Abstract
The pending introduction of the ISO 55000 series of standards on asset management, will potentially impact all who have asset management responsibilities. These standards, whilst framed on physical assets management, can be utilised for any asset type. The Standards are intended for use by any sized organisation and have a range of objectives including the promotion of good practice through to full third-party certification of conformance to the standards.

This paper comments on the possible implications for organisations, particularly those currently managing infrastructure assets, who may choose to apply the standards or who may be required to do so by way of regulation. These views arise from the Author’s involvement as the IPWEA representative on the Standards Australia Mirror Committee for the development of the ISO 55000 standards.

Key Words: Asset Management, Standards, Infrastructure, Regulation, Certification

Introduction
This paper outlines the journey to date by the international project committee (PC 251) tasked with writing the standards. It explains some of the issues that have challenged those involved in reaching a consensus position on the many and varied views as to what constitutes a management system for the management of assets. It provides an up-to-date picture of where the process has reached and key elements that can be expected in the final documents.

Format for the Standards and Timing
There are three Standards being developed:-

- ISO 55000 Asset management – Overview, principles and terminology
- ISO 55001 Asset management – Management systems - Requirements
- ISO 55002 Asset management – Management systems - Guidelines for the application of ISO 55001

There have been five Meetings of the Project Committee (PC) established to write the Standards. Over this period they have progressed through a series of Committee Drafts to now being a Final Draft International Standard (FDIS). There are 31 Member Countries on the PC and 12 Observer Countries. Obviously the more developed Countries are proving to be the major contributors to the content.

The timeframe for development has been quite tight and the following diagram shows various milestone dates that were established at the start of the project. The final step will be circulation of the Final Draft International Standard for a 2 month ballot process. The Standards are now likely to be completed and adopted by the end of 2013. There will be a final process through Standards Australia for their adoption here in Australia.

Now at FDIS stage and likely to be published by November 2013.
Management System Approach

These Standards are the first being written in accordance with ISO established Annex SL for the alignment of the consistent structure and contents of all their Management System type standards. Accordingly, users will ultimately see similarities between the Quality Management, Environmental Management and Risk Management type Standards, to name a few.

Whilst PAS 55, produced by British Standards, was seen as an initial catalyst for the ISO Asset Management Standards, they have since evolved into quite a significantly different format and approach to what is in PAS 55. The first important thing to note is that these Standards seek to specify a Management System for the management of assets. The Requirements part of the Standards are very much about the “What to do” in establishing such a system and not about “How to do” it. However, the emphasis in ISO 55001 is on establishing a management system with the intent of actually ‘doing’ asset management.

Another significant departure from PAS 55 has been the question of, to which assets, these Standards can apply. This has been hotly debated at a number of the Committee Meetings as it was initially promoted and supported by ISO that the Standards need to be generic, applicable to all kinds of assets. It rapidly became apparent however, that the Standards were being drafted with a strong emphasis on the managing of physical assets. The solution has been a clause as follows:

“This International Standard can be applied to all types of assets and by all types and sizes of organizations.

NOTE 1 This International Standard is particularly intended to be used for managing physical assets, but this does not limit its application to other asset types.

This International Standard does not provide financial, accounting or technical guidance for managing specific asset types.”

There has been some preliminary “testing” of how the Standards might apply to non-physical assets such as intellectual property, brands, and other “intangibles” and it is felt it will be quite robust in being able to be applied by organisations that choose to do so. That leads to another important point, which is that it is up to each organisation to determine to which of its assets, it wishes the Standards to apply.

As detailed in 55001, the Standards are primarily intended for use by:

— those involved in the establishment, implementation, maintenance, and improvement of an asset management system,
— those involved in delivering asset management activities and service providers,
— internal and external parties to assess the organization’s ability to meet legal, regulatory and contractual requirements and the organization’s own requirements.

Final Draft ISO 55000 – Overview, Principles and Terminology

As the title indicates, this first Standard spells out a number of concepts and principles related to assets, asset management and then the management systems for such. It also importantly lists all the definitions to be applied throughout the three Standards. For instance the following is the definition of an asset:

“An “asset” is something that has potential or actual value to an organization. The value will vary between different organizations and their stakeholders. Value can be tangible or intangible, financial or non-financial.”

The Overview is intended to give senior management a quick appreciation of why the organisation should embrace asset management and the value realization they can attain by so doing. The concept of asset lifecycle is introduced and again this has been hotly debated due to the differences in importance on various phases depending on organisation type. It has been left to each organisation to decide how they wish to define the asset life stages.

The Standard describes the concept of “Asset management” as the set of coordinated activities that an organization uses to realize value from assets in the delivery of its outcomes or objectives. Realization of value requires the achievement of a balance of costs, risks, opportunities and performance, often over different timescales. It then goes on to elaborate on a number of key fundamentals desirable in achieving asset management, including value, alignment, leadership, and assurance in service delivery. It then addresses the asset management system which it describes as:

“An asset management system is a set of interrelated or interacting elements of an organization, that establish asset
management policies and objectives, and the processes needed to achieve those objectives.”

