



Review of international water efficiency product labelling

February 2019

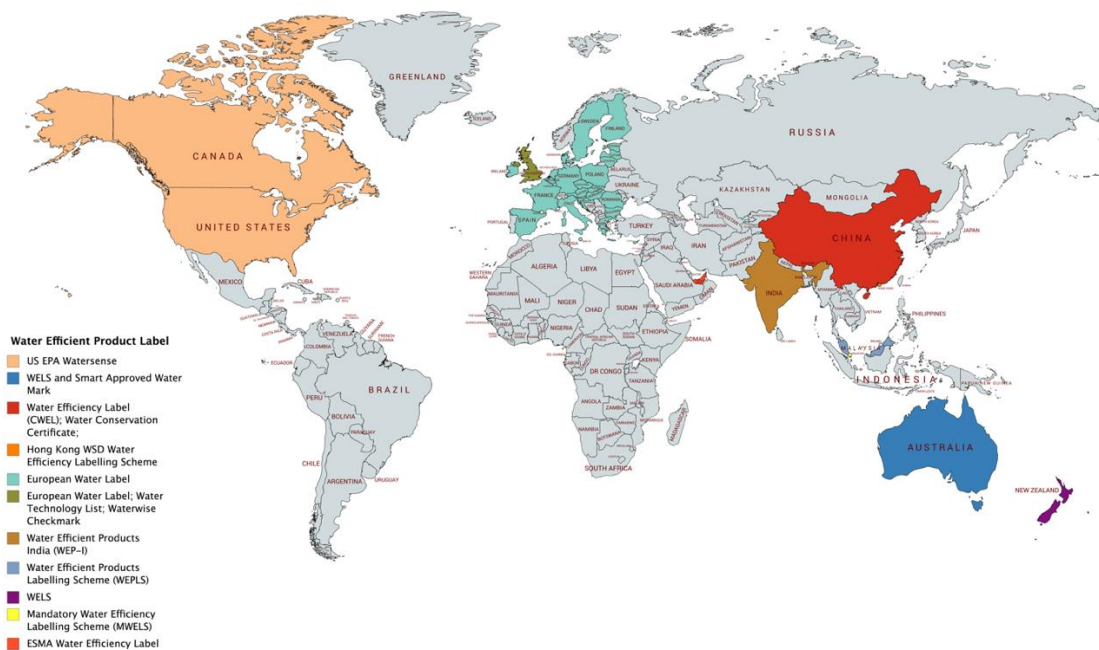
IWA Efficient Urban Water Management
Specialist Group

Executive Summary

We are facing increasing pressures on water resources internationally due to climate change, population growth, urbanisation, ageing assets and the need to protect the environment. The United Nations recognises the need for sustainable water management through its Sustainable Development Goal 6, to ensure access to water and sanitation for all. By 2025, 1.8 billion people are expected to be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under water stress conditions.

The UN High Level Panel on Water state:

“The replacement of inefficient taps, toilets, showerheads, washing machines, and dishwashers with more efficient models can have significant effects on water consumption in the home, reducing per capita consumption significantly” (United Nations, 2017)



Created with mapchart.net ©

The map above illustrates the coverage of schemes outlined in this report. There are many areas that aren't currently covered by water efficiency labels and many of these are in water scarce regions.

This report provides an overview of water efficiency labelling schemes, provides a summary of their key features and provides a detailed comparison of these. It is the culmination of several workshops held by the International Water Association Efficient Urban Water Management Specialist Group and input from leaders working on the labelling schemes. The conclusions are based on the main aims of the project behind this report and include:

Comparing best practice approaches

From the review it can be seen from many labels there are quantifiable benefits in terms of water saved, energy saved and reduction in customer bills. For others, especially those that have only recently been implemented, there can be seen a broader range of qualitative benefits around awareness of water efficiency and driving changes in the market for water efficient products.

Promoting labelling schemes

By collating the range of labelling schemes internationally in this report we hope to better promote labelling schemes and the benefits of an ISO standard for these. Many of the labels are focussed on one market only and there are likely to be benefits from ensuring a consistent approach across markets.

Dissemination of approaches to delivering and evaluation to IWA members

Several of the labels have undertaken a detailed evaluation of the impacts of their scheme. For those labels that haven't undertaken an evaluation yet or for labels that are relatively new, these tried and tested evaluation approaches should provide a foundation. Additionally, evaluation of the impacts of labelling schemes could be part of the new ISO in development.

Provide a policy perspective to support the ISO standard development technical process and to support greater uptake of water efficiency labelling internationally

By reviewing a wide range of labels and comparing the relative merits of voluntary vs mandatory and government vs industry or NGO led schemes, it is hoped that this report can support wider policy discussions when developing an ISO on water labelling. Additionally, some of the finding on best practice should be incorporated within new labelling schemes.

Authors and acknowledgements

This report was made possible by the input from members of the International Water Association Efficient Urban Water Management Specialist Group and those leading on water labels internationally.

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Background

Climate change, population and demographic changes, ageing infrastructure, and the need to protect the environment are all increasing challenges to water system. The World Economic Forum consistently ranks water among the top five global risks¹. The United Nations recognises the need for sustainable water management through its Sustainable Development Goal 6, to ensure access to water and sanitation for all. By 2025, 1.8 billion people are expected to be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under water stress conditions².

Improving urban water use efficiency through water efficiency labelling is recognised in the 2017 United Nations and World Bank High Level Panel on Water's roadmap on water use efficiency as a simple but effective way to drive innovation and transform markets towards the use of more efficient products³.



Several workshops were held on labelling at the International Water Association Efficient 2017 conference. Through a panel discussion, members working on the range of schemes agreed it would be useful to create a working group to compare labelling approaches and best practice. In January 2018 the International Standards Organisation approved a proposal to develop a new international standard on water labelling. The 2017 Water Efficiency Strategy for the UK⁴ called for an independent review of water labelling and this ongoing project has also supported the research by the IWA specialist group to produce this report.

Aims

The following project aims were agreed in the terms of reference by the project steering group:

- Compare best practice approaches
- Promote existing labelling schemes
- Disseminate approaches to delivery and evaluation of these for IWA members

¹ <https://www.weforum.org/agenda/2018/01/these-are-the-biggest-risks-the-world-faces-in-2018/>

² <http://www.unwater.org/water-facts/scarcity/#>

³ https://sustainabledevelopment.un.org/content/documents/16057HLPW_Water_Efficiency_Roadmap_final.pdf

⁴ <http://www.waterwise.org.uk/what-we-do/water-efficient-strategy/>

-
- Provide a policy perspective to support the ISO standard development technical process and to support greater uptake of water efficiency labelling internationally

Structure of the report

The report provides a broad outline of water efficiency labelling and the current labelling schemes globally. This is followed by an overview of each label organised by geography. An analysis and comparison of the labelling schemes is then presented before conclusions and recommendations are discussed. The scope of this research report is products, however it should be noted many countries have building-level policies for water efficiency that may involve performance ratings and labelling schemes.

Overview of water efficiency labelling schemes

What is water efficiency labelling?

Water efficiency labelling refers to programmes that assess the amount of water used by fittings, fixtures and appliances and either provide a rating or an indication of whether this is efficient. The aim is to empower consumers to make choices favouring more water efficient appliances and labelling schemes are often integrated with wider programmes such as building regulations or incentive programmes (e.g. rebates).

The UN has identified the benefits of water efficiency labelling, including⁵:

- Labelling and benchmarking can lead to market transformation, as industry better understands the costs and benefits
- Labelling can drive innovation and lead to a steady improvement in the efficiency of technology across a range of sectors
- Labelling can help offer businesses a platform to communicate commitment to corporate social responsibility

Endorsement labels, such as the EU eco label, are where the information is given as to whether the product meets a standard. Alternatively, comparative labelling, involves a scale and allows comparison of products performing better or worse than others. Additionally, labels may be

⁵ https://sustainabledevelopment.un.org/content/documents/16057HLPW_Water_Efficiency_Roadmap_final.pdf

voluntary or mandatory and may or may not be linked to minimum water efficiency standards for water using products⁶.

What schemes exist currently?

There are a wide range of water efficiency labelling schemes that have been developed internationally. These all differ based on the local context and drivers. A summary is provided in Table 1 and this includes whether the standard is voluntary or mandatory and who leads on the scheme. A detailed comparison is provided in Appendix A – Matrix of International Water Efficiency Labelling.

Table 1 International Water Efficiency Labels

Country/ area	Scheme	Mandatory/ Voluntary	Government/ industry/ NGO led
Australia	Water Efficiency Labelling Scheme (indoor)	Mandatory	Government
Australia	Smart Approved Watermark	Voluntary	NGO
Canada	Watersense	Voluntary	Government
China	Water Conservation Certificate	Voluntary	Industry with independent certification
Europe (including UK)	European Water Label	Voluntary	Industry
Hong Kong	WSD Water Efficiency Labelling Scheme	Voluntary	Government
India	Water Efficient Products India (WEP-I)	Voluntary	NGO - Indian Plumbing Association (IPA)
Malaysia	Water Efficiency Product Labelling Scheme	Voluntary	Government
New Zealand	Water Efficiency Labelling Scheme	Mandatory	Government
Portugal	ANQUIP	Voluntary	NGO
Singapore	Water Efficiency Labelling Scheme	Mandatory	Government
UAE	United Arab Emirates ESMA Water Efficiency Label	Mandatory	Government
UK	Water Technology List	Voluntary	Government
UK	Waterwise Checkmark	Voluntary	NGO
USA	Watersense	Voluntary	Government

Several additional schemes have been included in the matrix in Appendix A. Please note these schemes are not recognised by the world plumbing council, and are eco-labels that apply to many types of products. However, standards for water-using products covered by these labels include water efficiency:

- Japan - Eco Mark

⁶ http://ec.europa.eu/environment/water/quantity/pdf/BIO_WaterPerformanceBuildings.pdf

- South Korea - Eco-Label
- Taiwan - Green Mark
- Thailand - Green Label
- Switzerland - Swiss Energy Label
- Norway, Sweden, Finland, Denmark, Iceland - Nordic Swan

The current coverage of these schemes is mapped in Figure 1. It is clear there are still many countries not currently covered by a water efficiency label for products. Additionally, many areas identified as being water stressed are not covered by a label (Figure 2). Around 700 million people in 43 countries live in areas of water scarcity.

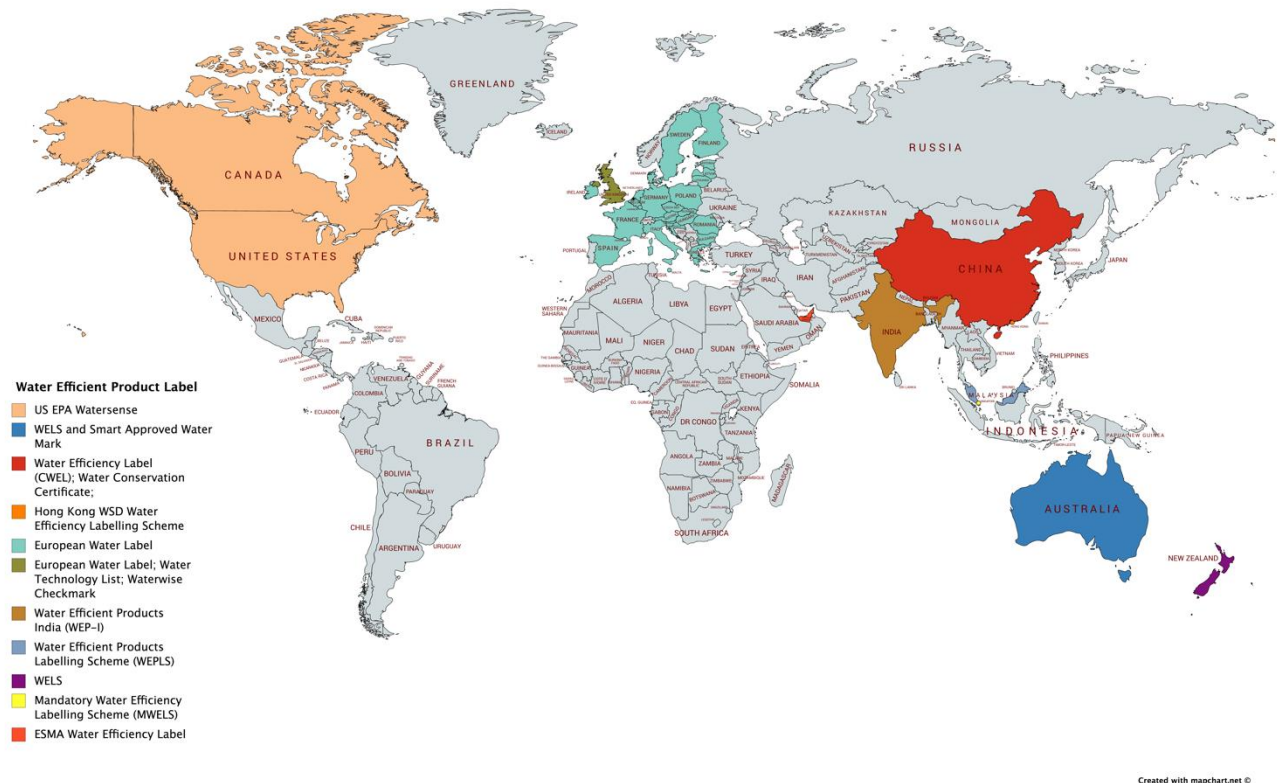


Figure 1 Water efficiency label coverage mapped

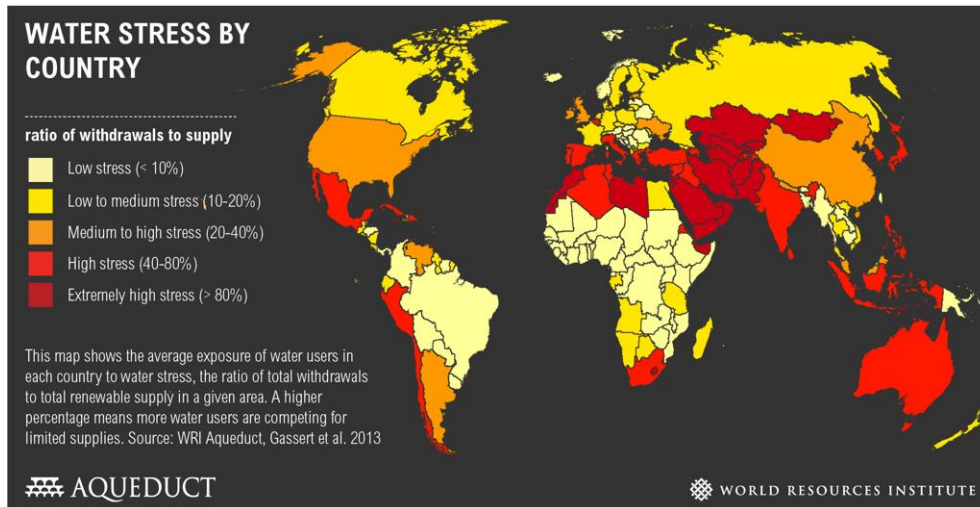


Figure 2 Water Stress by Country⁷

Developing an international standard for water labelling

The UN High Level Panel on Water’s 2017 Roadmap states that enough countries have agreed to pursue a standardised approach to water efficiency labelling to authorise its development through the International Standards Organisation (ISO). In January 2018 the International Standards Organisation approved a proposal to develop a new international standard on water labelling. The proposed standard will be based on the Australian/New Zealand standard that underpins the WELS scheme (AS/NZS 6400:2016 Water efficient products–Rating and labelling). The first meeting of the ISO committee developing the standard took place on 24 July 2018 in Sydney, with 21 delegates from around the world attending⁸.

The aims of the ISO include:

- An international standard would be used to allow consumers to easily identify and purchase the most water efficient products
- The international standard will link national schemes into a system that consumers and businesses can understand, and one that is multi-national

⁷ <https://www.wri.org/resources/charts-graphs/water-stress-country>

⁸ <https://www.iso.org/committee/6909987.html>

Water efficiency labelling schemes

This section of the report provides an overview of international labelling schemes covering their background and history, type of label, market coverage, compliance mechanisms and evaluation mechanisms. This information was provided by authors from the organisations responsible for running the labels or via a literature review of online sources where they could not be contacted or declined to provide input.

Australia

As the driest inhabited continent Australia has a long history of water conservation and the regulation of water-using products, dating back to the 1920's. Historically State and regional water authorities regulated water efficiency with a primary focus on plumbing products.

Australian water efficiency labelling began in the 1980's by the then Melbourne Metropolitan Board of Works, branding shower heads and dishwashers with an A or AA rating. In 1999 the voluntary AAA's water efficiency labelling program expanded to have national reach and WSAA took up management of the program. By 2001 the scheme had expanded to cover shower-heads, toilets, taps, clothes washers, dishwashers, urinal flushing devices and flow regulators.

However, the voluntary 5A's scheme was seen as limited as only higher performing products were put forward for rating. To address this issue the Commonwealth, state & territory governments committed to establishing a mandatory Water Efficiency Labelling and Standards (WELS) Scheme and voluntary Smart Approved WaterMark (SAWM) in the National Water Initiative (91 i, ii).

Water Efficiency Labelling Scheme (WELS)

Background and History

Australia is the driest inhabited continent on earth and experiences frequent droughts, yet maintains a high level of water security and a productive agriculture sector. Australia is recognised as a leader in water management, with decades of experience in water reform that has increased the efficiency of service provision; introduced better systems for allocating water between competing uses, including market-based measures; established appropriate institutional arrangements; and introduced a wide range of management tools, with the aim of achieving sustainable water-use.

