



Australian Government

Department of the Environment,
Water, Heritage and the Arts

WATER for the **FUTURE**

NATIONAL WATER SKILLS STRATEGY

December 2009

NATIONAL WATER SKILLS STRATEGY

The key focus of this Strategy is to encourage and work with industry to build demand for and uptake of state and national training programs so that the water sector can take full advantage of the pre-existing opportunities available through existing government programs.

PREAMBLE.....	2
CURRENT CHALLENGES.....	4
THE WATER SECTOR	5
CONTEXT	7
OBJECTIVES.....	11
MONITORING AND EVALUATION.....	11
IMPLEMENTATION	11
STRATEGY	12

PREAMBLE

The findings of a national audit of labour and skills shortages in the water sector have been reported to the meeting of the Council of Australian Governments (CoAG) in July 2008. The audit, undertaken by the International Centre of Excellence in Water Resources Management (ICEWaRM), reported current and emerging labour and skills shortages in the Australian water sector, with estimates of magnitude and composition. The audit predicted a significant emerging skills gap with nearly half of those employed in the water sector in 2018 needed to be recruited over the next ten years, many of whom will require tertiary training. Key skills shortages are in science and engineering, management, technical and trades areas and this is expected to continue into the foreseeable future.

As the National Audit of Water Skills noted in July 2008, demand for and supply of skilled labour to the water industry is strongly influenced by some key past trends, including:

- An ageing workforce, due not only to broader demographic change but also to low levels of recruitment in the 1980s and 1990s;
- Extensive corporatisation and the contracting out of many functions of water utilities in the 80s and 90s, and a resulting reduction in the level of in-house training provided by employers; and
- Demand from the mining and construction industries for a limited pool of scientists and engineers.

Analysis of skills supply in the water industry must also take account of some more generic issues, namely:

- The appropriate balance of generic and job-specific skills required of new staff;
- Balance of technical versus higher-level skills required in the workforce;
- Relative attractiveness of the water sector generally; and
- Graduate supply issues arising from lower uptake of science and engineering courses nationally.

The audit also predicted that shortages will likely be distributed unevenly across different occupations and specialisation in the industry.

The Global Financial Crisis (GFC)

In response to the GFC, and based on the subsequent expectation that jobs growth maybe constrained for the next two to three years, the projected skills gap forecast in July 2008 for 2018 was revised downwards. Nevertheless, there

remain significant levels of commitment to invest in infrastructure projects, and it is expected that the water sector will continue to grow post GFC.

This strategy will respond effectively to growing skills demand, and therefore maintains the commitment to developing a comprehensive forward plan for the water sector.

Australian Government Initiatives to Support the National Water Skills Strategy

On 7 December 2009, COAG agreed to redouble its efforts to accelerate the pace of reform under the National Water Initiative (NWI), committing to a National Water Skills Strategy to address skills shortages in the water industry.

In support of the strategy, the Australian Government has agreed to fund the following initiatives from the *Raising National Water Standards* program of the National Water Commission:

Initiative 1: Up to \$500,000 for a Pilot Program to trial development of training in water management skills for remote and indigenous communities. This initiative will ensure that the necessary technical skills are available in remote communities to operate and maintain the infrastructure and other facilities to be provided through a separate \$50 million allocation from Water for the Future in support of the COAG Strategy on Water and Wastewater Services in Remote Communities (including indigenous communities).

Initiative 2: Up to \$250,000 for the development of skills and training standards for operators of potable water treatment facilities. This initiative aims to address the problem that no nationally agreed minimum skills and training standards currently exist for operators of potable water treatment facilities, which raises a potentially serious public health risk situation for the community.

Initiative 3: Funding on a 3-for-1 matching basis of up to \$250,000 to support the H2Oz water industry marketing campaign (the water industry's own initiative aimed at addressing the skills shortage); and funding of up to \$100,000 to enable the Australian Water Association on behalf of the Water Industry Skills Taskforce (and with support from the NWC) to develop a business plan to implement the COAG National Water Skills Strategy.

