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Reliance Statement and Disclaimer

GHD, Marchment Hill Consulting and CH2MHill (the Consortium) have prepared this Report in accordance with our Agreement with the Water Services Association of Australia Inc (WSAA). This 2012 Asset Management Performance Improvement Project Industry Report ("Report") is provided for the sole purpose of benchmarking asset management performance by, and identifying performance improvement opportunities for, water industry utilities that have entered into agreements to participate in this project ("Utilities"). The performance benchmarks and improvement recommendations may be used to assist Utilities in decision-making regarding business improvement in asset management or risk management. However, this Report is provided solely on the basis that each of the Utilities will be responsible for making its own assessment of, and decisions in relation to, any asset management or risk management matters relating to it.

This Report contains aggregated information about each of the Utilities received from its representatives, using WSAA's Aquamark Asset Management Benchmarking Framework. The accuracy, reliability and correctness of data generated for this Report is dependent on both the accuracy of the Aquamark self-assessments conducted by the Utilities for benchmarking purposes, the other performance and background data provided by the Utilities, and the professional judgment of the Consortium consultants conducting the sampling and review of benchmark data. An audit has NOT been carried out to test the full veracity or otherwise of the information received. All findings and written material provided represent the professional judgment of the Consortium, based on the information available to it at the time. The recommendations have been developed by the Consortium based on the collective data provided by Utilities and agreed in collaboration with the WSAA Steering Committee. It is the responsibility of each of the Utilities to make its own decisions about the accuracy, currency, reliability and correctness of asset management performance benchmarks and improvement initiatives generated using the asset management benchmarking framework.

The services undertaken by the Consortium in connection with preparing this Report were limited to those specifically detailed in this Report.

WSAA and the Utilities acknowledge that the Consortium has not, and accepts no obligation to, update the Report for events subsequent to the date that the Report was signed.

Neither the Consortium, WSAA, nor any employee or agent of WSAA, shall be responsible or liable for any claim, loss (including economic loss), liability, cost and expense of whatsoever nature or howsoever incurred (whether caused by the negligence of WSAA or any employee or agent, or the Consortium) arising from the use or reliance on any performance benchmarking generated using the Asset Management Benchmarking Framework or any data included in the Asset Management Benchmarking Framework's database (including incomplete, out-of-date, wrong, inaccurate or misleading information, data or advice).

Confidentiality

Each participating Utility agrees that:

1. For the purposes of the Project the Utility must take all reasonable steps to maintain the confidentiality of information received through the project in accordance with the Participation Agreement and repeated below,
2. It may indicate publicly or privately that it has participated in this particular project and which other utilities also participated in the project,
3. It may refer in public or in private to its individual performance, either in general terms or to specific results associated with the project and quoted from its related Reports,
4. It must not make any outside comment regarding the performance of any other participating utility, and
5. It may elect to present to or release its Utility and/or Industry Reports to representatives of its shareholders (Third Parties) and/or State and Federal Regulatory Bodies, provided this disclaimer is clearly disclosed to the relevant shareholders and/ or regulators.

Prior to any release pursuant to item 5. above, a Third Party and State and Federal Regulatory Body (the Addressee) shall acknowledge, in writing, the following:

- That the Report has not been prepared for any person or organisation other than the participating Utility,
- That the Addressee will place no reliance on the program information and this Report,
- That the Consortium and/or WSAA will owe the Addressee no duty of care and be under no liability to the Addressee whatsoever (whether in contract or tort or otherwise including, but not limited to, negligence) in connection with this Report; and
- That the Addressee will not copy, distribute, circulate, quote, refer to, rely upon or otherwise disseminate program information and the contents of this Report, other than to its advisers, officers or employees to the extent reasonably and properly required in the performance of their duties to the Addressee.