Under the 2004 National Water Initiative⁹, Australian national and jurisdictional governments agreed to implement policies to increase water efficiency and better manage urban water demands. This

⁹ <http://www.agriculture.gov.au/water/policy/nwi>

included a commitment to implement a national mandatory water efficiency labelling scheme.

Australia's Water Efficiency Labelling and Standards (WELS)¹⁰ scheme commenced in 2005, with objectives to:

- Conserve water supplies by reducing water consumption
- Provide information for purchasers of water-using and water-saving products
- Promote the adoption of efficient and effective water-use and water-saving technologies.

WELS achieves these objectives by ensuring common domestic water-using products are registered and labelled with accurate, easily understood water use information. Australian consumers use the information on the label to choose more efficient products, reducing household water consumption and saving money on water and energy bills. Savings increase over time as more efficient products replace less efficient ones across a community.

The reduction in domestic water use reduces costs to consumers, leaves more water available for other uses such as agriculture or manufacturing, and allows communities to reduce or postpone investment in water infrastructure such as dams or desalination plants.

Type of scheme

What does it cover?

Australia's WELS scheme applies to specified household water-using products, which are required to be labelled with water consumption information at the point of sale.

Components of the WELS scheme include:

- Comprehensive legislation to underpin all aspects of the scheme¹¹
- A simple, easily recognised labelling system that is trusted by consumers
- A technical standard to underpin water efficiency assessments and labelling¹²
- Provisions for testing products against the standard
- A registration system
- A compliance system that educates and penalises when appropriate.

¹⁰ <http://waterrating.gov.au>

¹¹ <http://waterrating.gov.au/about/legislation>

¹² <http://waterrating.gov.au/about/standards>

Voluntary or mandatory?

Australia's WELS scheme is mandatory. All products regulated by the scheme and supplied in Australia are required by law to be tested for water consumption, registered with WELS and labelled in accordance with the WELS standard. For further details please see the section on 'Market Coverage.'

What does the label look like and where must it be displayed?

The WELS label specifications are set out in the WELS standard. An example of the label is shown in the figure below.



Figure 3 Example of WELS label

Taps, showers, lavatory equipment, urinals and flow controllers must be displayed with the registered model name or registered model number. This makes it easier for consumers and WELS compliance officers to look up products in the WELS database. Water rating labels must include:

- star rating
- water consumption or flow rates
- license number
- registered company name for the license number
- product-specific information in accordance with the standard.

The registered company name for the license number was included at the request of industry, as it makes it harder for someone to illegally use another business's label.

Dishwashers and washing machines must include:

- star rating
- water consumption
- brand ID
- model ID
- tested program setting
- product-specific information in accordance with the standard.

For dishwashers and washing machines, the label must be adhered to the upper-front part of the appliance. If this is not possible it can be on the front of the appliance or on a swing tag attached to the upper-front part of the appliance.

In some cases text advice can be provided instead of a water rating label. Details that must be included in text advice are explained in the standard and vary by product type. In general, text advice must be consistent with the water rating label and must include the word 'WELS'; the star rating; water consumption (e.g. flow rate, flush volume or water usage); and the model name or registration number.

The label or text advice must be positioned so that it is clear to the consumer which product it relates to. Use of the water rating label or text advice depends on how you are displaying or advertising products:

- In store product displays must have either the water rating label or text advice. Dishwashers and washing machines must have a water rating label on or next to the product on display.
- Online listings must have either the water rating label or text advice.
- Packaging must have a water rating label. For dishwashers and washing machines the label must be in the contents of the packaging. If flow controller packaging is too small, text advice can be used instead.
- Property developments or display suites must have either the water rating label or text advice, except for dishwashers and washing machines which must have a water rating label on or next to the product.
- Property inclusions lists must have either the water rating label or text advice.
- Catalogues and brochures must have either the water rating label or text advice.

Products covered

Products regulated by the WELS scheme are new showers, taps, toilets, urinals, flow controllers, clothes washing machines (including combination washer/dryers) and dishwashers supplied in Australia. Within these, there are minor exemptions for products such as safety showers or tap equipment that is for use exclusively over a bath or spa¹³.

Product testing requirements

Before products can be registered with WELS, they must be tested for performance and water efficiency. Testing must be conducted in line with requirements for the Australian standard relevant to the product, and must be tested by a laboratory accredited by the National Association of Testing Authorities (NATA) or an affiliated international body.

¹³ <http://waterrating.gov.au/register/regulated-products>

Standards that underpin testing or labelling requirements

The WELS standard is *Australian and New Zealand Standard 6400:2016 Water efficient products – Rating and labelling*. The standard details requirements for product testing, rating, labelling and display, including the detailed label design for each product¹⁴.

The WELS standard is supported by a range of product-specific standards that set additional requirements for product testing and performance.

Registration process and costs

Product registrations are managed through the WELS database. Members of the public can access the database¹⁵ to check product registration status or search for efficient products. Businesses seeking to register products can create a login¹⁶ and use the database to submit applications to register new products or renew registration of existing products. WELS staff use the database to process applications and generate invoices.

Product registration requires:

- current WaterMark certification¹⁷ for showers, toilets, taps, urinals and flow controllers, to demonstrate that the product is fit for purpose
- test report/s to show that product test requirements have been met
- a photo of the product, which is uploaded to the database
- written permission to register the product/s from the manufacturer, if the applicant is not the manufacturer of the product.

Registration fees must be paid before registration is finalised¹⁸. Fees are set at a level that is expected to equate to eighty per cent of scheme operating costs, with the remaining twenty per cent contributed by governments. Registration fees are calculated using a tier system based on the total number of unique models a business registers in a given year. Fees start at \$600 AUD for 1-5 unique models and progress to \$121,000 AUD for 2001-4000 unique models.

Fees must be paid annually. Products that are already registered must have their registration renewed, or the registration will expire and the product will not be able to be sold legally in Australia.

¹⁴ <http://waterrating.gov.au/about/standards>

¹⁵ <http://waterrating.gov.au/choose/compare>

¹⁶ <http://waterrating.gov.au/register/login>

¹⁷ <http://waterrating.gov.au/register/watermark>

¹⁸ <http://waterrating.gov.au/register/fees>

Links with other water efficiency programmes

State and local governments are responsible for building standards and many use WELS ratings as part of their assessment criteria. Additionally, state and local governments and/or water supply agencies may implement educational programs or offer rebates to consumers who purchase water efficient products. These include¹⁹:

- Integration with energy efficiency programmes (e.g. Victorian Energy Efficiency Target)
- National and state building codes and regulations (e.g. BASIX New South Wales, NABERS and others)
- Tenancy Laws (e.g. New South Wales Residential Tenancies Regulations 2010)

Evaluation

WELS commenced in Australia in 2005 and is subject to a five-yearly independent review. The 2015 review found that Australia's WELS scheme was appropriate, highly effective, and largely efficient and cost-effective in meeting its objectives, delivering water savings at far lower cost than alternative water supply augmentation measures. It found that WELS provides effective and valued consumer information at extremely low marginal costs, avoids regulatory and administrative duplication, and drives technological development and improvement²⁰.

Market research published in 2014 found that 87% of consumers recognised the water rating label, 83% believed the scheme was 'very' or 'quite' credible, and over half used the water rating labels in making purchasing decisions²¹.

An evaluation of the environmental effects of Australia's WELS scheme, conducted in 2014 by the Institute for Sustainable Futures at the University of Technology Sydney, estimated annual water savings from WELS of 70 billion litres in 2013, rising to 147 billion litres in 2021 and 204 billion litres in 2030. Australia's population in 2013 was 23 million people, so the per capita savings was over 3000 litres of potable water per person²². An update to this evaluation is planned for late 2018 and will include broader economic benefits.

The evaluation found the greatest savings were from more efficient showers (35%), taps (35%) and clothes washing machines (19%). Efficient toilets save substantial water but more efficient toilets were already mandatory in Australia so the water savings were not attributed to WELS.

¹⁹

https://www.researchgate.net/publication/299246587_Evaluation_of_the_environmental_effects_of_the_WELS_scheme

²⁰ <http://www.waterrating.gov.au/about/review-evaluation/2015-review>

²¹ <http://www.waterrating.gov.au/about/review-evaluation/consumers>

²² <http://www.waterrating.gov.au/about/review-evaluation/environmental-effects>

An additional benefit identified by the evaluation was in energy savings, as less energy was required to heat, pump and treat water. In Australia this is expected to reduce greenhouse gas emissions between 2005 and 2030 by over 46 million tonnes of carbon dioxide equivalents. Australian households also reduced utility bills by an estimated total \$520 million AUD in 2013, rising to over \$2 billion AUD in 2030.

The table below summarises the estimated savings attributed to the WELS scheme in the evaluation:

Table 2 Evaluation of WELS

	2013	2021	2030
Annual water savings (GL/year)	70	147	204
Cumulative GHG reduction (MT CO ₂ -e)	5.5	20.4	46.4
Annual household utility bill savings (\$m/year)	520	1390	2063

The latest review of the Water Efficiency and Standards Labelling (WELS) scheme in Australia calculated a saving of 147,000 ML/year water, 20.4 MT/year of carbon dioxide, and AUD\$1,390m/year (GBP£797m/year) in household utility bill savings by 2021.

Smart Approved Watermark

Background and History

SAWM was launched in 2006 to address the challenge of using residential outdoor water more efficiently through the identification and certification water efficient technologies and services. The scheme was devised by WSAA in partnership with Australian Water Association, Irrigation Australia and Nursery & Garden Industry Australia.

Type of label

The voluntary SAWM label is a quality mark used to promote only the most water efficient products and services. It is a stamp of approval, rather than a rating scheme. Currently, SAWM endorses a range of water efficient products eg: Irrigation controllers, mulches, soil wetting agents, waterless car washes, swimming pool covers and rainwater and greywater recycling schemes. Approved products and services are licensed to use the SAWM logo on marketing materials and product packaging. An independent Technical Expert Panel reviews application to the scheme. Panel members have a wide range of experience covering water conservation, horticulture, irrigation, plumbing, education and retail. Four application rounds are held each year.

Applications are reviewed against four criteria:

- **Water Saving** - The primary purpose of the product is directly related to reducing actual water use and/ or using water more efficiently, where there is a direct correlation between the use of the product and water savings.
- **Fitness for Purpose** – Supporting documentation (such as instructions and marketing material) helps ensure that users get the best water savings/efficiency from the product.
- **Meeting Regulations and Standards** –The product is of high quality and meets industry standards, and customer and community expectations.
- **Environmentally Sustainable** –The product, while satisfying the above three criteria, is environmentally sustainable, and that in making water savings the product will not adversely impact on the environment in other areas (e.g. increased greenhouse gas emissions).

Market coverage

Since 2006, SAWM has received over 500 applications for products and services. Around 350 of these have been deemed to be water efficient by the Expert Panel. Approved products and services are licensed to use SAWM across Australia. In 2016, SAWM launched in Europe. Products and services approved by the panel are entitled to apply for a European license to use SAWM logo on packaging and marketing materials.

Links with other certification schemes

SAWM works closely with The Water Corporation's Waterwise Endorsed products Program in Western Australia. In order to qualify for this program, a product must first apply to Smart WaterMark.

Evaluation of the label

As Australia's water efficiency quality mark SAWM is delivering a key part of Australia's water demand management jigsaw. SAWM has delivered outstanding value and recognition for the industry. Key to this has been its constitution as a not-for-profit organization operating with strong industry backing.

Smart Water Advice

In 2016, SAWM launched - Smart Water Advice. This membership based program delivers a range of water efficiency resources for water businesses and councils to help them encourage their residents

to save water. Resources include a 35-page website of water saving advice for the home, garden and business, interactive resources eg: plant finder, a range of factsheets and posters, television commercials, bill inserts and other communication collateral. In February 2018, the program is supported by every water utility in Victoria and the state government, as well as over 35 councils in NSW²³.

²³ <http://www.smartwateradvice.org>

USA and Canada

Watersense

Background and History

WaterSense, a voluntary partnership program sponsored by the United States Environmental Protection Agency (US-EPA), is both a label for water-efficient products and a resource for helping consumers and industries save water. As a large country with a diverse range of climates and a growing population, efficiency is viewed as an important tool in meeting water supply and infrastructure challenges throughout the United State.

Founded in 2006 as a companion to the US EPA’s highly successful ENERGY STAR program; WaterSense partners with manufacturers, retailers and distributors, homebuilders, irrigation professionals, and utilities to expand the reach of the program. The ultimate goal of the WaterSense program is to transform the marketplace for products and services that use water and to promote a nationwide ethic of water efficiency to conserve water resources for future generations and reduce water and wastewater infrastructure costs.

Type of label

The WaterSense label is available for a variety of products, homes, and services.

Obtaining the WaterSense label is voluntary, but use of labeled products is widespread in North America and certification to WaterSense (or levels based on the WaterSense specifications) is sometimes required at the State/Provincial or local levels.

As a requirement of the certification scheme, US-EPA requires that the WaterSense label (including the certification body responsible for the certification) be displayed on the product packaging. A list of certified models is also maintained on the WaterSense website, and retailers often make “WaterSense” a searchable attribute.

At the time of publication, the WaterSense label is available for the following products:

- Lavatory sink faucets
- Flushometer-valve toilets
- Pre-rinse spray valves
- Showerheads
- Spray sprinkler bodies
- Tank-type toilets
- Flushing urinals
- Weather-based irrigation controllers

In addition to the products listed above, WaterSense also labels residential homes that meet a variety of product and design criteria and labels certification programs for irrigation professionals. US-EPA uses the WaterSense label to transform markets by labelling products that use about 20% less water than standard (as defined by federal standards or market norms). The exact efficiency however varies from 15% to 50% depending on the product category. In addition to efficiency criteria, WaterSense also strives to include performance criteria so that user expectations are met.

Both efficiency and performance requirements for each product type as well as the required test protocol(s) are included in every product specification. Licensed Certification Bodies (LCBs) conduct the required testing, maintain certification files, and report certified products back to EPA. LCBs must be approved individually for each product category, but many provide certification for entire suites of products (i.e. all plumbing products or all irrigation products).

Wherever possible, WaterSense works in concert with industry and participates in industry standard committees. This allows WaterSense to build specification off of established industry standards and test protocols rather than creating them from scratch. This helps to minimize the development cost to US-EPA, the compliance costs to manufacturers, and also serves to engage the manufacturing industry and increase buy in to the program.

US-EPA charges no fee to label products, homes, or certification programs and there is no cost to be a program partner. Fees are typically charged by the LCBs and are the responsibility of the manufacturers.



Figure 4 US EPA WaterSense labels

Market coverage

WaterSense labeled products are available in the United State and Canada. WaterSense labeled homes and professional certification programs are only available in the United States. As of 2017, there were 27,630 labelled products.

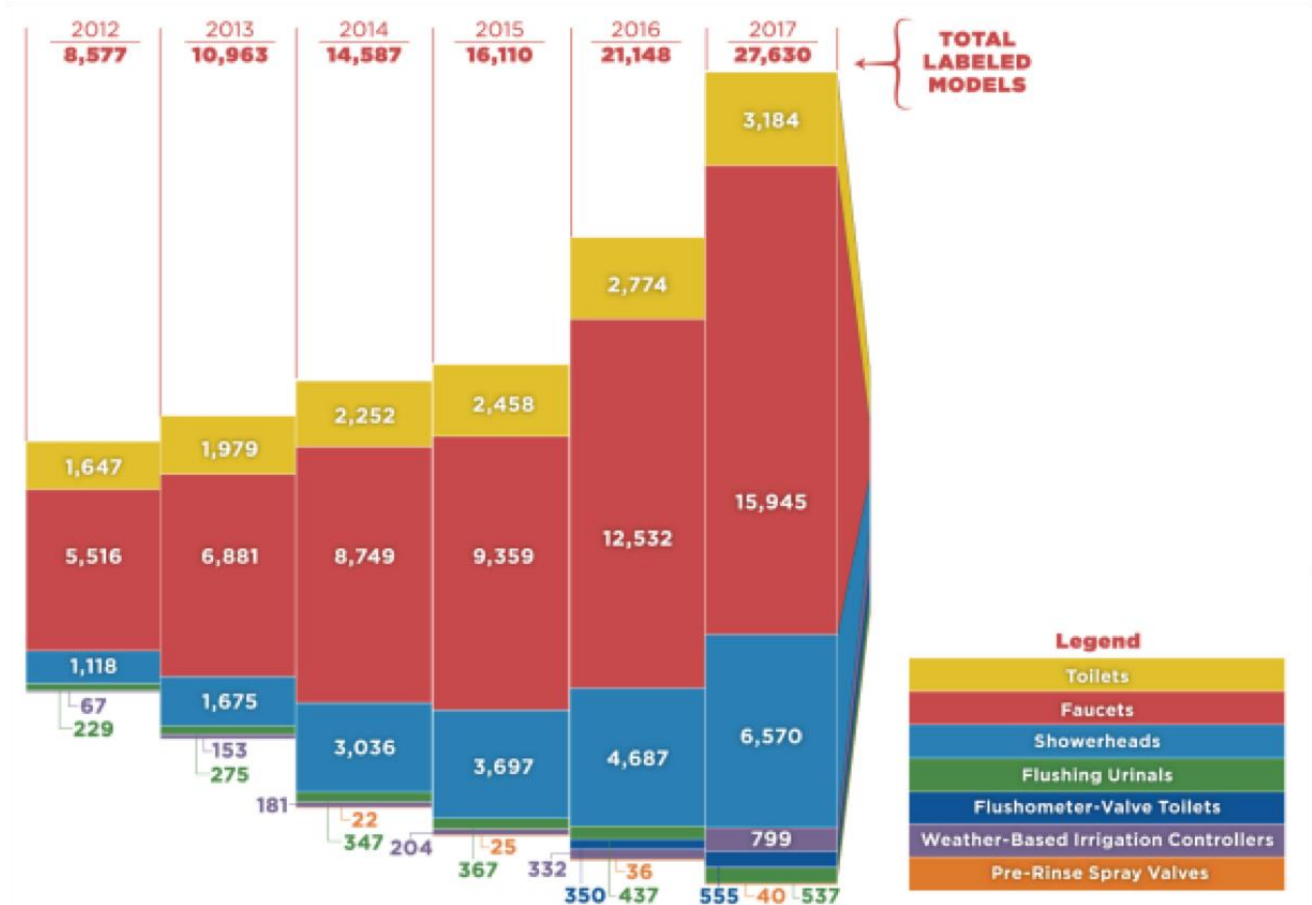


Figure 5 WaterSense growth in product coverage

Links with other certification schemes

While the U.S. government offers no incentives and does not mandate use of the WaterSense label at the national level, the WaterSense label is frequently referenced by mandatory or incentive programs at other levels of government (i.e. states/provinces, municipalities, utilities, or other jurisdictions). For example, an end-user might receive a rebate from their water utility by demonstrating they've purchased a WaterSense labeled model of toilet.