CURRENT CHALLENGES

The following issues and challenges affecting the water sector are limiting its capacity to meet the reported labour and skills needs:

- Historically, the sector workforce has experienced high long-term stability, and corresponding low levels of mobility, but has been in overall decline in numbers over the last ten to fifteen years;
- Some rapidly emerging skills gaps are occurring, notably in technical, professional and managerial categories due to low levels of recruitment and training since the early 1990's, both external and in-house, coinciding with the move to corporatisation and the contracting out of many functions of water utilities at that time;
- The fragmentation of training demand, low numbers in individual enterprises and business management models have made it difficult to train recruits and existing staff;
- The likely impending retirement of a large cohort of skilled workers will result in significant gaps in skills and experience within the sector in the next five years and a report by the Water Services Association Australia showed that some large urban water utilities have a poor history of workforce and succession planning;
- The existing workforce will be required to adapt to emerging demands of climate change, environmental management, new technologies, and the multidisciplinary nature of sustainable water management. Some key scientific skills gaps, such as hydrologists and water modellers, are limiting progress on some initiatives already;
- Increasingly sophisticated systems and technical processes that are changing the nature of jobs and their training requirements;
- There currently appears to be limited capacity to attract and retain recruits, linked to a decline in popularity of science and mathematics at school, the lack of water specific components of generic qualifications and the poor match of initial qualifications with occupations; for example, a very significant proportion of engineering graduates do not choose to work as engineers; and
- In some sectors of the water industry, notably rural and urban irrigation (design, installation and management), there is currently little recognition of the value of training or qualifications and career paths are ill-defined.

Following the completion of the national audit, ICEWaRM produced a strategy report that recommended national strategies to address the identified labour and skills shortages in the water industry. The analysis involved nationwide consultation and resulted in more than 20 proposed strategies, many of which were overlapping and interrelated. These have been further consolidated to priority strategies, which has informed the development of the Actions, set out below.

THE WATER SECTOR

In common with many industries that have undergone operational, business and management restructuring, the national water sector is complex and evolving, particularly in its stakeholders, supply chain and overlap with other allied industries. To appreciate the recommendations set out below, it is important to convey a wide perspective of the whole sector.

The 1994 COAG water reforms signalled major restructuring throughout the water industry. Responsibility for policy and regulation was separated from operations, and many enterprises were significantly restructured, downsized, corporatised, and some functions privatised. Many functions were outsourced to the private sector, including operations and management of water infrastructure, though in most cases the ownership of major assets was retained by the public sector and corporatised enterprises. The private sector has also continued to evolve, with many having significant international interests, and having a demonstrated capacity to operate across a range of different contracts, services and industries.

It is therefore more difficult in 2009 to draw a clear boundary around the water industry in terms of what defines it and distinguishes it from other industries. Many of the traditional descriptions, which established the boundaries in industry, have become blurred, particularly with the application of concepts such as government owned corporations, contracted services, core business and competition policy. An approximate mapping of the major interests and parties is illustrated below. It shows the central functions retained in the public sector (including majority government-owned corporatised entities and including all three levels of government), and it shows how the boundary between the public and private sectors are less distinct than in the past. The surrounding private sector interests cover a range of functions, summarised into categories such as consultants, contractors, manufacturers and suppliers.

The external national boundary of the water sector is also porous, with many international connections and developments (the export of Australian water-related goods and services is an important segment of the industry). In addition to indistinct boundaries, there is significant overlap of functions across the interests and the scope of their involvement in the water sector will vary significantly over time (Figure 1). Functions are also changing, with new technologies and approaches for traditional water services and expanding water-related skills areas such as environmental management and those related to climate change adaptation. It is also likely that a widening range of employers will demand green skills in the foreseeable future.

For the purposes of this strategy and the analysis of skills requirements, the water industry is defined as a matrix of both institution types and principal sector functions.

