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Regional Project Document

Title: Market Access and Trade Facilitation Support for Mekong Delta Countries, through Strengthening Institutional and National Capacities Related to Standards, Metrology, Testing and Quality (SMTQ)

Number: xx/RAS/02/yyy

Region: Mekong Delta countries
(Cambodia, Laos, Myanmar, Vietnam)

Total UNIDO Budget: US\$ 908,520 (Phase 1)
US\$ 1,500,000 (Phase 2)

Estimated Starting Date: January 2002

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Government Implementing Agencies:

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Brief Description:

Globalisation and related trade liberalisation is being viewed by developing countries as an opportunity to expand the industrial base and venture into an exports-led growth, utilising the lower wage costs as a comparative advantage. However, Globalisation has been challenged in recent years on equity grounds relating to its trade implications for developing countries. One of the major queries refers to an in-built, cumulative, deficit in developing countries' capacity to conform to developed country market requirements. These requirements take the form of myriad technical conditions imposed through mandatory domestic regulations and, to some extent, international standards. The World Trade Organisation (WTO) has taken cognisance of potential non-tariff barriers to trade and formed a special agreement on Technical Barriers to Trade (TBT).

In the context of trade in industrial goods, countries must have institutional capacities for: (i) Standards formation, adoption and dissemination; (ii) Laboratory capacities for precision measurement and testing; (iii) Capacity to comply with international conformity assessment requirements and; (iv) Abilities to improve product quality and productivity. The Mekong Delta countries have the potential to benefit from globalisation through the manufacture and trade of industrial goods. The success of the recent initiatives to promote trade within the Greater Mekong Sub region (GMS) and the resulting trade facilitation would depend on harmonised standards and conformity assessment procedures. This project aims at strengthening the standards, metrology, testing, conformity assessment, quality and productivity capacities in these countries, to enable them reap the benefits of globalisation.

Phase 2 would be to establish/strengthen metrology, microbiology and chemical testing laboratories in each of the four countries. (Estimated Phase 2 budget US\$ 1,500,000)



PART A **CONTEXT**

Developing countries have viewed industrialisation as a major means of achieving rapid economic growth, providing employment opportunities, eradicating poverty, as well as an avenue for earning foreign exchange. The initial policy thrust was to use an import substitution industrialisation strategy coupled with the promotion of large state enterprises. The recent years have seen the demise of State ventures and private sector is now seen increasingly as the engine of economic growth. The gradual relaxation of the closed market approach and introduction of free market mechanisms were instigated partly by the post-Uruguay trade liberalisation agreements and related WTO accords.

Though industrialisation was pursued as the main development strategy by many developing countries, the results have been at best mixed. Table 1 gives comparative data on how the developing country share of World Manufacturing Value Added (MVA) and World Exports of Manufactured goods (WEMG) have changed during the period 1960 to 2000. On the surface it appears that the developing countries have made some laudable progress in this area. However, deeper analysis shows that much of the positive results are due to the remarkable industrialisation achievements made by a select few East Asian countries, which are now rightly referred to as Newly Industrialised Countries (NICs). On the contrary, the situation in sub-Saharan Africa remains unchanged during the last 30 years and most Least Developed Countries in other parts of the world have not benefited much from industrialisation programmes.

Table 1: Measures of Industrialisation

	Developing country share of World Manufacturing Value Added (MVA) %	Developing country share of World Exports of Manufactured goods (WEMG) %
1960	12.0	13.0
1995	25.3	29.0
2000*	25.3	29.0
2005*	30.6	35.5

Source: UNIDO Data base

* UNIDO Estimates

The countries within the Mekong Delta have good natural resources, technical skills, low wage rates and more importantly proximity to large economies such as Japan, Korea, Thailand, Malaysia, Indonesia and China. The comparative advantages of Mekong Delta countries can be utilised to launch a major industry driven development program. These countries could well be seen as the next NICs, given the right support framework. The liberalised trade regime arising from WTO accords would be the opportunity to venture out on such a plan.

The need to facilitate access to major markets for developing countries is being insistently talked about, last again at the recent UN LDC III Conference. An important aspect in facilitating access, concerns tariffs and duties, the reduction of which is being implemented within the framework of the World Trade Organisation (WTO) and is being negotiated at multilateral rounds (such as the Uruguay rounds) or by means of regional agreements.

An example of the intention of industrialised countries to facilitate market access has been the initiative of the European Union to give tariff and duty free access for all exports (apart from arms) to Least Developed Countries. This initiative is much in line with a cry from developing countries that “**we do not need aid- what we need is trade**”. Therefore, the stage is now set for some developing countries to capitalise on the “globalisation” driven export market opportunities.

The post-Uruguay agreements for liberalising global trade affords developing countries a golden opportunity to export manufactured goods to western markets. However, many developing countries have realised that the promised benefits from globalisation are somewhat illusionary. Though markets are apparently open, there are a number of requirements the products entering these markets should fulfil. Products have to be manufactured according to internationally defined specifications. Product dimensions and physical properties have to be measured precisely. Products must meet stringent quality requirements. Sanitary and Phyto-Sanitary (SPS) regulations and product safety requirements have to be adhered to. Manufacturers must provide independent (third party) evidence of complying with quality management systems (ISO 9000) and environmental management systems (ISO14000).

Many developing countries did not have good SMTQ infrastructure and facilities to begin with. Also, they did not realise the impact SMTQ capacities would have on a country’s ability to venture into global trade. Further, some of the vital international standards and conformity assessment guidelines (ISO 9000, ISO14000, ISO 17025) emerged only during the last few years. Considering these developments and developing country SMTQ capacity constraints, developing countries are not in a position to participate as equal partners in the emerged free trade regime and utilise the development opportunities offered within the context of globalisation. International standards and technical regulations, constitute an aspect as important as tariffs and duties. A concerted effort is now needed to provide assistance to developing countries overcome this major technical deficiency, in order to facilitate their entry to the globalised trade regime as **equal** and more importantly **capable** partners.

A1 Individual Country Status

A1.1 Cambodia

Relative political stability has returned to Cambodia and economic reforms are showing signs of generating tangible benefits. The Government is focussing more on reforming areas such as trade, banking, public administration, and also making the groundwork for a more private sector friendly climate. The new land law passed in July 2001, which is mainly meant to prevent local land grabbing, would also allow foreigners to lease land for 99 years. The Foreign Investment Advisory Service (FIAS) is preparing changes to the foreign investment law, which coupled with the announcement in July 2001 affecting the structure of the Council for the Development of Cambodia (CDC), would entice foreign investment. It should however be noted that investor sentiments are still cautionary, awaiting further reforms. During the first half of 2001, the foreign investment approvals have fallen by 36% based on

year or year analysis. More evidence of political stability and clear signals of an investor friendly environment are demanded by investors.

