

ROLE OF METROLOGY IN INDUSTRIAL DEVELOPMENT OF NEPAL

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Abstract: The least developed countries of the world whose internal developments are uneven and diversified may not be able to sustain in a globalised world if their products can not compete with the products of developed countries. Further, the competitive strength of a nation in global development is measured through production and market flexibility, information flow, sound financial base, adequate legal framework for business and commerce, skilled personnel and modern style of management process. The export items of those countries are very much confined to traditional commodities with less export value. Hence, in order to develop an industrial sector as an important means of earning foreign currency by improving the quality, productivity and the production of exportable items, one should have an organization responsible for the promotion of industrial development through setting standards and certification of industrial products along with Transparent international measurement traceability to promote import substituting and export promoting industries on the basis of competitiveness.

Keywords: Measurement traceability, competitiveness

1 INTRODUCTION

Since economic globalization is witnessed to have been actualized through chain of WTO negotiations, Nepal has already opened its trade and investment regime. In this connection, it has already adopted the open market policy of liberalization and privatization in order to give more autonomy to the private sector and thereby ensuring the competitiveness to exploit the economic opportunities to uplift the socio-economic conditions of the people.

Nepal's economy is basically foreign trade oriented where the import volume by far surpasses the export volume. The export value in fiscal year 1988/89 was around Rs. 4.1 billion whereas the import value amounted to around Rs.14.2 billion. In fiscal year 1997/98 these values went up to Rs.27.6 billion and Rs.88.8 billion respectively. The trade deficit increased from about Rs.10 billion in 1987/88 to around Rs.61 billion in fiscal year 1997/98. A very small share of manufacturing sector and overwhelming dominance of agriculture and primary commodities in Nepal's foreign trade has given rise to the huge trade deficit.

Further, Kathmandu market is comparable to any market in the world in terms of the availability of a variety of foreign goods. Due to the low quality of domestically manufactured goods and lack of basic quality management, Nepal has become the market for the production of other countries rather than selling its own products in the international market.

2 GLOBAL MARKET STATUS

Markets and production in different countries become increasingly interdependent due to dynamics of trade in goods and services and flows of capital and technology. Further the share of export of goods and services of the richest 20% amounts to 82%. The export shares of the middle 60% comes to 17% whereas the poorest 20% has only 1% of the share of the world export of goods and services. Through the global market, rich nations have arranged an exchange of goods that has increased economic imbalance between the rich and poor. Market forces have driven the present globalization, liberalization and privatization processes. In this connection the public sector industries will mostly be privatized as per our Industrial Policy which is generally characterized by many positive attributes like transparency, clarity, systematization, reliability, credibility, simplicity, accessibility, wider public participation, national consensus and investment friendly atmosphere.

As two third nations including chief industrial nations of the world are associated with world trade organization (WTO) which accounts for 80% shares of the world trade it is strongly felt that Nepal should gradually enter competitive international market by joining WTO. One of the positive aspect of

WTO condition which require a country to give equal status in domestic market to all commodities and goods on payment of customs compels industrialists/manufacturers to make local production more competitive as measure for economic reforms. Further, it helps the government to be serious to find the ways and means of making Nepalese goods competitive enough to enter world market. Generally, least developed countries like Nepal due to varied reasons use mostly second hand technologies while the advanced countries use mostly the newly developed technologies.

Nepal does not have many things at present to export but if we do not improve and diversify our exportable products, the WTO membership will have little positive impact. The WTO member countries will have the liberty of imposing any kinds of tariff and non-tariff barriers on the very few exportable products from our country, hence we also should be a member of WTO so that Nepal can play an important role in making WTO friendlier towards other developing countries by imposing zero tariff facility for all of our products.

3 PRESENT TECHNICAL NEEDS

Economic development is based on the production of goods and services, while trade in the global market becomes an essential requirement. There is a growing demand for global assurance in measurement to provide a basis for international trade and to eliminate technical barriers to trade. Further, measurement is fundamental to the satisfaction of needs and to the provision of quality goods and services in society. Metrology, which is the science of measurement underpins industrial development, manufacturing process, adoption of new technology, health and safety, environmental monitoring, food processing, fair trading in the domestic economy and scientific advances. However, despite its importance, in LDC like Nepal, it is often taken for granted.

The importance of quality is now well accepted both domestically and internationally and the introduction of quality systems such as ISO 9000 in pursuit of quality is widespread. However, a quality system by itself does not produce quality. A quality management scheme for controlling process and ensuring consistency by itself does not ensure the required degree of quality. Indeed, a quality system can be a vehicle for producing poor quality products consistently if the measurements or the measurement process involved in manufacture or testing are incorrect. Hence, good metrology is a pre-requisite for quality, a prerequisite for trade and economic growth. Further, in the global market place, the demand is for international acceptance of product testing and conformance and this requires international measurement traceability, which relates to the accuracy of the measuring equipment itself through calibration to higher accuracy measurement standards.

Since Nepal lacks industrial base to produce measuring instruments and equipment, the user is more often unable to determine for himself whether an instrument performs according to its initial specification or not. And the question always remains whether it continues to perform within the expected limits. It can be ascertained only if these instruments are checked and calibrated for their supposed accuracy by accurate experiments. Further, even the most excellently constructed and most thoroughly designed instruments can go wrong. Hence their proper operation demands their regular maintenance and calibration. Further, proper and effective metrology services through a Calibration and Instrumentation Center could help to fulfil the gap in its efforts to further bridge between Industry and prevalent technology criteria of other developed countries.

