cycle mirrors, truck brakes, child restraints and their installation, etc. Most of the standards-related issues have not had a substantial impact on trade in new motor vehicles, as the North American market was already relatively integrated. NAFTA mandates free trade in used automotive vehicles, however, which will be phased in between 2009 and 2018. Unlike trade in new motor vehicles, where a manufacturer can customize the motor vehicle for its target market, the trade of old motor vehicles is likely to cause standards-related problems.

conformity assessment, building codes, and toy standards.³⁹

Work in the committees cited above and in the Trilateral Standardization Forum appears to be moving fairly slowly, and to date very few standards have actually been made compatible. This may be due partially to the need to first strengthen the institutional infra-structure in Mexico, which is not yet on par with that in the U.S. and Canada.

³⁹ See "Standards as a Barrier to International Trade", background paper for presentation at the American Bar Association Meeting, Canada, April 1996.

As two of the three members of NAFTA have federal structures rather than centralized government structures, the obligations of state and local government regulations with respect to standards and technical regulations are important. Here NAFTA's provisions, like those of the WTO TBT Agreement, are relatively weak. Central government is required to take "appropriate" measures to ensure compliance by sub-federal government but it is unclear as to how strong this obligation is in practice.⁴⁰

On conformity assessment, NAFTA urges the use of the principle of "equivalence". NAFTA requires the parties to strive to recognize certification and conformity assessment procedures implemented by other members. This is set out in Article 906.4 which provides for the reciprocal recognition of technical standards. The article does not however provide for full mutual recognition, as does the new global approach of the European Community; in the NAFTA case, the importing country is to treat a regulation as "equivalent" when it is "satisfied" that its requirements have been met and that its technical regulation adequately fulfils the importing party's legitimate objectives. If an importing country does not accept a technical regulation as "equivalent", then it must give reasons in writing upon request. This method leaves the final decision on the compatibility with regulations to be determined by the authorities of the importing country on a case by case basis, whereas in the European Community the Commission carries out this function for all the member states. NAFTA signatories are also required to provide efficient and transparent administrative procedures for processing applications for conformity assessment from other members.

⁴⁰ The wording of the NAFTA differs from that of the TBT Agreement as the latter requires "reasonable" rather than "appropriate" measures by the central government to ensure compliance by sub-federal government. In theory the NAFTA provision is stronger than that of the WTO.

Though the NAFTA treaty stops short of espousing full mutual recognition, elaboration of MRAs is certainly possible under NAFTA. However, no MRA has yet been negotiated by the three NAFTA governments. One MRA was negotiated in June 1995 for the engineering profession by private sector representatives of the three NAFTA countries. Under this MRA the professional credentials of engineers as certified in one NAFTA country would be recognized in the other countries. The MRA is awaiting ratification by professional organizations in each country, as well as by government bodies in the U.S. and Canada that license engineers.⁴¹ In summary, it seems that the work on standards-related activities in NAFTA has been moving forward slowly although the objectives are fairly ambitious. One area in which progress is important in NAFTA is that of ensuring transparency, and the notification of developments and/or changes in national standards policies.

C. Regional Work on Standards by Developing Economies in Asia

Within the Asia Pacific region, there are two regional trading arrangements with developing-country membership. The Association of Southeast Asian Nations (ASEAN) is a preferential arrangement of long date, established in 1967 and now comprising six members including Indonesia, Malaysia, the Philippines, Singapore, Thailand and VietNam (the latter since January 1996). The Asia-Pacific Economic Cooperation (APEC) grouping on the other hand is a recent initiative, having been established in November 1989. APEC's membership is broader than that of ASEAN and includes five developed members as well as thirteen developing members of very wide-ranging levels of development.⁴² Both integration groupings deal with standards-related issues as part of their ongoing agenda for trade liberalization and facilitation.

⁴¹ See Gary Hufbauer and Jeffrey Schott (1994), *NAFTA: An Assessment*, Washington D.C.: Institute for International Economics.

⁴² APEC's founding members were Australia, Brunei, Canada, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, the Philippines, Thailand and the United States. Subsequently both the People's Republic of China, Hong Kong and Taipei Province of China were admitted in 1991, followed by Mexico and Papua New Guinea in 1993. Chile was admitted in 1994, at which time a three-year moratorium on new members was adopted. At the APEC Leaders Meeting in Subic Bay, Philippines (November 1996), it was decided to admit Peru and Vietnam as APEC members in 1998.

ASEAN was originally established primarily for security reasons and for the coordination of foreign policy in the southeast Asian region among like-minded governments. Although the grouping attempted to implement a preferential trading area (PTA) in the mid-1970s, trade integration only recently took on increased importance through the decision to create the “AFTA” or the ASEAN Free Trade Area, brought into effect in January 1992. As part of the effort to facilitate trade, standards were also included in the agenda through the creation of the *ASEAN Consultative Committee for Standardization and Quality (ACCSQ)* in October 1992. The purpose of the ACCSQ is to promote cooperation and to coordinate aid from foreign standards bodies in developing ASEAN standards and conformity assessment capabilities. Three technical working groups are looking into standards and conformity assessment issues, such as harmonization, reduction of technical barriers to trade, mutual recognition of conformity assessment and tests from ASEAN laboratories, better training of quality system assessors, establishment of an ASEAN registration program for quality system assessors, and comparisons of member’s calibration activities.⁴³ More information is needed on the progress which has been made by this Consultative Committee over the past two and a half years in these areas.

In contrast to all other regional integration arrangements, the guiding vision for the APEC grouping is “open regionalism” which translates into reduced trade and investment barriers in the Asia Pacific that are applied equally to APEC economies and non-APEC economies. In APEC the Leaders or heads of state clarified their interpretation of “open regionalism” at their meeting in November 1996, clearing stating that they did not intend to form a preferential trading area among members. Thus, adherence to the principle of open regionalism by APEC implies that all agreed trade liberalization will be carried out on a most-favoured nation basis, in conformity with the basic principles of the GATT/WTO.

The goals of the APEC grouping were defined in the APEC Leaders Meeting in Bogor, Indonesia in November 1994 where APEC members committed to achieving free and open trade for the region by 2010 for developed member economies and 2020 for developing member economies.⁴⁴ The Leaders Meeting in Osaka, Japan (November 1995) set out an Action Agenda as a first step towards realizing these goals. And the Leaders Meeting in Subic Bay, Philippines (November 1996) followed up on this in a concrete manner.⁴⁵

⁴³ Information contained in the monograph by John Wilson (1995), *Standards and APEC: An Action Agenda*, *op.cit.*, p.66. Much of the material in this section draws upon information contained in this monograph.

⁴⁴ The Bogor Declaration of November 1994 specified steps towards achieving the goal of free and open trade for the region by the year 2020. These included : accelerating implementation of the Uruguay Round, liberalizing trade, and eliminating trade barriers, work toward the adoption of an Asia Pacific Investment Code, harmonization of customs procedures, and work on reform of standards and conformity assessment policies in the region. See *APEC Economic Leader’s Declaration of Common Resolve*, Bogor, Indonesia, November 15, 1994.

⁴⁵ See *The Osaka Action Agenda: Implementation of the Bogor Declaration*, Osaka, Japan, November 19, 1995, and also *The Manila Action Plan for APEC*, Subic Bay, Philippines, November 18, 1996.

In Subic Bay, APEC Leaders adopted a Manila Action Plan for APEC (MAPA) which sets out the first steps towards achieving the Action Agenda in the form of detailed individual action plans (IAPs) which contain the liberalizing, market-opening and/or trade facilitating actions that APEC economies have taken or intend to take in all of the specified areas of trade and investment, along with collective action plans (CAPs) which contain agreed undertakings for all APEC economies for the same areas. Taken together, these comprehensive plans represent the first concrete manifestation of steps to realize the commitments set out in the Bogor Declaration. These action plans (IAPs and CAPs) are to be further elaborated and made compatible in format for the November 1997 APEC Leaders Meeting in Vancouver, Canada.

