

Development and Enforcement of Technical Standards

1. The Need for Standards

A national mechanism for development and recognition of national and international technical standards is recognised by developed countries as having significant public benefit. These benefits include:

- The supply of products and services which can be made more reliable, enhancing public safety and health and minimising the risk of economic loss through sub-standard materials and methods being applied.
- People who do not have expertise to undertake evaluation of technically sophisticated products and services can rely on a standards mark of quality to inform their decision.
- Standards allow for a level playing field in supporting competition in the supply of products and services by ensuring that minimum needs are met.
- Standards support innovation and the development of export earning industries – benchmarking products to a standard can assist in achieving and maintaining access to overseas markets.

The benefits of having a technical standards mechanism in place is no less important for small nations in the Pacific Islands Forum region than those in larger and more developed nations.

2. Approaches to Standard Development

It is common for the development of standards and the assignment of the national standard quality mark to be granted by legislation to a state-appointed but independent entity. This entity will normally be delegated authority to act independently of the political process in approving and withdrawing standards. It will often be assigned public funding, and may be able to obtain revenue for its activities

through sale of copies of standards and from industry grants to fund standard development or revision.

The generally accepted approach by such a body to developing a suite of national standards is to consider the use of international standards first (e.g. the International Organisation for Standardisation), then to consider standards from neighbouring countries that might be adopted. If neither of these options is appropriate, develop national standards.

Widely recognised good practice is that standards development is undertaken using an expert committee working by consensus. This collegial process may be supported by majority voting according to pre-agreed protocols for decision making on contentious matters. There needs to be a means to ensure the membership of committees is sufficiently wide-ranging, encompasses all important expertise, and is free of commercial bias. Academics with subject expertise can be particularly important committee members as they are expected to act in the public benefit.

The committees may undertake or commission research to assist their work. Standards are normally developed and written within a template set by the standards organisation.

Standards do not normally form part of governmental regulation per se. Rather, regulators must make a conscious effort to adopt a standard, giving what is otherwise a voluntary document setting out what the expert committee believes is good practice the power of regulation. In a well-performing regulatory and standards system, regulators do not make variations to standards when adopting them for regulatory purposes. To do so creates confusion and cost.



3. Issues for Standards Regimes in Small Nations

The creation and operation of a standards body is not cheap, and there needs to be sufficient funding to build a capable body acting across a range of important subject areas. The necessity for the standards body to be sustainable through being of sufficient size makes standards development and maintenance particularly challenging in small nations where such an organisation might be prohibitively expensive.

Therefore, within the Pacific Islands Forum region it is highly desirable that a regional or sub-regional approach is taken whenever possible, and that standards from neighbouring countries are adopted whenever suitable. Nevertheless, there is still a need for the standards body to employ the technical expertise to judge when an existing standard from elsewhere is suitable. The members of professions such as engineering can be of assistance.

A particular challenge in the Pacific Islands Forum region is that the service environment may be more demanding than in the country from which a standard might be drawn. Service conditions for equipment include exposure to maritime air conditions (e.g. salt spray), high humidity and high wind conditions – a standard from Australia or New Zealand may not encompass these service conditions, and thus may not be appropriate.

In a small nation it can be difficult for the body charged with setting and maintaining the standards to retain sufficient independence from government, given that government is often a major user of standards as a procurer or provider on behalf of the community of many technical services. Unless well managed there is potential for conflict of interest. Therefore the need exists for the standards body to be demonstrably independent in its decision making process from the government as a procurer or provider.

In larger countries there is a growing tendency for standards to be performance-based (composed of a general regime within which judgement can be applied), rather than prescriptive. The use of performance-based standards means that standards may date less quickly, but they require higher levels of skill in their use than more prescriptive standards. Even though prescriptive standards are more likely to become obsolete, smaller nations may have to use them more often than larger nations due to lack of sufficient expertise to apply performance-based standards.

4. Recommended Approach in the Pacific Islands Forum Region

There is no doubt the Pacific Islands Forum region would benefit economically, environmentally and socially from the adoption and enforcement of technical standards. This would help prevent the destruction of financial capital through expenditure on goods and materials that are not fit for purpose and thus fail prematurely. It would also aid safety and health.