Executive Summary

This report analyses and promotes asset management business process and performance improvement in the urban water industry through international comparison and collaboration

This Industry Report is the final outcome of the IWA-WSAA 2012 Asset Management Performance Improvement Project: a collaborative project involving the participation of 37 water sector utilities in Australia (27), Canada (1), New Zealand (2), the Philippines (1) and the United States (6). The project has been guided by a Steering Committee drawn from WSAA members and the utility participants. The Report provides a continuing opportunity for international cooperation and learning, building on previous benchmarking work by WSAA.

The Report describes the overall aggregate benchmarking results and comparative insights for the 37 utilities, including comparison of the current 2012 project results with those of the previous 2008 project. Current business drivers in the participant group are explored, contemporary and relevant leading practice themes for the industry identified, and recommendations made for industry-wide asset management improvement opportunities to be taken up by WSAA or other industry bodies.

A Leading Practices Compendium is published separately as Volume 2 of this document, to be used as a desktop reference by utility participant asset management practitioners.

To maximise project benefits, it is highly recommended that the findings of this Industry Report be integrated with the specific Utility Report prepared for each participant, and the learning and networking opportunities from the Leading Practices Conference held in November 2012.

Constrained global and regional economic environments are driving change in water industry asset management practice to deliver affordable prices, improved value for money and reduced capital expenditure

To ensure the outcomes of the project were aligned with industry needs and focused on better customer outcomes, an analysis of utility business drivers, being “the most important challenges requiring utility change over the next four years”, was undertaken as part of this project. Each participant, through their executive team, selected their highest priority business drivers from a set predetermined in conjunction with the WSAA Steering Committee. These drivers were corporate level drivers, not just those relating to asset management.

The highest priority business drivers across the two participant groups of Australia/New Zealand (29 utilities) and North America (7 utilities) are summarised in the table below (recognising that the North America participant group is small and thus not representative of the region as a whole).

Priority Business Drivers (The Philippines excluded to preserve confidentiality)

Region	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Australia / New Zealand	Affordability Constraints	Value for Money	Capital Expenditure / Debt Reduction	Economic Regulation of Revenues / Prices	Regulation Compliance
North America	Regulation Compliance	Affordability Constraints	Ageing Workforce / Skills / Experience Retention	Capital Expenditure / Debt Reduction	Ageing Infrastructure

These business drivers support the perception of a significant shift in the operating environment for water utilities globally. The participant group across all regions in 2008 was generally characterised by demand growth and service improvement, supporting increasing asset acquisition and capital delivery but constrained by skills and resource shortfalls caused by competing demands and an ageing workforce. In 2012, a constrained economic environment and regional influences (such as major water security investment in Australia increasing debt and water prices) has meant that community and government financial constraints have shifted the predominant drivers across the participant group towards community affordability, capital expenditure / debt reduction and ensuring regulatory compliance.

