

The National Measurement Institute (NMI): Submission on Standards and Accreditation

1. Purpose of submission

Measurement, standards and accreditation are the key elements of Australia's technical infrastructure. This submission explains the linkages from a measurement perspective and provides our response to the questions posed in the Productivity Commission's discussion paper. This study is timely. With increasing globalisation, it is important that Australia has an effective and efficient technical infrastructure that provides confidence internationally in the quality and reliability of Australia's agricultural, manufacturing and service products.

2. Australian Technical Infrastructure

2.1 The role of the National Measurement Institute (NMI)

NMI was established in the Department of Industry Tourism & Resources on 1 July 2004 to carry out national functions in physical, chemical, biological and legal metrology. It carries out statutory functions under the *National Measurement Act 1960* in relation to Australia's standards of measurement and related metrological responsibilities.

NMI was formed by bringing together the National Measurement Laboratory from CSIRO, the National Standards Commission and the Australian Government Analytical Laboratories.

In physical measurement, the Australian measurement system links the practical measurements used in industry and the community to the International System of units (SI) embodied in Australia's national standards of measurement, through a hierarchy of measurement standards. A practical measurement that is linked to the SI units in this way is called an SI traceable measurement, that is, traceable to internationally recognised measurement standards and units. NMI has responsibility for realising the SI units as practical standards of measurement and providing the peak-level infrastructure which facilitates dissemination of these standards. In practice, the national standards of measurement are used to calibrate second level standards held by calibration laboratories, or high-accuracy standards that are outside the scope of these calibration laboratories. The second level calibration laboratories, in turn, calibrate a wide range of standards and measuring instruments used in industry and commerce. These second-level laboratories are accredited by NATA for their specific capabilities, and their accreditation provides the necessary confidence that they deliver a competent and reliable dissemination of the measurement standards. Thus NMI provides the basis for the national measurement system but has a close relationship with the second-level laboratories that propagate the measurement chain. This measurement chain underpins confidence in measurements made for trade, commerce, regulation, manufacturing, telecommunications, defence, banking, and environmental protection. NMI also facilitates research and innovation, including the development of advanced technologies.

For chemical and biological measurement, NMI fulfils the same functions as it does for physical measurement, but through different mechanisms. The SI unit of measurement of chemical quantities is the mole. However, there is no internationally

agreed realisation or prototype of the mole and so traceability is usually achieved by using tools such as primary methods, chemical reference materials and reference methods. These tools allow chemical testing laboratories to develop, calibrate and assess the accuracy of their analyses. Both reference materials and reference methods play a critical role in quality assurance and contribute to the process of establishing traceability of units used to report laboratory results. NMI develops both reference materials and methods in support of Australia's national measurement system. NMI also analyses chemical substances and measures biological, organic and inorganic analytes to support industry and government objectives in trade, food, health and the environment. In addition, it analyses illicit drugs for the Australian Federal Police and tests for performance-enhancing drugs for the Australian Sports Drug Agency.

NMI with more than 60 other national and international institutes, is a signatory to the international Mutual Recognition Arrangement established by the International Committee for Weights and Measures, the body that manages the Metre Treaty to which Australia is a signatory (<http://www.bipm.org/en/cipm-mra/>). This arrangement provides an open, transparent and comprehensive scheme to give users reliable quantitative information on the comparability of national metrology services. This not only provides the technical basis for wider agreements negotiated for international trade, commerce and regulatory affairs but delivers domestic confidence in the demonstrated quality of the national standards involved and the commercial services that flow from them. The scheme involves national metrology institutes : (i) demonstrating that they maintain recognised quality systems to guarantee competence and traceability, and (ii) participating in regular international comparisons of national measurement standards, the outcomes of which are recorded in a publicly available international database.

NMI provides technical advice to government agencies and works with industry to help solve measurement problems and transfer its technology. The results of physical, chemical and biological measurement have a major impact on virtually all sectors of Australian industry, directly in production, trade and commerce, or indirectly through control and management of the environment, health and safety.