WaterSense is engaged in a variety of activities beyond product labelling. As mentioned above, WaterSense also labels residential homes and certification programs for irrigation professionals. Beyond this, WaterSense supports a wide range of public outreach materials and provides these materials free of charge to partner organizations. "WaterSense partners" are manufacturers, retailers/distributors, utilities, government organizations (at any level), home builders, and non-profit organizations who affirm their commitment to water efficiency and the WaterSense mission. WaterSense frequently collaborates with its sister program for energy efficiency, ENERGY STAR.

While the programs use similar certification schemes, no type of product is eligible for both the WaterSense and ENERGY STAR labels. The two programs do consult each other regarding products that have impacts on both water and energy use. Pre-rinse spray valves for example, which use water but also a large amount of energy since this water is typically hot, are labeled under the WaterSense program but the technical requirements were written in conjunction with ENERGY STAR. Clotheswashers by contrast (which again use both energy and water), are labeled by ENERGY STAR but include an integrated water factor (IWF) requirement to ensure that ENERGY STAR certified models save water in addition to energy.

The two programs also collaborate in other areas to make efficient use of resources and limit unnecessary redundancy for specific stakeholder groups. For example, the programs have worked together to add water tracking capabilities to ENERGY STAR's widely used energy tracking tool, ENERGY STAR Portfolio Manager.

Evaluation of the label

The WaterSense certification scheme includes requirements for extending certification as well as ongoing surveillance. US-EPA uses these mechanisms to ensure that products bearing the WaterSense label in the marketplace do in fact meet the requirements for efficiency and performance outlined in the product specifications.

In addition, WaterSense estimates the total amount of water (gallons), energy (expressed in kWh), and dollars (USD) saved as a result of the program. This is done by collecting shipment data from all WaterSense manufacturer partners. Shipment data is then used as an input in the National Water Savings model along with a large amount of data regarding the housing stock and demographic makeup of the country (all of which have been shown to have measurable impact on the ultimate water use of the products in question).

After a total number of gallons saved is estimated, calculations are done to estimate how much water heating has been abated by reduced water use. This is added to factors typical for the treatment and distribution of drinking water as well as the treatment and handling of wastewater to arrive at a total energy savings.

An analysis of survey data on water rates throughout the country is done every other year and the average rates for both water and sewer are applied to the gallons saved. Average national rates for electricity and natural gas are also applied to abated water heating only. As a result the cost savings (expressed in current year USD) pertain only to utility costs that would have impacted consumers. Savings to municipalities and utilities from decreased operating costs and long term infrastructure savings are not included in this number.

The 2017 review estimated Watersense had saved more than 4.5 million megalitres of water since 2006, 284 billion kWh, and USD\$46.3 billion in savings in consumer water and energy bills²⁴. A US EPA Office of Inspector General review estimated that consumers saved an estimated \$1,100 for every federal dollar spent on the program²⁵.

²⁴ https://www.epa.gov/sites/production/files/2018-06/documents/ws-aboutus-2017-accomplishments_0.pdf

²⁵ <https://www.epa.gov/office-inspector-general/report-epas-voluntary-watersense-program-demonstrated-success>

China

Water Efficiency Label (CWEL)

Background and History

China suffers from serious water resources shortages. Its per capita water resources are 2,100 cubic meters, which are only a quarter of the average value of the world. With the acceleration of the urbanization and industrialization process, the contradiction between supply and demand of water resources has become increasingly prominent. Water resources have become the main constraint of the sustainable development of the economy and society of China. The Chinese government has attached great importance to water conservation, and has published a series of measures and policies. For water using products, China is the largest producer and consumer in the world, where the main area of water use.

Since 2007, referring to the standards of energy efficiency and labeling program, which have been implemented successfully in China, and the WELS scheme in Australia, China has been working on the national standards for water efficiency of some water products, such as sitting toilets and faucets. The standards of water efficiency are mandatory in China and there is a separate standard for each product. The table below shows the standards which has been issued.

Table 3 Product standards and year of issue

No.	Product	Year of Published
1	Faucet	2010
2	Sitting toilet	2017
3	Shower	2012
4	Urinal	2012
5	Toilet Flushing Valve	2012
6	Clothes Washer	2013
7	Squatting Pan	2014
8	RO purifier	2017

In order to promote the implementation of standards of water efficiency and strengthen the supervision of water products, the Chinese government began the preliminary work of water efficiency labelling in 2007. After years of research, demonstration and coordination, 'Measures for

Water Efficiency Label Management' was issued in September 13th, 2017²⁶. The Chinese water efficiency labelling program was established and is known as the 'China Water Efficiency Label' (CWEL).

Type of label

The Chinese Water Efficiency Label program is implemented as a mandatory policy. The sitting toilet is the first product which will be covered on August 1st, 2018, and others will be batch implemented. Products covered will include the sitting toilet, faucets, reverse osmosis purifiers, shower, and other household appliances. It is likely the label will also include commercial, industrial and irrigation water-use appliances. The implementation model of the China Water Efficiency Label scheme could be described as the self-declaration of manufactures, who provide information for records, and market supervision by the government. According to the testing result, the manufacturers can print and paste the water efficiency label on the product or the packaging of the product. After that, the manufactures ask for the information to be filed with and announced by the government (China National Institute of Standardization). Application, registration and information filing is free of charge. Finally, the government will organise various forms of market supervision and inspection to ensure the effective implementation of this policy.

Market coverage

CWEL labelled products are available on the Chinese mainland.

Links with other certification schemes

At present, CWEL haven't linked with other certification schemes. However, with the implementation of the program, some local governments will publish relevant supporting policies, such as financial subsidies.

Evaluation of the label

Due to the water efficiency label scheme in China having not been formally implemented, it is difficult to identify the possible effects and benefits after the implementation. Evaluation will consider the promoting role of the mandatory water efficiency standards and label, combine with some products market influencing factors, such as stocks, sales, lifetime and efficiency grades shares and other parameters, only four categories of products could implement the water efficiency label, which include sitting toilets, faucets, showers and clothes washers. The scheme has great potential to improve water conservation. The average amount of annual water-saving is expected to reach 11 billion cubic meters by 2030.

²⁶ <http://lawinfochina.com/display.aspx?id=26409&lib=law&SearchKeyword=&SearchCKeyword=>

Water Conservation Certificate

Background and History

In order to solve the problem of water shortage in China, there have been some important measures, such as standardizing the market for water-saving products and promoting the utilisation of high quality and efficient water-saving products in the national procurement, which could provide the impetus of technological progress for the design departments, the production departments and the use departments of water-saving products. At the same time, the protection and promotion of high quality and efficient water-saving products, the restriction and prohibition of high consumption and low efficiency water products, have become an urgent task for the government to standardize the market. The certification of water-saving products could provide the foundation of the government management department. On July 17 2002, the Certification and Accreditation Administration of the People's Republic of China authorized the China Certification Centre for Energy Conservation Products to carry out water-saving product certification. On October 18 2002, the former State Economic and Trade Commission, and the Ministry of construction issued a document to require the comprehensive certification of water-saving products.

Type of label

With the support and promotion of the various national sectors, the water conservation certification of China was formally launched in 2002. After development for more than ten years, the scope of the water conservation certification covers nearly 40 types of products in 4 major areas, including industrial water-saving, the water conservation of urban life, agricultural water-saving, and the utilization of unconventional water resources.



Figure 6 CWEL Logo

Market coverage

Up to now, China Quality Certification Centre has issued nearly 7000 certificates of water-saving products, and there are more than 400 enterprises have been certified.

Links with other certification schemes

As the influence of water conservation certification continues to expand, the result of the certification has been gradually accepted by the government and the community. There have been six types of certified product selected into the government procurement list of energy-saving products, which are water closets, water faucet, toilet flush valve, shower, valve for water heating and water tank fittings. Water closet and water faucets have been listed as compulsorily requiring the certificate when purchased by Government.

Evaluation of the label

According to the statistics, the label has conserved 5.28 million m³ of water resources with water conservation certification of 3 types of product, water closet, water faucet and shower in 2017.

Hong Kong WSD Water Efficiency Labelling Scheme

Background and History

In 2009 the Hong Kong Special Administrative Region (HKSAR) Government started a Voluntary Water Efficiency Labelling Scheme (WELS)²⁷. WELS intends to cover the common types of plumbing fixtures and water-consuming devices. Products participating in WELS incorporate a water efficiency label that tells consumers the level of water consumption and water efficiency to help consumers choose water efficient products for water conservation. WELS has been implemented in phases for different groups of plumbing fixtures and water-consuming devices. WELS was soft launched as a mandatory scheme in 2017 with full implementation beginning in 2018. A database of registered products is publicly available²⁸.

Type of label

Products covered by the label include:

- Urinals
- Showerheads
- Taps
- Washing machines

Voluntary of Mandatory

This scheme is a voluntary, government led scheme.

What does it look like and where must it be displayed

The key features of the label include:

- Four-point grading system with colour rating
- Includes water consumption figure
- Affix full version of label to product or packaging in prominent location.
- Simplified version of label available if full version is too large



Figure 7 Example Hong Kong Water Efficiency Label

²⁷ http://www.aesnet.com.hk/wp-content/uploads/PowerPoint_Sam-Wong-8.pdf

²⁸ <https://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/registers-of-all-wels-products/index.html>

Product testing requirements

The testing requirements include:

- Testing in accordance with relevant requirements as specified in the Waterworks Regulations. For example, for showers this is Australian/New Zealand Standard No. AS/NZS 3662:2005 – Performance of Showers for Bathing with Amendment No. 1.
- Comply with standards specified by the Water Authority
- Produced according to a recognised international quality system
- Lab accredited by HK Accreditation Service (HKAS) under the HK Laboratory Accreditation Scheme (HOKLAS)
- Some products tested in line with Australian/New Zealand Standards

Display of the label

The label should be displayed on the product or packaging in a prominent location. A simplified version of the label can be affixed directly on the product.

Market Coverage

The scheme currently has around 650 products registered.

Europe

European Water Label

Background and History

The Water Label is a pan European not for profit water label for water using bathroom products and embraces 13 differing categories. It is an educational and marketing tool to aid consumers, architects and specifiers to identifying how much water is used. The Label has supplementary information of efficient technical advancements together with appropriate energy use.

The Scheme is a bathroom Industry voluntary initiative and used across 34 Countries falling within the boundaries of Europe.

First developed and launched in 2007 in the UK by manufacturers, enhanced by Water Utilities, NGO's, merchants and retailers, the Label was adopted in 2011 by the European bathroom Industry. A challenging technical and commercial forum operating over two years ensured the Scheme criteria embraced all technical, commercial and Regulatory nuances of Europe.

The Scheme is aiding in the understanding and acceptance for efficiency measures on the use of water and energy within the bathroom environment, it is also helping to drive greater innovation in product performance, that the consumer has come to expect but using less water and associated energy.

Type of label

The Water Label is available for 13 differing product types found in the bathroom environment. The Scheme is voluntary and underpinned with a mandatory 5% audit of registered products undertaken on an annual basis. The Scheme criteria is based on existing European Product Standards, registering brands submit by Company Director a Declaration of Conformity that their registered products meet the Scheme criteria. An easy to navigate online database of product supports the Scheme and is extensively used to identify water volumes. The Label clearly identifies the water use per minute, per flush or volume, falling within 5 differing bands, enabling a quick and easy method to compare products falling within the same category. The 5 differing bands enable all products to identify their water use, from using less water to using more, providing information to make an informed choice.

The 2018 categories are:

- Basin and bidet taps
- Kitchen taps
- Shower valves and electric showers
- Shower handsets
- Flushing cisterns
- WCs and Independent pans

-
- Urinals
 - Baths
 - Grey Water Systems
 - Replacement Flushing Devices
 - Supply Line Flow Regulators

The annual computer generated 5% audit is undertaken by an independent third party, who presents the findings to the Scheme Administrator. Any products that fail are re tested and if necessary are removed from the Scheme.

Registered Brands pay an annual fee that keeps the database clean and only identifies product that is available in the marketplace.

Market coverage

The Scheme is supported by an extensive portfolio of marketing material that aids the registered brands to promote water efficiency via a family of labels. Product literature, point of sale material, exhibition material and websites carry the label.

The Scheme has been adopted in 34 European Countries with Scheme modifications undertaken by the European Bathroom Forum, a generic platform, open to all Stakeholders. The European Bathroom Forum is bringing together under its 'Best of All' initiative Labelling Schemes from; Sweden, Switzerland, Portugal and the Water Label to form one Label, taking the best elements of each.

The brands registered on the Scheme have a collective market coverage of 60%, all are currently working towards registering all relevant water using bathroom products.

Links with other certification schemes

The Scheme has over 52 supporters from consumer and trade media, NGO's, Water Utilities, Consumer groups and other Home Improvement bodies that carry the Scheme information. In addition, the Scheme is referenced in many codes of practice, Regulations and efficiency schemes.

The UK Water Label division has an additional feature; a water calculator which has a direct link to the database of products and is used by 50,000 visitors each year including architects and specifiers. 2018 has seen over 10,000 building projects water use being calculated using this tool²⁹.

²⁹ <http://www.thewatercalculator.org.uk/>

Evaluation of the label

During 2018 extensive environmental modelling on water and energy savings is being undertaken by a third party. This exercise will identify savings and potential savings of Labelled product. Due to complex and varying water system across 34 Countries evaluating actual savings is extremely difficult.

Customer insight research has been undertaken for the Water Label in the UK. This found that 82% of people surveyed would find it helpful to have more detailed information on in-store labels for bathroom fittings and to have information about how water efficient each product is to make comparisons. The survey also found that 90% of consumers visit stores to get information and 70% said they would find it helpful if staff in store could give advice about which product use water efficiently³⁰.

India

Water Efficient Products India (WEP-I)

Background and History

The International Association of Plumbing and Mechanical Officials India (IAPMO-I) has been in the forefront participating actively in the code development work in partnership with Indian Plumbing Association (IPA) contributing towards the development of various industry codes and standards such as the Uniform Illustrated Plumbing Code – India (UIPC-I), Uniform Solar Energy Code – India (USEC-I), Uniform Swimming Pool Code – India (UPSC-I), Green Plumbing Code Supplement – India (GPCS-I), and the water efficiency rating specification Water Efficient Products – India (WEP-I), as well as plumbing training and educational programs throughout India for designers, contractors, students and engineers. In addition to publication of Codes and Standards, IPA and IAPMO - India have launched nation-wide Plumbing Education to Employment Programme (PEEP) and training with accreditation workshops on “Green Plumbers - India” (GPI) to create a workforce of Accredited Specialists.

Water Efficient Products-India (WEP-I) was developed jointly by IAPMO-India and the Technical Committee (TC) of the Indian Plumbing Association (IPA) comprising of eminent Consultants, Project Managers, Contractors and Manufacturers in the country. Water Efficient Products-India (WEP-I) is a set of recommendations to all those who are involved in the design, engineering, manufacturing, testing and certification of plumbing fixtures, fittings and materials for water efficient plumbing products in India. The provisions in this document are not mandatory.

The aim of the label is to:

- provide credible information on water-efficient products and practices
- raise awareness about the importance of water efficiency and recommend water efficient products
- assist consumers to make an informed choice of products that conserve water.

Type of Label

The WEP-I label is a voluntary three star rating applied to plumbing products. This is outlined in the table below.