The GDP growth has fluctuated from a high of 7% in 1996, 3.1% in 1997, 2.8% in 1998 and 1999 and then the year 2000 registering a more favourable rate of 5%. The 2001-2 periods the forecast GDP growth is around 2-3 percent, which is expected to rise to about 4 to 5 percent in 2003. The largely agriculture based economy, has the potential to be diversified. The garment exports have now surpassed the traditional exports such as logs and sawn timber, rubber and fisheries. There are around 200 garment factories in the country and there is significant potential for expansion in this area. A further area for economic diversification is through the development of the tourism industry. Siem Reap airport serving the main tourist attraction Angkor Wat temple, recorded a year on year increase of 33% in arrivals. Tourism related supply industries have to be developed to keep pace.

In the area of trade, Cambodia has applied for WTO membership and the initial international scrutiny was carried out in August 2001. Foreign trade is expected to grow in the coming years. The ASEAN has agreed to lower tariffs on selected Cambodian exports and the applicable tariff is between 0 and 5 percent. The opening of the first bridge across the Mekong is expected soon, which would lead to more intra-trade from the Northeast and also access to Thailand. A further noteworthy trade related development is the close links developing between Cambodia and South Korea.

It is evident that the economic development in the country would rely on the diversification of the industrial base. Opportunities exist for agro-processing, tourism support industries and also targeting the exploitation of the favourable trade opportunities emerging from ASEAN agreement and the likely WTO entry within a few years. The materialisation of the development opportunities open would rely on having national capacities in the area of Standards, Metrology, Testing and Quality.

A1.2 Laos

With the conclusion of the seventh ruling party (Lao People's Revolutionary Party) congress in March 2001 and the passing of the 2001/02 budget in October 2001, there are increasing signals of political stability and a desire for reform and modernisation. State enterprise reform is a key issue and in the last decade the state enterprises have been reduced from a high of 800 to around 30 in 2000. However, whether the reformed enterprises are operating as commercial entities generating profits is questionable. There is general consensus emerging now that the Government should not continue subsidising loss making state enterprises.

The GDP growth during the 1996 to 1999 period was almost 7% (except for 3.9% in 1998). During the year 2000, GDP growth dipped to 5.7%. The GDP growth forecast for 2001-2002 is also around 5 percent. The investments in construction related activities (bridges and power generation) would be a major contributory factor to economic growth. The main export earnings are derived from timber and wood products and electricity. Of recent, garments have contributed to exports, the income from which has even surpassed the traditional coffee exports.

The government commitment to encourage foreign investment is visible in the draft legal framework recently prepared for establishing industrial zones. During the first three quarters of 2001, the government approved 31 foreign investment projects, amounting to just US\$

6.2m. However, these figures are far lower than the foreign investment flows in the 1997-98 period, which period posted a record inflow of US\$ 113.7m. Apart from the Asian financial crisis and the global slow down, the reduced FDI inflow is a reflection of the bureaucratic obstacles and perhaps the limited size of the domestic market. The Government built special industrial zones, particularly near the Thai border is targeted to attract more FDI.

The recent ASEAN initiative to reduce tariff on selected imports from Laos and other countries in the region would accrue significant benefits. Under the ASEAN concession, 24 items exported from Laos, now attracts tariffs of between 0 to 5 percent. Further, in October 2001 Vietnam announced a 50% reduction of tariff on 110 products exported from Laos. Thailand is the largest trading partner for Laos and the bi-lateral trade increased almost 50% on a year on year basis, but the terms of trade are more in Thailand's favour and is causing a major balance of payment concern.

Industrialisation offers a good opportunity to diversity the economy from agriculture. The short-term results shown from garment exports is a good sign that the country can venture into manufacturing. On a different note, one sure way of diverting opium cultivators to alternate livelihoods is to develop a solid industrial base, which can offer attractive salaries to production workers. The growing linkage to the Thai economy witnessed from the trade figures, can also be a positive factor for agro-product exports. Thailand has a well-developed agro export sector and Laos's producer can be integrated to the Thai agro product supply chain.

The efforts to diversify the economy and support the manufacturing sector naturally rely on national capacities for SMTQ. In particular, the potential linkage to Thai export chain requires adoption of international standards and having adequate test and conformity capacities to supply goods to the more sophisticated markets served.

A1.3 Vietnam

Emerging from the old "communist" style command economy, state owned enterprises (SOEs) still dominate economic activity. Though, the government has recognised the inherent weaknesses of the SOEs, state enterprise reforms have been somewhat slow. The first "equitisation" (privatisation) commenced in 1997 with 17 SOEs transformed and since then a further 600 enterprises have reached this status. The government plan is to "equitise" a further 2500 enterprises during the next five years. Though, a moratorium has been placed on the creation of new SOEs, the slow reform time scale would mean that SOEs would play an active part in the economy for some years to come.

Real GDP growth, which averaged over 8% during the 1992 –1997 period, dropped to 4.8% in 1999 and then rose to 6.8% in 2000. This growth is a direct result of the growth in industrial production. This positive industry led growth is expected to continue in the coming years, which should allow the country to reach an annual GDP growth rate of around six percent. Industry share of GDP has seen a marked increase (from 19.8% in 1995 to 26.1% in 1999). Textile and garment exports have shown a dramatic increase from US\$ 1150m in 1996 to US\$ 1892m in 1999.

Vietnam has recently become a preferred destination of FDI flows. The FDI agreements for 2001 are expected to be in the region of US\$ 2.2bn. The FDI figure is expected to rise in the future, as a result of the trade opportunities arising from the recently signed bi-lateral trade agreement with the USA, which would lead to significant tariff reductions.



Vietnam has a very good skill base and compared to other countries in the region, is relatively more industrialised. The ongoing reform of the 2500 SOEs would lead to a platform of competitive industrial enterprises, complementing the emerging SME sector. The resilience of the industrial sector is well demonstrated by the 10% year on year growth of the sector in recent years. The bi-lateral trade agreement opens the door for significant increases in exports of manufactures from Vietnam to the USA. The manufacture of export products to a sophisticated market such as the USA, requires compliance to international standards, metrology and testing facilities and systems to ensure product quality and demonstrate compliance to environmental norms. Development of SMTQ infrastructure and related local capacity is a necessary pre-requisite to benefit from the preferential trade access made available to the USA market, as well as to develop the industrial sector.