2.2 NMI's relationship with NATA

NMI invests heavily in NATA, in terms of staff time, to ensure that the accreditation agency meets the needs of the national measurement system amongst its other functions. NMI staff are members of NATA's Board, are members of committees that set technical criteria for competent testing, and are technical assessors of accredited laboratories. NMI's charter for providing this support comes from two sources : the National Measurement Act which requires NMI to "provide expertise in support of Australia's measurement standards and conformance infrastructure", and the Memorandum of Understanding between the Commonwealth and NATA which includes an undertaking by the Commonwealth to provide expertise of its employees to NATA. NMI's support is provided on the basis that these functions fulfil national interest responsibilities. Consequently, the cost of labour is absorbed within NMI's appropriation and NATA meets direct costs associated with assessment functions.

There are a number of reasons for NMI's contributions to NATA's activities.

1. As described in Section 1.1, NMI is reliant on second-level laboratories to provide a large part of the measurement system. These laboratories must demonstrate competence and traceability to national measurement standards, and accreditation to the internationally recognised documentary standard, ISO 17025, achieves this goal. Hence NMI's contribution to NATA underpins the integrity of the Australian measurement system.
2. Under the National Measurement Act, NMI is tasked to promote best practice in measurement. NMI works with NATA to determine the requirements for best practice for a broad range of measurement laboratories. The experience of calibration and testing in NMI's own laboratories is important in providing a practical understanding of the processes involved.
3. NMI has a leadership role in measurement. It is concerned that the quality of testing carried out in public and private sectors fulfils the purpose of the testing. Laboratory accreditation can provide confidence in measurement outcomes if conducted appropriately. Reliability in testing is significant in meeting public policy objectives expressed in regulations, and in demonstrating the quality of Australia's exports and their compliance with national and international standards.
4. NMI appoints legal metrology authorities under the National Measurement Act and Regulations in relation to measuring instruments used in trade. Where the authority is a calibration or testing laboratory, accreditation to ISO/IEC 17025 provides confidence in the competence of the operation and is a condition for all new appointments.
5. NMI uses NATA accreditation as a basis for quality assurance of its own laboratories. NATA accreditation is also used as the evidence of maintaining an acceptable quality management system, as required for participation in the Mutual Recognition Arrangement established under the International Committee for Weights and Measures (see section 2.1)

Many of NMI's staff are technical assessors for NATA, both within Australia (in a national interest capacity) and internationally (on a full commercial basis). They benefit from working with a broad range of laboratories in this role because they can observe the current and potential needs of industry for reliable standards and direct NMI's own work accordingly. Technical assessments also promote the development of NMI's staff by involving them in a broad range of discussions on approaches to measurement, new techniques, and market trends, and by fostering learning and teaching skills.

A summary of NMI's contribution and use of NATA's accreditation processes is shown in the Appendix.

2.3 NMI's relationship with Standards Australia

NMI contributes to technical working groups developing documentary standards as part of the Commonwealth's contribution under its Memorandum of Understanding with Standards Australia.

NMI contributes technical expertise in metrology to ensure that standards which describe measurement processes embody sound metrological principles. This minimises the opportunity for dispute in future over the metrics used to qualify products.

NMI staff also represent Australia on a range of international standardisation committees as technical experts nominated by Standards Australia. Participation in ISO and IEC committees helps ensure that Australia's interests are represented effectively in the development of international standards. As well, it provides an opportunity for NMI staff to network with staff from similar laboratories and develop an international perspective on how the measurement requirements in specific standards will be applied in Australia.

A summary of NMI's involvement with Standards Australia for 2005-06 is also shown in the Appendix.

3 Broad questions

A number of specific questions were posed in the issues papers prepared for this study by the Productivity Commission and those that are within the area of NMI's experience are addressed as follows.

3.1 Has export activity and access to imports been sufficiently supported by Australia's current standards and conformance infrastructure?

NMI considers that the standards and conformance infrastructure supporting international trade operates appropriately when it provides industry with access to :

- internationally recognised documentary standards that are based, where relevant, on sound metrological principles;
- national measurement standards that are accepted internationally; and
- the opportunity to have measurement facilities accredited to ISO/IEC 17025 by an organisation that carries international recognition.

The infrastructure developed by NMI, NATA and Standards Australia provides this access in principle. However the uptake by industry, and industry's ability to articulate needs with enough lead time for response by the infrastructure, may be another question.

