

Report to

Department of the Environment, Water, Heritage and  
the Arts

## Water Efficiency Labelling and Standards scheme supply chain scoping and compliance

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## EXECUTIVE SUMMARY

The Department of the Environment, Water, Heritage and the Arts commissioned this report on the supply chains for products affected by the Water Efficiency Labelling and Standards (WELS) scheme. The products of interest were:

- showers
- dishwashers
- clothes washing machines
- lavatory equipment
- urinal equipment
- tap equipment
- flow controllers.

The results are based on interviews with stakeholder organisations and firms in the supply chains for these products, customs data for imports and exports and secondary sources of data.

Industry stakeholders identified enforcement as necessary to ensure fair treatment of organisations at each stage of the supply chain, particularly to guard against cheaper non-compliant products. Providing information on WELS processes and raising buyers' awareness were the two main ways in which stakeholders said compliance could be improved.

WELS labels were described as straightforward and easy to understand.

Thirty-two interviews with supply chain participants yielded 30 with useable numeric data, spread across the product and supply chain stages.

The majority of these participants felt that their organisation had the capacity to comply and supported the scheme, often describing compliance as a competitive advantage. Barriers to compliance included cost; rating and testing procedures; difficulty understanding some regulations and competing registration processes.

Supply chain participants viewed the current level of enforcement of WELS as less than ideal, and almost two thirds suggested greater levels of policing, including publicising policing and enforcement actions.

About two thirds of supply chain participants had experienced some difficulty with the registration process, particularly the online registration forms.

Most supply chain participants wanted Australian standards, WaterMark and WELS brought into alignment.

The samples of supply chain participants revealed high levels of vertical integration, with many occupying more than one stage along the manufacturer / importer, wholesaler, retailer chain, and very few niche players. As a result, supply chains are typically very short, with relatively few players in each chain. Many of the industry players were also horizontally integrated and active in more than one of the WELS product groups.

Another feature was the multiplicity of channels and installer segments at the end of the supply chains. Channels included specialists, trade, do-it-yourself (DIY) and whitegoods retailers, and installer segments included builders, plumbers, DIY and specialists, such as installers of dishwashers.

This vertical and horizontal integration, coupled with multiple channels and end customer segments, meant that in some cases participants could not give a simple answer to questions about the volume or value of their product at a particular point in the supply chain. It also meant that they tended to over-estimate their market share because their target market was a specialised sub-segment, for example, high value shower products.

The participants ranged in size from small niche players to very large corporations which managed a number of high volume brands. The large players could be more than one hundred times the size of the small players.

Competition in all of the product lines was intense, and there was no evidence of collaborative behaviour. For example, they do not share results for pooled sales reports, and are wary of divulging sales figures.

Of the products examined, the estimates for dishwashers and clothes washing machines are the most robust because neither of these products are manufactured in Australia, and the information provided by supply chain participants has been reconciled against Department of Foreign Affairs and Trade data on imports and exports.

The products covered in this study are diverse. They range in complexity from a flow controller to a dishwashing machine, and in value from a few dollars to a thousand dollars. Because of these factors, participants do not speak about a WELS industry, but tend to see it as two major industries, plumbing products and whitegoods.

Additional data from a variety of sources on imports show that while products were sourced from a range of countries, China tends to dominate imports in terms of volumes.

Table 1 summarises the data provided by supply chain participants on the volume of units moving through each stage of the supply chain for each product line.

The aggregate value of the products as they move through the wholesale stage is approximately \$630 million. If we assume that the retail margin is in the order of 30%, the retail value is in the order of \$820 million.