From the beginning there was a commitment among members to keep APEC as an informal group without official trappings other than annual meetings. However, in spite of this, the institutionalization of APEC has evolved a great deal and now includes a fairly elaborate structure of committees and working groups which is set out in Chart 4.⁴⁶ The APEC process is led by the annual Leaders' summit which takes place every November in a designated host country. Underneath the summit there are periodic Ministerial meetings in several different areas covered by APEC working groups including environment, transportation, finance, telecommunications, trade, manpower, small and medium enterprises, and industrial science and technology. APEC trade ministers have met three times to present; in Jakarta, Indonesia in October 1994, in Christchurch, New Zealand in July 1996, and in Montreal, Canada in May 1997.

Advising the APEC Ministers and the Leaders are two different groups. Policy input and advice continues to be provided by the tripartite predecessor to APEC, the Pacific Economic Cooperation Council (PECC) and by the private-sector under the APEC Business Advisory Council (or ABAC, which replaced the earlier Pacific Business Forum in 1996).⁴⁷ The ABAC group was tasked to provide an annual report to APEC Senior Officials and Leaders in order to make private sector views known to government policy makers. A permanent secretariat was established for APEC in Singapore in January 1993. The secretariat mostly carries out work of an administrative and public relations nature, however, and contributes little to the substantive work of the various APEC bodies. In fact, there is no technical support institution for the APEC process. The substantive work is directed by the chairs or convenors of each of the various working groups, committees, and subcommittees, constituted by APEC member countries, who volunteer to act as leader on a particular policy issue.

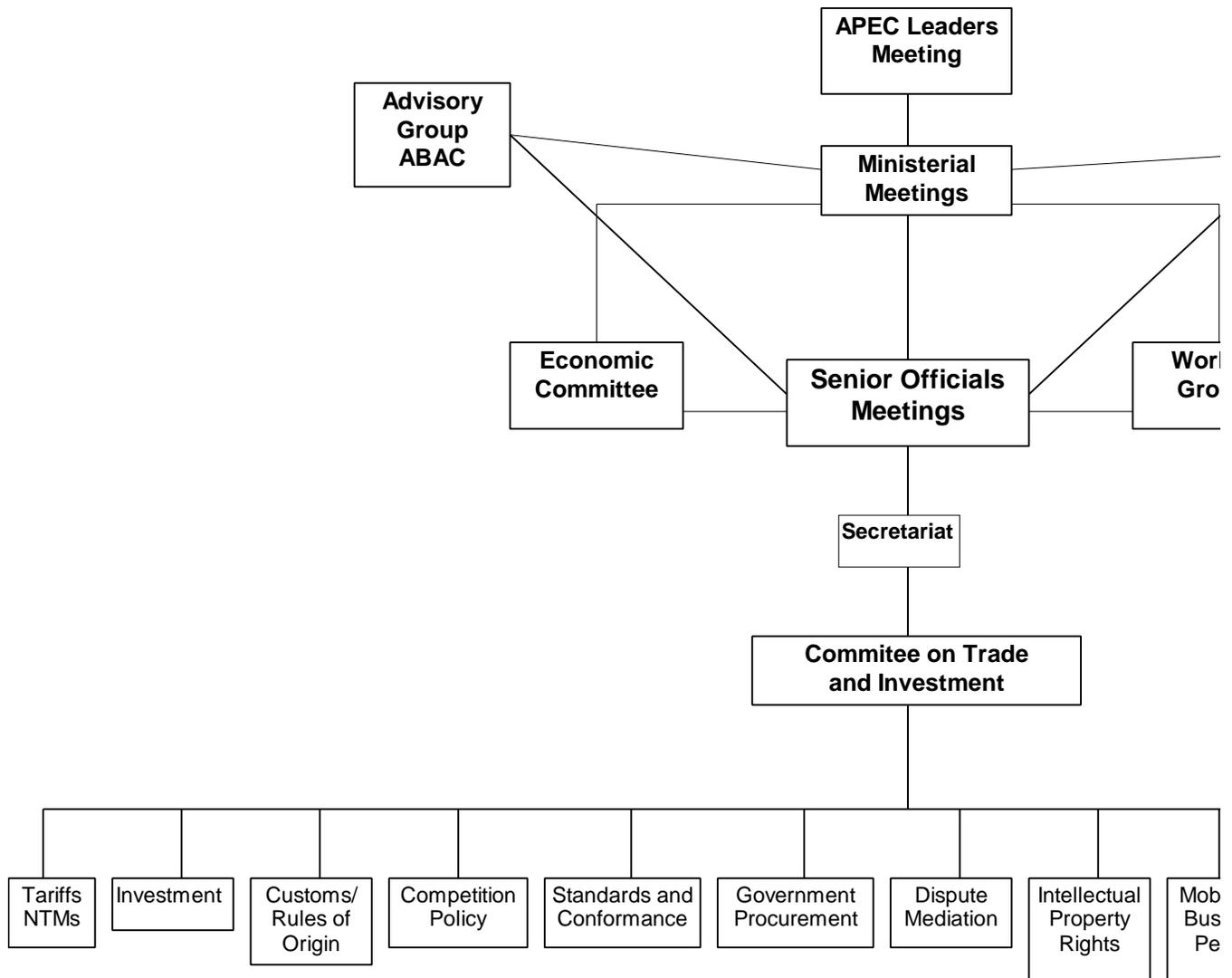
Working-level responsibility for policy implementation in APEC resides in a group of high-level government representatives who meet regularly in senior officials meetings (SOMs). At the SOMs, detailed plans for discussion at APEC ministerials and leaders' meetings are

⁴⁶The chart, as well as much of the material contained in this section is inspired from the monograph by John S. Wilson on *Standards and APEC: An Action Agenda*, op.cit., pp. 70-78.

⁴⁷ Formed in 1980, the Pacific Economic Cooperation Council (PECC) is a tripartite grouping of business, academic and government representatives from all APEC member countries plus the two additional countries of Colombia and Peru. The PECC carries out studies upon the request of APEC on trade and investment issues, and is the only official observer allowed at the APEC Committee on Trade and Investment and Senior Officials meetings. PECC groundwork was instrumental, for example, in obtaining APEC endorsement of the Non-binding Multilateral Investment Principles, agreed in Jakarta in 1994. In 1993, APEC initiated a second business forum, the Pacific Business Forum (PBF), which provides industry input to APEC

elaborated. The policy agenda of APEC is carried out under three different bodies : several Working Groups have been constituted to consider different issues of interest to APEC

CHART 4
STRUCTURE OF APEC PROCESS



discussions, in the form of an annual report with recommendations.

members which report directly to senior officials.⁴⁸ The Economic Committee considers macroeconomic and exchange rate issues and carries out forecasts for APEC member countries. The Committee on Trade and Investment (CTI) oversees several different trade policy areas, one of which is standards and conformity assessment. In November 1994 the CTI established a formal Subcommittee on Standards and Conformance (SCSC) which is supported by ad hoc technical working groups that collect data on regional standards, testing and certification requirements. The Subcommittee on Standards and Conformance was chaired by the Philippines until end 1996, and is presently chaired by Canada.

The first report of the Eminent Persons Group on APEC in 1993 identified “standards-related issues” as an area where a concerted effort would be needed to reduce divergencies. In its second report (1994), the Group went further by recommending that APEC work in the standards area towards the following :⁴⁹

- adoption of an APEC Standards and Conformity Framework;
- identification of sectors where harmonization of standards could eliminate or reduce trade distortions;
- development of a model mutual recognition agreement;
- identification of sectors where early progress on mutual recognition would be most valuable; and
- acceptance of the conformity assessment principle “tested once, accepted everywhere”.

The current work of the APEC Subcommittee on Standards and Conformance covers the following six areas: the promotion of alignment of APEC member national standards with international standards; implementation of the WTO Agreements on Technical Barriers to Trade and on Sanitary and Phytosanitary Measures; development of mutual recognition agreements on conformity assessment in regulated product sectors; promotion of mutual recognition agreements in nonregulated sectors through cooperation with specialist regional

⁴⁸ These Working Groups include the following : energy, fisheries, tourism, trade promotion, telecommunications, transportation, marine resources conservation, human resources development, trade and investment data review, and industrial science and technology.