Mutual acceptance of measurement standards and accreditation, and to a lesser extent documentary standards, is relatively new and not always understood by industry. An example from the aviation industry illustrates this point – see text box 1.

Aircraft may need repair and maintenance in many locations away from their country of origin, so there is a great reliance on globally consistent measurement standards - particularly the national standards held in national metrology institutes worldwide.

Text box 1

Following findings in 1995/96 that suspect maintenance and repair may have contributed to several domestic aviation accidents, the US Federal Aviation Administration (FAA) tightened its audit processes for authorised repair stations. In particular, the FAA invoked Regulation 145.47, which required that all measurements be traceable to the US national standards held at the National Institute of Standards and Technology (NIST). Foreign repair stations, including those in major airlines and aviation suppliers in Australia and New Zealand, faced major adverse impacts on their businesses - either bearing the substantial additional costs and difficulties of sending measuring equipment to NIST for calibration or having their FAA authorisations withdrawn.

Between 1998 and 2000, Australia's National Measurement Laboratory (NML, now part of NMI) and NATA were able to bring the parties together and advocate a process that placed no additional cost on repair stations and also provided FAA with confidence equivalent to tracing measurements to NIST. Thanks to the history of more than 50 years of comparisons between the US and Australian measurement standards, it was possible to demonstrate that traceability to NML is equivalent to traceability to NIST. The international mutual recognition status of NATA also persuaded FAA that a calibration report from a NATA-accredited facility provided appropriate evidence of technical competence and measurement traceability. The FAA Regulations have been amended in such a way that this broader interpretation can be accepted by the FAA Administrator.

Now, FAA repair stations in Australia can satisfy the FAA Regulations by having their measurement standards calibrated by NMI or by calibration laboratories accredited by NATA.

NATA's activities in accrediting measurement laboratories ensure that the measurements delivered by these laboratories to their industrial clients have traceability to Australia's national standards and through them to the standards of our export target economies. This can eliminate technical barriers to trade through the mutual recognition of measurement capabilities by trading partners.

Australia's technical infrastructure is highly regarded in counterpart international organisations responsible for such infrastructure. The high degree of cooperation between the bodies (NMI and predecessor organisations, NATA and SA) has been particularly significant in achieving that regard. The organisations have worked together to support Australian government agencies in negotiating international arrangements, for example in trade negotiations with Europe and with New Zealand under CER.

Australia's technical infrastructure bodies have worked together in a number of projects to build technical infrastructure in the Asia Pacific region. Much of this work has been supported by the APEC Support Program of the mid 1990s, by AusAid and by the World Bank. The close cooperation between the infrastructure bodies in the Asia Pacific, in which the Australian representative bodies have played a key role,

was highlighted in 2005 at a joint workshop involving the peak international metrology and accreditation bodies. The excellent constructive relationships in the Asia Pacific were contrasted with problematic relationships in other regions such as Europe. As a consequence, the international community has requested the Asia Pacific Metrology Programme and the Asia Pacific Laboratory Accreditation Cooperation to undertake a joint Workshop to showcase the infrastructure linkages in the region. NMI and NATA are playing a lead role in developing this initiative.

3.2 *Do the current standard setting and accreditation arrangements and processes best serve Australia's public interest and are they appropriate to meet future domestic and international challenges including the increasing globalisation of markets?*

The capacity of the standard setting and accreditation arrangements to serve Australia's public interest is dealt with in other sections of this submission (Sections 3.3, 3.4 and 3.5, and Section 3.)

To meet future domestic challenges, the standard setting and accreditation arrangements must be flexible enough to address new areas of opportunity and must have the ability to recruit the necessary expertise to standards-writing and assessment activities. In relation to measurement, which figures heavily in accreditation activities and to a lesser extent in standards-writing, the availability of expertise in the Australian community has been decreasing over the last 15 years. Whereas large public institutions and utilities previously provided training opportunities that developed measurement skills in the technical workforce, an increase in privatisation has reduced both the development and availability of this expertise. Coupled with the relative unpopularity of physics, chemistry and engineering amongst young people and the lack of availability of academic or vocational training in measurement (particularly for those already in the workforce), the maintenance of appropriate skills in this area is a concern.