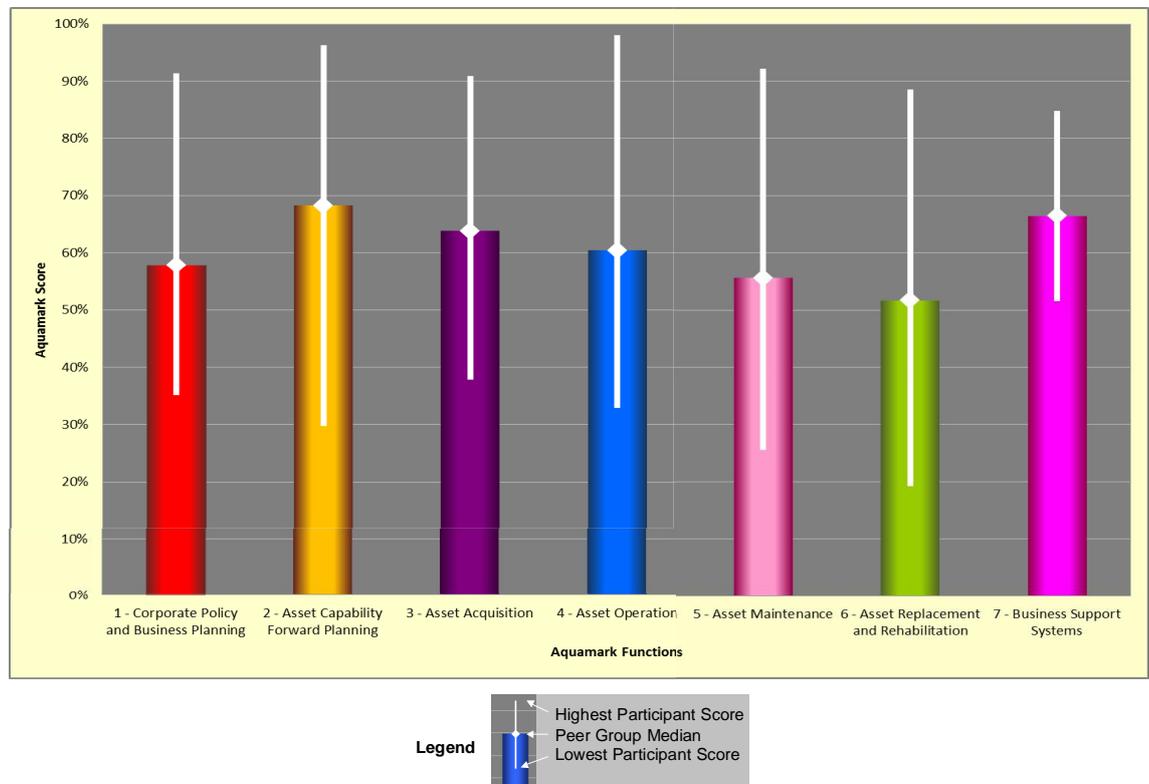
The business driver results were used extensively in this project to:

- identify those Aquamark processes that are most important to their delivery,
- assist with determination of individual utility priority improvement initiatives,
- develop appropriate themes for the Leading Practices Conference and select appropriate leading practices that are relevant and beneficial to the participating utilities, and
- identify industry-wide improvements that provide the greatest opportunities for benefits to customers.

2012 benchmarking results show stronger capability in planning and delivering new assets than managing maintenance and replacement of existing assets

The process benchmarking comparison for the overall participant group at an Aquamark function level is shown below.

Overall Benchmarking Group Aquamark Results at a Function Level



This chart indicates that the most advanced functions are in Asset Capability Forward Planning and Asset Acquisition, along with Business Support Systems. This tends to demonstrate the recent focus of utilities on growth (new) and water security planning and acquisition, and is

closely aligned with some of the priority business drivers for 2008. At a more detailed process level, higher scores were also more attributable to the **growth planning and shorter term service delivery** aspects of utility business.

The least advanced functions are Asset Maintenance and Asset Replacement and Rehabilitation, especially in the **longer term strategic and analytical** processes reliant on good asset residual life and condition data and decision tools, or the inputs to them. These scores highlight a need to improve strategic processes to address current business drivers.