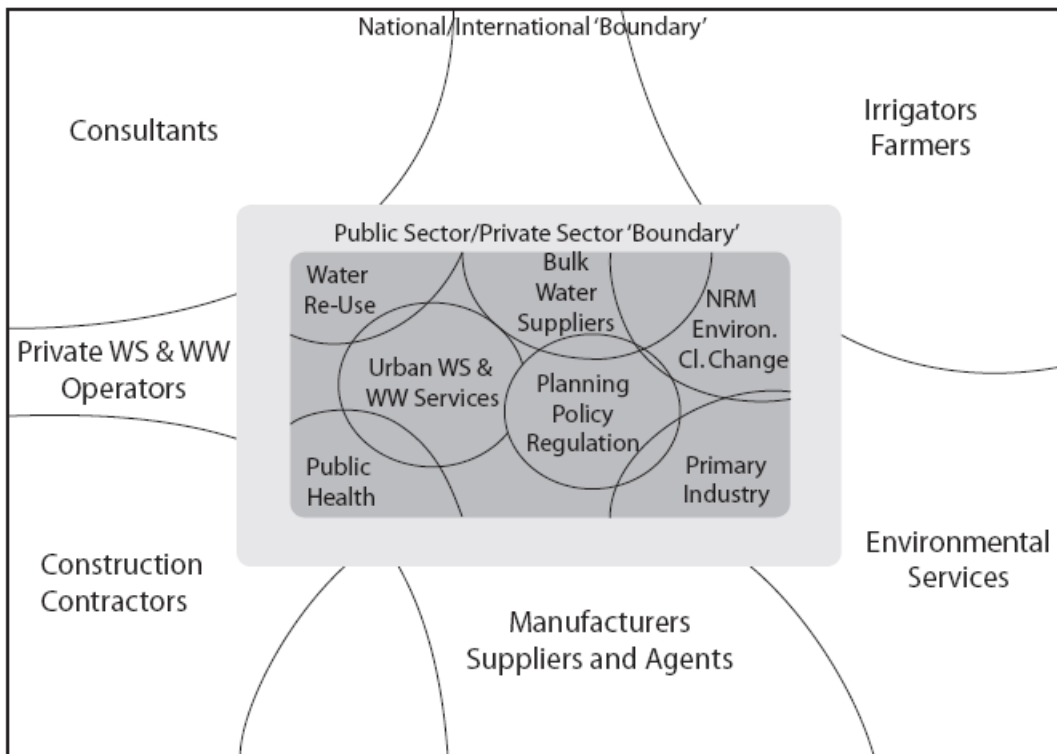


Figure 1: Representational diagram of water sector participants and relationships. (Urban water services are increasingly including on-site and localised systems, storm water capture and re-use, for example).

CONTEXT

Australian Government training and skills development initiatives

The Australian Government has demonstrated its commitment to address industry skills shortages through the allocation of funding for an additional 700,000 training places over five years. These places are determined by industry advice primarily through state Industry Training Advisory Boards to state governments, and by Industry Skills Councils (ISC's) to the Department of Education, Employment and Workplace Relations (DEEWR) in nominating qualifications that reflect priority skills needs. As well as these Commonwealth funded training places, the states and territories are responsible for the allocation of Structural Adjustment Places and newly retrenched worker places under the Productivity Places Program (PPP).

In addition to the PPP, the states and territories manage Australian Apprenticeships on behalf of the Commonwealth. The role of existing Australian Apprenticeships Centres has been expanded into a network of Skills and Training Information Centres (STICs). STICs provide advice on skills and training information and advice to employers, employees, job-seekers and other interested parties, and refer employers to Industry Skills Councils.

The states and territories are responsible for training strategies under Special Purpose Payments (SPP), used to implement Commonwealth policies through state expenditure. States and territories can approach the relevant ISC for advice in relation to skills demand and development.