Table 4 Standards for products and labeling in India

		WEP - I Efficiency Star Ratings		
Plumbing Fixture/Fitting	Conventional Product Consumption	* 1 Star Efficient	** 2 Stars Highly Efficient	*** 3 Stars Ultra Highly Efficient
European Water closets	6 Lpf Full Flush	4.8 Lpf Full Flush 1.20 Lpf Savings, or 20% Lpf Savings	< 4.8 Lpf Full Flush > 1.20 Lpf Savings, or > 20% Lpf Savings	< 4.0 Lpf Full Flush > 2.0 Lpf Savings, or > 33% Lpf Savings
Urinals	4 Lpf	< 3.8 Lpf > 0.20 Lpf savings, or > 5% Lpf savings	< 2.0 Lpf > 2.0 Lpf savings, or > 50% Lpf savings	< 1.0 Lpf > 3.0 Lpf savings, or > 75% Lpf savings
Shower Heads	10 Lpm	9.5 Lpm 0.50 Lpm savings, or 5% Lpm savings	7.5 Lpm 2.50 Lpm savings, or 25% Lpm savings	5.7 Lpm 4.30 Lpm savings, or 43% Lpm savings
Lavatory/Sink faucets	8 Lpm	8.0 Lpm 0 Lpm savings, or 0 Lpm savings	5.7 Lpm 2.3 Lpm savings, or 29% Lpm savings	5.0 Lpm 3.0 Lpm savings, or 38% Lpm savings

Products covered

- Water closets (European Water Closet, Combination Water Closet, Asian/Indian Water Closet (Squatting Pan).
- Showerheads (less than 9.5 litres per minute)
- Urinals
- Faucets
- Ablution faucets
- Kitchen sinks
- Domestic dish washers
- Clothes washers.

Product testing requirements

Approved laboratories for testing have been identified to certify compliance of the products to the guidelines. These include:

- Complete functionality - The functionality of all water efficient products is very important since each product must provide the same performance (or better without sacrificing quality) as expected from conventional non-water efficient products. More specifically, all of the above aforementioned water efficient products need to deliver the same water rinsing and scouring performance effect that’s normally expected from conventional non-water efficient like products.
- Proper design - More importantly, the manner in which to confirm any product’s functionality and quality is to ensure the product is certified by a product certification body (accredited to ISO/IEC 17065) to the product’s national performance standard (and also to the product’s

respective code(s), such as those from IAPMO India's Uniform Illustrated Plumbing Code-India (UIPC-I) and the Green Plumbing Code Supplement-India (GPCS-I).

- A Water efficiency rating - certification to a water efficiency rating specification such as IAPMO India's Water Efficient Products-India (WEP-I) water efficiency rating specification.

Market coverage

WEP-I will apply to products in India.

Links with other water efficiency programmes

The following measures have been identified to help make WEP-I more successful:

- Awareness generation
- Popularise Blue Stars
- Financial subsidy
- Incentives for manufacturers
- Incentives for purchasers on products and water bills
- Appropriate legislation to mandate
- Enforcement by Authority
- Having Jurisdiction.

Effective implementation of the WEP-I initiative will require active participation of all the stakeholders from the plumbing industry including consultants, contractors and manufacturers. Appropriate legislation will need to be enacted with guidelines to be followed by all concerned in the industry. The programme may have to be voluntary in nature during the early stages; to be made mandatory and enforced by law in due course. To start with, the following projects can be brought under the scheme.

- All government buildings.
- All government or private projects requiring clearances of Ministry of Environment and Forest (MoEF).
- All projects that opt for LEED, GRIHA or Eco-housing certification.
- All public toilets, whether government, municipal or private.

Links with other domestic certification systems

The proposed rating system is based on 2017 UIPC-I and 2013 GPCS-I.

The Uniform Plumbing Code-India (UPC-I) was first published in 2008, and updated and renamed in 2014 as Uniform Illustrated Plumbing Code – India (UIPC-I). Further, it is reaffirmed with addendums in 2017, by International Association of Plumbing and Mechanical Officials India (IAPMO-I) in partnership with Indian Plumbing Association (IPA). It is a comprehensive state-of-the-art code addressing modern plumbing design and installation practices.

The Green Plumbing Code Supplement-India (GPCS-I) was first published in 2010 and updated in 2013 by International Association of Plumbing and Mechanical Officials India (IAPMO-I) in partnership with Indian Plumbing Association (IPA), Green Plumbing Code Supplement-India (GPCS-I) is the most comprehensive document on sustainable plumbing systems. It offers guidelines on design, selection, installation and maintenance of water and energy saving plumbing products and systems.

Evaluation

The scheme has yet to be evaluated as it is not in use yet, however the following benefits have been identified:

- Steadily increase sustainability when green certified water products are installed,
- Help encourage use of general certified products, especially green certified water efficient products, so they become more commonplace, known and specified in the marketplace, which will help to increase and to optimise the public's health and safety in any country,
- Help instil greater confidence levels in consumers and in the general public by installing certified products over non-certified products, the latter of which generally give feelings of uncertainty about their safety and quality, and
- Help more manufacturers realize the importance of certifying their products so as to also further aid and enhance the welfare and health benefits to all societies.

Malaysia

Water Efficiency Products Labelling Scheme (WEPLS)

Background and History

Malaysia introduced their Water Efficient Products Labelling Scheme (WEPLS) in early 2013 on a voluntary basis. This scheme has recently been identified as one of the key strategies for water demand management in Malaysia. Currently however, the Malaysian Water Services Division believes that the use of water saving products due to the WEPLS scheme has not been satisfactory. Because of this, Malaysia intends to make their scheme mandatory in the near future to ensure better water efficiency. For Malaysia, the prerequisite for the registration of WEPLS is the compliance of each product to the Malaysian standard as specified by SPAN. The Malaysian Water Services Division and SPAN believe that the proposed ISO for water efficiency standard should as far as possible, harmonise the range of water efficiency ratings and be subject to the same procedure of testing in determining the nominal flow for the efficiency rating.

WEPLS was introduced for the following purposes³¹:

- to raise awareness of the public on the availability of water efficient products
- to encourage a healthy water consuming habit among consumers
- to promote a green life style by using water efficient products
- to encourage the suppliers in the development and marketing of water efficient products in Malaysia
- to motivate the introduction of cost-effective and water efficient technologies in Malaysia

Type of Label

The WEPLS label is currently voluntary, however in a statement on 8 May 2018, a representative of The Energy, Green Technology and Water Ministry (KeTTHA) stated “the government intends to implement WEPLS as mandatory for local products and imports by 2019”³².

The label includes:

- Three star rating indicating water efficiency
- WEPLS registration number
- Product information such as brand, model and water consumption



Figure 8 Example WEPLS label

³¹ <https://www.span.gov.my/article/view/about-wepls>

³² <https://themalaysianreserve.com/2018/05/08/kettha-targets-99-water-supply-by-2020/>

Products covered by the label

Five types of products are covered under WEPLS:

- taps which include basin tap, sink tap, shower tap and ablution tap
- water closet
- urinal equipment
- shower heads
- clothes washing machine.

New Zealand

Water Efficiency Labelling Scheme (WELS)

Background and History

New Zealand receives a plentiful supply of fresh water, but it is not uniform across the country. Rainfall is generally much higher on the western side of both the North and South islands. New Zealand's lakes and rivers are feeling the pressure of more than 150 years of a growing population, and changes in the way people use water.

Demands for fresh water are increasing and there are shortages in some areas at certain times of the year, for example in Canterbury and the Hawke's Bay. There are also increasing demands on New Zealand's water supply infrastructure. Expanding this infrastructure to meet demand can be both costly and contentious, and inevitably involves difficult trade-offs. For example, meeting the water demands of New Zealand's largest city, Auckland, is likely to involve an expensive pipeline to draw additional water from the Waikato River (as closer options become insufficient to meet demands). Climate change is predicted to affect rainfall patterns, which may exacerbate pressures on freshwater quantity and flows in some areas of the country.

Water is becoming increasingly important to the New Zealand public, as people have become more aware of the issues affecting the health of our rivers and lakes, and the pressures affecting the amount of water available. For Māori, freshwater is a taonga – a treasured resource – and has cultural as well as practical importance.

Many local government bodies have adopted water conservation and efficiency plans, in an effort to reduce pressure on infrastructure, and in particular to avoid, where possible, the need for costly investment in additional water supply capacity. Encouraging public understanding of the water efficiency of different products (and therefore the implications for the customer's power and water bills, as well as the region's water resources) is an important component of such plans. In October 2008, the Government agreed to the making of regulations prescribing consumer information standards for water efficiency.

Type of Label

What does it cover?

The New Zealand Water Efficiency Labelling Scheme (WELS) requires the disclosure of water efficiency information for six product classes: dishwashers; clothes washing machines; lavatory equipment; urinal equipment; taps; and showers. These products are required to carry a label showing their comparative efficiency rating (based on a 'star' system) and water consumption information. The scheme applies to new products made available for sale or promotion, but not to second-hand products.

The labelling and testing requirements are based on the joint Australia/New Zealand Standard AS/NZS 6400. The scheme is established with regulations made under the the Fair Trading Act 1986³³.

Voluntary or mandatory?

New Zealand's regulations (the Consumer Information Standards (Water Efficiency) Regulations 2010 and 2017) provide for mandatory coverage of the scheme³⁴.

All new products regulated by the scheme and supplied in New Zealand are required by law to be tested for water consumption and labelled in accordance with the WELS standard. The New Zealand regulations are based on the joint Australia/New Zealand Standard AS/NZS 6400, and provide for harmonised labelling with Australia. Unlike in Australia, in New Zealand no minimum water performance requirements have been set (i.e. the regulations require sharing of information about water efficiency, but zero-star rated products can still be made available for sale providing they meet the labelling requirements).

What does the label look like and where must it be displayed?

The information to be included in the labels includes:

- Brand name (to identify the model's brand name e.g. the trading name of the model's manufacturer)
- Model identifier (to identify the model, e.g. by a model number or another identifier)
- Water consumption (state the model's water consumption, calculated in accordance with AS/NZS 6400)
- Star rating

Clothes washing machines and dishwashers must also include the following information:

- Rated capacity of the machine
- Stated wash programme used to determine the water efficiency

A sample label is shown below:

³³ <http://www.legislation.govt.nz/regulation/public/2017/0212/14.0/whole.html#DLM7378701>

³⁴ <http://www.legislation.govt.nz/regulation/public/2010/0081/latest/DLM2789601.html>



Figure 9 Example of New Zealand WELS label

Labels (or a text alternative) must be displayed at point of sale (either physically displayed in store, or available online for Internet shopping).

Products covered

See above. Some limited exceptions apply, including taps that are solely for use over a bath are not covered (because the flow rate of a bath tap does not affect the amount of water used). Only showers intended for 'personal bathing' as specified in AS/NZS 3662 are covered by the regulations. Safety showers, for example, are specifically excluded.

Product testing requirements

In order to comply with the labelling requirements, products must be tested for performance and water efficiency. Testing must be conducted in line with requirements for the Australian and New Zealand standard 6400 relevant to the product.

The New Zealand Regulations do not specify who can carry out testing; however, it is recommended that suppliers use a laboratory that can provide confidence in the results, for example has IANZ (International Accreditation New Zealand) or equivalent accreditation for the relevant testing. IANZ accreditation or equivalent is required for test reports to be accepted for registration under the Australian scheme.

Standards that underpin testing or labelling requirements

The WELS standard is *Australian and New Zealand Standard 6400:2016 Water efficient products – Rating and labelling*. The standard details requirements for product testing, rating, labelling and display, including the detailed label design for each product.

The WELS standard is supported by a range of product-specific standards that set additional requirements for product testing and performance.

Registration process and costs

Not applicable (the New Zealand scheme does not include registration).

Links with other water efficiency programmes

As noted, the New Zealand scheme is linked to the Australian scheme.

Market Coverage

As noted above, the scheme is mandatory and applies to all new products available for purchase. New Zealand importers and manufacturers are responsible for ensuring that any products they import or manufacture are tested and meet the information disclosure (labelling) requirements. Retailers also have a role to play in ensuring products they display and supply comply with the labelling requirements. This includes WELS products for sale online. Anyone supplying or offering to supply a product covered by the regulations must ensure products clearly display the label, that the label is legible, and that it is clear which product the label applies to.

Plumbers who supply and/or install a WELS product after 1 April 2011 should ensure that the product has been WELS rated and labelled, and provide the WELS information (i.e., the label or text) to the customer.

Links with other certification schemes

The white goods regulated by WELS (clothes washing machines and dishwashers) must also meet the requirements of the Energy Efficiency (Energy Using Products) Regulations 2002. These products must display the label when they are offered for sale.

The label was developed under the trans-Tasman Equipment Energy Efficiency (E3) Program and applies in both New Zealand and Australia.

Compliance mechanisms

Manufacturers, importers, and retailers of water-using products in New Zealand have responsibilities under the WELS regulations. The regulations state that a person must not supply, or offer to supply, the regulated products unless they comply with the regulations.

The Commerce Commission is responsible for enforcement of Consumer Information Standard Regulations under the Fair Trading Act 1986, including the WELS regulations. Offences under the Fair Trading Act may attract fines of up to \$30,000 for a company and \$10,000 for an individual per offence.

Anyone, including consumers and competitors, is able to inform the Commerce Commission if they suspect breaches. The Commerce Commission includes inspections of WELS requirements as part of its routine inspections of businesses. In most cases, an education approach is taken in the first instance but fines are available for continuing breaches.

Evaluation of the label

No formal evaluation of the New Zealand WELS has been undertaken.

Portugal

ANQUIP Water Label

Background and History

ANQUIP is a technical-scientific association and a non-profit organisation, whose overall objective is to promote and guarantee the quality and efficiency in building services, with particular emphasis on the building water cycle and sustainability issues.

Technological development and scientific research at the level of building installations in Portugal, including water supply and drainage or green roofs, have a lack of incentives and effective measures for promotion. ANQUIP has taken on the role of focussing on these issues.

Type of label

The ANQUIP label is a voluntary, NGO-led scheme. The label includes a five water-drop rating system in combination with an alphabetic scale to indicate the water efficiency of a product. One water drop (A) is considered efficient, 5 water drops (E) is inefficient.

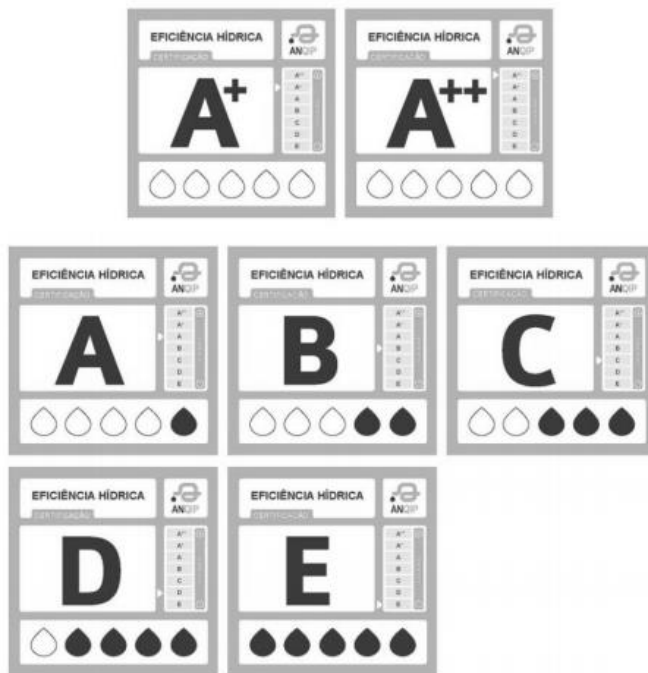


Figure 10 Example of ANQUIP water label

Products covered

Products covered include:

- Flushing cistern
- Showers and shower systems
- Flow reducers

-
- Valves and flow meters (toilets, showers and taps)

Product testing requirements

Testing of products includes:

- Water efficiency
- User friendliness and performance
- ANQUIP has drawn up technical specifications for different products so as to create and establish the necessary benchmark values to be assigned to each letter.

Market coverage

110 toilets have been awarded the label representing 75% of the national market.

Links with other programmes

- Complies with European Standard for WC and urinal flushing cisterns (prEN 14055:2007)
- Corporate bylaws
- National association for quality in building facilities
- Meeting the requirements of the national plan for efficient water use

Compliance mechanisms

ANQUIP controls the process by randomly testing labelled products on the market. The tests are performed by accredited laboratories recognised by the association.

Singapore

Mandatory Water Efficiency Labelling Scheme (MWELS)

Background and History

The Mandatory Water Efficiency Labelling Scheme (MWELS) was introduced in 2009 to help consumers make informed choices when buying water fittings and appliances. This scheme also encourages suppliers to introduce more water efficient products to the Singapore market. Under this scheme, products are labelled according to their water efficiency which ranges from 0-tick to 3-tick. Items under MWELS include water fittings such as taps and mixers (basin, sink/bib and shower), dual-flush low capacity flushing cisterns (LCFCs), urinal flush valves and waterless urinals. In addition, suppliers are also encouraged to label the water efficiency of their showerheads under the Voluntary Water Efficiency Labelling Scheme (VWELS). MWELS was extended to cover clothes washing machines for household use in 2011.

The minimum water efficiency standard for clothes washing machines was raised from 1-tick to 2-ticks (i.e. 2-ticks and 3-ticks only) in October 2015. On Singapore consumers' level of acceptance, a market survey commissioned by PUB in 2016 showed that the sales figure of 3-ticks WELS rated washing machines has increased from 37% in 2011 to 88% in Q1 2016. This huge jump in sales figure signifies a shift in consumers' behavior and their increased preference in water efficient products. In light of more water efficient washing machines in the market, PUB introduced a 4-tick rating within the 3-tick rating group to allow for finer differentiation of water efficient clothes washing machines in 1 Apr 2017.