The relationship between key asset management terms is shown in the following Figure.

55000 then outlines a number of benefits to various stakeholders and parts of the organization by having such a system including integration of asset management and financial management in the organization. It then lists the seven key elements that comprise such a system which is a logical lead into the next Standard.

Final Draft ISO 55001 – Management System – Requirements

This is the most critical Standard incorporating all the “thou shall” statements - some 70 with a number of sub elements. A lot of these “shalls” and the supporting text is fixed by the aforementioned ISO Annex SL Guidelines on MS standards. The additional text deals with specifics that are peculiar to how a management system operates in terms of managing assets. Some of the key elements in this particular Standard are as follows:

- Context of the Organisation
  - Needs/Expectations of Stakeholders
  - Scope of the AM system and to which assets it will apply.

- Leadership and Commitment
  - Policy, Roles, responsibilities and authorities

- Planning
  - Risks and Opportunities

- AM Objectives and planning to achieve them

- Support
  - Resources, awareness, competence
  - Communication
  - Information

- Operation and Control
  - Change management
  - Outsourcing

- Performance Evaluation
  - Monitoring and Review
  - Auditing

- Improvement
  - Nonconformity
  - Corrective and Preventive Action
  - Continual improvement

Some of the important aspects of this Standard are the degree of weight placed on understanding stakeholder needs and expectations. We have also managed to have included here a number of clauses that strengthen the recording and reporting on both financial and non-financial information.

Top management has far greater responsibility in terms of integrating the AM system into overall business planning and ensuring the AM functions are properly resourced. There is a strong focus on a whole of organisation approach which should help break down silo effects in many organisations. There is a requirement for an organisation to adopt an AM Policy and broad direction on such Policy is spelled out.

The Planning aspects deal with planning for both the AM system and asset management activities under that system. This involves setting AM objectives consistent with the overall organisational objectives in a Strategic AM Plan. The next step is the AM Plans to achieve those objectives and strategy. This section invokes a lifecycle approach and risk management approach. It spells out setting of requirements with respect to resourcing and determining who is to be
responsible for what, timeframes and evaluation of what is achieved.

The next Section on Support importantly deals with the organisation allocating the resources necessary for implementation of not only the asset management system but also the asset management plans under such system. It then goes on to specify requirements with respect to the competences required of those performing asset management functions and the need to communicate and create awareness of policies and objectives and plans amongst all involved. This section next deals with information requirements relevant again to the system and to asset management in general. This section also promotes better alignment between asset management and financial management terminology throughout the organisation. There is then a quite detailed set of requirements regarding documented information, covering creating, updating and control.

The Operation Section then deals with operational planning and control of the processes needed to meet requirements, and to implement the actions determined in risk management and the asset management plan(s). Additional requirements have been included on addressing risk associated with change management and controlling any outsourcing of activities that relate to asset management.

The Section on Performance Evaluation is largely standard text dealing with monitoring, measurement, analysis and evaluation of the asset performance, asset management performance, including financial and non-financial performance, and the effectiveness of the asset management system. It then deals with internal audit requirements to ensure appropriate conformance and setting up audit programs. It then deals with top management review of the organization’s asset management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.

The final Section deals with Improvement and includes a number of requirements relating to conformity and corrective action. A clause has also been included on preventive action and the Standard promotes continual improvement for both the system and asset management in general. This emphasis on continuous improvement by proactive monitoring of the system, processes and practices and the assets to predict and fix problems and issues, is important.

This third Standard contains explanatory text necessary to clarify the requirements specified in ISO 55001 and provides examples to support implementation. It does not provide guidance for managing specific asset types.

This Standard follows the same layout of contents as in 55001 but has no “requirements”, instead focussing on providing further clarification of the intent of the requirements clauses in 55001, where deemed necessary.

An example of explanation of an important issue like the asset management objectives being set as part of the strategic asset management plan, is as follows:

“The asset management objectives, derived as part of the strategic asset management plan provide the essential link between the organization’s objectives and the asset management plans that describe how those objectives are going to be achieved. The asset management objectives transform the required outcomes, (product or service), to be provided by the assets, into activities typically described in the asset management plans.

In some organizations (particularly where the asset provides a service to customers) asset management objectives are often referred to as levels of service.”

Similarly, each part of the 55001 Standard is expanded upon with more detailed explanation and where appropriate, examples to aid practitioners in better interpreting the requirements.

Linkages to Financial Management

One of the issues that the Author of this Paper has taken on in the drafting of these Standards is to ensure there is a strong recognition of the importance of a link between asset management and financial management. The aim is recognition that developing asset management plans is fine, but if these do not link to the financial planning of the organisation such that the necessary funding is provided, they quickly become a wasted exercise. Fortunately, this principle has been well accepted and we have had a strong multi-national team overseeing the necessary clauses for insertion.

An example of this approach, is the following wording in the Overview Standard:
“c) Financial functions benefit from improved data and linkages

Integration of an organisation’s strategic asset management plan with its long term financial plans can enable the balancing of short-term financial needs with the needs of medium-term activity plans, and with the much longer-term plans that some assets require.