A1.4 Myanmar

The political situation in the country has discouraged the formal integration of the economy to the region and also has discouraged foreign investment. The political isolation has been a major hindrance to economic progress. GDP per head in Myanmar is only \$140, which is the lowest in the region.

The GDP growth has been around six percent in the recent years, though 1999/2000 posted a higher GDP growth rate amounting to 10.8%. Manufacturing sector has posted a healthy growth during the 1993 to 1998 period, due largely to the growth in food and beverage and clothing sector (almost doubling their production). Food and beverage sector accounts for around 80% of manufactures. The garment sector comprises mostly joint ventures and has shown significant potential for further growth. However, the garment sector is highly vulnerable to protests from consumers and western governments that force manufacturers to desist from investing in Myanmar due to the lack of political reform. Much of the manufacturing output comes from SMEs and to some extent from the informal sector. Opportunities exist for supporting the expansion of these largely family owned cottage type of industries to enable them transform to more structured small scale agro processing facilities.

Despite the relatively low per capita income, the country has mineral resources yet to be exploited fully and also proven offshore gas and oil resources. Combined with agricultural, forestry and fisheries potential, the exploitation of largely untapped natural resources can provide the basis for a more diversified economic base. Such a diversification naturally requires a more structured approach to SME development, particularly the institutional framework relating to Standards, Metrology, Testing, and Quality; and of course combined with political reform and an appropriate supportive policy framework.

A1.5 Greater Mekong Subregion (GMS) Economic Cooperation

The tenth Ministerial conference on GMS Economic Cooperation was held in Yangon, Myanmar, during 27-29 November 2001. The Ministers emphasized the following:

- a) *“The strong contribution of the GMS Program to facilitating a cross-border trade and other forms of economic cooperation among the member countries;*
- b) *The need to accelerate economic cooperation initiatives, specially in light of the difficult world economic situation and more demanding conditions for attracting investment;*

- c) *The need for institutional strengthening so as to enable member countries to address comprehensive approaches to regional cooperation, including economic corridors, agreements for facilitating cross-border movements of goods and people, and a strategic action plan for the environment; and*
- d) *The desirability of an integrated and multi-sectoral approach to regional cooperation.”*

The Ministers “also agreed that the strategic framework for realizing these objectives should comprise of five strategic thrusts focusing on strengthening infrastructure linkages, facilitating cross-border trade and investment, enhancing private sector participation and competitiveness, development of human resources and skills competencies, and protection of the environment and sustainable use of natural resources. The Ministers also endorsed pilot –testing of single stop customs inspection at selected border crossings along the East-West corridor and the Bangkok-Phnom Penh Highway.”

The realisation of this high level GMS Ministerial initiatives, depends to a large extent on harmonising regional standards, developing standards related national capacities, metrology and testing capacities and mutual recognition of conformity assessment schemes.

PART B Project Justification

B1 Problem to be addressed

To comprehend the real implications of the SMTQ issues on manufacturing, one needs to ideally have a sound understanding of engineering and manufacturing practices. Such an understanding is necessary to fully appreciate the potential technical barriers that would naturally evolve, if such national capacities were lacking. A brief outline of the technical issues involved are presented here:

Standards - Standards and technical regulations are essential to trade, commerce and the diffusion of technology. A majority of standards used in manufacturing have been formulated by the International Organisation for Standardisation (ISO) and the International Electro-Technical Commission (IEC). Standards are meant to contribute to making the development, manufacturing and supply of products and services more efficient. They are also meant to make trade between countries easier and also to ensure product safety and quality. Technical barriers to trade in the area of standards originate from heterogeneity across national markets in the type of product and process standards, technical regulations, conformity assessment or quality assurance procedures. Exporting firms may find that complying with a foreign standard is too costly if the standard is stringent or varies significantly from a domestic or international standard. The problem arises partly due to the insufficient harmonisation of international standards between local, regional and international levels.

Developing countries often feel that industrialised countries dominate development of international standards. In their view, inputs from developing countries, such as proposals for establishing certain standards of their interests, or comments for draft international standards, are not properly taken into account. As a result, it always happens that published international standards are sometimes ineffective or inappropriate for adoption by developing countries.

ISO 9000 standard- ISO developed the ISO 9000 Quality Management System Standard as a tool for enterprises to improve their quality systems. The system is geared for third party independent certification, by accredited certification bodies. The standard and the certification is meant to give companies trading with other companies (and particularly in export trade) confidence that supplier/partner firms have a functional quality management system in place. Globally at present about 375,000 enterprises have obtained ISO 9000 certification. However, in developing countries the total certified companies are around 40,000. If developing countries do not have the necessary capacity for ISO9000 certification, their exporters would be marginalised from global trade.

Eco-labels and ISO 14000 environmental standards - Technical regulations in the form of process / environmental standards are increasingly used in Eco-labelling and environmental standards. Producers in developing countries face increased demands by international markets to apply higher environmental standards to locally produced goods and their production processes. These requirements are mostly based on foreign criteria, which do not reflect national environmental priorities or local realities. Hence, producers in developing countries find them hard to adopt. The ISO 14000 Environmental Management System standard is to ensure that enterprises have a logical and documented system to assess the impact of their action on the environment. Particularly the standard requires strict compliance with the country's environmental legislation and more importantly to have a continuous improvement system to monitor and reduce the environmental impact of their activities. Like the ISO 9000 system, ISO 14000 is independently certified by third party auditors. Importer countries now increasingly require compliance to ISO 14000 and since developing countries do not have the requisite capacities, this well designed standard would become a de-facto trade barrier.

Sanitary and Phyto-sanitary (SPS) measures - Another area where standards are becoming increasingly mandatory is in the area of sanitary (human and animal health) and Phyto-sanitary (plant health) measures. All countries maintain measures to ensure that food is safe for consumers, and to prevent the spread of pests or diseases among animals and plants. These sanitary and Phyto-sanitary measures can take many forms, such as requiring products to come from a disease-free area, inspection of products, specific treatment of processing of products, setting of allowable maximum levels of pesticide residues or permitted use of only certain additives in food.

The Hazard Analysis and Critical Control Point (HACCP) system is a food safety management system, which concentrates prevention strategies on known hazards, and the risks of them occurring at specific points in the food chain. The HACCP approach easily integrates into Total Quality Management or ISO 9000. In the U.S.A. about 38 states are using HACCP as part of their regulatory process. The E.U. has also introduced HACCP as a mandatory standard, i.e. technical regulation.