⁴⁹ The Eminent Persons Group (EPG) was created in order to provide policy guidance to the Seattle Leaders' summit in November 1993. The EPG authored three reports (1993, 1994 and 1995) on trade and economic cooperation in APEC which proved influential in shaping the decisions taken at the Leaders Meetings. The group was discontinued however after its third report. For the specific recommendations on standards-related work, see the second Report of the Eminent Persons Group, *Achieving the APEC Vision: Free and Open Trade in the Asia Pacific*, August 1994.

bodies; coordinated approaches on international standards activities; and technical infrastructure development.

The Osaka Leaders' meeting (November 1995) provided impetus and detailed direction to APEC's work on standards and conformity assessment. At that meeting APEC economies were instructed to take the following Collective Actions with regard to standards :

1) Alignment with international standards

- consider further priority areas for alignment with international standards;
- conduct a comprehensive review of progress on alignment with international standards in 2000 and 2005;

2) Mutual recognition of conformity assessment

- identify, in 1996, additional priority areas for the development of mutual recognition arrangements in regulated sectors;
- encourage establishment of and participation in, by 2000 in the case of industrialized economies and 2005 in the case of developing economies, a network of mutual recognition arrangements in voluntary sectors;
- strive to establish a network of mutual recognition arrangements on a sector by sector basis, in most regulated sectors, starting with mutual acceptance of test results and going on to establish mutual recognition of other possible forms of conformity assessment; and
- study the adequacy of monitoring and review mechanisms for maintaining confidence in mutual recognition arrangements.

3) Cooperation on technical infrastructure development⁵⁰

- develop in 1996 a mid-term program to improve technical infrastructure by 2000, and undertake regular reviews and follow-ups for technical upgrading; and
- conduct a comprehensive review on implementation of the above program after the year 2000.

4) Transparency

- conduct a survey in 1996 to assess the availability of and access to standards and conformance information in each APEC economy and also systems for the exchange of such information; and
- develop, by 2005 in the case of industrialized economies and 2010, in the case of developing economies, a database and network system to carry information on : the standards and conformance systems of APEC

⁵⁰ Although most standards issues are managed under the SCSC framework, a standing committee on telecommunications reports directly to APEC senior officials and is developing procedures for regional harmonization of equipment certification as well as guidelines for international value-added network services.

economies; accredited testing/calibration laboratories, quality systems, certification/reg

As set out above, although harmonization remains the longer term aim of APEC , in the shorter term the APEC Subcommittee is focusing instead on the alignment of national with international standards, trying to ensure that key elements of national standards are similar to those set out by international standardizing bodies. APEC members have decided to use the ISO/IEC Guides 3 and 21 in their alignment efforts. In 1995 APEC members identified four groups of products which could be studied for possible alignment of existing national standards with international ones, namely : air conditioners, televisions and refrigerators (Japan leading); food labeling (Australia leading); rubber gloves and rubber condoms (Malaysia leading); and unplasticized plastic pipes and fittings (Korea leading). The case studies on alignment with international standards for these four product sectors were published during 1996. Additional product sectors were identified during 1996 for similar consideration and study. These include the following : standards for general design and structural design loading; structural design of timber; timber preservation; grading of sawn timber; reconstituted plywood board products; and hazardous area equipment. Progress has also been made on the drafting of guidelines for the development and review of technical regulations in light of their possible alignment by APEC members.⁵²

Mutual recognition is an equally important area for APEC members and the SCSC has already made some progress towards developing a model agreement for the region. Elements of a model MRA have been discussed and approved by APEC members and a draft model mutual recognition agreement has been elaborated, on the basis of several meetings of experts and consultations with ad hoc regional groups. The text of this draft agreement, the first of its kind, is set out in Appendix II.

⁵¹ See *The Osaka Action Agenda: Implementation of the Bogor Declaration*, November 1995, section on standards and conformance.

⁵² See the Report of the APEC Sub-Committee on Standards and Conformance to the APEC Committee on Trade and Investment, May 1996 and October 1996.

The Sub-Committee is now attempting to apply these general elements to specific sectors and products. Such sectors have been identified through the means of a survey conducted by the SCSC during 1994. Those sectors nominated are considered to be those in which APEC members might be able to agree on regionwide MRAs for conformity assessment.⁵³

They are set out in Table 12 and include : food products, telecommunications equipment, toys, and electrical equipment, among others. Studies have already been conducted for four of these sectors. The top priority sectors identified by developing APEC members were toys and food. For these two sectors (toy safety and food products), texts of model mutual recognition agreements were finalized by APEC members during 1996, forwarded to the CTI and subsequently endorsed by APEC Ministers. It is hoped that there will be the widest possible participation by member economies in these two umbrella arrangements. In collaboration with the Transportation Working Group, the SCSC is also developing a draft “Model” Mutual Recognition Agreement concerning Regulations, Standards and Technical Requirements for Certain Road Vehicles, Equipment and Parts.

Additional priority areas for the elaboration of mutual recognition arrangements have further been identified in 1996 for consideration. These include : building materials including cement; electrical and electronic equipment (safety); electromagnetic compatibility; heating and cooling equipment; medical devices; and pressure vessels. A questionnaire on mutual recognition was circulated to APEC members in 1996 for completion which will allow a better understanding of the trade flows involved and the perceived value of a mutual recognition arrangement in these listed priority areas.

Both alignment with international standards and the achievement of MRAs will reduce substantially the costs of cross-border trade among APEC member economies. They will also assist in reducing technical barriers to trade. All business sectors, and especially small and medium-size enterprises, stand to gain in particular because of the reduced complexity of trade-related technical procedures. Consumers will also benefit from the availability of better quality products at more competitive prices.

The APEC SCSC has also adopted an ambitious program of “deliverable actions” for 1996/1997 as well as a Mid-Term Technical Infrastructure Development Program, both of which should help to facilitate both the alignment of national with international standards and the conclusion of mutual recognition arrangements.⁵⁴ Member economies agreed upon the actions recommended in the Technical Infrastructure Program as priorities for development of such

⁵³ See John Wilson, *Standards and APEC: An Action Agenda*, op.cit., pp. 76-77.

⁵⁴ Information drawn from various Reports of the APEC Sub-Committee on Standards and Conformance to the APEC Committee on Trade and Investment, Philippines, May 1996, August 1996, and October 1996.

infrastructure to the year 2000. Project proposals for bilateral and/or multilateral financial support are to be considered for the purpose of realizing this Infrastructure Development Program for Measurement Standards, Laboratory Management and

Table 12

Regulated Sectors Nominated for Mutual Recognition Agreements by Developing AP

Sectors	Brunei	China	Chinese Taipei	Hong Kong	Indonesia	Korea	Malaysia	Philippine
Chemicals								
Electrical appliances			2	2		1	1	
Household air conditioning and refrigeration								
Medical equipment							2	
Semiconductors								
Telecom terminal equipment								2
Toys		2	1	1	2			
Transport equipment							4	
Food products	1	1			1		3	1

a. Numbers indicate the priority order of nominated sectors.

Source: Adapted from APEC Survey, Standards and Conformance Subcommittee, 1994, and John Wilson (1995) An Action Agenda, Washington, D.C.: Institute for International Economics, p. 76.

Accreditation, and Product Certification and Inspection Bodies. Transparency in the area of standards and conformance is being promoted through a survey carried out by the SCSC to develop the availability of existing information sources on standards and how best to use these in APEC's work.

APEC members have agreed to carry out collective and special actions that would lead to mutual economic benefits due to transparent standards, simplified conformity assessment procedures, and technical cooperation and assistance programs. The APEC Collective Action Plan includes an ambitious set of "deliberables" for 1996/1997 :

- a) undertake alignment of member economies' standards with international standards in the following priority areas: electrical and electronic appliances; food labelling; rubber gloves and condoms; and machinery by 2000/2005;
- b) completion of an APEC Guide on Alignment of member economies' standards with international standards;
- c) participation in standardization activities of international standardization bodies (ISO & IEC) in the following priority sectors: building and construction and hazardous area equipment;
- d) publication of the Report on Case Studies on Alignment with International Standards;
- e) completion of an Umbrella Arrangement for mutual recognition of conformity assessment of Food and Food Products;
- f) completion of an Arrangement for the Exchange of Information on Toy Safety;
- g) consideration of additional priority areas for Mutual Recognition Arrangements in the regulated sector, initially on the following: building materials including cement; electrical and electronic equipment (safety); electromagnetic compatibility; heating and cooling equipment; medical devices, particularly devices of plastic and rubber; and pressure vessels;
- h) establishment of and participation in a network of Mutual Recognition Arrangements in voluntary sectors;
- i) adoption of a Mid-term Technical Infrastructure Development Program (1996-2000);
- j) carrying out a survey on technical infrastructure development for measurement standards, laboratory management and accreditation; inspection bodies' quality systems, and certification bodies accreditation;
- k) from 1997, implementation of a Partners for Progress (PFP) project on standards and conformity assessment schemes;
- l) a survey on transparency and access to member economies' standards and conformity assessment requirements; and
- m) an APEC Seminar on Environmental Management Standards.