Future international challenges relate to increasing globalisation. For Australia to participate in global markets and supply chains and to attract investment, there must be confidence in its technical infrastructure. Australia is fortunate to have a strong and well respected infrastructure at present. The challenge is to continue to develop our technical infrastructure with an international focus and to sustain and build on Australia's excellent international record in this area. Continuous development requires participation in a broad range of international projects and committees and participation depends on having something to offer to the international technical infrastructure community. Hence Australia's own technical base – in measurement, standards-writing and accreditation – must remain strong, and there must be regular and visible participation in international processes. Representation in person at international standards-writing meetings in ISO¹ and IEC² (and others) is essential to have an Australian viewpoint incorporated in international standards. Representation in ILAC³ and APLAC⁴, demonstrated performance in management of accreditation processes, and regular and satisfactory performance of accredited laboratories in proficiency testing programs are essential for acceptance of Australian test results overseas.

¹ International Standards Organisation

² International Electrotechnical Commission

³ International Laboratory Accreditation Cooperation

⁴ Asia Pacific Laboratory Accreditation Cooperation

3.3 *In what ways do the standards and conformance infrastructure reduce and/or impose transaction costs on businesses and consumers?*

Businesses elect to use the standards and conformance infrastructure and presumably do so to enhance the competitiveness of their businesses. For some businesses, however, accreditation is necessary to compete for government work and this may be the prime motivation for seeking accreditation.

Accreditation helps to provide the necessary confidence among users of conformity assessment services. This is particularly important in laboratories serving customers with export markets. The significance of the latter point is made by noting that NATA also provides accreditation of measurement services for overseas firms which recognise that accreditation by an internationally recognised agency is an important element in international acceptance of test results. In addition, the use of recognised third-party accreditation allows a testing laboratory to service clients across a range of industry sectors without needing a multiplicity of second-party assessments, thus reducing the costs for both the laboratory and its clients.

The standards and conformance infrastructure reduces transaction costs by providing portability of attributes through the transaction chain. A manufacturer who produces in conformity with a standard will achieve recognition of the product and possible interoperability with other products or supporting systems (e.g. the IT and telecommunications infrastructure or electricity grid). If the initial testing that underpins the statement of conformity is recognised, this avoids retesting at later stages in the distribution chain.

The adoption of documentary standards may reduce the cost to business in developing new products as the requirements for safety and functionality are already defined. Conformity to standards provides customer confidence.

Standards can also inappropriately protect existing business when they are so tightly defined as to exclude valid but different approaches to solving problems. The MOU between the Commonwealth and Standards Australia requires the application of international standards where these exist. In general, this overcomes the concern that Australian interests could build inappropriate protection into a national standard. However, it also emphasises how important it is that Australians take an active part in the standards development process internationally so that national interests are safeguarded and national priorities for standards development are recognised.

3.4 *Is there sufficient national uniformity in standard setting and accreditation processes?*

As the single agency responsible for laboratory accreditation in Australia, NATA's national reach provides for significant uniformity. Greater encouragement by government and industry of the use of NATA accreditation by testing facilities would improve uniformity. The possibility of extending NATA accreditation to embrace other areas where technical competence is important (e.g. in health care accreditation) would further advance uniformity.

3.5 *What impacts do current arrangements have on: competition, innovation and international trade, the quality, safety and performance of products, materials and related services; and public health, safety and environmental protection ?*

Competition

Laboratories seek accreditation in order to increase their own competitiveness and that of their client firms by providing enhanced quality assurance. Accreditation underpins both the acceptance of Australian test certificates, particularly when they accompany exported commodities and goods, and the marketing of the services of the laboratories and their client firms.

Innovation

Accreditation systems must allow for innovation and if possible foster innovation.

Technical assessors can play a useful role in providing a broader context for the work in question, and where appropriate, make suggestions for improvement. For example, NMI staff work in an internationally recognised institution and undertake R&D in measurement science at the highest level. NMI staff represent Australia at the international scientific meetings conducted under the Metre Convention, and contribute to the scientific literature. Therefore, in their capacity as NATA assessors, they are able to act as “gatekeepers” in bringing to the accredited laboratories the latest thinking on relevant technical matters.

By requiring that accredited laboratories participate in proficiency testing schemes, an accreditation body ensures that laboratories demonstrate technical competence and also have the information needed to correct or improve their individual performances. In some cases, a review of proficiency testing results leads to innovation to improve a measurement method overall.