The 11 National ISCs cover the vocational skills needs of most Australian industry. In general terms these organisations work to involve industry with the development of nationally applicable vocational education and training. ISCs are not for profit privately registered companies run by industry and employee representative boards of directors, but whose funding is provided substantially by the Australian Government through DEEWR.

The Australian Government provides funding to ISCs to:

- Support the development of a highly skilled and qualified workforce in the industry sectors.
- Influence and respond to changing political, government and economic policies.
- Provide industry intelligence and advice to DEEWR, Skills Australia, government and enterprises on workforce development and skills needs;

- Actively support the development, implementation and continuous improvement of high quality training and workforce development products and services, including training packages;
- Provide independent skills and training advice to enterprises, including matching identified training needs with appropriate training solutions;
- Work with enterprises, employment service providers, training providers and government to allocate training places under PPP.

Government Skills Australia (GSA) is the ISC that represents mainly water utilities, focused on the development and continuous improvement of the Water Industry Training Package and associated products, as well as industry intelligence gathering and reporting on workforce development

Key issues facing the water industry in taking up the PPP places include:

- Priority qualifications from the Water Training Package. Certificates II, III, IV and the Diploma of Water Operations have been registered by GSA as priority skills levels.
- PPP places and associated funding are allocated to enterprises or registered training organisations and require a nationally endorsed qualification outcome.
- Currently the capacity of registered training organisations to expand their delivery for the water sector is commercially based and appears more long term than immediate focused. Often, public providers (TAFEs and some universities) reduce education and training to minimal or commercial provision given a relatively small market. This in part leads to a large amount of training delivered at enterprise level not accredited under the National Training Framework and hence not eligible for funding support.
- Compounding this issue is the general concern enterprises continuously express regarding the scope of capacity and quality of delivery of a number of training providers. Typically, these relate to availability of learning and assessment resources as well as capability, experience and expertise of instructors. The prevailing view of industry is that there is a lack of capacity to deliver accredited water education and training with insufficient providers of quality training and assessment for the full scope of requirements for the water industry.
- It is the role of the state/territory Industry Training Advisory Boards to advocate with their State Training Authority on behalf of an expansion in training in specified skill needs areas. This is currently taking place in states and territories that have an agreement with the Australian

Government on the implementation of the productivity places program. Not all states/territories have state training advisory boards.

- Non accredited enterprise training is not eligible for PPP funding and enterprises fund training from their own resources. Hence the need to increase the capacity of existing Registered Training Organisation (RTO) to deliver accredited water training is urgent.
- The funding allocated to each enrolment for a Certificate II, III, IV and Diploma makes only a small contribution to the actual cost of training (approximately a quarter of the cost). Therefore, for every additional enrolment they take on there will be a significant cost to them, which is usually passed on to the employer or individual.

In those states and territories that have retained a water business model of a major government corporation and sub-contracting of services, the potential to jointly influence allocations at the state level is enhanced, but nevertheless the water industry is competing with significant other industries. Most large water enterprises are closely associated with their State Industry Training Advisory Boards to apply for PPP funding. Some public training providers have already recruited additional training staff to cater for anticipated increase in delivery although sector approaches remain inconsistent across the country.

Subsidies for training apply only to full qualifications, while not all career progression and skills needs require a full qualification. Industry has supported the introduction of skill sets, which apply to discreet work roles and may be a small number of specialist competencies. Skill sets are not funded under PPP or any state program funding.

The PPP is an expansion of an already extensive allocation of training places by state and territory training authorities. It is designed to focus on areas of identified skills shortages not addressed through the existing state allocations. Specialised skills shortages in the water sector have generally occurred because industry has not invested in training for the future, preferring instead to 'buy in' the skills on an as-needs basis.

The Australian Government has now also announced its support for a demand-driven higher education system, as recommended by the Bradley Review. Under a demand-driven system, universities will be free to set up courses to better meet industry and employer needs. A demand-driven system will enable a better match between employer demand for green skills and students' needs.