Conformity Assessment - Conformity assessment is the key to having goods accepted across borders. Authorities in the importing country need to be certain that imported goods will not impose a risk to their citizens. They need to have full confidence that the test data or inspection from the exporting country is reliable and that any decision on safety made in another country can be trusted. Without this confidence, countries enforce duplicative conformity assessment procedures on imported products. Confidence is achieved by proving that all aspects of the conformity assessment process in another country are professional and sound. A method used to achieve confidence is by accrediting laboratories and inspection bodies and undertaking peer evaluations of accreditation bodies, which

ensures that another country has a similar technical infrastructure applying equivalent procedures. Once confidence has been established a Mutual Recognition Agreement (MRA) is signed. An MRA is one of the major tools for achieving trade facilitation in this area.

Non-tariff barriers in the area of conformity assessment can easily arise through a number of ways: (1) increased product costs created by the often redundant repetition of testing and certification for different national markets; (2) increased transportation costs if the product is deemed not to comply with the importers' regulatory requirements; (3) time and administrative delays caused by costly and time-consuming inspection visits by the importing country's authorities.

Metrology and Testing - Exporters trading in the world market all need to give assurance of conformity of their products or services to international standards and/or those of the receiving market. This conformity assurance requires a recognised metrology system with a capable national measurement laboratory with documented calibration chains to the point of use, accredited testing laboratories, recognised accreditors, and certified quality management systems. Testing, calibration and certification facilities have strategic importance to a country not only in cutting extremely high costs involved in testing products abroad, pre-shipment services, certifications, etc. but also in providing companies with objective results which are necessary for technological improvements. In developing countries, lack of testing and calibration facilities are serious handicaps for trade.

The ISO 17025 standard provides guidance in setting up and operating testing laboratories. Increasingly western markets are demanding test certificates from laboratories accredited to the ISO 17025 standard. In the developed countries, laboratory accreditation bodies are members of the International Accreditation Forum (IAF), which promotes mutual recognition agreements (MRA) within national accreditation bodies. Such a scheme facilitates the recognition of tests conducted in one country laboratory in another country, without having to resort to duplicative testing. The key to this facilitation is the ISO 17025 standard. Developing countries are yet to align the laboratory systems along the ISO 17025 guidelines and become IAF members and obtain MRAs from developed country accreditation forums.

Missing international recognition of local product testing and calibration methods seriously compromises the trade potential of many developing countries and results in a lower price obtained for their products. The only alternative open obliges them to call on the services of international laboratories as a substitute to local certification capacities. This solution has an in-built disadvantage in terms of high costs and the time delay associated in sending samples to overseas laboratories.

These critical capacities are inter-linked. A lack of metrological and testing capacity means that testing and calibration abilities do not exist or are unreliable. Without credible metrology, conformity to important standards required by the market place - and for the protection of consumers and the environment - is impossible. Another major problem is that most certification and accreditation bodies in developing countries have not gained international recognition. The certificates they award are not internationally acceptable -and therefore block potential exporters from international markets. "Standards, Metrology, Testing and Quality" capacities as shown, have now become a major non-tariff Technical Barrier to Trade, that hinders developing country capacity and opportunities to access global markets.

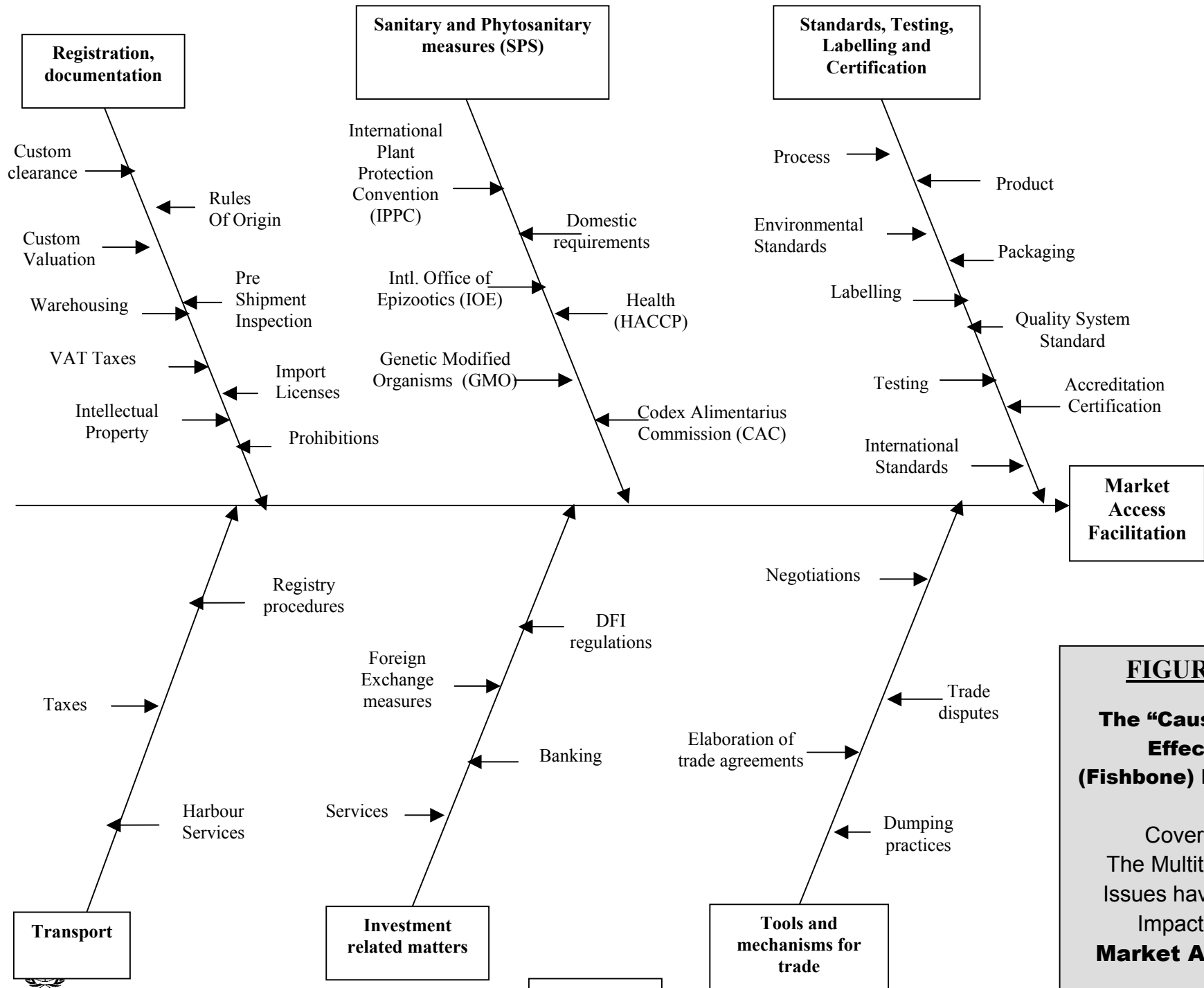


FIGURE 1
The “Cause and Effect” (Fishbone) Diagram
 Covering The Multitude of Issues having an Impact on **Market Access**