All APEC developing economies made submissions on Standards and Conformance in their Individual Action Plans in 1996, which include 14 commitments in the area of enhanced transparency measures, 13 commitments in the area of alignment, 14 commitments in the area of the promotion of mutual recognition, and 13 commitments for the development of technical infrastructure.

D. Regional Work on Standards by Developing Countries in the Western Hemisphere

In the Western Hemisphere there exist several regional and sub-regional integration groupings involving developing countries, some of them which have been in existence for many years and other of which are of recent date. The NAFTA arrangement is by far the predominant grouping economically, with its members accounting for around 85 percent of both total GDP and total trade of the Western Hemisphere (1995). However, the four countries of the “southern cone”, namely Argentina, Brazil, Paraguay and Uruguay, which established a Common Market of the Southern Cone (or MERCOSUR in 1991, make up the second most important grouping of trading countries in the hemisphere, accounting for 6.5 percent of the region’s total trade (1995). The treaty establishing the Group of Three (Colombia, Mexico and Venezuela) came into existence in 1995, with its members accounting for 9.4percent of the region’s total trade.

Other major preferential trading arrangements of relatively long date include : the Andean Group (1960) comprising the five countries of Colombia, Bolivia, Ecuador, Peru and Venezuela; the Central American Common Market (CACM, 1960) comprising the six Latin American countries of central America, namely Costa Rica, Guatemala, Honduras El Salvador, Nicaragua and Panama ; and lastly the Caribbean Common Market (CARICOM, 1964) which groups the 13 island states of the Caribbean along with Belize and Guyana. The three latter groupings have recently undertaken a renewed push towards trade integration and re-vitalized their efforts towards trade liberalization. Part of this effort has included work on standards and conformity assessment issues. In addition to the above sub-regional arrangements with three or more countries, several bilateral free trade agreements have been signed recently in the Western Hemisphere which contain provisions on standards.

Information on ongoing and recent activities within these various sub-regional arrangements and bilateral free trade agreements in the Western Hemisphere with respect to standards and conformity assessment has recently become available through the efforts of the FTAA Working Group on Standards and Technical Barriers to Trade, which groups all the countries in the Western Hemisphere (with the exception of Cuba) and which is discussed at length later in this section.⁵⁵

⁵⁵ An examination of the provisions on standards and technical regulations, along with recent activities on standards and conformity assessment in the various sub-regional integration arrangements and an analysis of the elements of commonality and divergence in these provisions and activities, was undertaken by the OAS Trade Unit for the Working Group on Standards and Technical Barriers of the Free Trade Area of the Americas (FTAA) process in 1996 and 1997. The resulting study entitled *Provisions on Standards and Conformity Assessment in Trade and Integration Arrangements of the Western Hemisphere* should help to fill in the information gap in this area.

In MERCOSUR the approach to standards and conformity assessment appears to be largely modelled on the experience of the European Community. MERCOSUR's integration objectives are ambitious, setting out the ultimate goal of a single market, although the treaty itself is not a document with detailed provisions.⁵⁶ For example, there are no explicit references to standards in the Treaty of Asuncion which established the MERCOSUR grouping. The only exhortation in the text of general applicability is found in Article 1 which states the commitment by Parties to "harmonize their legislation in the relevant areas in order to strengthen the integration process." This is taken to apply to all areas of economic policy, including that of standards.

The Common Market Council is the policy-making body of MERCOSUR and is composed of the foreign and economy ministers of the four countries. The MERCOSUR Trade Commission is the executive organ in charge of overseeing the application of the common external trade policy.⁵⁷ Ten Working Subgroups have been set up for dealing with various aspects of integration. Subgroup 3 is responsible for defining "Technical Regulations". This Subgroup is closely linked to the MERCOSUR Standardization Committee, composed of the standardizing bodies from the four member countries.⁵⁸ It is recognized by members as the sole forum for harmonizing standards on a voluntary basis. Among the main objectives of the Committee are the harmonization of member's standards, harmonization of the position of members in international standardization activities and the promotion of certification systems and their mutual recognition.

The Committee has set up several sectoral Standardization Committees to carry out work in specific areas of interest which include the following 16 product areas : electrical power; steel; electronics and telecommunications; toys; cement and concrete; machinery and mechanical equipment; automobiles; tires, rings and valves; plastics for civil construction; information technology; dentistry, medicine and hospital care; paper and cellulose; quality control; welding; furniture; and the environment. Leading each Committee is a technical

⁵⁶ Although Mercosur defines itself as a customs union, the principle of direct applicability does not hold among members, and any decisions or resolutions adopted by the Council must first be implemented into the domestic law of each member state before they become effective in the respective countries. See Thomas O'Keefe, "How the Andean Pact Transformed itself into a Friend of Business", in *International Trade Lawyer*, op.cit.

⁵⁷ See *Trade and Integration Arrangements in the Americas: An Analytical Compendium*, prepared by the OAS Trade Unit, Washington D.C., March 1997.

⁵⁸ Information drawn from the presentation by Pablo Benia, President of the Mercosur Standardization Committee, on "MERCOSUR Harmonization Efforts under the Standardization Committee" made to the NEMA Annual Conference, Orlando, April 1996.

secretariat composed of standardizing experts drawn from the member countries. The MERCOSUR Standardization Committee has been very active in developing common standards. So far, 86 common standards have been elaborated: 26 in steel, 55 in cement and concrete and 5 in quality control. A total of 249 draft standards were under elaboration in mid-1997, with plans to develop some 530 more in the 16 product areas listed above.

The Andean Group has been very active recently in the development of sub-regional cooperation with respect to standards and conformity assessment and in the elaboration of provisions regarding reciprocal recognition of product testing and laboratory accreditation. This is being carried out under Decision 376 of the Cartagena Agreement on the *Sistema Andino de Normalization, Acreditacion, Ensayos, Certificacion, Reglamentos Technicos y Metrologia* (1995). Under this Decision the Andean Group is developing a Network of Testing Laboratories (Red Andina de Laboratorios de Ensayo), as well as a Network of sub-regional Accreditation Bodies (Red Andina de Organismos de Acreditacion) to facilitate the acceptance of certification of conformity assessment among members.⁵⁹

As with the Andean Group, MERCOSUR has defined an order of priority among sources from which common standards are to be developed. This priority places international standards first, regional (COPANT) standards second, European (CEN/CENELEC) standards third, member country national standards fourth, non-member national standards fifth and those by private standardizing bodies last. Both the Andean Group and MERCOSUR are actively seeking to promote the development of mutual recognition agreements. The groupings intend to promote reciprocal recognition of national certification and test results.

⁵⁹ Information drawn from the *Inventory of National Practices on Standards, Technical Regulations and Conformity Assessment in the Western Hemisphere* (1996), *op.cit.*, Working Group on Standards and Technical Barriers to Trade of the Free Trade Area of the Americas process.

The Central American Common Market (CACM) which entered into force in 1961 is a customs union, as is the Caribbean Common Market (CARICOM), brought into existence as the Caribbean Community in 1973.⁶⁰ Both of these groupings have been recently invigorated through measures aimed at stimulating economic integration, and standards measures are to be a part of this process. The policy objectives of these two integration arrangements in the standards area is to harmonize members' standards. This is set out in Article VII of the Protocol of Guatemala for the CACM countries, and in Article 42 of the CARICOM treaty, where member states "recognise the desirability to harmonise as soon as practicable . . . practices as affect the establishment and operation of the Common Market in industrial standards." However, neither grouping has as of yet begun to work actively towards the development of common or harmonized standards. In the Caribbean, the *Caribbean Common Market Standards Council* works on questions of the equivalency of standards and certification for the member countries. There is an agreement to accept certification marks which are given by the Bureau of Standards for CARICOM members without further internal tests. There is also an agreement for regional collaboration on national measurement under CARICOM.⁶¹ In the Central American Common Market, no body has been created specifically to work on issues of standards and conformity assessment for industrial products, but regional commissions for animal health and plant health exist.