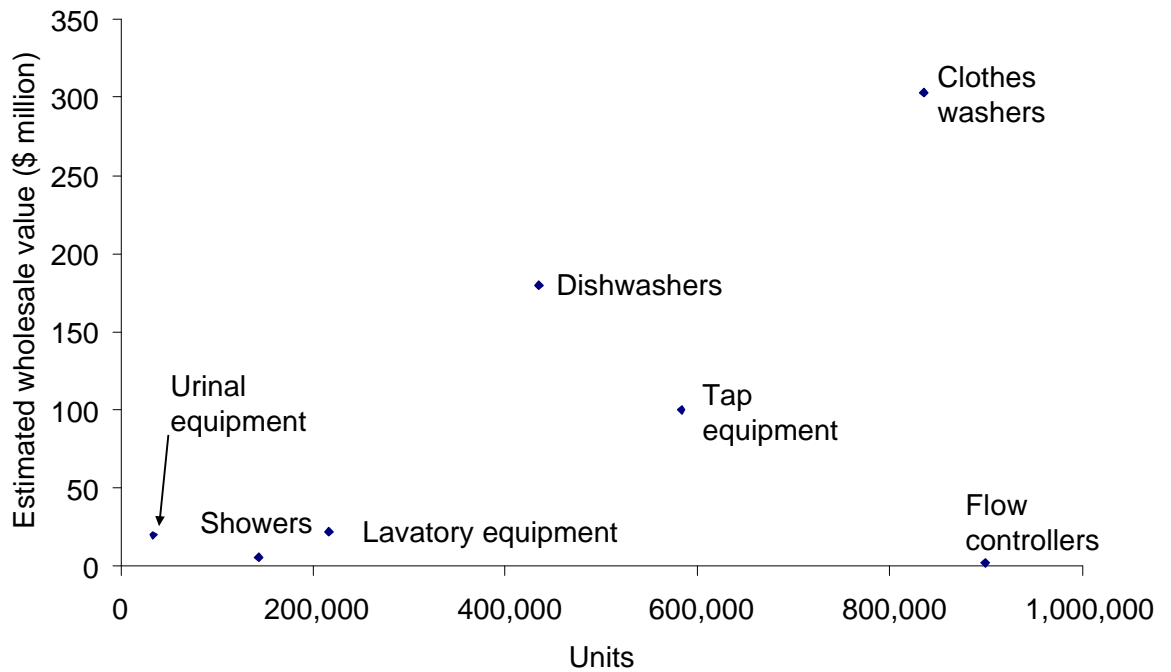
Table 1 – Summary of the volume of products by supply channel stage

Stage in the supply chain	Showers	Tap equipment	Flow controllers	Urinal equipment	Lavatory equipment	Dish washers	Clothes washers
Manufacture	13,000	125,000	500,000	10,000	No data	No data	No data
Manufacture / import / wholesale	33,000	No data	No data	No data	No data	No data	No data
Import / wholesale	97,000	458,182	400,000	23,750	182,000	430,993	826,927
Import / retail	No data	No data	No data	No data	No data	4,353	8,352
Wholesale	No data	No data	No data	No data	35,000	No data	No data
Retail	143,000	583,182	900,000	33,750	217,000	435,346	835,279
Total units <sup>1</sup>	143,000	583,182	900,000	33,750	217,000	435,346	835,279

<sup>1</sup> Estimates of total units are based on manufacture plus imports, which is assumed to be the number of units flowing through to the retail stage of the supply chain.

Figure 1 combines the information provided by participants with data obtained from other sources on the volumes and values for each product category. It shows that while there are large numbers of flow controllers, their aggregate value is low. In contrast, the large number of clothes washing machines represents a high aggregate value. Urinal equipment, showers and lavatory equipment represent modest numbers of units, and relatively low aggregate values.

Figure 1 – Volume and value by product



## BACKGROUND TO THIS ASSIGNMENT

The Department of the Environment, Water, Heritage and the Arts (DEWHA) commissioned McLennan Magasanik Associates (MMA) to carry out an assignment to provide DEWHA with information on the industry sectors affected by the Water Efficiency Labelling and Standards (WELS) scheme.

The WELS scheme is a national program. It was introduced in Commonwealth legislation in 2005, and is supported by state and territory legislation. Since February 2007, products that must comply with the Water Efficiency Labelling and Standards Act 2005 (WELS Act) are those that fall within the seven categories covered by the WELS standard, AS/NZS 6400:2005 Water efficient products — Rating and labelling. The product categories are listed in Table 2.