To complement MWELS, minimum water efficiency standards were imposed on water fittings in 2009. All new developments and existing premises undergoing renovation are required to install water fittings with at least a "1-tick" water efficiency rating. PUB has also introduced minimum water efficiency standards of 1-tick for taps/mixers from 1 Apr 2017 (i.e. only taps/mixers with at least a 1-tick rating are allowed to be sold/supplied in Singapore).

Over the years, PUB has made good progress in water efficiency. In 2017, we used 143 litres per person per day, down from 165 litres in 2003. As we strive towards our target of 140 litres by 2030, PUB is constantly looking at other initiatives to get its citizens to do their part by adopting more water saving habits and making use of more water-efficient technology.

In line with PUB's plans to encourage customers to use more water efficient fittings and appliances, PUB has introduced new initiatives to enhance water efficiency and encourage water conservation in the domestic and non-domestic sectors. From 1 April 2019, PUB will mandate the sales, supply and installation of at least 2-ticks water fittings in all new and existing domestic premises undergoing renovation. In addition, dishwashers will also be included as part of MWELS from 1 Oct 2018.

Types of products covered under WELS

Mandatory WELS

1. Basin Taps and Mixers
2. Sink Taps and Mixers
3. Bib Taps and Mixers
4. Dual Flush Low Capacity Flushing Cisterns (Dual Flush LCFCs)
5. Urinal Flush Valves / waterless urinals
6. Clothes washing machines intended for household use
7. Dishwashers intended for household use (with effect from 1 Oct 2018)

Voluntary WELS

1. Showerheads

Type of Label

Water Efficiency Labels – Mandatory WELS

(Registration No. is displayed on label)



Figure 11 Example labels for basin, sink/bib, shower taps/mixers, dual-flush LCFCs, urinal flush valves/waterless urinals



Figure 12 Example label for clothes washing machines and dishwashers Water Efficiency Label - Voluntary WELS (Serial No. is displayed on label)



Figure 13 Example labels for showerheads

Use of water efficiency labels

The water efficiency label shall be affixed to each water fitting, appliance, apparatus or product model displayed for sale or supply. The water efficiency label shall also be affixed to each water fitting, appliance, apparatus or product model or on its packaging at the point of sale or supply or offer for sale or supply. The label shall be fixed such that it is prominent to let consumers view and compare with ease. The markings and information on the label shall not be removed, defaced or obscured in any manner that may confuse and/or mislead the consumer.

The water efficiency label shall not be defaced, obstructed, removed, misused, forged, falsified or altered.

Advertisements for water fittings, appliances, apparatus or products labelled under the MWELS in all forms of advertisements that has any visual elements which includes newspapers, brochures, catalogues, publicity materials, websites, TV advertisements and any other visual elements shall display the water efficiency label for each and every water fitting, appliance, apparatus or product model featured next to the image or description of the water fitting.

Where it is not practicable to display in the advertisement the water efficiency label for each and every water fitting, appliance, apparatus or product model featured, relevant information contained in the Water Efficiency Label shall be stated in the advertisement.

Product compliance and test requirements

All water fittings shall be tested for compliance with PUB's stipulated standards and requirements to address water contamination, water wastage and durability/reliability aspects of the product. The

stipulated standards and requirements can be found in the "PUB's Stipulated Standards & Requirements for Water Fittings" booklet which is downloadable from PUB's website³⁵.

Additionally, products covered under Mandatory WELS such as taps/mixers, dual-flush low capacity flushing cisterns, urinal flush valves/waterless urinals and clothes washing machines shall be labelled under Mandatory WELS before they are allowed to be offered, displayed or advertised for sale and supply in Singapore. The test standards and methods, as well as rating for water efficiency, are listed in Tables 1 and 2.

A water fitting is deemed to have complied with PUB's stipulated standards and requirements if it is tested as complying with such Standards by a testing laboratory accredited by the Singapore Accreditation Council (SAC) or its Mutual Recognition Arrangement (MRA) partners.

Application for WELS labelling

Currently, suppliers can register for labelling of their product to PUB via PUB's WELS website at www.pub.gov.sg/wels. No fees chargeable for registration of product under WELS.

With effect from 1 April 2018, all water fittings, appliances, apparatuses and products covered under WELS, shall be certified by a Certification Body (CB) accredited by the Singapore Accreditation Council (SAC) in accordance with SAC CT 19 for ISO/IEC Type 1a certification scheme. The Accredited CB for WELS shall submit the products to PUB for registration on behalf of suppliers, henceforth.

Market Coverage

WELS labelled products in Singapore are generally produced in other countries. The products are offered, advertised, displayed for sale and supply in Singapore by suppliers, distributors, retailers, and hardware stores.

Compliance to WELS via post market surveillance

PUB conducts random post-market surveillance on WELS products displayed at suppliers' showrooms/retailers, shops. In addition, checks are also conducted new developments to ensure that compliant fittings are installed. Punitive actions can be taken against any person or company for any non-compliance.

³⁵ www.pub.gov.sg

Evaluation

A survey commissioned by PUB has identified that market share of the most efficient washing machines has increased from 37% in 2012 to 87% in 2016³⁶.

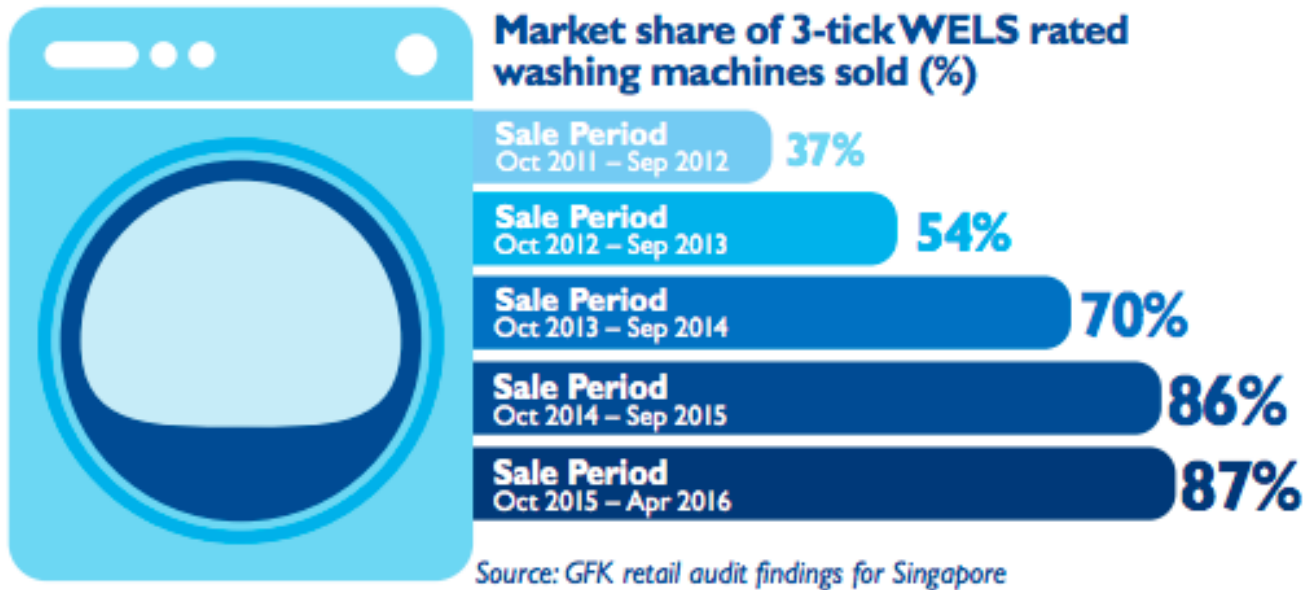


Figure 14 Market share of WELS rated washing machines

³⁶ https://www.pub.gov.sg/Documents/WELS_Brochure_English.pdf

United Arab Emirates

ESMA Water Efficiency Label

Background and History

The UAE water label, ESMA, began in 2013 and covers all products under the green products label. ESMA was established as the sole standardisation body in the UAE under the Law No. 28/2001. ESMA is an official UAE Certification member body and is aimed at assisting national industry to enter international competition. ESMA is part of the Emirates strategy for environment and is aimed at:

- Enhancing the global reputation of the state and maintaining a leadership position
- Enhancing national security in the areas of energy and water
- Achieving efficient use of natural resources
- Achieving a sustainable high quality of life
- Attracting investment and creating job opportunities for citizens
- Enhance economic competitiveness and support innovation

Type of Label

The mandatory, government-led label is based on a 1-5 star rating system, where 5 is the most efficient. All products covered under the “green products” label are include and they are tested under the UEA assessment scheme.



Figure 15 Example ESMA label

Applying to the label

Registration requires: valid UAE Industry/ trade licence, test reports from an accredited laboratory, electronic declaration of conformity and the payment of a fee. The fees range from free for a 5 star label to 10 AED for a 1 star label. The more efficient a product is, the cheaper the price to label it. Meaning manufacturers have a double incentive to ensure the efficiency of their products.

Consumer engagement

General promotion from website: Provide up-to-date information on standardization and relevant activities and stakeholders at the national, regional and international levels through the Information Centre.

United Kingdom

Water Technology List

Background and History

Operated by DEFRA, HMRC and Ricardo, since 2016 the WTL has promoted the use of water efficient products for businesses. This is incentivised by the inclusion of eligible products in the Enhanced Capital Allowance (ECA) scheme, which enables businesses to offset the cost of buying and installing these products against its taxable profits – e.g. a company which buys a £1000 product and pays 30% tax could reduce its taxable profits by £1000 and pay £300 less tax. Categories covered include widely installed products such as showers, taps and toilets, as well as greywater and monitoring technology.

Criteria are set for each product type to define eligibility for an ECA, and be listed on the WTL, and reviewed annually. This includes various quality and durability requirements (including in some cases WRAS requirements for fittings), compliance with the Water Supply (Water Fittings) Regulations (1999), as well as performance aspects such as limits on flow rate. The scheme only sets minimum eligibility criteria for products, and does not include a mechanism or increased incentive to promote the most water efficient products on the market.

On 22nd March 2018 it was announced that all applications to the WTL were on hold as future policy on the WTL was under review, alongside an industry consultation, and taking into account DEFRA's 25 Year Environment Plan. The WTL website states that it hopes to provide updated information in December 2018. Therefore the scheme is currently not active as a market transformation instrument.

Type of Label

The Water Technology List is a Government led, voluntary label linked to a tax incentive for businesses.

DEFRA conduct testing of WTL listed products. The WTL website does not report any set percentage of the total amount products that is identified for testing, but that products are selected on a random basis or where there is a substantiated complaint from an end user or another body. Initial test costs are borne by DEFRA – if products fail, a retest is charged to manufacturers; non-compliant products may be removed from the scheme.

The WTL logo can be displayed in promotional materials by manufacturers on eligible products. No information on its visibility on products/manufacturer websites, or level of misuse of the trademark was available.

Market Coverage

As of July 2018, 3,385 products were registered on the scheme, in 14 categories, with the split as below. Product types that would affect direct per-capita use (showers, taps and toilets) make up 18% of all products registered.

Table 5 Products registered under the WTL

Split of product types on the WTL by number of registered products, July 2018

Technology	Number of products registered
Cleaning in place equipment	340
Efficient showers	160
Efficient taps	204
Efficient toilets	238
Efficient washing machines	176
Flow controllers	45
Greywater recovery and reuse equipment	45
Leak monitoring and control equipment	73
Meters and monitoring equipment	384
Rainwater harvesting equipment	1129
Small scale slurry and sludge dewatering equipment	26
Vehicle wash water reclaim units	83
Water efficient industrial cleaning equipment	455
Water management equipment for mechanical seals	27
Total	3385

Evaluation of the label

Odyssey-Mure conducted a high-level review of the UK Enhanced Capital Allowance Scheme, with the most recent update from November 2016. This looked at both the energy and water savings aspects of the ECA scheme. Whilst little detail was available, using Odyssey-Mure's impact evaluation assessment, the scheme as a whole was deemed to have 'medium' impact (on a scale of low/medium/high).

TechUK provided feedback from the UK technology sector as part of a January 2016 DECC call for evidence on the general effectiveness of ECAs. No information on the effect on water consumption was available, but feedback was provided from industry who may look to install energy efficient and water saving technology. Key themes emerging from this, for the Energy Technology List (a similar scheme) were:

- The ETL drives behaviour change in its current form, but is not as effective a driver as it could be
- Uptake by SMEs is very slow, and beyond the practical reach of most SMEs
- Awareness and uptake appear to be low, suggesting the list could be better publicised
- The ETL is good in principle but suffers from a number of process-related shortcomings and is considered overly complex and bureaucratic – interactions with the ETL are usually outsourced to specialists.

Waterwise Checkmark

Background and History

Waterwise Marque

In September 2006 Waterwise launched the UK's first annual water efficiency Marque, the first scheme of its kind in the UK, where Marques were awarded to the technology behind the product, rather than the product itself and any water saving product could apply. Five years later and over 70 Marques from over 55 different companies had been awarded across a broad spectrum of products including dishwashers, showerheads, water storing gels for the garden, toilets and urinals, drought resistant turf, domestic water recycling products, water butts, a waterless carwash, tap flow restrictors, shower timers and toilet retrofit devices, amongst others. The Marque was set up to help consumers choose these products by highlighting the most water efficient products available on the market. These products exhibit both water savings at their core as well as innovation within the existing market. The Marque was awarded twice annually to products which reduce water wastage or raise the awareness of water efficiency.

Waterwise Recommended Checkmark

After 5 years of the marque, there were a number of water efficiency labels in existence, notably the Bathroom Manufacturers Association label, and the need for the Marque changed. The Waterwise Marque evolved into the Waterwise checkmark, a voluntary product labelling scheme for water saving products in both the commercial and domestic sector. The Waterwise Marque is no longer available and all previous Marque winners now had the Waterwise Recommended checkmark.

Whilst the Waterwise Marque was awarded by a panel of judges, the Waterwise Recommended Checkmark was managed within the internal Waterwise research team and focussed on water savings of each product. Each product was assessed by the research team primarily on their water use and water saving claims, although other characteristics will be considered. Waterwise Recommended doesn't have any guidelines about which products can apply, there are no designated categories. It is open to all products that contain a water saving or water efficient technology at their core.

The Waterwise Recommended label provided consumers with an 'at-a-glance' indicator of a product's water saving potential, and sits alongside other labels, such as the Bathroom Manufacturer's Association Label, which uses an A-G classification for the water consumption of products.

The application process had two stages; the first was to liaise with Waterwise to discuss the product being applied for. This can be through email, telephone or meeting in person. This initial discussion was to ensure that the product is suitable for the label. If at this point Waterwise decided that there are no water saving features associated with the product(s) then we didn't take the application forward and there was no fee incurred. If it's decided that the product was water saving then

Waterwise required payment and the submission of the application form. This way it prevented manufacturers from applying if there was little likelihood of them being awarded the label. Waterwise also worked with those manufacturers whose products did not meet the required standard in order to help them receive the checkmark.

Waterwise promoted all Waterwise Recommended products on their website. Continued use of the checkmark logo and continued membership of the scheme was dependent upon the member continuing to demonstrate that they meet the scheme rules on an ongoing basis. Waterwise retained the right to remove products from those awarded with the Waterwise Recommended Checkmark if the product became superseded by more efficient technologies or drastic changes are made to the product which no longer coincide with the information given to Waterwise at the time of application. Waterwise Recommended helped build support for new products, and increases awareness of consumers, it also helped to drive the product and technology market forward.

Smart Approved Watermark

Due to further changes in the marketplace for labelling and staff resource constraints at Waterwise, a partnership with Smart Approved Watermark was developed in 2015 to provide a European water certification (see Section on this label above). However, the uptake from products and businesses in the UK was low and it was decided to revive the UK specific label.

Waterwise Checkmark in 2018

Water efficiency has been significantly raised up the national policy agenda in the UK over the last 18 months. This is linked to the Water UK Long Term Water Resources Planning Framework report, the Waterwise Water Efficiency Strategy for the UK, and subsequent pressure on water companies from Government and regulators to drive down per capita consumption and increase water efficiency in non-households. However, it is recognised that water companies alone cannot achieve the change in behaviour required.

In July 2018 the Waterwise Checkmark was relaunched for products and a range of new building and non-domestic water use categories are being developed linked to the opening of the retail market for water in England, where businesses can now choose their water and wastewater provider.

Type of label

The Waterwise Checkmark is a voluntary label managed by the independent, not-for-profit organisation Waterwise.

Links with other certification schemes

The Waterwise Checkmark is awarded to products that save water and are already certified under the European Water Label scheme and WRAS from a quality perspective.

The updated label is being more heavily integrated with the water retail sector for products and wider assessments such as offices, schools, and train stations.

Evaluation of the label

The label has only just been re-introduced, therefore it is too early to evaluate its performance. The previous Marque and Checkmark labels anecdotally were successful in driving forward water efficient products in the UK and the checkmark brand is still readily recognisable. The previous scheme had the following products in each category:

- Bathroom and Toilet - 54 products
- Kitchen - 6 products and appliances
- Outdoor - 19 products

Comparison of labelling schemes

As part of a wider project funded by the UK Department for Environment, Food and Rural Affairs and the UK Water Companies Collaborative Water Efficiency Fund, the Energy Saving Trust produced a matrix of international water efficiency labelling schemes (Appendix A). The purpose of this task was to compare existing labels in order to draw recommendations for a UK water efficiency labelling scheme.

