



METROLOGICAL INFRASTRUCTURES

New directions for measurement in New Zealand

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Measurement and the economy - overview

New Zealand is a South Pacific nation with a developed economy. Its population is just under 4 million, made up of the indigenous Maori people, Europeans from the British settlement in the nineteenth century, and subsequent immigration, a proportion of which is from Pacific Island states.

The first statute relating to weights and measures was enacted in 1846, six years after the British Crown signed the Treaty of Waitangi with Maori - New Zealand's founding document as a nation state. Since the 1846 statute, the laws relating to the trade in goods sold by weight or measure have been regularly modernised.

New Zealand has been an OIML Corresponding Member since 1955.

During the last 15 years New Zealand's economy has been opened to allow increased trade, both in relation to exports and imports, through the removal of subsidies to producers, and tariffs on imported goods.

The country's economy is one based on trade in goods with a strong emphasis on agricultural based products. Also, there are large industries involved in steel and aluminium production and the processing of wood and paper products. New markets are being developed for goods sold on a measurement basis. For example, there has been a dramatic increase in the production and sales of New Zealand wine as it increasingly gains a world-wide reputation. Niche manufacturers are gaining a reputation for the design and manufacture of weighing instruments, petrol measuring systems and load cells.

The picture is one of a developed economy diversifying from the types of products it is known to produce and market. In the modern world of global trade, quality assurance and increased access to markets through reductions of quotas and tariffs, it is necessary for an economy to support its producers and manufacturers by having a robust infrastructure.

Identifying national measurement issues

New Zealand has recognised that, to draw maximum advantage from the new environment, the national measurement infrastructure has an increasing role to play. It must be strengthened by taking a more co-ordinated approach to measurement and standards issues.

The Ministry of Consumer Affairs, which is responsible for the administration of New Zealand's Weights and Measures Act and which holds our Corresponding Membership of OIML, has initiated a review of legal metrology in an effort to address some of the measurement issues affecting a modern economy. Other parties in the measurement infrastructure have signalled their willingness to take an active role in the review process.

A key development in identifying measurement issues for New Zealand will be a National Measurement Symposium, to be held in May 2000. The objective of the symposium is to assist New Zealanders by:

- demonstrating the economic and social benefits of an integrated measurement system based on traceability principles of measurement and international standards;
- improving the understanding of organisations and consumers of the importance of metrology;
- improving the nature and extent of co-operation and information-sharing among organisations and agencies nationally and internationally;
- improving the quality of the policy advice given to the New Zealand Government on all measurement-related aspects, through integrated perspectives and common understandings.

The symposium will be open to traders, manufacturers, industries and Government decision-makers. Our expectation is that key international metrologists will be invited to share their perceptions of the directions required as we enter the 21st century.

New Zealand's OIML links

One outcome of the review of legal metrology will be to develop a wider recognition of the benefits of full membership of OIML. The international trade in goods, and particularly food items, is a vital part of New Zealand's well being. Increasingly, compliance with standards, such as those contained in R 79 and R 87, will be the key to entry into most markets. This also applies to our small, but growing, industry involved in the manufacture of weighing and measuring systems. The need for an economy, with a stake in these areas of legal metrology, to take part in the development or re-development of the OIML International Recommendations becomes ever more pressing.

A stronger measurement infrastructure

New Zealand has all the components of a modern metrology infrastructure. These consist of:

- Measurement Standards Laboratory - New Zealand's national metrology institute;
- Trading Standards Service of the Ministry of Consumer Affairs - New Zealand's national trade measurement organisation;
- International Accreditation New Zealand - New Zealand's national authority for the accreditation of laboratories, inspection bodies and other technical competence based activities.

Other organisations play a key contributing role in the infrastructure, including Standards New Zealand and the Competition and Enterprise Branch of the Ministry of Commerce.

Awareness of the economic value of measurement

A number of international studies have looked at the value of measurement-related activities to particular economies. A small informal survey recently revealed that New Zealand industries and traders using measurement as a central part of their business were not focused on the benefits of good measurement practice. Measurements were relied on without knowledge of why measurement accuracy is important to the profitability of a company through the benefits it brings to that company and, more generally, to society.

The results of this survey indicated that the Ministry of Consumer Affairs needed to be more active in demonstrating the value of accurate measurement to New Zealand businesses and consumers. Unless this was achieved we could not achieve a direction for improved

measurement capability in the 21st century. Acceptance of the value of measurement was also a pre-requisite for holding the National Measurement Symposium. Therefore, we decided to commission a study on the value of measurement and to hold two workshops illustrating the benefits of accurate measurement.