Table 2 – WELS product categories, as given in AS/NZS 6400.2005

Product category	Specific inclusions or exclusions	Related standards
Showers	Applies to those used solely for personal bathing	AS/NZS 3662
Dishwashers		AS/NZS 2007.2
Clothes washing machines		AS/NZS 2040.2
Lavatory equipment	Including: <ul style="list-style-type: none"> <li>• toilet suites</li> <li>• WC pans</li> <li>• WC cisterns</li> <li>• WC flushing device</li> <li>• combinations of a WC pan and either cistern or flushing device</li> </ul>	AS 1172.1 AS 1172.2 ATS 5200.020 ATS 5200.021 ATS 5200.030

Product category	Specific inclusions or exclusions	Related standards
Urinal equipment	Including: <ul style="list-style-type: none"> <li>• urinal suites</li> <li>• urinals</li> <li>• urinal flushing control mechanisms</li> <li>• combinations of a urinal and a urinal flushing control mechanism</li> </ul>	AS 3982 ATS 5200.004
Tap equipment	Excluding tap or tap outlets that are: <ul style="list-style-type: none"> <li>• used only over baths</li> <li>• part of an appliance, such as a water dispenser</li> </ul>	AS/NZS 3718
Flow controllers	Applies to stand-alone flow controllers	ATS 5200.037.2

In order to assist DEWHA's future planning, management and administration of the WELS scheme, including any possible expansion of the scheme, this assignment sought to:

- gain a full picture of the WELS products supply chain within Australia, through all stages from manufacture or import to end-use
- quantify and categorise product sources, suppliers and types of WELS products within supply chain stages
- obtain a deeper understanding of how the different industry sectors, especially suppliers, are affected by and operate under the WELS scheme, so that improvements to the effectiveness of the scheme may be considered
- acquire information to allow appropriate and cost-effective compliance and enforcement strategies to be planned and developed.

## METHODOLOGY

In order to achieve DEWHA's stated aims, MMA designed a three stage methodology to gather data from different sources. The three stages were:

1. Interviews with stakeholder associations
2. Interviews with suppliers
3. Secondary data collection.

The methodologies and contexts for each of these stages are discussed in the following sections.

### Interviews with stakeholder associations

A list of stakeholder associations was compiled by MMA from DEWHA information, public sources and MMA records, and these organisations received an email invitation from DEWHA to participate in this study. Ten in-depth structured interviews were conducted by telephone in October 2009,<sup>2</sup> to obtain details of the sections within the supply chain, suppliers within the supply chain, and any data they could provide on product flows within the supply chain. Due to the multiplicity of rival stakeholder associations, none was able to provide information on any of the complete supply chains. These issues are discussed further in the section titled Challenges on page 87.

The results from these interviews have been summarised in the section titled Interviews with stakeholder associations on page 11.

### Interviews with suppliers

Using information from the WELS database, publicly available data sources such as commercial directories, and various industry contact lists, MMA compiled a list of suppliers within the supply chain.

DEWHA sent out an email invitation to over 350 suppliers selected from the compiled lists. Initially, suppliers who responded to the email invitation were subsequently contacted by MMA staff by telephone, to arrange a suitable time for their interview. A small sample of other suppliers, who had received the email invitation but who had not necessarily responded, was also approached by MMA staff by telephone, to elicit their participation in the survey.

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<sup>2</sup> Participants in Melbourne and Sydney were offered the option of a face-to-face interview, but all chose to participate by telephone.

Three recurrent problems with the data provided by suppliers were their reluctance to provide sales data, rounding of data and over-optimistic estimates of market share. These issues are discussed further in the section titled Challenges on page 87.

Thirty-two telephone interviews were conducted between 26 October 2009 and 9 November 2009, by phone and in person.<sup>3</sup> The sample was designed to draw on representatives from each of the specific supply chain categories and each of the WELS product categories, as shown in Table 3.<sup>4</sup> A number of participants described themselves as importers, but examination of the data they provided showed that they were also acting as wholesalers by selling directly to retailers. In some cases, they were also selling to end customers.

Table 3 – Composition of sample for supplier interviews (n=30)

Supply chain stage	Manufacturing		Importing		Wholesaling		Retailing	
	n=	%	n=	%	n=	%	n=	%
Showers	4	13%	11	35%	14	47%	5	17%
Dishwashers	0	0%	4	13%	4	13%	3	10%
Clothes washing machines	0	0%	3	10%	3	10%	3	10%
Lavatory equipment	3	10%	5	16%	7	23%	3	10%
Urinal equipment	3	10%	4	13%	6	19%	1	3%
Tap equipment	5	17%	12	39%	15	50%	3	10%
Flow controllers	3	10%	2	6%	6	20%	1	3%

The quantitative results from this phase are analysed, along with the quantitative data from the secondary data collection stage, in the section titled Product supply chains on page 35. The qualitative results from this phase are discussed in the section titled Interviews with suppliers on page 18.