4 EXISTING INFRASTRUCTURE

Nepal Bureau of Standards and Metrology (NBSM) is the focal institution in Nepal in areas of Quality Control, Standardization, Testing & Metrology (QSTM). It provides technical services in the field of Quality, Standards, Testing and Metrology as follows:

- Development, establishment, publication and promotion of Nepalese National Standards;
- Establishment and maintenance of testing laboratories;
- Inspection of article or process under certification;
- Provide technical services and facilities to the industries in the field of quality control or quality management;
- Act as a third party guarantee body between industry and consumer through quality certification mark and through lot certification scheme;
- Documentation & dissemination of information;
- Launch consumer awareness program in the field of QSTM through training and other media;
- Launch quality assurance program and laboratory accreditation scheme;
- Implementation of legal metrology as well as co-ordination of activities related to industrial/scientific metrology;
- Quality monitoring and extension of laboratory facilities;

- Co-ordination with Ministry of Industry, Ministry of Population and Environment as well as other related organization regarding industrial pollution management program and Protection of Ozone Layer issues;
- Publications
- Metrological activities of NBSM at present include;
- Verification of commercial weights and measures, weighing and measuring instrument (mass, length and volume) with Working Standard once a year;
- Verification of Working Standard with Secondary Standard if available;
- Verification of Secondary Standard of Mass with National Prototype;
- Verification of dispensing pumps for petroleum products;
- Tank lorry verification for petroleum products;
- Taxi fare meter verification;
- Weigh bridge verification;
- Verification of weighing and measuring instrument being used in the industries as well as scientific laboratories;
- Calibration of proving rings of construction firms;
- Calibration of few electrical equipment and
- Calibration of pressure gauges up to 100 Kg/sq.cm

It has established national specification for more than 600 industrial items and has, under National Quality Certification Scheme, awarded National Quality Mark for 83 industries certifying the conformance of their products to National Specification. The activities of NBSM has been largely based on the laboratories covering different fields such as food, chemical, textile, leather, electrical, building construction, mechanical etc. But regarding metrology services, it is limited to the field of mass, length, volume and pressure, force and electricity at working level, which are again having some limitations.

Further, NBSM has excellent institutional relationship with many similar institutions inside and outside the region like Bureau of Indian Standards, SIRIM and SISIR. In the wake of recently initiated Proficiency Testing activities (Inter Lab Testing Program) NBSM has come to develop very good technical relationship with NATA, HOKLAS, APLAC and TELERAC. NBSM is thus trying to prove its credibility so that it can play more meaningful role in the field of QSTM outside the country also. Similarly, bilateral treaty already in operation with New Zealand Wool exporters Association that the test certificates and test results issued by NBSM as well as by New Zealand Wool testing Authority and SGS Wool Testing, New Zealand will be mutually acceptable. Attempt is also underway to reach at least a memorandum of Understanding with Bureau of Indian Standards in the certificates issued by both.

5 PRESENT PROBLEMS

The recent trend by all manufacturers towards the accreditation of quality systems, and the increasing demand from customers have produced many manufacturers who have business link with Europe adopt and implement quality management system notably the ISO 9000/ NS 300 series of Standards. They come to NBSM for help but NBSM can not do much for them, because it is still not capable in this regard.

NBSM helps through technical supervisions, training/seminar in promoting and developing standardization activities of industries as well as consumer groups.

The rapid industrialization of developing countries in recent years has resulted in even more rapid increase in the use of various measuring instruments from the analogue to the digital types. The purpose of a measurement is to underpin a decision in fixing the price of a commodity, or to start dieting due to heavy weight, in diagnosis, in therapy, in trade, in environmental protection. Hence, attention needs to be focussed on national and international compatibility of mandatory requirements of instruments (health related) and measurement methods and on compatibility of operational conformity assessment procedures and practices.

Multiple testing, inspection and certification of products exported to different countries increase business costs and uncertainties and can create unnecessary barrier to trade. Ideally, testing of a product should take place only once in the country of origin and the test results should be accepted in all export markets through a system of measurement in which all users can have confidence. It is an essential part of the climate which business needs to flourish.

Most technical barriers to trade (TBT) result from disparities between standards and conformity assessment practices in the countries of the buyer and seller. Conformity assurance requires a recognized metrology system built around a capable national measurement lab with documented

calibration chains to the points of use through accredited testing labs. Further, industries will expect that their national standards labs will help them to avoid or overcome technical barriers to trade and negotiate removal of technical barriers to trade and practices in international standards. To take part effectively in today's global economy the country would require the availability of sound Quality, Standardization, Testing and Metrology (QSTM) infrastructure and services to enhance the competitiveness of their enterprises, protect consumers in their countries and in export markets and protect sustainable economic and social development.

6 CONCLUSION

Hence there should be an organization with a reasonably equipped lab i.e. standards linked with primary Standards of another country capable of providing calibration as well as instrumentation service in important parameters as required by needs of industrial development.

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