The economic value of measurement

Brian Easton, a noted New Zealand economist, was commissioned to report on the economic value of measurement to the New Zealand economy. The study assessed the net benefits of a viable measurement system and infrastructure, referring to comparable international studies. It explored, in Brian Easton's phrase, how measurement as a systematic standard "is a sort of oil to ensure market transactions run smoothly". A copy of Mr. Easton's paper is available on the Ministry's website at www.consumer-ministry.govt.nz

Workshops on the benefits of accurate measurement

WORKSHOP 1

The first workshop was held in May 1999 and the theme was "Accurate Measurement - The Key to New Zealand's Trading Advantage"; fifty participants attended representing organisations from government departments concerned with the measurement infrastructure, key traders, trade associations, private sector verifiers of measuring instruments and consumer groups. The Hon. Peter McCardle, Minister of Consumer Affairs, opened the workshop and Tony Leverton, the Ministry's Manager, Trading Standards Service, welcomed participants.

The workshop consisted of two key presentations and a case study.

John Barker presented "The Importance of Measurement to Trade". The main themes of this presentation were:

- the amount of New Zealand's production in some key sectors;
- international developments such as globalisation, the role of the World Trade Organisation and technical barriers to trade; and
- the relationships with our largest trading partner (Australia) and with international legal metrology organisations such as the OIML and the Asia Pacific Legal Metrology Forum (APLMF).

Dr. Chris Sutton, Director and Chief Metrologist, Measurement Standards Laboratory presented "The Integrity of Measurement - now and in 2010". Dr. Sutton outlined:

- the requirements for measurement integrity, particularly measurement traceability;
- the role and elements of a standards and conformance infrastructure (SCI);
- trade implications for the SCI; and
- a vision for the SCI in 2010.

Workshop participants then listened to a case study presented by Mr. Roger Kissling, Quality Consultant, New Zealand Dairy Board. The case study was entitled "Trade Measurement and its Value to Exporting". The study concerned recent issues which had arisen in the United Kingdom with the import of New Zealand spreadable butter, and the measurement of the fat content to establish whether the butter could be imported into the European Union.

Conclusions from the first workshop included:

- confirming the need to build consensus and demonstrate the value of measurements;
- recognising the economic value of measurement;
- supporting international standards rather than regional standards; and
- supporting full membership of the OIML.

WORKSHOP 2

The second workshop was held in June 1999 and the theme was "Accurate Measurement - Building Fairness for New Zealand". Fifty-five participants attended the workshop. Representation was from a wider range of groups and included quality assessors, health agencies, enforcement agencies and sporting associations. Again, the Hon. Peter McCardle opened the workshop and Tony Leverton welcomed the participants.

The workshop considered three case studies - measurement in sport, traffic speed and blood pressure.

Mr. Bob Bishop, Executive Director, Sport Science New Zealand provided a study on "Measurement in Sport". Bob Bishop explained about the effort that goes into ensuring accurate measurement in sporting events. Advanced equipment is used to record and measure performance by top athletes. Careful checking and calibration by expert sport scientists occurs before every meeting and well-researched methods are used to record results. An example of how precise measurements need to be was of the US sprinter Maurice Greene who had only days before broken the 100 metre world record by 0.05 seconds.

Inspector Ron Phillips, Inspector In Charge, Calibration Unit, New Zealand Police, provided a study on "The Drive to Road Safety - Accurate Measurements Save Lives". Inspector Phillips detailed the history of traffic

radar and noted that the first road traffic radar device was invented in New Zealand in 1946. The workshop heard how systems are developed to prove the accuracy of speed guns and speed cameras. The New Zealand Police have developed practical methods to establish that not only do speed measuring devices work in the laboratory but also can be proved to be measuring accurately in differing environments on the roads.

Dr. Stewart Mann, Cardiologist, Hutt Valley Health Ltd. presented a study on "The Measurement of Human Arterial Blood Pressure". Dr. Mann's study provided a practical example of the need for legal measurements in the health area. Dr. Mann set out a history of blood pressure measurements, the difficulties of obtaining a consistent reading and technical problems with various types of sphygmomanometers.

Conclusions from the workshop included:

- appreciation of the need for better industry knowledge and public awareness of the benefits of accurate measurement;
- a call to identify areas of measurement weakness;
- a requirement for better co-ordination of measurement related issues is required, and
- an acknowledgement that education is a key to better measurement practices and this should start in schools.

This workshop also endorsed the conclusions from the first workshop.

Future directions

The economic study and the workshops have laid the foundations for our Year 2000 National Measurement Symposium. They have identified directions for enhancing the New Zealand Measurement Infrastructure and for encouraging all parts of the infrastructure to work in a more co-ordinated way. The various component agencies are all committed to this aim and have already agreed to meet and decide on an action plan for the future. They will discuss the conclusions from these workshops and take action on them, for the benefit of all New Zealanders. We expect a more user-focused measurement infrastructure that provides assurance and informs all sectors of the New Zealand economy.

The added value of accurate measurements from improved awareness and infrastructure collaboration, will enhance New Zealand's trading reputation, provide ongoing assurance to traders and consumers, and gain efficiencies for producers and improved quality of services for non-trade legal measurements. ■