<sup>3</sup> One organisation was found to be ineligible and one did not provide sufficient data, so they have not been included in the analysis.

<sup>4</sup> Participants were asked to nominate the stages in the supply chain in which they were active, and for details of their activities in subsequent questions. Table 3 is based on the answers to the subsequent questions because some participants said they were active in manufacturing, but subsequent questioning showed that this work was carried out overseas by the parent company, a related entity, or a trade ally. In addition, some participants did not mention activities in response to the first question, which they later revealed in response to the detailed questions.

## Secondary data collection

In addition to the two phases of interviews, MMA supplemented the data for analysis by collecting data from various secondary sources. Customs data on imports and exports was obtained from the Department of Foreign Affairs and Trade (DFAT), and the full list of categories can be found in the section titled Customs data on page 64.

Other sources of data included the Australian Bureau of Statistics, annual and company reports, trade periodicals, and consumer publications. A discussion of the various data sources considered can be found in the section titled Other data sources on page 80.

A list of suppliers was compiled from various sources, including business directories. A summary of the composition of the list can be found in the section titled WELS Suppliers in Australia on page 76.

## INTERVIEWS WITH STAKEHOLDER ASSOCIATIONS

- A number of different stakeholder organisations were approached for interview by senior MMA staff. Ten interviews were completed by phone.

Participants' responses have been analysed under the following headings:

- Responsibility for compliance, and the effect of the WELS scheme on industry sectors
- Enforcement of the scheme
- Improving compliance
- Labelling requirements
- Additional comments.

The participants from the stakeholder organisations were unable to provide meaningful quantitative information on the supply chain, as most said they did not collect that data from their members. Only one participant reported having data on the volume of products, but was unwilling to release this for privacy and commercial reasons.

### Responsibility for compliance, and the effect of the WELS scheme on industry sectors

Responses provided about the responsibility for, and the impact of, WELS across the supply chain and on different industry sectors were varied. There was no consensus on whether the WELS scheme had its biggest impact on manufacturers, importers, wholesalers or retailers.

At the retail level, it was thought that the impact of the WELS scheme on the purchaser was dependent upon whether or not the purchaser will be the end user of the product. It was suggested that the WELS label will have most impact upon a person purchasing a product, most likely at a retail outlet, for their own use. In contrast, the WELS label was thought to be less relevant to professionals purchasing products for installation as part of a large project without a defined end user or where the end user had not made a request for products with a specific rating under WELS.

In addition, issues around staffing arrangements at retailers were reported as affecting the ability to meet WELS requirements. One respondent commented:

“Assuming a retailer knows about WELS, their obligations are to ensure they only purchase products that are compliant and that they educate their customers. But this can be difficult given the type of staffing arrangements that exist, i.e. casual staff, and

selling lots of different products. Staff are there to sell products, not to find reasons not to. There are also so many things to think about at the retail level with energy labelling, MEPS, etc. and staff might not be aware of all the different schemes.”

At the manufacturing level, it was suggested that the impact of the WELS scheme varied by whether the manufacturer was domestic or international.

“Local manufacturers make fairly strong efforts to comply with everything you need to do. They are more aware of the WELS requirements through networking and are more interested in protecting their brand and reputation. Also, at the local level, there are a lot of people involved in standards committees and they are very aware of how to comply.”

In contrast, it was thought to be harder for importers to gain the knowledge required to facilitate compliance. It was also suggested that overseas manufacturers and importers may be less concerned about compliance. In addition, large impacts were reported at the importing stage, where competitors may be affected by imports brought in by importers, or directly by developers, that do not ensure that their products comply with WELS requirements.

Some differences were also identified between the impacts on the scheme by industry sector. One respondent commented that requirements for registration under WELS may need to be separated for whitegoods and plumbing products. It was reported that the WELS requirements have been developed with plumbing products in mind rather than whitegoods. For example, it was noted that although variations between some whitegoods products may be small, there is no ability to register them as a family of products because of the way the scheme is designed. This means that each variation of the product has to be registered individually.

### Enforcement of the scheme

Participants identified enforcement as an essential element to ensure a level playing field for organisations at each stage of the supply chain. Enforcement was seen as an important mechanism to ensure that those who comply are not disadvantaged by the supply of cheaper, non-compliant goods. In the words of one respondent:

“Without enforcement there is no level playing field ... the honest people get punished and the dodgy people go through untouched.”