The strength of the current NATA approach is its emphasis on information sharing and support as part of the assessment process. Alternatives that involve checklist approaches, rather than direct assessment of technical competence, would tend to entrench current practice and be slow to foster change and uptake of innovative approaches. It would also lack credibility in assessment of technical competence.

International trade

Confidence in measurements associated with exports of agricultural products, goods and services is important and accreditation by an internationally recognised body provides that confidence.

An increasing proportion of trade occurs within industries and within global supply chains. Quality assurance is an important part of intra-industry or supply chain activity. If Australian producers are not able to demonstrate that they meet quality standards, the work will go elsewhere. An internationally recognised accreditation system is an essential element in underpinning this trade. The wine industry provides a good example of the benefits of quality measurements – the outcome of close attention to the capability of its laboratories and their accreditation.

Quality, safety and performance of products, materials and related services;

Laboratory accreditation is an essential part of ensuring that the measurements which relate to quality, safety and performance are reliable and provide confidence to regulators and the community

Standards also provide confidence that the design of the product is robust and able to perform appropriately.

3.6 *How much progress has been made internationally with mutual recognition of standards and conformance assessment across countries?*

NMI is aware that NATA and SA will describe in detail the extensive progress that has been made in the last 15 years to develop objective criteria for mutual recognition of standards and conformance assessment activities.

By way of parallel, the mutual recognition procedures of measurement standards may be of interest– see text box 2.

Text box 2

Although the Metre Convention has been in place since 1875, with Australia becoming a signatory in 1947, a formal process for mutual recognition of measurement standards was not established until 1999 when National Metrology Institutes around the world signed the global Mutual Recognition Arrangement (MRA) established by the International Committee for Weights and Measures (CIPM). The MRA requires that participating institutes demonstrate the equivalence of their national standards through participation in international comparisons, the results of which are published in an international database that is available publicly. Participating institutes must also demonstrate through accreditation or defined peer review processes that they maintain a quality system compliant with ISO/IEC 17025. NMI's effective participation in the CIPM MRA means that its measurements are accepted overseas as being equivalent to those of its MRA partners. [The agreement also complements NATA's international MRAs, allowing international acceptance of the measurement results from NATA-accredited laboratories (which must be traceable to NMI's standards or equivalents).] The activities undertaken at the international level through the CIPM are extended into regional programs such as the Asia-Pacific Metrology Programme (APMP), in which NMI is a lead player, to help address specific regional needs.

Every year, NMI takes part in around 25 international and regional comparisons in physical metrology and around 10 in chemical metrology, including coordinating a significant number of these comparisons.

Arrangements are also being put in place for mutual acceptance of pattern approval certificates for trade measurement instruments. The implementation of a Mutual Acceptance Arrangement (MAA) under the International Organisation for Legal Metrology began in January 2005 and currently covers measuring load cells and non automatic weighing instruments.

In relation to the effectiveness of mutual recognition arrangements, NMI notes that they may be limited by the domestic arrangements applying in some nations. For example, NMI is aware of difficulties for American manufacturers which arise from

the proliferation of accreditation providers and consequent difficulties in having test data accepted overseas. It is also difficult for non-US exporters and governments to understand the US system and determine which accreditation body is responsible for which activity⁵.

The US government does not regulate accreditation bodies and there is no limit to their number. Many do not have any formal recognition. This tends to dilute the efforts of those that are internationally recognised⁶. An umbrella body was established with one primary aim being to coordinate US representation at international forums, but its effectiveness is questionable when two of the key US accreditation bodies have now withdrawn from participation. One of these, the government agency within the National Institute of Standards and Technology (part of the Department of Commerce) established for third party accreditation of testing and calibration laboratories withdrew this month (April 2006)⁷.

Our impression is that the Japanese system, with its multiplicity of accreditation and standards bodies, also inhibits the development and effectiveness of mutual recognition arrangements as well as the effectiveness of international representation.

4. Efficiency and effectiveness of laboratory accreditation

Monopoly vs competition

Although competition is usually the guarantor of efficiency and effectiveness, in this case NMI believes that there are major disadvantages of having several accreditation bodies, for the following reasons.