Industry-based training and skills development initiatives

In March 2008, the National Water Commission, Water Services Association of Australia and Australian Water Association hosted a CEO-level Water Skills Forum that led to the establishment of the Water Industry Skills Taskforce

(WIST). The WIST was established to promote and oversee a nationally coordinated effort to address the skills shortage in the water sector. Representatives on WIST come from the water industry and related education and government sectors (water utilities, consulting engineers, infrastructure, vocational sector, university sector and irrigation sector).

WIST has now endorsed three industry-led programs to build demand for and uptake of training related initiatives. These programs are based on previous work done by industry reference groups through the Water Industry Capacity Development (WICD) network, and, in the case of the Mentoring Program, the Australian Water Association's Young Water Professionals network. The programs endorsed by the Taskforce are:

1. *H2Oz Careers in Water Campaign*: The H2Oz recruitment campaign is developing the H2Oz brand to raise awareness of the unique opportunities offered by a career within the water industry, with its key focus to attract skill and talent to the sector.
2. *Water Industry Mentoring Program*: The industry-wide mentoring program is being developed to provide opportunities for less experienced members of the industry and to pass on the tacit knowledge held by experienced members. The program aims to provide a structured approach that ensures the transfer of knowledge and experience held in the industry, to younger and less experienced professionals.
3. *Water Industry Secondment Program*: The water industry secondment program is being developed to provide organisations with the opportunity to build and develop greater capacity by providing employees flexibility and development opportunities through secondments (to and from) other organisations in the industry. This program will be funded through WICD and provided as a benefit to the WICD Network's subscribers.

The WIST will need to further identify initiatives and approaches that will enhance the capacity of the education and training sector to meet the requirements of the water industry

OBJECTIVES

The objectives for the National Water Skills Strategy are to:

- i. Attract and retain skilled staff in the water industry, whilst giving due consideration to the effects of market forces on staff availability, including in rural and regional areas;
- ii. Augment the technical skills base in the water industry, through actively promoting demand for skills development and training;
- iii. Improve the training and skills support base for rural water managers (such as councils and property managers); and
- iv. Develop a capacity building strategy for remote and regional communities, particularly indigenous communities, to build practical skills in water resource management and planning.

MONITORING AND EVALUATION

Strategy progress will be monitored to ensure compliance with the Actions set out below and for industry to alert government to issues as they arise. Reporting to monitor progress will occur through the Water Industry Skills Taskforce, the relevant Industry Skills Council or Government Skills Australia to the Department of Education, Employment and Workplace Relations.

IMPLEMENTATION

The WIST will develop a Business Plan to operationalise this strategy by the mid 2010, depending on approval of the strategy by Governments and provision of adequate resources. The Business Plan will define specific outputs, roles and functions needed to implement this strategy.

STRATEGY

In the light of current government and industry initiatives, this strategy seeks to find ways that governments and industry can work collaboratively to build a well-skilled and adaptable water industry workforce.

Taking into account the issues and challenges affecting the water industry that limit its capacity to build demand for and uptake of water related training, State and Commonwealth jurisdictions agree to undertake the following actions:

Actions	
A. Facilitate Education and Training	
	<p>1. Work with the Water Industry Skills Taskforce:</p> <ul style="list-style-type: none"> • and Government Skills Australia to identify qualifications, career paths and skill sets relevant to the water industry, access training places and improve the demand for uptake of training under the Productivity Places Program; • and Industry Skills Councils and State Training Authorities to support the design and delivery of water specific educational and training/mentoring programs; • and with industry and RTO's to systematically utilize industry technical experts to support training delivery by training providers; • and the tertiary education system to support the design, development and delivery of water specific educational programs, recognising the incentives that exist for universities to tailor courses to meet industry requirements; and • to increase and reinforce Australia's international competitiveness and reputation in water management through the development of a nationally and internationally consistent branding strategy.
B. Recognise the Role and Importance in the irrigation sector of trained and qualified professionals.	
	<p>Work with the Water Industry Skills Taskforce to :</p> <ul style="list-style-type: none"> • promote the importance of minimum skills standards in the design, installation and maintenance of irrigation infrastructure.
C. Encourage Private Sector Uptake of Training	
	<p>Work with the Water Industry Skills Taskforce to:</p> <ul style="list-style-type: none"> • investigate the feasibility of linking water infrastructure funding to required training and development for the water industry; • assist industry to develop a guide with examples of best practice businesses where training contributes to increased productivity, reduced opportunity costs of business and improved worker engagement, and enhanced brand loyalty; and • fully utilise available training funding sources for industry, to develop targeted training for particular skill sets as distinct from training for qualifications.