- Robust financial information based on integrated processes between the asset management and finance functions, is an important benefit of the asset management system.

- The linkage of asset management information to financial information is an important contribution of the asset management system to the financial function. This interaction supports improved assessment of the financial position and funding requirements of the organization in relation to its assets.

- The organization’s risk-based decision-making processes can become more effective by addressing asset and financial risks together, and by balancing performance, costs and risks.

- An effective taxonomy, which is one feature of the asset management system, enables an integrated financial and technical view of assets and asset systems.”

A Role for the IIMM?

It has been recognised that there are a number of excellent reference materials available around the world including documents such as the International Infrastructure Management Manual (IIMM) that we here in Australia and New Zealand see as being pretty much “the Bible” for how to implement asset management. Additionally there are of course a number of other ISO Standards that are closely related.

It was noted by the PC that there is a difference between a formal Bibliography listing reference documents versus a listing of items for further reading. It has been considered it might be useful to keep the Bibliography to formal references, and use the option of the PC developing its own web page on ISO’s Livelink system for further reading items.

Conformity Assessment Issues

ISO representatives noted that a number of other committees had either published, or were developing, documents specifying competency requirements for those involved in 3rd party audits and certification of management systems in their fields (e.g. ISO/IEC DTS 17021-2 for environmental management systems)

Discussions in the AM PC 251 indicated that there was agreement to try to develop 3rd party auditing and certification competency requirements, but not to examine training or consultancy issues. Following a meeting of a Working Group from PC 251 to address this matter, good progress was made in developing a Final Draft ISO/IEC 17021-Part 5 “Competence requirements for auditing and certification of asset management system”.

The timing for the development of such a technical specification is fortuitous, and allows it to be published concurrently with the publication of the ISO 5500X standards, for a joint ballot process.

Drivers for Application of the Standards

The nature of organisations and their governance arrangements as well as the nature and value of their assets, will all likely be factors in whether they choose to apply these AM Standards. ISO themselves state that the main aim of Standards is to promote good practice, not to be there purely for compliance. The Standards per se do not carry any force to require their application. It will be up to organisations in most cases to choose to apply them as part of good business practice. However, it is likely that in some highly regulated areas, involving significant asset values, the regulators may look to the comfort of requiring these Standards to be applied, to protect their interests. Commercialised and privatised utilities such as water businesses, electricity or transport sector businesses in a number of Countries are likely to fall into such category. There is also of course a possibility that central government will impose a requirement to comply with the Standards for other levels of government under their control, (even if the central government itself does not comply). Far better then to have thought about what position might be best for your sector and seek to influence the outcome rather than it being suddenly imposed by others.

The point to note is that whilst organisations may not want to go the whole box-and-dice in implementation – the creation of an independent international standard will likely be grabbed with open arms by regulators, insurers and risk managers and investors/finance providers as a CREDIBLE framework
for monitoring and review of compliance with their expectations.

In Australia, IPWEA has developed a Policy position for local government, that will desirably steer all stakeholders along a path of allowing Councils (and other organisations) to choose whether to apply the Standards but encouraging them to do so where it is agreed it is advantageous to their business. As indicated in the Standards, they will also of course have the choice as to which of their assets the Standards will apply. It is certainly not seen as desirable that central government legislate to make application of the Standards mandatory.

The main points of the IPWEA Policy on application of the Standards are as follows:

- All infrastructure orgs should consider the Standards for the benefits to be gained from applying a MS approach.
- Governments should promote application at a level appropriate to business/community needs.
- Application should not be prescriptive – apply to those assets and at a level appropriate to stakeholder needs.
- Application should not be just for compliance – but part of overall management approach.
- Organisations should decide on their appropriate level of certifying compliance.

Conclusion

There has been much work in Australia over many years in developing better practice guidance for asset management with a number of excellent Manuals, training and encouragement to organisations to improve their asset management performance. This has been backed up as well with legislation in recent years that has mandated more in relation to long term financial planning and asset management planning, particularly for local government. The challenge then is to look closely at the provisions of these ISO Asset Management Standards and see how they may be advantageous to the sector that you work in, so that you can make an informed decision about the desirability of having them apply in your business and to what extent.

References

1) Final Draft ISO 55000 Asset management – Overview, principles and terminology
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Peter Way PSM  Biography

Having "semi-retired" from Logan City Council after some 30 years in local government engineering, Peter Way is now devoting his time to advancing asset management on the national front in his role as Chair of the Institute of Public Works Engineering Australia’s National Asset Management Strategy Group (NAMS.AU). Peter has been the principal author of a number of the Practice Notes developed to assist practitioners carry out condition and performance assessment on key asset classes. Peter has also been the principal author of the study material based on the IIMM and the AIFMG for the Graduate Certificate and Diploma Courses in Infrastructure Asset Management run through the University of Tasmania. Peter also represents IPWEA on the Standards Australia Mirror Committee as part of developing the ISO Standards for Asset Management.