- The credibility of accreditation services depends on national and international recognition. Recognition is built up over time and sustained by performance domestically and in international partner organisations, by transparency and by external scrutiny. NATA is the world's oldest and largest accreditation body therefore any change in Australian accreditation arrangements would be a significant discontinuity and would need close management of the impacts on international perceptions of the quality and reliability of accreditation in Australia.
- A competitive base in laboratory accreditation could lead to competitors offering less rigorous accreditation for a lower price. This will cause confusion in the market and risks calling into question all accreditation in Australia to the detriment of acceptance of all Australian measurements.
- A competitive market is unlikely to foster the support and education role at present played by assessors in improving laboratory practice. This will reduce the potential for innovation in laboratories.
- As a monopoly agency, NATA takes on tasks which it would avoid if it were free to choose its market and seek greater profitability. For example, it would not accredit laboratories with minority needs and those located in remote areas. It would also withdraw from much of its proficiency testing activity

⁵ <http://pubs.acs.org/hotartcl/tcaw/98/mar/lab1.html> and <http://www.ferret.com.au/articles/bd/0c0220bd.asp>

⁶ <http://www.ferret.com.au/articles/bd/0c0220bd.asp>

⁷ <http://ts.nist.gov/ts/htdocs/210/214/whatsnew.htm>

- The credibility of an accreditation organisation depends on the quality of its management and the technical assessors on which it draws. We question the viability of more than one organisation in Australia as the pool of technical expertise is too small to effectively support more than one organisation. Assessors must have an intimate knowledge of their subject and the technical procedures involved. For example, they need to be aware of the influence of environmental factors, the limitations of equipment and procedures all potential sources of measurement error, and also be able to assess the qualifications and experience of staff.
- If there were several organisations in the market, the ‘free service’ currently provided by assessors would not be tenable. This would increase the cost of accreditations and deter laboratories from seeking accreditation. It could lead to less qualified scientists working as technical assessors with consequent risk to the integrity of the system. NMI would have to decide how it responds to requests from a multiplicity of organisations for staff time, since it clearly could not service all requests. In a competitive environment, NMI would also charge for the services of its staff at full cost recovery rates.
- Internationally, most countries have a single accreditation body. Where there are several accreditation organisations it has been necessary to establish an umbrella body to represent the nation in the international sphere. It is very difficult for such an organisation to speak with authority because it does not itself have the grass roots experience of laboratory accreditation on which to draw. In practice, mutual recognition arrangements are also impeded where there is a proliferation of bodies (see 3.6).

Proficiency testing

Proficiency testing is an important element of accreditation. Inspection of premises, discussions with staff and scrutiny of records is necessary but not sufficient to be sure of performance. Proficiency testing is an essential adjunct to demonstrate a laboratory’s capacity to deliver accurate results. Laboratories want the cost of participation in proficiency testing to be as low as possible, preferably only the cost of testing one more sample in a batch plus a fee for participation. Hence, on this limited margin, private providers operate in fields where the volume of demand is sufficient for the testing to be profitable.

Although NATA and NMI both run proficiency testing, their activities are in complementary areas, and neither compete with private sector proficiency testing schemes. NATA and NMI are both operating proficiency testing schemes to cover areas not addressed by the private sector providers i.e. areas where the proficiency testing materials or artefacts are complex and/or expensive, or areas where there are few participants. There are low or negative returns on such schemes, but they clearly serve an essential need in confirming the level of performance of participating laboratories.

Structure of NATA

The existence of a single laboratory accreditation body with an effective monopoly raises the need for controls. The MOU between the Commonwealth and NATA seeks to put those controls in place.

The structure of NATA as a not-for-profit membership-based association has stood the test of time. In practice, the NATA Council has been an effective watchdog on the Board and the Executive. Communication and a transparent approach to management and decision making are important in this regard. NATA must remain sensitive to its membership base and seek to draw new members into its management systems.

5 Efficiency and effectiveness of standards-writing

Monopoly vs competition

Currently Standards Australia accredits a number of other standards-writing bodies that address specific industry sectors. Hence, Standards Australia operates in a “cooperative” rather than truly competitive arena, and retains a “monopoly” aspect in its role as the accrediting body. NMI believes that this model offers a number of advantages over either extreme of “monopoly” or “fully competitive” positions.