Participants raised three primary issues regarding enforcement of the WELS scheme:

- communication of enforcement activity
- the overall level of enforcement
- enforcement for imported products.

It was consistently reported that there was little awareness of the level of enforcement occurring due to a lack of communication from the regulator about enforcement activities. A number of participants suspected that enforcement was occurring at the retail level; however, they were unsure if this was actually the case. Information about enforcement activities was of particular interest to those who raised issues of potential non-compliance of a product with the regulator. For example, one respondent commented:

“WELS is probably conducting audits based on complaints. However, they have difficulty in communicating this to the industry.”

Privacy concerns were cited as a potential reason for the lack of communication. However, there was some concern at the impression created when a complainant receives little information about action taken as a result of their complaint. The following two quotes are representative of the views of most participants.

“They need to be able to communicate to the person who made the inquiry about the product what they are doing to progress it. The product may stay on the shelf for months while legal processes are gone through and it looks like nothing is being done, even though this might not be the case.”

“I know WELS is trying to tighten up policing but they are not very good at advertising what they do. If someone makes a complaint about someone, no-one ever gets any information about what happened. No-one gets black-balled in public. This fails to show that there is any strong policing.”

The length of time between the identification of non-compliant product and the finalisation of the enforcement process was also thought to be quite lengthy.

In terms of the level of enforcement, participants suggested that it should be increased, particularly for repeat offenders. However, it was also acknowledged that this can be difficult and expensive to do. When asked how enforcement could be improved, one respondent commented:

“The simple answer is more money, people and resources, but that comes at a cost. If the industry wants a level playing field, this takes more resources from government and, because there is a cost recovery policy in place, this might lead to higher registration costs. Registration fees now are quite expensive. What’s the guarantee that extra funding will deliver commensurate benefits through enforcement?”

It was further suggested that:

“There isn’t a sufficient threat and the penalties are not that severe. At a recent meeting someone said ‘\$5,000 is a business expense, not a penalty. I’ll put it on the credit card.’ There needs to be a real threat to people so they don’t even start to test the system.”

One respondent distinguished between enforcement to ensure all products are labelled and enforcement to ensure products are accurately labelled. He suggested that it was more difficult and expensive to enforce accurate labelling as this requires additional product testing. However, it was still considered important. In particular, it was noted that a difference of one star in the ratings can make a difference in the market place where people are choosing between otherwise similar products. It was suggested that:

“There is a commercial element where there is a temptation to make a false claim to sell more products. There are people around who make spurious claims because they don’t think they’ll get caught and the enforcement process can be long and drawn out. They will continue to sell products in the meantime.”

Similarly, it was noted that:

“People who try to do the right thing work at a disadvantage. Shady characters lurking on the edge who ignore WELS continue not to be properly hit over the knuckles and suffer.”

Concerns were also raised about the level of enforcement for imported products that do not go through further stages of the supply chain and are installed directly as part of large projects. It was suggested that these products were unlikely to be audited for compliance and were more likely to be non-compliant. Participants suggested that auditing of products for WELS compliance at the time of import would reduce the number of non-compliant products imported. It was also suggested that there should be a means of enforcement at the installation level, perhaps involving plumbing auditors rather than WELS inspectors. This may be easier to implement if WELS approval is made conditional upon WaterMark accreditation.

### Improving compliance

The provision of information and buyer awareness activities were the two main ways of improving compliance suggested by participants.

A couple of participants commented that buyer awareness of the WELS scheme affected compliance with WELS. One respondent commented:

“If a buyer doesn’t ask about compliance, the supplier is less likely to consider compliance with WELS. That is, if it isn’t a purchase criterion, the supplier will be less interested in compliance.”

Another respondent suggested that it is important to raise awareness amongst purchasers of WELS products to encourage compliance.

“How do you get the people making the purchase decision to ask for it? Put it into supply contracts. This would act as a prompt for something that people may not have known about.”

This may be particularly relevant where suppliers are new to the market or are not familiar with WELS requirements for some other reason.

It was suggested that:

“The focus has been on the supplier which is fine when they are stable and know the system. It’s different when there are lots of importers who are in the market place before they realise they’re meant to do anything.”

One respondent considered that at the contractor level, people do not seek out information on WELS. Provision of more information at the retail level, to enable people to read about the scheme at their leisure, may be successful in raising awareness amongst contractors.