The aspects of schemes covered are:

- Products covered.
- Product performance criteria, testing and standards.
- Information displayed on the labels and how the labels are displayed.
- Costs and benefits.
- Links to other regulations or water efficiency schemes.
- Links with other domestic certification systems for plumbing products or white goods.
- Other incentives to help transition the market.
- Mandatory versus voluntary and government versus industry or NGO-led schemes.
- Mechanisms for monitoring, measuring and enforcing compliance.
- Implementation with industry including registration processes, requirements, costs.
- Customer engagement and understanding of and consumer exposure to the label.

Matrix summary: trends and differences

Mandatory vs voluntary schemes

As might be expected, mandatory labelling schemes tend to have a higher uptake than voluntary schemes. Within the scope of this research, mandatory schemes are government-led. The Australian and New Zealand WELS schemes are well established and successful, but there is insufficient information on the Singapore WELS and UAE ESMA to be able to evaluate their success. However, certain voluntary schemes have had similar levels of success, possibly linked to the nature of the scheme lead (government, industry or NGO – see next section).

The US and Canada use the WaterSense scheme, which is voluntary but has good market penetration and recognition by consumers. One way in which this is apparent is that many retailers allow filtering and searching for WaterSense products on their websites. The success of WaterSense may be in part due to its standing as a quality mark rather than a rating scheme. This is likely to make it easier for manufacturers to test their products and see if they meet the scheme criteria (use ~20% less water than standard).

While Hong Kong's scheme is also voluntary and government-led, it started later than WaterSense, covers fewer product categories and uses a grading system - this might explain the lower uptake. Malaysia's WEPLS scheme is also voluntary and government-led. The lack of success in this project has been attributed to its voluntary nature; as such, the Malaysian Water Services Division intends to make the scheme mandatory in future. Furthermore, Malaysia's scheme charges a fee for applications, although this is small. Hong Kong WELS and WaterSense do not charge for applications - removing the charge could increase success in Malaysia.

Government, NGO or industry-led

The voluntary schemes with most success are government-led. Other voluntary schemes in this research are industry or NGO-led, and have achieved lower uptake. It may therefore be possible to attribute the success of some voluntary schemes, notably the US and Canada's WaterSense, at least partly to the government's leading of the scheme. It is possible that governments have more resources (both finances and staff) to dedicate to a scheme, or find it easier to ring fence funding, whereas NGOs and industry are likely to have other requirements, responsibilities and priorities.

One exception is Portugal's ANQUIP scheme, which has encountered notable success whilst being a voluntary and NGO-led project. Since so many companies and consumers have complied with the system, the lack of certification of certain products is now expected to gradually lead to their removal from the market.

Research into other eco-labelling schemes has shown how a major contributor to failure is lack of public awareness³⁷, something which the Portuguese scheme has managed to avoid. Similarly, the Australian SAWM scheme appears to have a good market presence, considering the niche products the certificate covers.

Industry-led schemes, such as the European Water Label and China Water Conservation Certificate, also claim success, but there is little or no evaluation of direct impact of the label in isolation from other water efficiency initiatives.

³⁷ Golden, J., Vermeer, D., Clemen, B., et al. 2010. An overview of ecolabels and sustainability certifications in the global marketplace. In J. Golden (Ed.), Corporate sustainability initiative. Durham: Nicholas Institute for Environmental Policy Solutions, Duke University.

Labelling

There are commonly two types of water labelling: those that use a ranking system (often a number of stars or water drops, with a higher number of icons indicating a more water efficient product) and those that are used as a quality mark (indicating the product meets or exceeds water efficiency standards).

Most labels show the water consumption or water flow of the product, often in litres/minute or litres/flush. They may also show the registration number of the product under the scheme, and the brand and model. Some labels show additional information. Portugal's water label is used to demonstrate the ease of use of each appliance as well its water efficiency, which has been a successful format. The European Water Label uses technical icons on its label that provide information on the product e.g. type of operation of a tap, temperature, how long the water runs when using a sensor.

Where information is available on how labels should be displayed, the requirements generally simply require that the label be affixed to the product and/or its packaging.

Links to other incentives for transitioning the market

There are few incentives created by the water efficiency labelling schemes to aid market transition towards more water efficient products. In several cases, the literature makes a similar statement - that the existence of the label will pull consumers towards more efficient products, while pushing manufacturer innovation towards higher water efficiency, which together will gradually phase out inefficient products from the market.

Both Australian schemes are supported in some areas by water companies or local or state governments offering rebates to consumers who have purchased more water efficient products in times of drought. In the USA, some states have used the WaterSense label criteria as a requirement for the sale or installation of new products. Under the UAE scheme, more efficient products are cheaper to label, which creates an incentive for manufacturers to create the most efficient products they can. The Korean scheme offers an interesting incentive for consumers - a 'green credit card' offering rewards for purchasing products marked with the Eco-Label.

In the energy labelling space, the European Energy Label is complimented by Ecodesign directives intended to push the market towards higher standards. Here energy labelling acts as a 'pull' from consumers, creating a demand for energy efficient appliances, whilst Ecodesign directives act as a push on manufacturers, continuously improving the minimum standard of product which can be sold. Currently only washing machines have a minimum standard for water efficiency under Ecodesign regulations.

Links to other regulations, water efficiency schemes or domestic certification schemes

Other than meeting national or ISO standards and complying with national regulations, there are not many occasions on which water efficiency labelling schemes are linked to other schemes. Under both Australian schemes, products must first be certified by WaterMark, which certifies that the product meets Australian plumbing standards. Under Australia's WELS, white goods must also be registered with the Equipment Energy Efficiency program, which includes the Australian energy label; the same is required of the New Zealand WELS.

In the EU there is a similar requirement for many energy using appliances to display an energy label, but there is no overlap between product types that require an energy label and those that could display a water label.

Impact evaluation – costs and benefits

Our research suggests schemes that have conducted impact evaluations - the more successful schemes, WELS and WaterSense - are clearly able to state the impacts on the environment and demonstrate that the scheme is improving water efficiency.

All schemes state similar benefits:

- Reduced annual water consumption.
- Monetary savings to households from reduced utility bills.
- Increased product information for consumers.
- Greater market share of more water efficient products.
- Competitive advantage and marketing benefits for manufacturers with highly water efficient products.
- Environmental benefits through reduced greenhouse gas emissions.

Information on costs is more difficult to find. Again, those that have conducted impact evaluations are more easily able to share the costs of the scheme. Assumed costs for most or all schemes could include:

- Scheme set-up and maintenance, consultations, review process for the scheme, label and setting standards and requirements for each product (if not using existing standards).
- Development and maintenance of the agreed testing standards.
- Product testing by manufacturers or third parties.
- Product labelling processes.
- Monitoring and enforcement of the scheme.

-
- Raising awareness of the scheme.
 - Regulatory burden on registrants and suppliers to comply with mandatory schemes, of which there may be multiple (e.g. energy efficiency labelling).

Context

It is important to bear in mind the context of different countries when comparing water labelling schemes. The Australian WELS has had huge success, but Australia experiences frequent (and often severe) droughts, making water efficiency labelling vital for water management. The WELS scheme was born out of the Millennium Drought, which is still recognised as the worst drought in the country's records. The drought was induced by low rainfall in late 1996 through 1997, and worsened during the particularly dry years of 2001 and 2002, being recognised as the worst drought on record by 2003. Australian WELS was implemented in 2005; drought conditions ended rapidly in late 2010 by wet weather conditions.

By contrast, the UK does not experience droughts as frequently or as severely, which may explain why UK consumers do not view water efficient products as a necessity. As found in the Energy Saving Trust's "At Home with Water 2" report, consumers are not aware of the need for saving water, viewing the UK as a wet country (particularly when living in the wettest areas of the UK), and assuming water resources are plentiful. However, the impacts of climate change and population growth will create longer and more frequent droughts by the 2040s, and will affect the whole of the UK. During the heatwave in 2018 many water companies found that although they had water resources available, their treatment works and distribution networks couldn't meet the demand for water. Additionally, during winter 2018 a freeze-thaw event resulted in a spike in demand from leakage. Both resilience events could have had their impacts reduced if water efficient fittings, fixtures and appliances were more common in the UK.

Information availability

There are varying levels of availability of information to complete the matrix. The Australian WELS, seen as the pioneer of water labelling, has good information availability and a dedicated website. Australia's SAWM and the US and Canada's WaterSense scheme are also well-established with informative websites. There is difficulty in finding information for the India WEP-I scheme, but this is not surprising as the scheme is in the proposal stage. The shortage of information on the China Water Conservation Certificate is surprising as the scheme has been in place since 2002. The UAE scheme has a clear section on the standardisation website, however details of the project are consistently lacking with regards to products covered, the testing process, costs and benefits, and monitoring and enforcing compliance.

One of the most difficult aspects of the schemes to find information on is the costs and benefits. Most schemes state the same type of benefits - this information has not been included in the matrix,

as it would be repeated across all schemes. Information on benefits of the scheme is more readily available than that on costs - it is not clear whether this is due to costs not being calculated or not being made publicly available.

Interviews and correspondence with appropriate water labelling stakeholders has helped fill some of the gaps in the literature – the remaining gaps may be largely a result of lack of formal evaluation, and difficulties in collating information in a competitive commercial environment.

Learnings from other labelling schemes

A review of the literature on more general eco-labelling schemes was carried out, and has indicated key themes which mirror our findings in the international labelling matrix.

A brief critique of eco-labels initially questions how the labels are dominated by environmental metrics, often ignoring social factors³⁸. Hwang et al. (2016) found that eco-labels have had little impact on the market share of eco-products, which they attribute to a focus on eco-friendly consumers, and suggest schemes must target general consumers' purchasing decisions if they are to increase the market share of eco-products³⁹. Other water efficiency labels presented here support this theory as environmental factors are the focal point of each label.

The literature also displays the external factors which influence an eco-label. Businesses are constantly looking for which label will give them a competitive advantage; a label with the best reputation will give better returns than a meaningless one. The reputation of a label comes down ultimately to the standards it selects, giving basis to the argument of increased government oversight in labelling organisations (Sustainability: the Journal of record, 2008). As previously mentioned there are clear differences between government, NGO and industry leadership in existing water labelling schemes, demonstrating the difference in these external factors.

A final critique from the literature comes from the concept of 'Green Consumerism'. Scepticism about misleading and unverified environmental claims has been cited as contributing to the gap between what consumers say they are willing to pay and what they actually do⁴⁰. It is also important to remember that consumers purchase products for a functional reason - if it does not function then it

³⁸ Golden, J., Vermeer, D., Clemen, B., et al. 2010. An overview of ecolabels and sustainability certifications in the global marketplace. In J. Golden (Ed.), Corporate sustainability initiative. Durham: Nicholas Institute for Environmental Policy Solutions, Duke University.

³⁹ Hwang, J-A., Park, Y. and Kim, Y. 2016. Why do consumers respond to eco-labels? The case of Korea. Springerplus, 5(1): 1915.

⁴⁰ Gallastegui, I. G. 2002. The Use of Eco-labels: A Review of the Literature. European Environment, 316–331.

will fail in the market place no matter how eco-friendly it is. Eco-labels should therefore ensure that the products performance is encompassed within the criteria.

Several challenges to eco-labels have been laid out by Gallastegui (2002) demonstrating the need for design teams to avoid common pitfalls⁴¹. Firstly, the setting of criteria needs to be objective, perhaps setting standards that meet environmental outcomes rather than industry processes. Secondly, product boundaries need to have specific definitions; no two products are the same. Thirdly, there will always be questions over the future of the eco-label and how the environmental damage attributed to the product can be estimated over time; this is important to avoid the label becoming redundant. Finally, there is a need for market analysis to gauge demand and market share for labelled goods, including how improvements will be rewarded within the labelling system.

There are conflicting opinions over how much information should go on an eco-label. Whilst there is a constant weigh up between the value of information and cost⁴², more information has been observed to create an overload, confusing customers⁴³. The effectiveness of a label however is often down to its ability to ensure consumers can compare key environmental metrics, supporting the need for more information⁴⁴. The literature also points out that what a label doesn't include can be equally as important as what it does; the environmental impacts from disposal of a product post-use can sometimes be greater than those resulting from its lifetime use⁴⁵.

Golden et al.'s (2010) survey on improving effectiveness of eco-labels produced 10 categories of responses:

- Increased membership
- Increased public awareness or consumer awareness
- Increased marketing
- More funding
- Partnerships
- Increased consumer purchases of labelled products
- More personnel
- More expertise

⁴¹ Gallastegui, I. G. 2002. The Use of Eco-labels: A Review of the Literature. *European Environment*, 316–331.

⁴² Atlee, J., and Kirchain, R. 2006. Operational Sustainability Metrics: Assessing Metric Effectiveness in the Context of Electronics-Recycling Systems. *Environmental Science & Technology*, 4506-4513.

⁴³ Teisl, M. F. 2003. What we may have is a failure to communicate: Labeling environmentally certified forest products. *Forest Science*, 668–680.

⁴⁴ Lee, J. and Geistfeld, L. V. 1998. Enhancing consumer choice: Are we making appropriate recommendations? *Journal of Consumer Affairs*, 227–251.

⁴⁵ Ball, J. 2009. What “Green” Labels Can Tell Us. *The Wall Street Journal*, July 16

- Refinement of ecolabel criteria
- Harmonization of the various ecolabel standards

In similar way to the international labelling matrix, the survey highlights the importance of marketing and public awareness - something that is lacking from the less successful schemes in the matrix. Additionally, the appearance of impact evaluation in a scheme is often a good indicator of its success. Research from the same survey has shown how an organisation can benefit from positive on the ground impacts resulting from the label. This was thought to be the norm amongst these schemes, however less than half (44%) of the organisations surveyed had measured their own impacts⁴⁶.

Summary of policy options identified from international labelling schemes

Based on the review of international water efficiency labelling, a range of policy options were developed for the UK⁴⁷. These are outlined in Table 6 and could be of use for other countries considering an evaluation of new approaches to water efficiency labelling.

Table 6 Example policy options for water efficiency labelling

Delivery mechanism	Delivery agency	Association with other schemes	Product scope	Scheme type
Business as usual				
Voluntary	Industry-led	No association with other schemes	Indoor and outdoor fixtures/fittings	Rating scale
Mandatory, government led – select 2 from:				
Mandatory	Government-led	No association with other schemes	Indoor and outdoor fixtures/fittings	Rating scale
Mandatory	Government-led	No association with other schemes	Indoor and outdoor fixtures/fittings	Quality mark
Mandatory	Government-led	Associated with UK Building Regulations	Indoor and outdoor fixtures/fittings	Rating scale
Mandatory	Government-led	Associated with EU energy label and	Appliances	Rating scale

⁴⁶ Golden, J., Vermeer, D., Clemen, B., et al. 2010. An overview of ecolabels and sustainability certifications in the global marketplace. In J. Golden (Ed.), Corporate sustainability initiative. Durham: Nicholas Institute for Environmental Policy Solutions, Duke University.

⁴⁷ <https://www.waterwise.org.uk/resource/independent-review-of-the-costs-and-benefits-of-water-labelling-options-in-the-uk-technical-report/>

Mandatory	Government-led	minimum product standards Associated with consumer incentives	Indoor and outdoor fixtures/fittings	Quality mark
Voluntary, non-government led – select 2 from:				
Voluntary	Industry/NGO led	Associated with intensive marketing	Indoor and outdoor fixtures/fittings	Rating scale
Voluntary	Industry/NGO led	Associated with requirements for funding	Indoor and outdoor fixtures/fittings	Rating scale
Voluntary	Industry/NGO led	Associated with UK Building Regulations	Indoor and outdoor fixtures/fittings	Rating scale
Voluntary	Industry/NGO led	Associated with minimum product standards	Indoor and outdoor fixtures/fittings	Rating scale
Voluntary	Industry/NGO led	Associated with intensive marketing	Indoor and outdoor fixtures/fittings	Quality mark
Voluntary, government led – select 1 from:				
Voluntary	Government led	Associated with UK building regulations	Indoor and outdoor fixtures/fittings	Rating scale
Voluntary	Government led	Associated with consumer incentives	Indoor and outdoor fixtures/fittings	Quality mark
Voluntary	Government led	Associated with requirements for funding	Indoor and outdoor fixtures/fittings	Rating scale

Conclusions based on comparison of labels in the matrix

There have been clear success stories with schemes that have been able to quantify the water savings from their different projects e.g. Australia and the USA. These schemes have also managed to widen their market, promoting green products and changing consumer behaviour. Successful schemes are often mandatory, whilst many voluntary schemes fail to implement the label across the market. Malaysia has been a key example of this failure, as the government now looks towards measures to roll out a mandatory version of the existing project. However, other factors can drive success in a voluntary scheme.

Wider literature has indicated the various challenges facing eco-labels, with design teams needing to lay out clear definitions and ensuring objectivity throughout the design phase of the label. The national context needs to be considered when making comparisons internationally. Proposals must take account of future water availability and management, as well as the current and historic situations especially when setting water efficiency standards.

Conclusions

This research project and final report support the benefits that can be leveraged from the International Water Association specialist group networks. The goodwill and time to provide details on the range of current water efficiency labelling schemes for products was essential to enable the comparison and review of these. Although not all labels internationally were able to be included in the report, there was a sufficient number to enable a useful comparison of approaches to understand best practice and links to wider water efficiency policy.