An approach with the highest likelihood of success would be to adopt the following principles:

- Develop a regional standards organisation, with its governance free of national governments with the authority to both establish and withdraw standards (or adopt multi-lateral agreements within parts of the region).
- Form between this organisation and equivalent organisations in Australia and New Zealand a suitable co-operation arrangement.
- Develop a measurement laboratory or laboratories able to undertake accurate scientific measurements across a range of fields. More complex and expensive tests might be contracted out to laboratories in larger countries.
- In national regulation adopt the use of regional standards as a primary means to give effect to national legislation on technical matters.



- Set standards, and regulations using standards, in line with the standards used by reputable aid agencies – the minimum standard should be no lower than an aid agency would support.
- Take a strong approach to measurement and third party certification of the quality of materials and goods intended to cross the border to enter nations to ensure they meet the minimum regulatory standard – keeping out sub-standard materials would go a long way towards improvement.
- To avoid the potential for conflict of interest, separate the roles of government as a procurer or supplier of materials, goods and services, as the provider of measurement services, and as a regulator and enforcement agency.
- Develop training and support mechanisms to support the staff in both the measurement and standards organisations – having mentors and buddies in Australian and New Zealand equivalent organisations may be a viable means.
- Regularly (e.g. five yearly) procure independent review of the measurement and standards organisations to ensure satisfactory performance is maintained.
- Train regulators and border agents in the use of standards as a regulatory and enforcement tool.
- In areas in which national or regional standards do not exist, develop a mechanism to obtain expert advice from the relevant professional community to assist government decision making.
- Water and waste water – standards for water quality, design of piping systems and operation of treatment facilities.
- Health and safety in employment.
- Efficiency of electrical devices, and particularly air conditioning systems. Given the very high cost of generating electricity in most nations energy efficiency is of particular importance, and only highly efficient equipment should be accepted for import. (Ideally, the standard should support equipment with minimum life cycle cost, and in the South Pacific that will weight energy efficiency more highly than in nations with cheaper electricity supply.)
- Measurement systems used in public health and hospitals. Reliable measurement is vital to support the health system.
- Land use – standards for the design of systems for protection of land subjected to earthquake, tsunami, rain- or wind-induced events or sea-erosion.
- Transport vehicles.
- Roads – e.g. pavements, kerbing and lighting.

5. Areas Where Technical Standards Would Yield Major Benefits

In many nations within the Pacific Islands Forum region a large benefit relative to cost would be expected from the adoption and consistent application of standards in the following areas:

- Construction (with the standards used as a means to provide compliance documents for a regional building code). Standards should cover the quality of materials, and methods of construction.

6. Consequences for Accepting Aid

When nations wish to accept aid-funded projects, it is vital these projects meet or exceed accepted national standards, and ideally should confirm to an internationally-benchmarked best practice quality. If they do not, the project may prove inoperable, difficult to maintain and may not necessarily be safe when subjected to the sorts of climatic and natural hazard events that might occur in its lifetime.



7. The Contribution of the South Pacific Engineers Association

Ensuring a suitable standards regime is in place to minimise economic loss and risks to safety and health is important to the economic future for Pacific communities. It is also a challenge for both governments and professional support communities. By involving its professional engineering community as a key player in the development and application

of technical standards governments can ensure the best possible use of capital and resources, thereby maximising the potential to deliver improved standards of living for the people of the countries and the region as a whole.

In areas in which there are no national standards, government may choose to work with the national professional engineering body to obtain expert advice to help decide if a proposed engineering project meets acceptable standards.

8. Disclaimer

The South Pacific Engineers Association is the non-aligned association of national professional engineering bodies in the South Pacific. It seeks to contribute on matters of national and regional importance. One part of its contribution is to issue position papers, which give a learned view on important issues independently of any commercial interest. Such notes are not consensus papers of the Association's membership, although they have been widely peer reviewed amongst the membership. Others are free to quote or use materials from this note.