Of the eight bilateral free trade treaties which have been signed in the Western Hemisphere, all explicitly reference standards in their provisions. However, with respect to detail, the treaties fall into two groups. The first group of treaties, consisting of five signed by Chile with various trading partners, does not contain detailed disciplines on standards but rather consists of a general article or chapter promoting economic cooperation in this area.

This is the case of the following treaties :

- Chile-Mexico (1 January 1992)
- Chile-Bolivia (16 April 1993)
- Chile-Venezuela (1 July 1993)
- Chile-Colombia (1 January 1994)
- Chile-Ecuador (1 January 1995)

A similar article is found in all the above treaties, whereby the Administrative

⁶⁰The Central American Common Market is composed of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. The agreement was invigorated in the early 1990s after almost two decades of political unrest and economic difficulties, with the signature of the Guatemala Protocol in October 1993 which has as its main objective the establishment of an economic union. The Caribbean Common Market or CARICOM created by the Treaty of Chaguaramas of July 1973, is composed of Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. The grouping was invigorated in 1989 with the adoption by Heads of Governments of measures aimed at stimulating and promoting economic and political integration. See *Trade and Integration Arrangements in the Americas:*

An Analytical Compendium, OAS Trade Unit, *op.cit.*, 1997.

⁶¹Information drawn from *An Analytical Compendium of Western Hemisphere Trade Agreements* (1996), Section on Technical

Commission created to oversee the implementation of the agreement, is mandated to “. . . analyze the technical, industrial and commercial standards for security and public health of the signatory countries and recommend the actions considered necessary to avoid that these standards constitute a barrier to reciprocal trade.” The treaties with Colombia and Ecuador go further to admonish the parties to follow the principles of most-favoured nation treatment, notification and exchange of information, and to utilize international standards when elaborating national ones. These last two treaties also set out the goal of achieving *compatibility* as between parties on standards-related measures, and to seek mutual recognition of their certification system and laboratory testing results.

The second group of treaties, consisting mainly of the two signed by Mexico, as well as the recent bilateral free trade agreement between Canada and Chile, basically extend NAFTA-type disciplines in various areas, including standards, to treaty partners. This is the case of the following two treaties :

- Mexico-Bolivia (1 January 1995)
- Mexico-Costa Rica (1 January 1995)
- Chile-Canada (1 July 1997)

In these three treaties the parties reaffirm their rights and obligations under the WTO TBT Agreement and re-iterate many of these in the treaty, including MFN treatment, national treatment, transparency and notification, establishment of enquiry points, use of international standards, etc. The stated policy objective in both treaties is to bring about *compatibility* of standards-related measures, specifically to “promote the compatibility of specific standards-related measures”, and to “make compatible, to the greatest extent possible, their respective technical regulations and conformity assessment procedures.” Similar to the NAFTA approach, the benefits of mutual or reciprocal recognition of conformity assessment systems and procedures are recognized, and conformity assessment bodies are to be accredited or recognized on equally favorable terms so as to facilitate trade. In terms of administrative structures, the treaties create a Working Group on Standards-Related Measures that is to monitor implementation of the treaty and which is to meet at least once a year.

The recent free trade agreement signed between Chile and MERCOSUR (to be brought into effect as of 1 July 1997), also contains a reference to standards, in which the parties confirm their “existing rights and obligations under the WTO TBT Agreement.” Though the treaty does not contain detailed provisions on standards, the policy objective is nonetheless explicit and exhorts the parties to strive for *compatibility* in the area of standards-related measures. This would appear to be the case because of the fact that Chile did not take on the

supranational elements of MERCOSUR integration and join in the economic union but limited its cooperation to that of free trade. With each party retaining sovereignty over its commercial policy, the policy objectives for standards and related issues could not be as ambitious as those which are set out for those integration groupings that are stated customs unions.

All of the sub-regional integration arrangements of the Western Hemisphere thus encourage and/or mandate their members to coordinate their standards-related activities. Those arrangements which are customs unions set out harmonization as their overriding policy objective, while those arrangements which are free trade areas emphasize an approach based on the promotion of “compatibility” in standards-related measures, as in Table 13

Table 13 here

The major regional integration movement in the Western Hemisphere which encompasses 34 of the 35 countries of the region (Cuba excepted), is the Free Trade Area of the Americas (FTAA). The FTAA process was launched in December 1994 at the Summit of Miami meeting of Heads of State of the region, who subscribed to the goal of completing negotiations for a regional free trade area by the year 2005.⁶² Such a free trade agreement is to be a single undertaking, similar to the Uruguay Round Agreement, and is to result in the elimination of market access barriers in the form of tariffs and non-tariff barriers for goods and services, as well as the negotiation of trade disciplines over a broad range of policy issues, including dispute settlement.

During its two years of existence, the FTAA process has made considerable strides in setting up a working structure and in carrying out preparatory work for the many trade issues identified for negotiation. This structure is approximated in Chart 5. The process is driven by the decisions of heads of state which are scheduled to meet a second time in March 1998 in Santiago de Chile, when the formal negotiations are expected to be launched. Trade ministers from FTAA nations meet more frequently ; in Denver, Colorado in July 1995, in Cartagena, Colombia in March 1996, and in Belo Horizonte, Brazil in May 1997. Underneath the Ministers, the Vice-ministers convene on an average of three times per year to direct the FTAA work which is carried out through a series of eleven working groups, structured in much the same way as were the negotiating groups in the Uruguay Round negotiations, and through two additional study groups.⁶³ Each of the working groups is led by a country in the FTAA process. Although a formal Secretariat has not yet been established, three international organizations have been carrying out the role of technical support bodies to the FTAA process. These are : the Trade Unit of the Organization of American States (OAS) established in April 1995 and responsible for seven of the working groups as well as the two study groups; the Inter-American Development Bank (IDB), responsible for three of the working groups ; and the Economic Commission for Latin America (ECLAC), involved in two of the working groups. The FTAA 11 working groups have been given the task of outlining possible approaches to negotiations in their respective