Delivering against the project objectives

Comparing best practice approaches

This report delivers against the actions set out by the project steering group to compare best practice approaches. From the review it can be seen from many labels there are quantifiable benefits in terms of water saved, energy saved and reduction in customer bills. For others, especially those that have only recently been implemented, there can be seen a broader range of qualitative benefits around awareness of water efficiency and driving changes in the market for water efficient products.

Promoting labelling schemes

By collating the range of labelling schemes internationally in this report we hope to better promote labelling schemes and the benefits of an ISO standard for these. Many of the labels are focussed on one market only and there are likely to be benefits from ensuring a consistent approach across markets.

Dissemination of approaches to delivering and evaluation to IWA members

Several of the labels have undertaken a detailed evaluation of the impacts of their scheme. For those labels that haven't undertaken an evaluation yet or for labels that are relatively new, these tried and tested evaluation approaches should provide a foundation. Additionally, evaluation of the impacts of labelling schemes could be part of the new ISO in development.

Provide a policy perspective to support the ISO standard development technical process and to support greater uptake of water efficiency labelling internationally

By reviewing a wide range of labels and comparing the relative merits of voluntary vs mandatory and government vs industry or NGO led schemes, it is hoped that this report can support wider policy discussions when developing an ISO on water labelling. Additionally, some of the finding on best practice should be incorporated within new labelling schemes.

Appendix A – Summary review of labels

Criteria	Australia (WELS)	Australia (SAWM)	US & Canada (WaterSense)	China (WCC)
Year started	2005	2006	2006	2002
Products covered	<ul style="list-style-type: none"> • Toilets and urinals • Taps • Showers • Flow controllers • Dishwashers • Washing machines • Flow control devices (voluntary) 	<ul style="list-style-type: none"> • Irrigation controllers • Mulches • Soil wetting agents • Waterless car washes • Swimming pool covers • Rainwater and greywater recycling schemes 	<ul style="list-style-type: none"> • Lavatory sink faucets • Flushometer-valve toilets • Pre-rinse spray valves • Showerheads • Spray sprinkler bodies • Tank-type toilets and flushing urinals • Weather-based irrigation controllers • Also certain new residential homes and certification programs for irrigation professionals (US only) 	Covers nearly 40 types of products in 4 major areas: <ul style="list-style-type: none"> • Industrial water-saving • Water conservation of urban life • Agricultural water-saving • Utilization of unconventional water resources
Product performance criteria and testing	<ul style="list-style-type: none"> • Testing conducted in line with requirements for the Australian standard relevant to the product in AU and NZ Standard 6400 • Must be tested by a laboratory accredited by the National Association of Testing Authorities (NATA) or an affiliated international body 	Applications reviewed against 4 criteria <ul style="list-style-type: none"> • Water saving • Fitness for purpose • Meeting regulations and standards • Environmentally sustainable 	<ul style="list-style-type: none"> • Product must use ~20% less water than standard • Each product has specification, both efficiency and performance requirements, and required test protocol • Licensed Certification Bodies (LCBs) conduct testing, maintain certification files and report certified products to EPA 	<ul style="list-style-type: none"> • Certificates issued by China Quality Certification Center • Mainly focus on water efficiency indicator, also product standards such as product service life and other items relating to water saving (strength, seal performance etc.).

Labels	<ul style="list-style-type: none"> • Six-star rating system • Show in store, online and as part of new building or renovation, at all points in the supply chain • star rating • water consumption or flow rate • license number • registered company name • product-specific information in accordance with the standard • For white goods: brand ID, model ID and test program setting 	<ul style="list-style-type: none"> • A quality mark, not a rating scheme, promoting only the most efficient products and services 	<ul style="list-style-type: none"> • A quality mark, not a rating scheme • Products that use ~20% less water than standard (varies 15-50% depending on the product category) • Label must be displayed on product packaging, and must show the certification body responsible for the certification 	<ul style="list-style-type: none"> • A quality mark, not a rating system
Costs and benefits	<ul style="list-style-type: none"> • 31,500 products registered • Estimated annual water savings of 70 billion litres in 2013, expected to increase to 2030; much greater savings than if the scheme was voluntary • Reduces demand for potable water and reduces energy use for heating water • Household utility bills reduced by AUD\$520 million in 2013 • Additional industry costs can include additional in-store or online labelling, destroyed or returned stock due to expired product registration, and additional internal procedures and staff training • Scheme expenditure \$1.44m in 2014-15. 80% of costs covered by industry registration fees, government contributes 20% 	<ul style="list-style-type: none"> • Received over 500 applications, 350 of which have been deemed water efficient 	<ul style="list-style-type: none"> • Over 27,000 products registered • EPA spent \$33m on scheme from launch to 2017 • The scheme reported savings of more than 4.5 million megalitres of water, 284 billion kWh, and USD\$46.3 billion in savings in consumer water and energy bills by 2017 • Consumers saved \$1,100 for every federal dollar spent on the scheme 	<ul style="list-style-type: none"> • Issued nearly 7000 certificates and certified more than 400 enterprises • Conserved 5.28 million m³ water in 2017 through certification of water closet, water faucet and shower

Links to other regulations or water efficiency schemes	<ul style="list-style-type: none"> • Plumbing products must first be certified by WaterMark, which certifies that the product meets Australian plumbing standards, before they can join WELS • Merging WELS and WaterMark not feasible or desirable - different objectives, and costs and risks would outweigh benefits 	<ul style="list-style-type: none"> • Plumbing products must first be certified by WaterMark, which certifies that the product meets Australian plumbing standards • Works closely with The Water Corporation's Waterwise Endorsed products Program in Western Australia, where a product must first apply to SAWM • Smart WaterMark and WELS are mutually exclusive 	<ul style="list-style-type: none"> • No other water efficiency scheme 	<ul style="list-style-type: none"> • China Water Efficiency Label coming into practice August 2018, not clear if there will be links between the two
Links with other domestic certification schemes	<ul style="list-style-type: none"> • White goods must also meet Australia's Equipment Energy Efficiency program (E3) • Similar standards and design mean a combined label can be used 	<ul style="list-style-type: none"> • Not associated with Energy Rating Label 	<ul style="list-style-type: none"> • Frequently collaborates with sister program ENERGY STAR. Products are not eligible for both labels 	<ul style="list-style-type: none"> • Not connected to energy or environmental labelling schemes
Incentives to help transition the market	<ul style="list-style-type: none"> • State and local governments and/or water supply agencies may implement educational programs or offer rebates to consumers who purchase water efficient products 	<ul style="list-style-type: none"> • Certification provides market advantage • Products feature on SAWM website • SAWM promotes those licensed in its marketing • During times of drought when rebates are offered, SAWM has been used as a criterion 	<ul style="list-style-type: none"> • Rebate programmes have been implemented across many utilities and cities 	<ul style="list-style-type: none"> • 6 products are admitted by the Energy-Saving Product Government Purchasing list, of which WC pan and and faucet are compulsory (state bodies, institutions and organisations must purchase certified products). • Financial subsidy is given to the water saving WC and water saving shower in Beijing. The subsidy level is 20% of the product sales prices and the maximum is RMB 800 (£90).
Mandatory / Voluntary Government- / Industry- / NGO-led	<ul style="list-style-type: none"> • Mandatory, government-led scheme. All regulated products supplied in Australia are required by law to be registered and labelled in accordance with the WELS standard. Applies to the supply of products in stores, online or as part of a new building or renovation. Also applies at all points in the supply 	<ul style="list-style-type: none"> • Voluntary, NGO-led scheme. 	<ul style="list-style-type: none"> • Voluntary, government-led scheme. Although voluntary scheme the label has had great success, as reviewed by the EPA. This may be in part due to the EPA's continued support to partners and improvement of the scheme • Certification to WaterSense (or levels based on the WaterSense 	<ul style="list-style-type: none"> • Voluntary, industry-led

	chain. Mandatory nature gives a high uptake		specifications) is sometimes required at the State/Provincial or local levels	
Monitoring, measuring and enforcing compliance	<ul style="list-style-type: none"> • Toll-free numbers available for businesses to contact WELS for assistance in registration and labelling • In cases of non-compliance a cooperative approach is taken first, and then a range of penalties and enforcement provisions exist under the WELS Compliance and Enforcement Policy, from cancelled or suspended registration to criminal prosecution 	<ul style="list-style-type: none"> • Claims are independently verified 	<ul style="list-style-type: none"> • Requirements for extending certification and ongoing surveillance 	<ul style="list-style-type: none"> • Conformity with the standard is verified by an independent, third-party organization • Certificate holders have a year to comply with new standards, after this certificates using the old standard become invalid and withdrawn
Implementation with industry	<ul style="list-style-type: none"> • Products registered on WELS database • Registering fees vary depending on the numbers of models being certified, ranging from \$600 to \$121,000 AUD. Median total registration fee \$1,700 per registrant, \$81 per product. • An annual fee is charged for product renewal 	<ul style="list-style-type: none"> • An independent technical expert panel reviews applications • Application fees and renewal fees depend on the number of employees at the the registering business, vary from around \$400 to \$2000 • If certified in Australia the product can also be given a European certificate 	<ul style="list-style-type: none"> • No fee charged by the EPA for the label. Fees are typically charged by the LCBs testing and are the responsibility of the manufacturers • Applicants need independent, third-party certification that confirms their product meets the WaterSense criteria • More than 1,948 organisational partners 	<ul style="list-style-type: none"> • Certificates are issued by the China Quality Certification Centre (CQC) • The enterprise shall submit the application and the certification institute shall arrange factory inspection and product check after the information is qualified. • Factory inspection includes product consistency and factory quality assurance. • Product check shall be executed as per the relevant standards • Certificates shall be issued with

				<p>a validity of 3 years</p> <ul style="list-style-type: none"> • Certification cost varies depending on product, generally about RMB 20,000-30,000; (£2,300-3,400)
<p>Consumer engagement, understanding and exposure to label</p>	<ul style="list-style-type: none"> • Website provides energy / water / money saving information • Reported that 87% of consumers recognise the label and 83% believe the scheme is credible • Around 50% of consumers use the label in making purchasing decisions 	<ul style="list-style-type: none"> • Companies with SAWM certified products: 70% felt their customers recognised the label and over 90% believed their customers trust it • Website provides information on the scheme and label as well as water saving advice 	<ul style="list-style-type: none"> • A mark recognised by consumers and easily identifiable as a label for high quality products 	<ul style="list-style-type: none"> • General certification results can be found on CQC website. • Certification scheme is promoted in all sectors of society including schools, in order to enhance the water saving consciousness of society and ensure the certification scheme becomes well known.

Criteria	Hong Kong (WSD WELS)	India (WEP-I)	Malaysia (WEPLS)	New Zealand (WELS)
Year started	2009	Not yet in force	Early 2013	2005?
Products covered	<ul style="list-style-type: none"> • Urinals • Showerheads • Taps • Washing machines 	<ul style="list-style-type: none"> • WCs and urinals • Showerheads • Faucets, ablution faucets, kitchen sinks • Dishwashers • Washing machines 	<ul style="list-style-type: none"> • Water taps • WCs and urinals • Shower heads • Washing machine 	<ul style="list-style-type: none"> • Lavatory and urinal equipment • Taps • Showers • Dishwashers • Washing machines
Product performance criteria and testing	<ul style="list-style-type: none"> • Testing in accordance with relevant requirements as specified in the Waterworks Regulations • Comply with standards specified by the Water Authority • Produced according to a recognised international quality system • Lab accredited by HK Accreditation Service (HKAS) under the HK Laboratory Accreditation Scheme (HOKLAS) • Some products tested in line with Australian/New Zealand Standards 	<ul style="list-style-type: none"> • Approved laboratories for testing <p>As well as product specific requirements, 3 standards underpin the testing:</p> <ul style="list-style-type: none"> • Complete functionality • Proper design • Water efficiency certification 	<ul style="list-style-type: none"> • Testing methods must be in accordance with section 10 of BS EN with specific flow performance requirements and in an independent testing laboratory recognised by SPAN. 	<ul style="list-style-type: none"> • Stipulate minimum water efficiency standards for a number of products and reference other standards

Labels	<ul style="list-style-type: none"> • Four-point grading system with colour rating • Includes water consumption figure • Affix full version of label to product or packaging in prominent location. Simplified version of label available if full version is too large 	<ul style="list-style-type: none"> • Three-star rating system proposed • No information on where / how the label will be displayed 	<ul style="list-style-type: none"> • Three-star rating indicating water efficiency • WEPLS registration number • Product information such as brand, model and water consumption 	<ul style="list-style-type: none"> • Six-star rating indicates water efficiency of the appliance • Water consumption or water flow
Costs and benefits	<ul style="list-style-type: none"> • Around 650 products registered 	<ul style="list-style-type: none"> • Not yet in force 	<ul style="list-style-type: none"> • Currently thought that use of water saving products under the scheme has not been satisfactory; intend to make the scheme mandatory in the near future to improve this 	<ul style="list-style-type: none"> • The scheme found a significant shift toward improved water efficiency across all product categories, but not a significant reduction in household water consumption. • Predicts increased savings in future as existing appliance stock is slowly replaced with more efficient models
Links to other regulations or water efficiency schemes	<ul style="list-style-type: none"> • No other water efficiency scheme 	<ul style="list-style-type: none"> • Proposed rating system based on Uniform Illustrated Plumbing Code and Green Plumbing Code Supplement • No other rating system for water efficient products 	<ul style="list-style-type: none"> • Various regulations in the testing need to be adhered to. Umbrella organisation of SPAN. 	<ul style="list-style-type: none"> • Uses standards and testing for water efficiency under AS/NZS 6400. Strong links with the Australian WELS; any products with the Australian WELS symbol can be sold in New Zealand

Links with other domestic certification schemes	<ul style="list-style-type: none"> • Not associated with Mandatory Energy Efficiency Labelling Scheme (MEELS) 	<ul style="list-style-type: none"> • Not associated with five-star 'power savings guide' energy efficiency label 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • Links with energy efficiency regulations 2002 relating to white appliances
Incentives to help transition the market	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • Promoting water efficient purchasing to reduce bills
Mandatory / Voluntary Government- / Industry- / NGO-led	<ul style="list-style-type: none"> • Voluntary, government-led 	<ul style="list-style-type: none"> • Voluntary, NGO-led. May be made mandatory at a later date. 	<ul style="list-style-type: none"> • Voluntary, government-led. Lack of success has been attributed to its voluntary nature 	<ul style="list-style-type: none"> • Mandatory, government-led
Monitoring, measuring and enforcing compliance	<ul style="list-style-type: none"> • Compliance monitoring and inspection, sample checking and testing • In cases of non-compliance the scheme requests immediate remedial action and must report the follow-up action taken • Periodic appointment of lab to conduct random testing on products. 	<ul style="list-style-type: none"> • No details 	<ul style="list-style-type: none"> • Scheme not mandatory but use of water efficient products hasn't been satisfactory. • Registered products are tested randomly and have to achieve compliance, kept on a product register 	<ul style="list-style-type: none"> • The Commerce Commission is responsible for enforcement of Consumer Information Standard Regulations under the Fair Trading Act 1986, including the WELS regulations. Offences under the Fair Trading Act may attract fines of up to \$30,000 for a company and \$10,000 for an individual per offence.