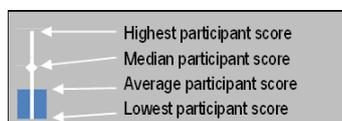
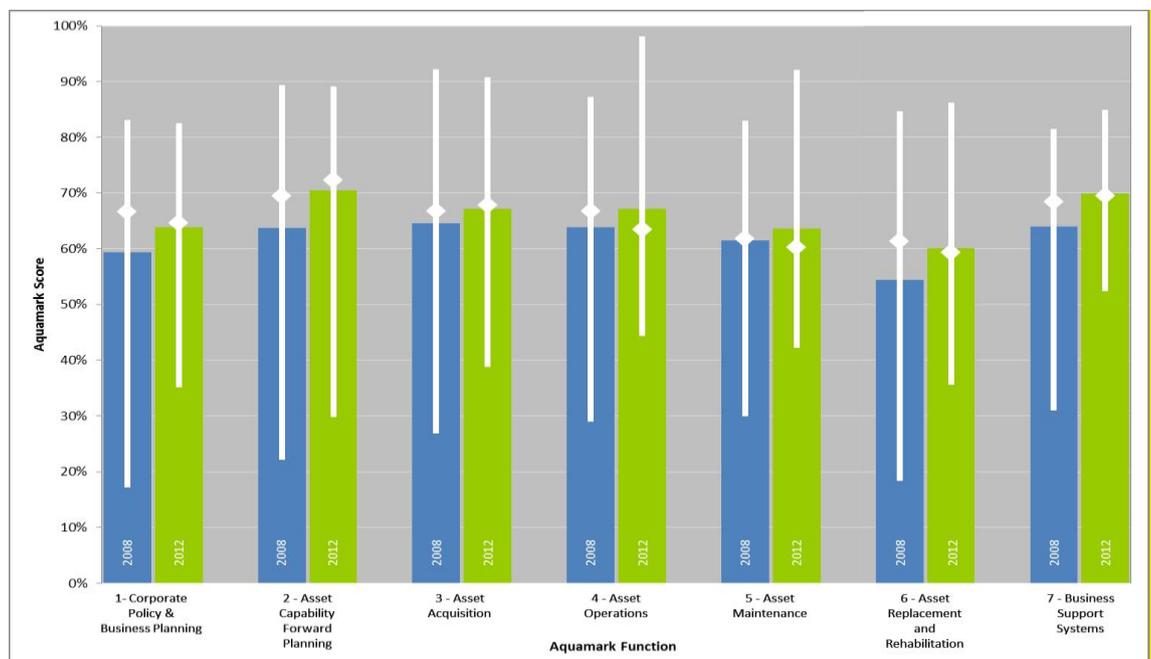
The score for Business Support Systems (asset-related information systems and data) is relatively high, although this function is scored differently and direct comparison is not possible. Participating utilities generally indicated information systems were adequate, although many had an increased focus on improvement of older legacy information systems. It was observed that many utilities were not getting full value from existing systems and data, with aspects such as data quality/validity and systems interconnectivity being consistent shortfalls.

The range of participant results from lowest scoring utility to highest is large (50 to 70%) for all functions except Business Support Systems, indicating the wide range of maturity in the evolution of asset management practice of the participating utilities: from *formative* (relatively new to asset management practice) to *advanced* (very mature in asset management practice).

Demonstrated performance improvement across all asset management functions since 2008, especially for utilities with less mature asset management processes

Pleasingly, 22 of the participating utilities, or 60% of the group, (24 utilities including those who have amalgamated into new utilities) also participated in the IWA-WSAA 2008 International Asset Management Process Benchmarking Project. Comparison between the current 2012 results and the 2008 results is shown below.

Aquamark 2008 to 2012 Comparison



This comparison has been undertaken with some caution, as the Aquamark framework has undergone substantial revision, and repeat participants have either taken different approaches to scoring, or have undergone substantial organisational change, since 2008. Variations on scoring of up to 15% could be encountered due to factors other than process improvement.

For aggregate median scores there has been negligible change across all functions, but considering average scores across the repeat participants, improvement was noted in all functions, ranging from 2% for Asset Maintenance, to 6% for each function of Asset Capability Forward Planning, Asset Replacement and Rehabilitation, and Business Support Systems.

A more startling and positive result is the lowest of the range representing the lowest-scoring repeat participant in each function, where scores increased across all functions by between 11% and 22%, revealing that the utilities with the least developed asset management processes in 2008 appear to have improved significantly across all functions.

Significant improvements since 2008 generally occurred in processes related to demand growth and capital programs, along with improved renewals planning – reflecting, reassuringly, some of the key business driver priorities of 2008. Further, the improvements in the lowest scoring repeat participants were broadly in the strategic planning and decision making aspects of asset management and the inputs to those processes (such as Risk Management, Financial Management and Life Cycle Best Value Decision Making).