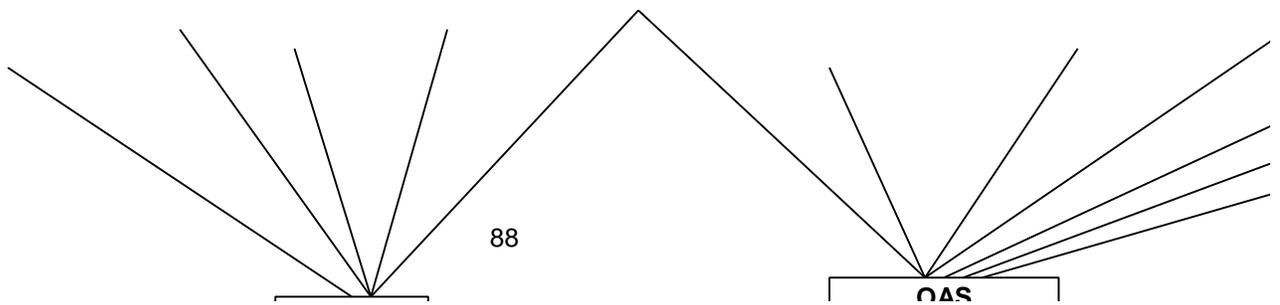
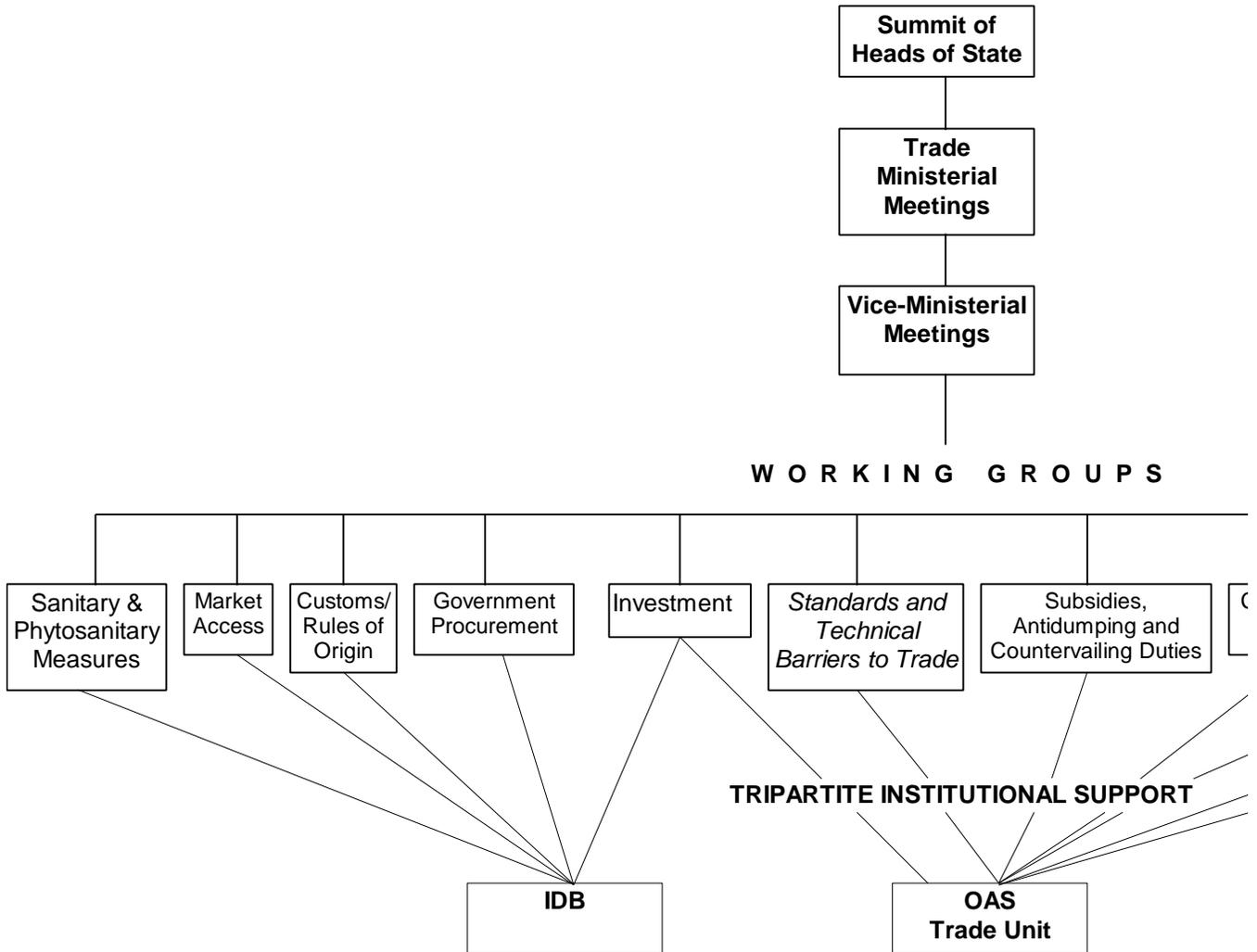
⁶² See the *Declaration of the Miami Summit*, December 1994, which contains a broad range of issues to be tackled for the Western Hemisphere including the promotion of democracy, the promotion of foreign direct investment, exchanges of science and technology, the fight against corruption and illegal drug trade, etc. However, the creation of the Free Trade Area of the Americas is the centerpiece of the Declaration and has subsequently received the most attention from policy makers.

⁶³ The eleven working groups in the FTAA process are the following : Market Access; Competition Policy; Customs Procedures and Rules of Origin; Government Procurement; Intellectual Property Rights; Investment; Sanitary and Phytosanitary Measures; Services; Small Economies; Standards and Technical Barriers to Trade; and Subsidies and Anti-dumping. The two study groups are : Dispute Settlement and Environment and Trade. The latter may become full-fledged working groups following the next Trade Ministerial meeting in Brazil in May 1997.

areas by the end of 1997.

CHART 5

STRUCTURE OF FTAA PROCESS



Standards and conformity assessment are dealt with by the *FTAA Working Group on Standards and Technical Barriers to Trade*, presided by Canada. Between mid-1995 and mid-1997 the Working Group met six times. In March 1996 Ministers approved a substantive work program on standards and technical barriers to trade for 1996/97 elaborated by members of the Working Group which includes the following elements :

- 1) examination of the principles, concepts and requirements of Mutual Recognition Agreements of conformity assessment procedures generally, and in specific sectors;
- 2) organization of sub-rional seminars on the WTO Agreement on Technical Barriers to Trade and related standards, technical regulations and conformity assessment procedures;
- 3) development of written material on implementation of the WTO TBT Agreement and on international developments in the area of standards, technical regulations and conformity assessment procedures, in order to enhance awareness of key concepts;
- 4) examination of the provisions of, and harmonization activities under existing sub-regional trading arrangements relating to standards and technical barriers to trade;
- 5) exploration of the possibility of developing computerized hemispheric information systems on standards, technical regulations and conformity assessment procedures; and
- 6) support of the activities of regional organizations in standardization, metrology and conformity assessment such as COPANT, Caribbean Standards Council, Inter-American Metrology System and the Inter-American Accreditation Forum.

Discussions of the FTAA Working Group on Standards and Technical Barriers have been concentrated to present in three areas. Transparency has been sought through increasing the available information on national practices with respect to standards, technical regulations and conformity assessment procedures on the part of the 34 participating countries. A computerized data base containing information on standards practices is being constructed by the OAS Division of Science and Technology in collaboration with ANSI, or the American National Standards Institute. Second, greater understanding and compliance with provisions and obligations of the WTO Agreement on Technical Barriers to Trade has been promoted through informative studies and through a series of training seminars which are being carried out for developing countries in three of the sub-regions of the hemisphere (Latin

America, Central America and the Caribbean) in 1996 and 1997. Such training seminars have a dual objective : increasing understanding of the WTO Agreement and bring about compliance with its obligations, in particular those concerning the establishment of enquiry points and notification; and assisting developing countries in the hemisphere in setting up or improving a system of standards information. Third, the Working Group has recently begun to focus on the issue of trade facilitation in the standards area and has considered the possibility of elaborating a framework for developing mutual recognition agreements within the hemisphere.⁶⁴ The latter was listed as the first priority for work by Trade Ministers at their March 1996 meeting in Cartagena when they instructed the Working Group to

“develop proposals on the mutual accreditation of testing facilities; and
 prepare an inventory of standards and related measures.”⁶⁵

Although consideration of this issue is still at an early stage, it is likely that members of the FTAA process will focus their attention on achieving trade facilitation both through an attempt to better understand the most appropriate form for mutual recognition agreements as well as through the promotion of infrastructure improvements and information exchanges which would serve to reduce the present disparity between the quality and technical capabilities of standards bodies and laboratory testing facilities in the Western Hemisphere. Members of the Working Group have agreed that due to the difficulties inherent in negotiating formal mutual recognition agreements, acceptance of testing and other conformity assessment procedures should be promoted at all levels, including informal agreements between testing laboratories and accreditation bodies. The Group is considering the establishment of consensus procedures for facilitating this type of acceptance.

⁶⁴ The FTAA Working Group on Standards and Technical Barriers to Trade recently began to consider a study on “An Overview of Mutual Recognition and its Relevance for the Western Hemisphere” (May 1996) prepared by the OAS Trade Unit which contains an overview of conformity assessment procedures as non-tariff barriers to trade, and of international and regional work on developing mutual recognition and set out proposals for confidence-building steps towards development of mutual recognition agreements and sets out a proposed time line with steps to improve infrastructure, agreement on common procedures and approaches for conformity assessment based on ISO/IEC Guides, create laboratory recognition centers for the purpose of accreditation within the sub-regions, elaborate equivalency agreements between national metrology centers, formalize exchanges of information, audits and personnel between national standardizing bodies and laboratory testing centers, and negotiate mutual recognition agreements on product testing, laboratory accreditation and quality system management bilaterally and within the sub-regions.