D. Enhance Workforce Skills Development and Planning

Work with the Water Industry Skills Taskforce to encourage research into, and collect data on:

- demographic trends to provide a framework to encourage organisations to adapt and plan for future skills requirements in the context of an ageing workforce and retirements in the next decade;
- workforce skills development to provide a framework to encourage organisations to adapt and plan for future skills requirements, particularly to increase innovation and productivity; and
- workforce trends and emerging skills needs.

E. Attract and Retain People for Skilled Work in the Water Sector

Work with the Water Industry Skills Taskforce to:

- develop and implement a range of financial and non-financial incentives to attract and retain skilled workers to the water sector (e.g. H2Oz); and
- consider needs for streamlined procedures for rapidly increasing the water sector skilled workforce; for example through immigration via employer-sponsored categories or by exploring employment of temporary skilled migrants.

F. Plan for Future Demand

Work with the Water Industry Skills Taskforce to encourage:

- an assessment of which occupations are likely to be impacted by workforce demand changes resulting from climate change;
- research into international comparative studies and good practice;
- the development of planning for potential demand based on scenarios of climate change mitigation ranging from no Government action to extensive action;
- the integration of knowledge about new and emerging technologies, environmental management and sustainable water practices into existing training packages; and
- industry level analysis and planning to appropriately link minimum skills standards and training to broader public risk management, particularly for water treatment facilities.

G. Accelerate Adoption of Education and Training as Core Business	
	<p>Investigate the potential for water sector organisations to:</p> <ul style="list-style-type: none"> • increase demand for new water related technologies in line with the National VET Sustainability Action Plan; • include education and training in their business plans at levels consistent with the scale of the current and emerging labour and skills shortages; and • include specified investments in education and training in tender responses for governments' water sector projects, contracts and programs.
H. Promote Interest in Water Related Disciplines amongst School Leavers	
	<p>Work with the Water Industry Skills Taskforce to enhance student interest in water related disciplines by engaging:</p> <ul style="list-style-type: none"> • relevant existing government initiatives, including Australian School Based Apprenticeships, the VET in Schools program, the Trade Training Centres program and/or the Australian Apprentices program; and • national career advice networks, to assist with the provision of career advice relating to current and future employment opportunities in the water sector.
I. Improve the Water Skills Support Base for Rural, Regional and Remote Communities, Including Building Practical Skills in Water Resource Management, Planning, and Operations and Maintenance for Indigenous Peoples	
	<p>Develop and promote strategies that increase the skills of people in the water industry in rural, regional and remotes areas.</p> <p>Promote employment in the water industry as an attractive industry for Indigenous Australians in regional, remote, rural and urban communities by:</p> <ul style="list-style-type: none"> • using existing employment programs for Indigenous peoples to build skills in water resource management, planning and operations and maintenance through growing the supply of and demand for job-ready candidates; • working in partnership with employers and training providers to develop innovative ways to ensure appropriate training is available in remote communities; • building pathways from school to work in the water resource management sector; • building the capability of employers to provide effective Indigenous employment strategies. This will include strategies aimed at the retention and career advancement of current Indigenous employees; and • the development and delivery of an industry awareness program to create awareness about the range of education, training and employment initiatives available to support, train and recruit Indigenous employees.