B2.1 The global Issues Related to Trade Facilitation

The “Fish-bone” diagram in Figure 2 has analysed the factors that contribute to market access in the context of the emerged global free trade regime. As shown, a number of related issues have to be addressed to fully facilitate market access for global trade. There are a number of “tools and mechanisms for trade”, such as trade agreements, disputes and negotiation methods. In “Investment Related matters”, the FDI regulations and Banking and foreign exchange issues have to be addressed. Under “transport”, taxes, registry procedures have to be harmonised so as to facilitate trade. “Registration and documentation” aspects for customs procedures, valuation, pre-shipment inspection, country of origin etc. have to be addressed. Under “standards, testing labelling and certification”, all the issues highlighted under section 2 here have to be adequately dealt with.

B2.2 SMTQ capacities and Linkage to Foreign Direct Investment (FDI)

A major contributory factor in the case of the rapid industrialisation of the East Asian NICs was the significant flow of Foreign Direct Investment (FDI). A country’s SMTQ capacity has a direct bearing on FDI flows. An investor setting up a manufacturing facility need to calibrate the equipment and measuring tools, with confidence that the measurements made in the factory are fully traceable to the international (SI) units of measurement. Products and samples have to be tested in microbiology and chemical testing laboratories. The laboratory test certificates issued would need to be recognised internationally. Manufacturing plants require to be certified for ISO 9000 quality management system and the ISO 14000 environmental management system. Such certification depends on having national capacities in the relevant area. If these testing and conformity criteria are missing in a country, the foreign investor would have to incur additional expenditure to set up such facilities, which are pre-requisites for manufacture and export. Conversely, absence of SMTQ capacities act as a major deterrent to attracting FDI flows to these countries.

B2.3 WTO Agreement on Technical Barriers to Trade (TBT)

The WTO in recognising the importance of non-tariff barriers to trade, signed a special “Agreement on Technical Barriers to Trade” (WTO-TBT). The following background to the agreement and the salient objectives of the agreement extracted directly from WTO documentation is highlighted below:

“Technical regulations and industrial standards are important, but they vary from country to country. Having too many different standards makes life difficult for producers and exporters, If the standards are set arbitrarily, they could be used as an excuse for protectionism. Standards can become obstacles to trade.

The Agreement on Technical Barriers to Trade tries to ensure that regulations, standards, testing and certification procedures do not create unnecessary obstacles. The WTO’s version is a modification of the code negotiated in the 1973-79 Tokyo Round.

The agreement recognises countries’ rights to adopt the standards they consider appropriate- for example, for human, animal or plant life or health, for the protection of the environment or to meet other consumer interests. Moreover, members are not prevented

from taking measures necessary to ensure their standards are met. In order to prevent too much diversity, the agreement encourages countries to use international standards where these are appropriate, but it does not require them to change their levels of protection as a result.

The agreement sets out a code of good practice for the preparation, adoption and application of standards by central government bodies. The agreement says the procedures used to decide whether a product conforms with national standards have to be fair and equitable, It discourages any methods that would give domestically produced goods an unfair advantage. The agreement also encourages countries to recognise each other's testing procedures. That way, a product can be assessed to see if it meets the importing country's standards through testing in the country where it is made.

Manufacturers and exporters need to know what the latest standards are in their respective markets. To help ensure that this information is made available conveniently, all WTO member governments are required to establish national enquiry points."

B2.4 Core Implications arising from WTO-TBT

The WTO-TBT agreement fully recognises the importance of standards, testing and conformity assessment capacities for global trade. The issue of metrology is not explicitly mentioned in the agreement concerns. Metrology laboratories keep the primary standards (length, mass, volume, temperature, voltage etc.) which are standards for precision manufacture, enabling comparison and traceability with the SI units. The TBT agreement focuses on the logical action to be taken to prevent the use of standards and testing procedures to be applied as a technical barrier to trade. In this sense, there is the implicit assumption that developing countries have the necessary institutional capabilities and capacities to disburse the responsibilities related to the use of standards, provision of testing facilities, related conformity procedures and mutual recognition schemes. Despite the good intentions behind the WTO-TBT agreement, unless a concerted effort is made up strengthen developing country SMTQ capacities, these good intentions would not be reflected in the form of true trade facilitation.

B2.5 Regional Integration – Linkage to harmonised standards and conformity assessment

There is a concerted effort to approach the development of these countries as an integrated sub-region. The recently concluded GMS sub-region Ministerial conference emphasised the need for regional economic cooperation, facilitating cross-border movement of goods and simplifying tariff structures and customs procedures. Standards and conformity assessment has a vital role to play, in realising these regional cooperation objectives. It would be beneficial first of all to harmonise the standards of products within the region, so that one standard covers the entire region. Second, it would be necessary to develop metrology and testing facilities and accreditation authorities along accepted ISO guidelines. Then, either country level accreditation authorities having mutual recognition agreements should be developed or a regional accreditation authority established, so as to have acceptable conformity assessment procedures facilitating trade within the region.

B3 Expected End-of-project situation

Properly constituted institutional infrastructure related to Standards, Metrology, Testing and Quality (SMTQ) are a pre-requisite for industrial development. Foremost a functional standards formulation and dissemination institute should be established. Each country requires a national measurement system with the requisite technical and administrative infrastructure (implying a National Measurement Institute) to enable individuals, traders and manufacturers to make physical measurements that are accurate and can be reliably traced back to the internationally accepted measurement units (*SI units and the convention of the Metre*). Metrology and testing laboratories accredited to a reputed international accreditation body are becoming a pre-condition to facilitate exports. National capacities should be developed for ISO 9000 and ISO 14000 systems. Since the entire issue of SMTQ has become a major concern during the last decade, many do not appreciate the fact that in this modern industry-driven economic setting, having measurement infrastructure is a necessary pre-condition to ensure a country's competitiveness.