⁶⁵ See the Ministerial Declaration of Cartagena, Colombia on the Free Trade Area of the Americas process, March 1996.

Work within the FTAA Working Group on mutual recognition should receive additional support from the newly established Inter-American Accreditation Cooperation (IAAC) which has as its objective to bring about a mechanism for the accreditation of conformity assessment bodies by members of the Western Hemisphere and to harmonize the procedures of existing accreditation bodies on the basis of ISO/IEC Guides so as to facilitate the realization of mutual recognition agreements.⁶⁶ The IAAC members are participating Accreditation Bodies who are encouraged, through the exchange of information and data, to accept certificates of conformity and test results issued by conformity assessment organizations and laboratories accredited by Accreditation Bodies of other members. A Memorandum of Understanding was signed in November 1996 which set up the IAAC as a formal body with a constitution, and full and associated members. As of mid-1997, 11 Accreditation Bodies have joined the IAAC as full members (including 8 from developing countries along with two from the U.S. and one from Canada), and 6 organizations have signed on as associated members. The work of the IAAC is carried out through five working groups, including one on conformity assessment and one on mutual recognition agreements.⁶⁷

⁶⁶ Declaration of the InterAmerican Accreditation Forum, Rio de Janeiro, May 1996. The Inter-American Accreditation Forum groups Argentina, Brazil, Canada, Dominican Republic, Ecuador, Mexico, Panama, Peru, Trinidad and Tobago, the United States, Uruguay and Venezuela. COPANT and the OAS are also participants.

⁶⁷. Information provided in a presentation on IAAC to the FTAA Working Group on Standards and Technical Barriers to Trade by the President of IAAC, Mr. Reinaldo Balbino Figueriedo from the National Institute of Metrology, Standardization and Industrial Quality of Brazil, March 1997.

E. Comparison of the Regional Approaches towards Standards and Conformity Assessment Issues

As the major regional trading arrangements already in existence or presently in the process of elaboration all deal with standards and conformity assessment in some form or another, it is interesting to compare the approaches taken by these various groupings and to draw out similarities and differences, particularly in relation to existing multilateral disciplines under the World Trade Organization.

Chart 6 sets out a very schematic comparison of the approaches adopted by four of the major regional trading arrangements - the European Union, NAFTA, APEC, the FTAA and MERCOSUR, as well as the WTO TBT Agreement with respect to five major areas of standards and conformity assessment. It is possible to identify several areas of convergence between the regional approaches as well as some important differences when issues are considered on a comparative basis.

In terms of convergence, there is general emphasis in the sub-regional arrangements of the national treatment principle of the WTO Agreement as a means to ensure non-discrimination among suppliers. Transparency is emphasized in all of the existing or proposed regional arrangements, through the requirement for notification of various types of measures and/or national practices in the area of standards, technical regulations and conformity assessment.

There also appears to be an increased acceptance by regional trading arrangements of the advantages of mutual recognition as means to advance the objectives of integration and trade facilitation. Mutual recognition for conformity assessment is mandated within the European Union and has been agreed as a basic principle within APEC, where the text of a model Mutual Recognition Agreement has already been adopted. The FTAA is now also considering how to progress in this area, as is NAFTA, MERCOSUR, ASEAN and the Andean Group. Thus the regional and sub-regional integration arrangements are actively attempting to go beyond the WTO provisions in this regard.

Another area of convergence is in the stated objective of the regional arrangements on the need for a minimum of harmonization or convergence of standards in essential areas. Several regional and sub-regional arrangements include some element of harmonization, but they differ as to whether there are built-in mechanisms for moving forward on this. This is mandated within the European Community as well as under the NAFTA treaty. It has been

CHART 6

Comparison of Regional Integration Approaches to Standards

	WTO	EU	NAFTA	APEC*	MERC
Standards	Code of conduct for standards institutions	Selective harmonisation	Compatibility sought	Selective harmonisation	Seeking n standards harmonis:
Conformity assessment	National treatment encourages recognition of results and mutual recognition	Mutual recognition	Recognition of test results when feasible	Once tested accepted everywhere: mutual recognition	Mutual re
Non-discrimination	National treatment and least restrictive measures	Mutual recognition with harmonisation	National treatment and least restrictive measures	Mutual recognition agreed as goal	Mutual re ultimate a
Transparency	Notification and option to comment	Notifications with option of EC legislation	Notification and option to comment	Notification (probable)	Notificatio (probable)
Coverage of State and Local Government	No	Yes	No	Unlikely	Not yet de
Dispute Settlement	WTO Dispute Settlement	European Commission backed by European Court	Resolved under national law	Not yet defined	Inter-gove committee

* Under consideration

stated as one of the objectives of MERCOSUR and is under active study by APEC members in numerous product sectors. Although this objective goes beyond the provisions of the WTO TBT Agreement, it is safe to state that progress on reaching harmonization or convergence of product standards in the sub-regional arrangements may be slow.

Still another area of convergence is that of conformity assessment. The principle of “tested once, accepted everywhere” seems to have achieved broad acceptance. The degree to which this principle can actually be put into practice will depend upon the actual state of the laboratory testing facilities in the various member countries, upon the existence of a national program for accreditation and upon the degree of confidence in other members’ conformity assessment procedures. But the awareness of the critical importance of elaborating mutual recognition and/or equivalency agreements has been acquired. The increasingly widespread adoption of agreed standards for conformity testing such as those set out in the ISO/IEC Guides and in the ISO 9000 standards should contribute to pushing this forward within the regional and sub-regional integration groupings.

There is similarity as well with respect to the coverage of agreed or proposed disciplines on standards and technical regulations contained in the integration arrangements. These appear to be confined to the level of central and/or federal government only and, with the exception of the European Union, these disciplines do not or are not intended to extend to state and local government or to private standardizing and testing bodies under other regional integration arrangements. This would appear to be unfortunate, as a large part of the standardizing and testing activity takes place on the state and local level, or under private bodies, particularly in federalist countries.

There is less convergence among the integration arrangements in terms of dispute settlement in the case of exporters who believe they have been denied effective market access through the use of technical regulations, standards or conformity assessment measures. Only the European Community offers direct effect for firms under an international treaty for the provisions concerning technical barriers to trade. In all other cases, including the WTO, dispute settlement procedures must be either initiated by national governments or through the various review procedures of the destination country. In the case of NAFTA, this is resolved under national law, and by inter-governmental committee in the case of MERCOSUR. Procedures for dispute settlement have not yet been discussed under either APEC or the FTAA.

It is of particular interest to compare the objectives and ongoing work of the two broadest regional integration groupings involving developing countries - APEC and the FTAA

- with respect to standards, keeping in mind that the time framework for complete implementation of the APEC liberalization agenda is the year 2020 for developing members (for the *completion* of implementation of the Bogor Declaration for free and open trade and investment for the region), while the time framework for the implementation of liberalization under the FTAA as set out in the Miami Summit Declaration has yet to be decided (the year 2005 is the landmark for the conclusion of the negotiations and for the *beginning* of agreed trade liberalization).

Table 14 attempts to set out in schematic form the main components of the work programs and corresponding objectives of the two major integration initiatives. Both groupings place a great deal of emphasis on increasing transparency in standards practices among members through the carrying out of surveys or inventories and through the admonition to comply with outstanding notification requirements. Both groupings have also underscored the respect of, and adherence to, multilateral disciplines under the WTO and concentrated some of their efforts on assisting members in understanding the provisions of the TBT Agreement and on implementing its obligations. Both groupings have also sponsored technical assistance or training seminars for developing members ; in the case of APEC a seminar was held on conformity assessment procedures, organized by the United States, and in the case of the FTAA, a series of seminars will be held on the establishment and functioning of standards information systems, organized by the OAS Trade Unit.

Where the two groupings have differed is in the area of trade facilitation. Whereas FTAA members have only begun to discuss the possibility of elaborating mutual recognition agreements for the Western Hemisphere, APEC members have already made considerable strides towards not only developing a consensus on this approach but also on considering how it may be implemented in various specific product sectors. As seen earlier in this section, APEC members have adopted elements of a model mutual recognition agreement and are considering adopting the text of a draft agreement to serve as a model MRA. APEC has also set out a more ambitious agenda in the area of standards, selecting a few product sectors for study as to the possibility of harmonization of national standards, whereas FTAA members have not embraced the idea of harmonization so far. However, there appears to be a great deal of political will and enthusiasm within both groupings to advance the work on standards and conformity assessment as quickly as possible.