A significant conclusion from this analysis, then, is that *formative and developing utilities (those with the lowest scores in 2008) have benefited most from continued participation in this asset management benchmarking program, especially in the strategic planning and decision making aspects of asset management and the inputs to those processes.*

Leading practices were identified across the participant group in themes that aligned strongly to meeting industry-wide business imperatives

Drawing from the priority business drivers for the overall participant group and its regions, the following leading practice themes were developed and agreed with the Steering Committee:

- 1. Foundations for Sustainable Asset Management** - sustaining business services and financial viability in the long term, through appropriate asset management frameworks, governance, alignment with corporate objectives and performance management
- 2. Tools, Decision Making and Documentation** – focusing on life cycle decision making processes and documenting decisions, strategies and plans
- 3. Prudent Asset Investment** – project justification and its application to growth, renewals and service improvement planning
- 4. Efficient Service Delivery** – service delivery strategies and the benefits of application of asset management principles in the asset acquisition phase
- 5. Doing More With Less Operationally** – managing service levels and risk at lowest cost, developing operating and maintenance strategies, use of smart systems and productivity improvement, and the value of configuration management
- 6. Organisational Asset Management Capability** – staff skills and competencies, supported by proactive review and improvement planning for asset management business processes, information systems and data.

These themes were the basis for the 3-day Leading Practices Conference held in Sydney in November 2012.

Industry-wide improvement opportunities for research and collaboration are recommended to enable industry-wide development of asset management capability to improve business performance and customer value

The intent of this 2012 project was to identify and share leading practices, thereby improving the level of practice and maturity of the whole participant group, and indeed others across the urban water industry. The momentum from this project can be maintained and the benefits to the industry magnified by more detailed research and collaborative sharing of practices – not by reinventing the wheel.

This collaborative model appears to be highly effective and engaging, especially for utilities in the formative and developing stages of asset management maturity. It has been used to great effect by WSAA and other international associations.

Improvement opportunities for the industry have been selected and prioritised that:

- align with the important business drivers across the participant group,
- are key improvements identified through the Aquamark benchmarking analysis,
- provide global opportunities for collaboration,
- are strategic and support or enhance the work being done through the WSAA Asset Management Committee and other international bodies such as the Water Environment Research Foundation (WERF), and United Kingdom Water Industry Research (UKWIR), and
- were reviewed for applicability and scope at the Leading Practices Conference.

The nominated initiatives are:

- 1. Implementing an Asset Management System (or framework for asset management)** - to provide guidance on establishing a clear mandate for asset management activities and communicating this through a utility
- 2. Asset Management Improvement Planning** - to proactively review the status of asset management with respect to meeting business objectives, and plan and implement business process, information systems and data and knowledge improvements through a structured program including research and knowledge capture
- 3. Asset Management Skills and Competencies** - to provide guidance on appropriate means to evaluate and develop sustainable asset management capability in urban water utilities
- 4. Asset Management Planning Documentation** – to provide appropriate examples to improve the content and use of Asset Management Plans (AMPs) or similar documentation to ensure alignment with business and stakeholder needs
- 5. Investment Evaluation Decision Making Approaches** - to explore alternatives, and potentially standardise, evaluation processes and tools to achieve prudent and efficient investment
- 6. Maintenance Strategies and Implementation** - to provide guidance and case studies on maintenance strategies and implementation issues
- 7. Productivity Optimisation** - to provide guidance and case studies on process improvements and key opportunities for productivity improvement in urban water utilities

8. **Renewals Planning and Forecasting** - to provide guidance and case studies on process improvements and key opportunities for renewals forecasting and planning, and end of economic life determination for urban water utility assets
9. **Configuration Management** - to provide guidance and case studies on process improvements and benefits from implementation of configuration management principles and processes.

It is recommended that the improvement opportunities in this report be considered by WSAA and the international participants, and:

- Critically reviewed and prioritised for value and contribution to industry needs
- Develop a business case for each opportunity, along with an implementation program that engages the sector with an objective to improve utility performance widely
- Implement the improvements in accordance with priorities
- Monitor their progress and benefits, and review and improve future opportunities for collaboration.