The target countries in this project have significant institutional, technical and human capacity shortfalls related to SMTQ infrastructure. The country standards institution and the accreditation authorities do not function effectively. In the case of metrology, there are significant equipment and capacity gaps and more importantly the traceability to the international measurement units is lacking. The related support service to industry in the area of calibration services is at best rudimentary. In the case of testing laboratories related to microbiology and chemical analysis, the existing laboratories do not cover the full spectrum of tests required by industry, and more importantly the laboratories are not operated according to the ISO17025 guidelines, to facilitate their international accreditation.

In the case of ISO 9000 and ISO 14000, due to market driven requirements dictated by importer countries, some large enterprises in the target beneficiary countries have obtained the requisite ISO 9000 and ISO 14000 certification, through branch offices of international certification bodies operating in these countries. Though this is a solution to a visible trade barrier, there is a high cost associated in obtaining certification from foreign certification bodies, and in particular the costs are prohibitive in the case of the SMEs. More importantly a national effort must be undertaken to diffuse the know-how related to the benefits of ISO 9000 and ISO 14000 certification and a pool of national consultants, national auditors and national certification bodies need to be set up.

Apart from developing the national standards, laboratory and certification capacities, the broader issue of conformity assessment and mutual recognition has to be addressed. The issue at stake is that even if the countries concerned have ISO 9000, and 14000 national certification bodies and laboratories operated according to ISO17025 requirements, wider global recognition of certificates issued in the country would not materialise. Mutual Recognition Agreements (MRAs) have to be entered into with the assistance of international organisation [such as the International Accreditation Forum (IAF) and the International Laboratory Accreditation Co-operation (ILAC)].

The capacity shortcomings have emerged as a result of a number of reasons specific to developing countries. Foremost, there has been a lacuna of knowledge and awareness on the vital support role SMTQ capacities have to play in industrial development. This has led to a general negligence of SMTQ issues, lack of Government attention and inadequate resources committed over the years. The linkage of SMTQ capacity to global trade and the capacity shortfall acting as a technical barrier to trade is yet to be fully recognised by

developing countries. Overall the technical capacities related to metrology and testing laboratory establishment are also lacking. Further, the know-how for setting up ISO 9000/14000 certification schemes and the ISO17025 laboratory accreditation schemes are intrinsically linked to developed country institutions, and their support and inputs are needed to develop local capacities and schemes.

This intervention is primarily targeting the awareness creation of the importance of SMTQ for industrial development in general and more importantly demonstrate the way the absence of such capacities can act as a significant non-tariff barrier to trade. A critical assessment would be carried out in each country to assess the SMTQ institutional infrastructure in place and significant gaps. Further, the metrology and testing capacities from technical, human and conformity standpoints would be assessed. National capacities related to ISO9000, ISO14000 and ISO 17025 would be developed. A major output of the intervention proposed is a detailed action plan for each country to bridge the institutional and human capacity gaps and pave the way for a concerted program of action to bridge the SMTQ capacity gaps.

B4 Target Beneficiaries

The primary beneficiaries would be the apex institutions in each country dealing with Standards, Accreditation, Metrology and Testing. The capacity in each such institution would be developed to conform to accepted international practice. The secondary beneficiaries would be the manufacturing facilities in each country, that would benefit from having access to harmonised standards, metrology and testing facilities, enabling precision manufacture and quality improvement. The tertiary beneficiaries would be exporters, who would be able to satisfy international standards and also having the ability to provide test and system compliance certificates having global recognition, leading to improved market access.

(Annex A gives the list of beneficiary institutions in each country and contact details)

B5 Project Strategy and institutional arrangements

At the initial stage of the project, a detailed assessment would be made of each beneficiary institute in each participating country, so as to assess the capacity strengths and weaknesses in order to prepare the detailed work plan and intervention mechanism. A National Program Manager would be recruited from each country, who would be the key focal point for project implementation.

Group training programs would be conducted at a central location, drawing on the facilities available in the donor country, as a cost saving measure. Efforts would be made to bring together the Standards institutions in each country, so as to harmonise standards and also explore the possibility of forming a regional accreditation authority. After the initial training on Standards, Accreditation, ISO 9000, ISO 14000, ISO 17025 and HACCP, a technical assessment would be made in each country evaluating the facilities and capacities covering metrology, chemical and microbiology laboratories. This assessment would lead to the formulation of a report for each country, documenting a work plan for the laboratory development and accreditation as well as the resource requirement. This report would be the basis for the phase II of the program.

Phase 2 of the project is the natural follow up to establish and equip the laboratories. This phase would require some time to complete. First, the respective Governments would have to commit resources for the construction of the laboratories and recruit the staff. The

equipment required are costly and both government and donor funds have to be mobilised. UNIDO would target donor countries to mobilise funds for phase 2.

It should be recognised that at present the overall SMTQ capacities in the target beneficiary countries are very weak. The Phase 1 of the project would contribute to a significant up liftment of these capacities. Even if the Phase 2 fund mobilisation and implementation is delayed, Phase 1 initiatives would leave a lasting impact enhancing capacities and significantly minimising technical barriers to trade faced at present.

B6 Reasons for Assistance from UNIDO

UNIDO is the expert UN agency supporting the industrial development of developing countries and economies in transition and in the process has acquired 33 years of global experience on issues related to industrial production and marketing of industrial goods and services. For many years, UNIDO has provided supports to developing countries establish standardisation institutions and metrology and testing facilities. Recognising the growing importance of SMTQ in the emerged globalised setting, in 1999 UNIDO established a special technical branch “Quality, Standardisation and Metrology” (QSM) to strengthen it’s own institutional capacity for supporting developing countries in this area. The QSM unit has professional staff with the requisite engineering and business knowledge and have worked in industry and international metrology and testing laboratories.

In addition, all the UNIDO QSM professional staff has successfully completed the rigorous ISO 9000 and ISO 14000 auditor training courses and have the requisite qualifications to register as auditors. The staffs have also been trained on the requirements for laboratory accreditation according to ISO 17025 and also on setting up HACCP.