Table 14

COMPARISON OF APEC & FTAA WORK TO PRESENT IN THE AREA OF STANDARDS AND CONFORMITY ASSESSMENT

	APEC	FTAA
I. Trade Facilitation	- Selected product areas under study for harmonization - Model Mutual Recognition Agreement elaborated - Sectoral Studies undertaken - Alignment with International Standards promoted	- Approaches to Mutual Recognition under consideration
II. Transparency	- Survey carried out by Standards- Inventory of National Assessment in the	- Computerized Data
III. UR Implementation	- Supports WTO disciplines	- Supports WTO disciplines
IV. Technical Assistance	- Seminar on Conformity Assessment and Implementation of WTO TBT Agreement	- Seminar on Development & Improvement of National Standards Information Systems and Implementation of WTO TBT Agreement

VIII. Conclusions and Policy Options for Developing Countries

The sections above have discussed various issues in the area of standards and conformity assessment as they affect developing countries. They have also reviewed the participation of developing countries in regional standardizing activities, in the multilateral forum of the WTO, in the work of international standardizing bodies (ISO and IEC), and in various regional and sub-regional integration arrangements as concerns standards activities. On the basis of this broad range of information, certain observations can be made with respect to the policy options facing developing countries in the area of standards and conformity assessment, in light of the dual objectives of enhanced economic development and trade expansion. Such observations are of a preliminary nature and would need to be further supported through further research, as this is an area which has basically been untouched in terms of consideration by economists or policy analysts.

A. Standards Development and Developing Countries

The poor state of standards development in most developing countries at present is a factor running through all policy considerations in this area. National policies on standards development have for the most part been neglected in favor of concentration on other trade and industrial policies. Also, the relatively small participation of many developing countries in international trade until recent years has meant that incompatible standards have not played a very important role in deterring exports, particularly as the export structure of many developing countries in Latin America, Africa and to a lesser extent Asia, has been largely concentrated on raw material and primary commodity exports where standards do not play a large role. The present situation is therefore one where the infrastructure for laboratory testing facilities and calibration and the human capital resources are badly lacking as compared with those in industrialized economies. Also, most developing countries lack a coherent policy towards standards development and do not have in place a program of national certification or accreditation.

Practically no mutual recognition agreements for conformity assessment have been concluded by developing countries, and very few memoranda of understanding or cooperation agreements in the area of standards or calibration exist. This lack of reciprocal recognition of standards and conformity assessment procedures on the national level has been mirrored on the regional level, where regional standardizing bodies in Asia and Latin America have accomplished relatively little during the history of their operation, due in part to the lack of dynamism and interest on the part of their members.

In terms of developing a national standards policy, developing countries are faced with

the policy option of elaborating their own indigenous product standards or adopting them from international sources or other national sources. The best choice from a cost and efficiency point of view would be for developing countries - who in any case will continue to be in the category of “standards takers” for quite some time - to adopt standards developed elsewhere, particularly for internationally traded products. Where possible, internationally harmonized standards elaborated by the ISO/IEC would be the best choice for developing countries as this would reduce the requirements for conformity assessment testing when selling these products on world markets.

In the absence of international standards, the choice of national standards, especially in the non-regulated or voluntary sector should be based on market criteria. That is, developing countries would do best to adopt those standards which are in effect in the markets of their main trading partners so as to be able to diffuse their exports with the least cost in terms of required conformity testing and the least friction in terms of compatibility. Presumably, if this choice were left up to the private sector, through the possibility for private firms to actively participate in national standardizing activities, this result would prevail. This suggests that policy officials in developing countries should carefully consider the extent of government participation in standards-making when this does not involve regulated product sectors.

B. Multilateral vs. Regional Approach to Trade Facilitation in the Area of Standards and Conformity Assessment

Developing countries participate relatively little in multilateral and international work on standards. Although more than 90 developing countries are members of the World Trade Organization and thus also sit in the WTO Committee on Technical Barriers to Trade, implementation of the disciplines and obligations of the TBT Agreement has been very slow and after two years of WTO existence, is still quite inadequate on the part of developing members. Transparency has not been achieved, as compliance with the requirement to establish national enquiry points for the dissemination of information on national standards and technical regulations, as well as compliance with notification requirements on new and proposed standards and technical regulations, has still not been implemented by the majority of developing members.

Within the main international standardizing bodies of the ISO and IEC, developing country participation has been very low in the technical committees, sub-committees and working groups that carry forward the work of elaborating internationally harmonized standards. Adoption of ISO/IEC Guides is also at the early stages in many developing countries. The lack of participation of developing countries in these international fora diminishes their possibilities for achieving a greater understanding of the standards policies of other countries and for using the opportunity of WTO disciplines and ISO/IEC established Guidelines to rationalize and improve their own national standards policies.

An equally important question is the relative importance which officials in developing countries should give to regional integration efforts. The regional approach to standards and conformity assessment has been relatively more successful on the whole than has the multilateral approach of the WTO in obtaining results in two important standards-related areas. The first is in the movement towards harmonization and/or convergence of national standards and technical regulations which has figured prominently in all of the major integration arrangements reviewed in section VII (with the exception of the FTAA where discussions are still at an early stage). The second is in the work on development of mutual recognition or equivalency agreements, for the reduction of barriers to trade caused by duplicative and costly testing procedures for the purpose of conformity assessment. Both of these are major elements for achieving trade facilitation in the standards area, yet they are not being actively considered nor promoted under the WTO TBT Agreement, most likely due to the difficulty of trying to achieve such ambitious objectives in an organization with such broad and diverse membership. These objectives are however under active consideration in all the major regional and sub-regional integration arrangements, including the EU, NAFTA, APEC, MERCOSUR, ASEAN and the FTAA.

It may prove easier to bring about the convergence of policy objectives in the standards area, essential to the elaboration of mutual recognition agreements, among a smaller group of countries on the regional level, many of which are at similar levels of development, than it would be on the multilateral level. Thus it would seem to the benefit of developing countries to push hard for progress on trade facilitation at the regional level, at the same time that they increase their compliance with existing multilateral disciplines under the WTO, which also form the basis of regional integration efforts.

IX. Recommendations for Further Study

A considerable amount remains to be done in the area of standards, conformity assessment and developing countries as so little information exists at present. However, much of the work which remains necessary is of a data-gathering nature so as to allow policy analysts to better understand the actual state of standards development and the nature of standards systems in developing countries. This lacking should be somewhat remedied over the coming years for developing countries in the Asia Pacific and in Latin America through the work of the APEC and FTAA regional integration initiatives. However, this leaves a similar exercise outstanding for developing countries in Africa, and South and Central Asia. Only when the actual state of national standards systems is known can appropriate recommendations be made to improve their functioning.

Further study should be undertaken of the activities and approaches being elaborated towards standards and conformity assessment in the various sub-regional integration arrangements with developing-country participation. Information has been presented above for the Asia Pacific and the Western Hemisphere, but more detailed knowledge would permit an assessment of the compatibility of these regional integration approaches to standards with the obligations of the multilateral disciplines of the WTO TBT Agreement, as well as an analysis of the helpfulness of the recent initiatives undertaken by regional and sub-regional standardizing bodies, particularly in the broad areas of laboratory testing, certification and accreditation, to the trade facilitation process.

More research would also be useful on how best to further trade liberalization and facilitation for developing countries in the area of standards, particularly as regards the potential benefits and scope of elaborating mutual recognition agreements for the purpose of conformity assessment. The principle of “tested once, accepted everywhere” is an excellent one, but putting it into practice is dependent upon a number of factors which will determine whether it is possible to positively assess the equivalency of national standards, including the state of national infrastructure development and the degree of confidence in testing procedures, along with the basic agreement on essential policy objectives, among others. The process will most likely be a slow one, but it would be facilitated by more information allowing a better determination of what is needed in the present context for this principle to be translated into reality for developing countries, whether it be at the multilateral, bilateral or regional level.

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