- Standards Australia, as Australia’s representative to ISO and IEC, maintains knowledge of the internationally accepted processes in standardisation and, in its role as an accreditor of standards-writers, is able to promote the use of an internationally consistent framework in Australia.
- The use of standards-writing bodies that are linked to specific industry sectors provides rapid response to industry needs coupled with access to specific technical expertise in the formation of the standards.
- Standards Australia is still able to address the public interest standards required in Australia, albeit with appropriate recognition of that role in its agreement and funding arrangements with government.

Use of standards in regulation

NMI is aware of the finding in the 2006 Report of the Taskforce on Reducing Regulatory Burdens on Business that :

“business notes that few quality controls are in place to ensure that standards are developed and drafted in ways that are consistent with their use as quasi-regulation....” (p.175)

However, given that it may be efficient and effective for regulators to adopt the standards developed by Standards Australia or its accredited standards-writers, NMI strongly recommends that processes be developed to remedy the situation in the above finding.

In that regard, NMI brings to the attention of the Productivity Commission that regulatory standards involving measurement must have regard to the legal framework for acceptance of measurement results in Australia, which is administered through the *National Measurement Act 1960*. This process potentially involves the regulator,

NMI, Standards Australia and NATA, all of which would need to be involved in developing a process for adoption into regulation of standards drafted by Standards Australia. Currently such a process is underway in relation to the National Water Initiative – see text box 3.

Text box 3

The distribution of irrigation water in Australia previously has been unregulated. However the Intergovernmental Agreement on a National Water Initiative (Clause 88) recognises that, for regulation of water distribution, it will be necessary to specify the requirements for metering instruments and their installation.

The metering framework needs to include documentary standards for :

1. the manufacture, production and performance of various types of meters;
2. the installation of meters;
3. ancillary devices (such as data capture devices) that may be used in conjunction with meters.

Such standards are typical of the voluntary standards developed for industry by Standards Australia.

In addition, for metering measurements to be acceptable for regulatory purposes, standards are required for :

4. “pattern approval” of meters i.e. testing a design of meter as being capable of operating in its intended environment without its reading being affected adversely, e.g. by temperature or humidity variations, or by stray electromagnetic radiation;
5. the testing of in-service meters and their re-calibration (to maintain accuracy through traceability to national measurement standards).

Pattern approval standards are adopted from the International Organisation of Legal Metrology (a treaty organisation to which Australia is a signatory) or, in this case, drafted by NMI which has responsibility in Australia for pattern approval.

In-service testing procedures are also developed by NMI for use by regulatory bodies.

Standards Australia and NMI are cooperating with each other and the initiating Commonwealth agencies to deliver this suite of work.

In addition, to give regulatory effect to this framework :

6. laboratories that hold NATA accreditation for calibration of meters will be required; and
7. State regulators will need to develop a cohort of trained personnel to inspect and calibrate in-service meters.

6. The appropriate role of the Australian Government

6.1 *Recognition*

The Government recognises the importance of technical infrastructure to Australia’s industry and trade. Government has a key role in negotiating standards and conformance issues as part of trade agreements – if the current organisations did not exist it would be necessary to develop organisations to carry out their roles. The

Government also needs mechanisms to represent Australian interests within international standards and conformance bodies.

NATA and SA carry out the detailed work but it is important that Government ensure that Australia is appropriately and well represented and that these organisations are well managed and do not abuse the privileged status accorded to them. Industry department officials have taken roles on the boards and committees of these organisations to represent the national interest.

6.2 *Facilitation*

Compliance with regulation is a major purpose of testing, and confidence in measurements undertaken to demonstrate compliance is provided by the accreditation system. Government usage of accredited testing facilities both engenders confidence in results and has a demonstration effect to industry and the community. In its issues paper for this study, the Productivity Commission posed the question of whether government agencies should make greater use of non-accredited testing facilities. In fact, the exact reverse is desirable - government agencies should make greater use of accredited testing facilities if the aim is to foster technical integrity in measurement and testing services.

NMI is also concerned that regulatory agencies may not understand that laboratories are accredited for specific tests only and not necessarily for all the work they perform. It is important for the technical infrastructure system to work with government agencies to help them use the system better.