UNIDO has developed methodologies for quality management and continuous improvement and software tools (BEST, FIT, PHAROS, MCCT) to assist quality improvement, metrology and calibration. In the international fora, UNIDO is an active member of ISO , ILAC and IAF technical committees dealing with standards and conformity assessment problems facing developing countries. In particular, UNIDO is formulating a pre-peer evaluation scheme with these international agencies to support developing country capacity development. Within UNIDO’s global forum function, major surveys have been conducted and results published on developing country capacities, constraints and concerns over SMTQ issues.

The QSM unit has worked with a multitude of donors such as UNDP, EU, Germany, Japan and Norway in assisting developing countries develop SMTQ capacity. Recent UNIDO technical assistance in the area led to the development of the Uganda National Bureau of Standards (UNBS) and related laboratories. The international accreditation of UNBS microbiology lab was a major UNIDO achievement. At present UNIDO is assisting the accreditation of five microbiology and chemical testing laboratories in Sri Lanka, which are targeted for completion/accreditation in March 2002. UNIDO also launched a pilot ISO 14000-environment management system in Sri Lanka, developing national capacities and supporting the certification of a group of ten pilot enterprises in Sri Lanka. This capacity development would enable Sri Lanka to establish its own ISO 14000-certification scheme, without resorting to high cost foreign certifiers. In the case of Africa, UNIDO concluded a major regional program for SMTQ capacity development and food safety aspects targeting a group of African countries (Ethiopia, Kenya, Malawi, Mozambique, Uganda, Zambia, Zimbabwe), financed by the German Government.



A major activity UNIDO has just launched is the “Establishment of an Accreditation, Standardization and Quality Promotion System for West Africa (UEMOA)”. This program is funded by the European Community (EC) to the tune of Euro 12.5 Mn, of which UNIDO is responsible for the implementation of funds totalling Euro 7.6 Mn. The objective of this UNIDO/EU project is to contribute to the regional integration process of UEMOA countries and to the integration of the West Africa sub-region to the world economy. Furthermore, the programme aims at the sustainable economic development of the region through: (1) the establishment of a regional accreditation and certification system; the strengthening and harmonization of existing standardization institutes; and (2) the promotion of quality practices at enterprise level. The countries included are: **Benin, Burkina Faso, Côte d’Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.**

The core professional capacities of UNIDO combined with the global experience gathered in providing technical assistance in the area, and the significant funding obtained from a multitude of donor sources, amply demonstrate the UNIDO competence in this area.

Part C. Development Objective

Facilitate industrial development and export capabilities (and consequently spurring economic growth and employment opportunities) of the assisted countries by reducing technical barriers to trade through the strengthening of standards, metrology, testing and quality institutional structures and national capacities.

Part D Immediate Objectives, Outputs and Activities

Immediate Objective 1

National capacity creation related to market access requirements and technical barriers to trade (TBT) and identifying manufacturing sub-sectors and export market focus for remedial action in each beneficiary country.

Output 1.1

Awareness seminars for senior officials covering globalisation, trade issues and the market access implications arising from technical barriers to trade, leading to policy documents to address country capacity constraints.

Activities:

- 1.1.1 Identify key institutions and officials in each country that should be directly involved in trade facilitation and TBT issues.
- 1.1.2 Conduct a workshop for the selected officials on the WTO agreement in general and the TBT agreement arising thereof and implications for exports.
- 1.1.3 Based on the workshop deliberations, prepare a high-level policy document for each country, outlining an action plan to reduce the TBT related constraints.

Output 1.2

Report identifying product categories and firms facing conformity problems in external markets, classified according to whether these problems refer to product attributes, processing methods, packaging, branding and labelling and “others”.

Activities:

- 1.2.1 Identification of products, enterprises and markets where conformity problems arise.
- 1.2.2 Assessment of the nature of conformity problems faced.
- 1.2.3 Selection of products and enterprises for further search jointly with the export community.
- 1.2.4 Prepare a report outlining the findings.

Output 1.3

Program initiated on harmonising regional standards and developing a regional conformity assessment mechanism (*defined and launched*).

Activities:

- 1.3.1 Conduct training programs on benefits of harmonised standards and a regional conformity assessment body, and procedures to follow in realising these.
- 1.3.2 Initiate setting up a regional committee on harmonising standards and set priority areas for harmonisation. Provide a work plan and guidelines for operation.
- 1.3.3 Develop the framework for a regional accreditation authority and prepare a business plan and logistics for setting up the authority.

IMMEDIATE OBJECTIVE 2

To review and upgrade the required technical infrastructure for (a) standards development and harmonisation, (b) metrology and testing laboratories required by the selected sectors; (c) Standards for labelling and accreditation and/or certification of laboratories and quality systems.

Output 2.1

National institutions made aware of the institutional requirements for SMTQ infrastructure for industrial development and trade facilitation, and the related WTO – TBT agreements, and a report prepared on critical gaps.

Activities

- 2.1.1 Carry out an assessment of SMTQ institutional infrastructure and national capacities in each country being assisted. Based on the assessment, identify critical gaps.

- 2.1.2 Conduct a seminar for the related institutions on the emerged globalised market place conditions, the role of WTO, the WTO-TBT agreements and the implications for trade.
- 2.1.3 Conduct a seminar for the related institutions covering the role of international standards, conformity assessment requirements and national institutional mechanisms.
- 2.1.4 Prepare a report to each country on the institutional capacity deficiencies and a program to address the deficiencies in order to have a functional standards and conformity assessment framework.

Output 2.2

Report covering the assessment of metrology and testing infrastructure in each country and recommendations and a framework to strengthen the laboratory capacities.

Activities

- 2.2.1 Visit the metrology laboratory (ies) in each country and evaluate the physical facilities, human capacities, measurement equipment, calibration and traceability aspects covering main physical measurements (length, mass, voltage, temperature, volume).
- 2.2.2 Visit one or two laboratories in each country covering microbiology and chemical testing. Assess the technical and human capacities and the spectrum of tests that can be carried out.
- 2.2.3 Based on the assessment, prepare a report for each laboratory on skill and technical upgrading needs, and measures needed to upgrade the laboratories for accreditation.
- 2.2.4 Conduct a training program for laboratory staff from the assisted countries on the ISO17025 guide/standard covering laboratory accreditation.

Output 2.3

Around eight nationals from each country trained on ISO9000 quality management system (QMS) and ISO 14000 Environment Management System (EMS) requirements and audit procedures and consulting skills related to setting up ISO 9000 and ISO 14000 systems.