Implementation with industry	<ul style="list-style-type: none"> • All manufacturers, importers and related parties are welcome and encouraged to participate, the scheme sends out invitation letters but all may submit applications • There are no registration or renewal fees 	<ul style="list-style-type: none"> • No details 	<ul style="list-style-type: none"> • Any company who manufactures, imports, distributes or sells sanitary products, fittings or machines in Malaysia is eligible • Application forms to be completed, each company is charged RM50 for first 50 appliances with decreasing price thereafter 	<ul style="list-style-type: none"> • None found
Consumer engagement, understanding and exposure to label	<ul style="list-style-type: none"> • Voluntary scheme was launched in 2009, later soft launched as a mandatory scheme in 2017 with full implementation beginning in 2018 • A database of registered products is publicly available • It is too early to judge consumer reception 	<ul style="list-style-type: none"> • Not yet in force 	<ul style="list-style-type: none"> • No details found only consumer exposure to label on product / packaging 	<ul style="list-style-type: none"> • Website provides information on label, benefits of scheme and its importance to the environment

Criteria	Portugal (ANQUIP)	Singapore (WELS)	UAE (ESMA Water Efficiency Label)	EU (The Water Label)
Year started	2008	2009	2013	2011
Products covered	<ul style="list-style-type: none"> • Flushing cistern • Showers and shower systems • Flow reducers • Valves and flow meters (toilets, showers and taps) 	<ul style="list-style-type: none"> • Basin taps, sink taps, bib taps • Dual flush low capacity flushing cisterns • Urinal flush valves • Showerheads • Washing machines • Dishwashers 	<ul style="list-style-type: none"> • All products under the green products label 	<ul style="list-style-type: none"> • Basin and bidet taps • Kitchen taps • Shower valves and electric showers, shower handsets • Flushing cisterns, WCs and independent pans • Urinals • Baths • Grey water systems • Replacement flushing devices • Supply line flow regulators
Product performance criteria and testing	<ul style="list-style-type: none"> • Water efficiency • User friendliness and performance • ANQUIP has drawn up technical specifications for different products so as to create and establish the necessary benchmark values to be assigned to each letter. 	<ul style="list-style-type: none"> • To comply with public utilities board's requirements must be tested in a laboratory accredited by the Singapore Accreditation Council or its mutual recognition arrangement partners 	<ul style="list-style-type: none"> • UAE Assessment scheme 	<ul style="list-style-type: none"> • Companies asked to sign Declaration of Conformity and submit copies of certifications of compliance/test reports • Provides a list of approved test labs on their website
Labels	<ul style="list-style-type: none"> • Five water-drop rating system in combination with an alphabetic scale to indicate the water efficiency of a product. One water drop (A) is considered efficient, 5 water drops (E) is inefficient. 	<ul style="list-style-type: none"> • Four-tick rating system where 1 tick is less water efficient and 4 ticks is most water efficient • Shows water consumption, wash programme, type, brand and model, and the registration number • Label affixed to each product displayed 	<ul style="list-style-type: none"> • 1-5 star system where 5 is the most efficient. 	<ul style="list-style-type: none"> • Performance bands • Capacity / performance of product • Energy icon (energy consumption per year) • Technical icons (time, temperature control, cold start position, timer, sensor etc.) • Label on product or packaging, marketing, technical literature, manufacturers' website

Costs and benefits	<ul style="list-style-type: none"> • 110 toilets have been awarded the label representing 75% of the national market 	<ul style="list-style-type: none"> • Sales of 3-tick washing machines increased by 49% 2011-2015 indicating a shift in consumer behaviour • Water efficiency has been improving since 2003 (165 L/day) to 2017 (143 L/day) with an aim to get citizens to use only 140 litres per day by 2030 	<ul style="list-style-type: none"> • None found 	<ul style="list-style-type: none"> • Almost 10,000 products registered through 120 major brands with a collective market coverage of 68.7% • Water savings from registered products should be 9,99 TL/year • Aims to be self-financing by the end of 2018 • Increase in consumer awareness of the need to save water may have contributed to increase in registration
Links to other regulations or water efficiency schemes	<ul style="list-style-type: none"> • Complies with European Standard for WC and urinal flushing cisterns (prEN 14055:2007) • Corporate bylaws • National association for quality in building facilities • Meeting the requirements of the national plan for efficient water use 	<ul style="list-style-type: none"> • From April 2017 products will have to show the new water efficiency labels. These labels have to be shown with prominence to help consumers make informed choices. • Products are certified in accordance with SAC CT 19 for ISO/IEC Type 1a certification scheme. 	<ul style="list-style-type: none"> • Comply with the UAE Assessment Scheme, according to the technical requirements of the cabinet resolution no.43 for the year 2014 	<ul style="list-style-type: none"> • Based on the UK water label • Now incorporates/aligned with the Portugese ANQIP scheme and the Swedish and Swiss energy labels
Links with other domestic certification schemes	<ul style="list-style-type: none"> • Heavy links between ANQUIP and building regulations 	<ul style="list-style-type: none"> • Slightly different labelling within the water efficiency one itself. i.e. mandatory vs voluntary, and taps/ shower heads/ washing machines 	<ul style="list-style-type: none"> • Emirates conformity assessment scheme (ECAS) and Emirates Quality Mark (EQM) 	<ul style="list-style-type: none"> • No mention of links to the European Union Energy Label
Incentives to help transition the market	<ul style="list-style-type: none"> • Lack of certification of less efficient flushing systems will lead to their gradual removal from the market 	<ul style="list-style-type: none"> • Relevant stakeholders will be consulted in advance of the implementation to address any concerns. • Ensure there are no barriers to trade • Make provisions in legislations 	<ul style="list-style-type: none"> • The more efficient a product is, the cheaper the price to label it. Meaning manufacturers have a double incentive to ensure the efficiency of their products. Local factory and support youth enterprises are applied. 	<ul style="list-style-type: none"> • None detailed

		where necessary to ease the transition period		
Mandatory / Voluntary Government- / Industry- / NGO-led	<ul style="list-style-type: none"> • Voluntary, NGO-led 	<ul style="list-style-type: none"> • Mandatory, government-led 	<ul style="list-style-type: none"> • Mandatory, government-led 	<ul style="list-style-type: none"> • Voluntary, industry-led. Scheme provides a range of marketing materials which helps registered brands promote the label. The scheme associates being voluntary with its benefits in adapting quickly to market changes and including new products in the Scheme • The scheme has applied to the European Commission to enter a Voluntary Agreement
Monitoring, measuring and enforcing compliance	<ul style="list-style-type: none"> • ANQUIP controls the process by randomly testing labelled products on the market. The tests are performed by accredited laboratories recognised by the association 	<ul style="list-style-type: none"> • Punitive actions can be taken against companies and people fail compliance. Checks are done randomly at showrooms/retailers and shops. New developments will be checked for compliant fittings. 	<ul style="list-style-type: none"> • None found 	<ul style="list-style-type: none"> • Registration lasts for one year from date of acceptance of application • If a company does not adhere to the rules and regulations, provides inaccurate information or amends product without notifying/re-applying, the product listing may be cancelled or suspended. Company liable for costs relating to re-testing products if non-compliant • Mandatory 5% audit of registered products undertaken on an annual basis by an independent third party • CSTB (Scientific and Technical Centre for Building) aids manufacturers in achieving compliance

Implementation with industry	<ul style="list-style-type: none"> • Firms signing up with the system will sign a protocol with ANQUIP which will define the conditions under which they can issue and use the labels 	<ul style="list-style-type: none"> • Registration occurs at PUB's website, and products shall be certified by a Singapore Accreditation Council certified body 	<ul style="list-style-type: none"> • Registration requires: valid UAE Industry/ trade licence, test report from accredited laboratory, electronic declaration of conformity and the payment of a fee. The fees range from free for a 5 star label to 10 AED for a 1 star label. 	<ul style="list-style-type: none"> • Registered brands pay an annual fee, keeping database up-to-date • Over 52 supporters from consumer and trade media, NGOs, water utilities, consumer groups etc. Also 10 National Trade Bodies. • Scheme referenced in many codes of practice, regulations and other efficiency schemes • 'How to use the Label' guide to aid brands in raising visibility of the label • The European Bathroom Forum brings together all sectors of the European Bathroom Industry to drive the scheme
Consumer engagement, understanding and exposure to label	<ul style="list-style-type: none"> • General promotion and support of technical and scientific studies at a national level. Giving guidance on water efficiency projects and works when requested 	<ul style="list-style-type: none"> • Label advertised in newspapers, brochures, websites etc next to any water fitting; efficiency label for each appliance next to an image or description of the fitting. Where this is not possible, information contained in the label shall be stated in the advert. 	<ul style="list-style-type: none"> • General promotion from website: Provide up-to-date information on standardization and relevant activities and stakeholders at the national, regional and international levels through the Information Center 	<ul style="list-style-type: none"> • Online database of labelled products is available • In 2016 the Label was translated into Spanish and German, in order to increase consumer exposure and understanding

Criteria	Proposed International Standard	Japan - Eco Mark	Korea - Eco-label	Taiwan - Green Mark
Year started	Still in proposal stage	1989	1992	1992
Products covered	<ul style="list-style-type: none"> • Showers / showerheads and mixers • Tap equipment / taps and mixers • Flow controllers • Lavatory equipment / Dual-flush low capacity flushing cisterns, sitting toilets and squat toilets • Urinal equipment / urinal flush valves • Dishwashers • Washing machines • Dryer function of combination washer/dryers, where water is used 	<p>Eco Mark can be applied to other types of products e.g. clothes, office equipment. Water-saving products include:</p> <ul style="list-style-type: none"> • Water saving disc • Constant flow regulating valve • Aerator cap • Flow control valve • Certain showerheads 	<p>Eco-Label can be applied to many types of products. Water products include:</p> <ul style="list-style-type: none"> • Water saving faucet • Water saving showerhead • Water saving components for faucet • Water-saving toilet • Urinals • Bidet • Dishwashers • Washing machines 	<p>The green mark applies to a number of products, water efficient products are:</p> <ul style="list-style-type: none"> • Water saving dual flush toilets • Water saving faucets
Product performance criteria and testing	<ul style="list-style-type: none"> • ISO acknowledges the diversity in supporting countries' testing requirements, it will harmonize with these requirements - It is highly recommended that this international standard aligns itself with the content of AS/NZS 6400:2016 	<ul style="list-style-type: none"> • Eco Mark awarded to products with relatively less environmental impact compared to similar products • For water saving products, conform with corresponding Japanese Industrial Standards Article 5 ordinance of Water Work Law • The scheme is managed in accordance with the standards and principles of ISO 14020 and 14024 which relate to environmental labeling 	<ul style="list-style-type: none"> • Criteria and standards are available on the Scheme's website 	<ul style="list-style-type: none"> • Awarded to products in the top 20-30% of the category. • EPA assigned the Industrial Technology Research Institute (ITRT) to draft the Green Mark's standards and products' categories • Verification procedure to reveal the first chapter for the Green Mark introduction.

Labels	<ul style="list-style-type: none"> • This proposal also acknowledges the diversity and localization of Water Efficiency label designs. This ISO proposal is not an attempt to harmonize the labelling design or water efficiency rating but rather provide guidelines for water efficiency rating bands which countries may choose to adopt. The band classification table may be included into countries' water labelling scheme, for consumers to easily identify which band the water efficiency of a product falls into. 	<ul style="list-style-type: none"> • Quality mark not a rating system • Label applied to product - display position and label contents are submitted when applying for certification 	<ul style="list-style-type: none"> • Quality mark not a rating system 	<ul style="list-style-type: none"> • All products that achieve compliance get the same green mark. This is the same for all product categories.
Costs and benefits	<p>Benefits: Formal harmonisation of national schemes, encourage the development and marketing of water efficient products, enable consumers to clearly identify the best products, positively influence manufacturing, reduce urban water use, allows businesses to trade across borders with a consistent playing field for their exports.</p>	<ul style="list-style-type: none"> • Covers over 50 product categories and has certified 5,419 products with 1,631 companies (as of 2014) 	<ul style="list-style-type: none"> • Covers 161 product categories and has certified 16,647 products (as of 2015) 	<ul style="list-style-type: none"> • Quoted from website "to promote the concept of recycling, pollution reduction and resource conservation"
Links to other regulations or water efficiency schemes	<ul style="list-style-type: none"> • Many references to the AU/NZ scheme; there will be a general harmonisation of all national water label schemes 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • Green Mark is designed on the basis of ISO 14024 eco-friendly principles

Links with other domestic certification schemes	<ul style="list-style-type: none"> Existing ISOs have been reviewed including: water re-use, water quality, systems relating to drinking water 	<ul style="list-style-type: none"> None detailed 	<ul style="list-style-type: none"> Program to Purchase Green Products by Public Institutions, Ministry of Environment 2004, encouraging businesses to increase purchases of eco-friendly materials and products 	<ul style="list-style-type: none"> Administered by the environmental protection administrations of Taiwan Covers all products not just water
Incentives to help transition the market	<ul style="list-style-type: none"> None detailed 	<ul style="list-style-type: none"> None detailed 	<ul style="list-style-type: none"> Eco-mileage card launch 2011 - a green credit card earning users economic rewards for purchasing Eco-Label products. Holders able to use national parks and museums free of charge/reduced price 	<ul style="list-style-type: none"> Promotes "Green consumerism" Practically, it acts as an economic tool to boost products and services that have less impact on environment
Mandatory / Voluntary Government- / Industry- / NGO-led	<ul style="list-style-type: none"> Voluntary, industry-led. 	<ul style="list-style-type: none"> Voluntary, industry-led? A non-profit organisation, Japan Environment Association (JEA) 	<ul style="list-style-type: none"> Voluntary, government-led. Korea Environmental Industry and Technology Institute (KEITI) which has links with the Ministry of Environment 	<ul style="list-style-type: none"> Voluntary, government-led
Monitoring, measuring and enforcing compliance	<ul style="list-style-type: none"> None detailed 	<ul style="list-style-type: none"> None detailed 	<ul style="list-style-type: none"> Surprise site inspection and product investigation (certified products against similar products on the market) 	<ul style="list-style-type: none"> None mentioned. 3rd party institutions for the EPA

Implementation with industry	<ul style="list-style-type: none"> • Similar to national schemes registration process and costs 	<ul style="list-style-type: none"> • Fees charged for examination, annual license and certificate issuance (covering reissuance of a certificate) 	<ul style="list-style-type: none"> • Application form completed and fee charged • Renewal period of 2 years • The annual use fee is dependent on the annual sales amount of the product 	<ul style="list-style-type: none"> • None detailed
Consumer engagement, understanding and exposure to label	<ul style="list-style-type: none"> • Still in proposal phase 	<ul style="list-style-type: none"> • In 2001, 92% of respondents to a survey recognised the Eco Mark. Recognition is high among younger generations as they are taught about the Scheme at school as part of environmental education 	<ul style="list-style-type: none"> • Consumers can shop for certified products at the 350 designated Green Stores (as of 2016 increasing to 550 by 2020) 	<ul style="list-style-type: none"> • Various foundations and institutions have been founded since 1992 to promote the label and help shape legislations

Criteria	Thailand - Green Label	Switzerland - Swiss Energy Label for Sanitary Tapware	UK - Waterwise Checkmark
Year started	1994	2011	2006
Products covered	Green Label can be applied to other types of products. Water products include: <ul style="list-style-type: none"> • Faucets for sinks • Faucet for wash basins • Self-closing faucets for wash basins • Automatic faucets for sanitary ware • Shower units • Rinsing sprays • Flush valves for urinals • Flush valves for toilet 	The product group "Sanitary Tapware" shall comprise: <ul style="list-style-type: none"> • taps • showerheads 	<ul style="list-style-type: none"> • Open to all products that contain a water saving or water efficient technology at their core.
Product performance criteria and testing	<ul style="list-style-type: none"> • Government approved laboratory, required to pass Thai Industrial Standards. • Manufacturer required to submit a declaration letter. 	<ul style="list-style-type: none"> • The labs must meet general requirements pursuant to standard EN ISO 17025 • GLP approved analysis laboratory. 	<ul style="list-style-type: none"> • The assessment will be conducted by waterwise staff or allocated checkmark reviewers from their partners. • It will consist of reviewing the application form and supporting information.
Labels	<ul style="list-style-type: none"> • Awarded the green label, no scale of water efficiency. • Same green label as other product categories 	<ul style="list-style-type: none"> • Categories from A (high level of efficiency) to G (low level of efficiency) 	<ul style="list-style-type: none"> • Checkmark awarded if applicant meets requirements.

Costs and benefits	<ul style="list-style-type: none"> • Continuously increasing number of certified products indicate a positive response from manufacturers. • Green public procurement and trends of environmental awareness can impact demand side. • More manufacturers get involved if they're in the development of criteria. 	<ul style="list-style-type: none"> • This benefit for the environment also reduces costs 	<ul style="list-style-type: none"> • Illustrates best practice and innovation in water efficiency whilst providing clear point of sale information to the buyer. • No costs found
Links to other regulations or water efficiency schemes	<ul style="list-style-type: none"> • In association with the Thai Industrial Standards Institute. • Various industrial standards relating to faucets etc found here: http://www.tei.or.th/greenlabel/en/download/TGL-11-R2-11.pdf 	<ul style="list-style-type: none"> • Swiss Association for Energy-Efficient Sanitary Products - • Took over in 2016 the responsibility for the energy label regarding bathroom products in Switzerland. 	<ul style="list-style-type: none"> • Links with th EU water certification label and the development of a smart approved watermark.
Links with other domestic certification schemes	<ul style="list-style-type: none"> • Linked with all other products that qualify for Thai Green Label 	<ul style="list-style-type: none"> • Swiss Energy defined the criteria for this label 	<ul style="list-style-type: none"> • Waterwise chekmark evolved from the Waterwise Marque. Changes in the market and an increase in the number of label stimulated this change.
Incentives to help transition the market	<ul style="list-style-type: none"> • Giving manufacturers the chance to help shape the standards • No financial incentives 	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • None mentionned
Mandatory / Voluntary Government- / Industry- / NGO-led	<ul style="list-style-type: none"> • Voluntary, government-led 	<ul style="list-style-type: none"> • Voluntary, government-led 	<ul style="list-style-type: none"> • Voluntary, NGO led

Monitoring, measuring and enforcing compliance	<ul style="list-style-type: none"> • None detailed 	<ul style="list-style-type: none"> • The association ensures the development, update and application of the regulation • The association processes the cooperation agreements and controls the compliant use of label by applying companies 	<ul style="list-style-type: none"> • Continued use of the checkmark is conditional on the applicant ensuring they meet the scheme rules at all times. Monitoring of the logo will occur on a regular basis including checking the logo is being used on services that have not been recommended by Waterwise. • Evidence of misuse will result in the user having to address the non-conformities to maintain certification under the scheme. • Failure to follow rules will result in suspension.
Implementation with industry	<ul style="list-style-type: none"> • Step 1: Download an application form from the Thai Green Label website. • Step 2: Ensure all criteria are met for product category and submit completed application form to the Thailand Environment Institute, together with test results for the product, if applicable. • Step 3: Upon approval, TEI registers the application and awards the green label by granting a contract for the producer/distributor to use the green label. 	<ul style="list-style-type: none"> • As a member of SVES, manufacturers can contribute to the evolution of regulations and tasks. • Costs CHF 1000 per year 	<ul style="list-style-type: none"> • Payment is expected with application form. • There is an annual cost after the second year to continue use of the checkmark
Consumer engagement, understanding and exposure to label	<ul style="list-style-type: none"> • Exposure to green label will be increasing over time due to increased number of certificates 	<ul style="list-style-type: none"> • SVES ensures the promotion of the label, no details given 	<ul style="list-style-type: none"> • Minimal, information available on website