Another immediate area for improvement would be to foster the understanding that government purchasing should specify the use of NATA-accredited testing facilities wherever testing for compliance with specification is relevant to the purchasing decision.

6.3 *Funding*

The role of public and private funding is a key issue. NATA and Standards Australia are clearly performing roles in the national interest but they also carry out activities that benefit individual businesses. In general, the Government provides funding for national interest work and for areas where the benefit to individual businesses is uncertain or at too high a level of generality for the benefits to be directly attributable. Determining where to draw boundaries is a matter for judgement.

NMI wishes to draw attention to the increasing importance of work overseas in representing Australian interests and the limited direct benefit of this work to individual firms. In encouraging the development of international rather than national standards, it is important to recognise that the detailed work in working groups and committees and subcommittees takes a considerable time requiring long overseas visits usually to Europe. This is outside the budget of many Australian firms and public sector agencies. Those who can afford to contribute can influence international standards to suit their interests and these may not be in the interests of Australia. Similarly, priority will not be given to standards of importance to Australia if Australian representatives are not there to promote them and to contribute heavily to the work.

Equality of access to accreditation for laboratories in Australia is an important issue of equity and for uniformity. Maintaining this access for laboratories situated in remote regions is difficult. The additional time and cost required for assessors to travel to those laboratories makes it hard to find volunteers to take on this role. This is an increasing problem as the pool of technical assessors is shrinking in particular areas, e.g. physics.

7. Memoranda of Understanding

The Memoranda of Understanding represent the Government's approach to standards and accreditation. The most important element of the Memoranda is the status conferred on NATA and Standards Australia, which gives them the mandate to represent Australia in international standards and conformance forums.

This submission has already addressed many of the issues relevant to the contents of the Memoranda. In relationship to NATA, NMI considers that the general objectives and undertakings of the MoU are appropriate and that the parties have performed well in general terms. As noted in Section 6.2 of this submission, however, NMI is concerned that government agencies that interact with laboratories do not have an adequate understanding of the accreditation system and are not using it effectively. NMI considers that all laboratories carrying out government work should be accredited to ISO/IEC 17025 (as specified in the MoU) and, in addition, laboratories providing services to government should be accredited to ISO/IEC 17025 to provide maximum assurance of technical integrity. The Commonwealth might consider adding these provisions to its undertakings in the next MoU.

In relation to Standards Australia, NMI has less experience than with NATA in relation to the MoU, and has found no specific problems with the current arrangements. An area in which future undertakings might be expanded is noted in Section 5 of this submission, namely there is scope for strengthening the process for developing or amending standards that will be adopted in regulation. To this end, there may be a need to strengthen the undertakings given in the current MoU by Standards Australia (Clause 5.5) and by the Commonwealth (Clause 6.5).

7. Conclusion

Australia is fortunate in having a strong and well respected technical infrastructure on which to build. NMI considers that Australia is best served by retaining the current arrangements in regard to recognition of a single body for accreditation and a single accreditation body for standards-writing organisations.

Increasing globalisation of industry makes technical infrastructure more important and NMI is concerned that the current reduction in supply of skilled staff may compromise Australia's abilities in this area.

A key concern is the lack of understanding in industry, especially at senior management level, of the importance of technical infrastructure. It is taken for granted until something goes wrong. Similarly, within government agencies, there is a lack of understanding which undermines the commitment of the Commonwealth to promoting accreditation. The technical infrastructure community, preferably with the support of government, should take action to address these concerns. This study could be useful in raising awareness of its role and value.

NMI SUBMISSION: STANDARDS AND ACCREDITATION

Contribution to NATA 2005-06

1. Governance

- NMI Chief Executive Officer chairs the NATA Board

2. Technical assessors in Australia

NMI total number of assessors 58

Time contributed to technical assessments 265 days [74 for chemistry and biology,
191 for physics]

3. Technical assessment overseas for NATA

2005-06 6 days

4. Cost to NMI for accreditation of NMI's laboratories

2005-06	\$274k
2006-07	\$240k (budget)

Contribution to Standards Australia

NMI's contribution to Standards Australia's committees

33 staff contributed 126 days

The total cost to NMI of its contribution to NATA and SA is approximately \$437,000.