Activities

- 2.3.1 Select suitable national staff from each country to be trained.
- 2.3.2 Conduct an IRCA registered ISO9000 course for lead auditors.
- 2.3.2 Conduct an IRCA registered ISO 14000 course for lead auditors.
- 2.3.2 Conduct a training program on consulting skills related to setting up ISO 9000 QMS and ISO 14000 EMS systems in enterprises.

Output 2.4

Around four nationals from each country trained on food safety (Good Manufacturing Practice, safety and Hygiene) and the HCCP food safety system setting up and auditing.

- 2.4.1 Select suitable national staff from each country to be trained.
- 2.4.2 Conduct training on food safety, GMP and on industrial health and safety.
- 2.4.3 Conduct a training program covering setting up HACCP systems and HACCP auditing.

E PROJECT INPUTS

a) Government and national inputs

The Government inputs will consist of a contribution in kind. The beneficiary Governments will provide a suitable project office for the international and local experts to be recruited for the project.

b) UNIDO/ donor inputs:

See attached budget:

F Risks

The project is structured to be implemented in two distinct phases. The first phase is to enhance national awareness and capacity relating to TBTs and SMTQ infrastructure. The second phase is to provide the requisite equipment to the metrology, chemical and microbiology laboratories. The funding sought and the focus of this document is to address the issues relating to Phase I.

A risk exists that the requisite funds for Phase 2 may need a long time to mobilise. However, the outputs generated from phase 1 would generate a significant national awareness on the issues and country shortcomings, it is very likely that the individual governments concerned would take up the challenge to equip the requisite laboratories. In this event, due to limited national resources the laboratory development would be spread over a period of time. It is also likely that once the critical capacity gaps are identified in phase 1, donors could be contacted to support the laboratory development. Considering the tangible benefits from phase 1, the very likely government and donor possibilities, this risk can be taken as minor.

G Prior Obligations and Pre-requisites

Each Government will provide the necessary offices and appoint a suitable National Project Co-ordinator to work with the project. Each country would establish a steering committee comprising senior officials of the *standards body, metrology and testing laboratories, ministries of industry and trade and the private sector*, that would function as the technical coordinating committee for the programme in the country. This committee would have the responsibility of implementing the recommendations and action plans generated by the technical assistance intervention provided by UNIDO and the donors.



H Project Reviews, Reporting and Evaluation

In each beneficiary country a steering committee would be set up comprising *senior officials of the standards body, metrology and testing laboratories, ministries of industry and trade and the private sector*. These Steering committees would be convened once every six months by UNIDO to agree upon work plans, resource allocations and reporting of progress.

The project will be subject to annual tripartite reviews (joint review by Governments executing agency (UNIDO) and the donor(s), and a terminal review at the end of the project. The draft terminal report shall be prepared sufficiently in advance to allow review and technical clearance by UNIDO before the meeting.

BUDGET:

			US\$	US\$	US\$
11-51	International Expert - Standards &Accreditation	5.0	80,000	60000	20000
11-52	International Expert -Chemical Testing	5.0	80,000	15000	65000
11-53	International Expert-Microbiology Testing	5.0	80,000	15000	65000
11-54	International Expert-Metrology	6.0	95,000	50000	45000
13-00	Support staff		20,000	10000	10000
15-00	Local Travel		28,000	14000	14000
16-00	Mission costs		45,000	25000	20000
17-50	National consultants	96	96,000	48000	48000
21-00	Sub contracts (ISO 9000, 14000, 17025, HACCP)		90,000	60000	30000
32-00	Study tours		90,000	50000	40000
33-00	In service training		30,000	20000	10000
45-00	Equipment		50,000	25000	25000
51-00	Miscellaneous		20,000	10000	10000
99-99	TOTAL		804,000	402000	402000
	UNIDO Program support costs		104520		
	PROJECT TOTAL		908,520		

PROJECT WORK PLAN

MONTH & ACTIVITY	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8	M 9	M 10	M 11	M 12	M 13	M 14	M 15	M 16	M 17	M 18	M 19	M 20	M 21	M 22	M 23	M 24
Preparatory missions	XX																							
Fine Tune Work plan		XX																						
Appoint National Coordinators		XX																						
Select Trainees			XX	XX																				
Select Experts Sub Contractors			XX	XX	XX																			
Output 1.1 Activities					XX	XX																		
Output 1.2 Activities							XX	XX	XX															
Output 1.3 Activities							XX	XX	XX	XX	XX	XX												
Output 2.1 Activities										XX	XX	XX												
Output 2.2 Activities													XX	XX	XX	XX	XX	XX						
Output 2.3 Activities																XX	XX	XX	XX					
Output 2.4 Activities																				XX	XX			
Phase 2 Report																							XX	XX
Concluding Seminars																								XX

ANNEX A Beneficiary Institutions

1 Vietnam

Directorate for Standards and Quality (STAMEQ)

Ministry of Science, Technology and the Environment (MOSTE)
70, Tran Hong Dao Street
Hanoi, Vietnam
Tel: 844 822 16 14, Fax 844 9422418
Email: qhqt1@hn.vnn.vn Web: <http://tcvn.gov.vn>

The following Institutes come under STAMEQ:

Vietnam Metrology Institute (VMI) (*Mr. Ngo Huy Van, Director*)

8, Hoang Quoc Viet Road,
Cau Giay District
Hanoi, Vietnam
Tel: 844 8361126, 8361126 Fax: 844 7564260 Email: vmi@fpt.vn

Quality Assurance and Testing Centre (QUATEST)

QUATEST1	Nghia Do, Hanoi
QUATEST2	97, Ly Thai To, Danang City
QUATEST 3	49, Pasteur, District 1, Ho Chi Ming City

VMI is responsible for maintaining national standards of mass, length, time and frequency, electrical parameters, temperature, force, hardness, pressure, volume, electromagnetics, physico-chemical parameters. There are three regional centres for quality assurance and testing (QUATEST). Legal metrology function is being carried out by the Metrology Management Department under STAMEQ.

2 Cambodia

Metrology Department (*Mr. Hao Leng, Deputy Director*)
Ministry of Industry, Mines and Energy (MIME)
45, Preah Norodom Blvd.
Phnom Penh, Cambodia
Phone 012854806
E-mail: Houleng@forum.org.kh

Department of Industrial Techniques under MIME - ISO subscriber member

3 Laos

Dept of Intellectual Property, Standardization and Metrology
P.O. Box 2279 (*Mr. Nheune Sisavad, Director General*)
Vientiane, Laos
Tel: 856-21 213470, Fax: 856-21 213472 Email: phet@pan-laos.net.l