It was also reported that there is a much higher awareness of the need for products to gain WaterMark certification. It was thought that awareness of WELS requirements would increase as state governments begin to specify minimum WELS standards for water conservation reasons.

In the housing sector, it was suggested that there could be more education and awareness around the requirements for communicating compliance with WELS when products are installed in homes that do not have a buyer at the time of installation.

Additional suggestions about how to make compliance with WELS easier included the following comments:

- an industry advisory committee to assist with communication of guidelines in industry language (not regulator language) may be helpful
- information about the family of products is often confused and can be open to interpretation.

### Labelling requirements

There was a general view that the labelling requirements for WELS were straightforward and that the labels were easily understood by consumers. One respondent remarked:

“It is difficult to understand how someone could stuff that up – other than deliberately.”

However, the overwhelming view presented by participants was that registration and labelling under WELS should be linked to certification under the WaterMark scheme.

WaterMark certification is a requirement for legal installation of plumbing products in Australia. Participants reported that for WELS to act as an effective point-of-sale control, products that cannot be legally installed should not be available for sale on the basis that they meet WELS requirements alone. This is reflected in the following comments:

“I’m dead against products that can get a WELS label that don’t comply with WaterMark or are not water efficient. This should be looked at seriously.”

and

“Plumbers expect WELS to provide point-of-sale regulation for products that meet all standards. That is, a plumber should be confident he can go to retailer and know he’s done the right thing by installing a product he bought there. But WELS hasn’t quite become a point-of-sale control mechanism yet.”

In terms of compliance, it was suggested that making WaterMark certification a requirement of WELS would “ensure supply in the market complies with both sets of rules – apart from blatant rorting.”

### Additional comments

Participants also had other suggestions for improving the scheme and its efficiency, and raised wider issues.

It was suggested that WELS products with a low rating “should almost have a big red cross over them.” It was thought that an average consumer, who is not regularly exposed to WELS, does not have a reference point from which to assess the relative merits of a star rating. For example:

“If the whole showroom is filled with 1 and 2 star products you’ll choose the 2 star product, but really it’s not that great.”

The lack of grandfathering provisions in the WELS scheme was raised as an issue for retailers and suppliers, and was compared to the provisions that apply in the energy efficiency area. It was reported that, in the energy efficiency area, all products imported before a change in regulation is made that renders the products non-compliant are able to be sold no matter how long it takes to sell. The WELS requirement for newly non-compliant products to be sold within a specified period was thought to disadvantage retailers and suppliers in country areas and may also have a negative effect across the board where economic conditions make it difficult to move stock.

Some participants were concerned that WELS was unable to take action where products registered under the scheme inappropriately use the brand name of another product. It was noted that this issue had been resolved under the energy efficiency program where

proof of legal entitlement to use the brand name through ownership of the copyright, an agency agreement or a letter of authority is a requirement of registration.

One respondent commented on the size of the registration fee as follows:

“The registration fee is very expensive – 10 times more than registration for energy efficiency. According to WELS, the fee doesn’t cover the cost which is a worry if it means they might put the fee up.”

It was reported that the delay in taking the proposal to introduce mandatory minimum water efficiency standards for washing machines to the Ministerial Council is regrettable and that DEHWA should look as a matter of urgency to include air-conditioners in the WELS scheme as evaporative air-conditioners can use a lot of water.

## INTERVIEWS WITH SUPPLIERS

DEWHA sent email invitations to over 350 organisations to participate in this phase of the study. Potential participants were drawn from the WELS registration lists, from industry association lists and other relevant industry sources.

The data presented in this section and the following section are based on 32 interviews conducted by MMA between 26 October 2009 and 9 November 2009 with participants in the supply chains for WELS products.<sup>5</sup>

Other organisations were also contacted, but were unable, unavailable or unwilling to participate within the required timeframe.

Participants for this phase of the study were drawn from different stages in the supply chain, and from different product categories, to ensure that all were covered.

Table 4 shows the composition of the sample for each of the seven product categories across the four supply chain stages of manufacturing, importing, wholesaling and retailing. It shows that there is considerable overlap and integration. A number of participants described themselves as importers, but examination of the data they provided showed that they were also acting as wholesalers by selling directly to retailers and end customers.

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<sup>5</sup> During the course of the interview, one organisation was found to be ineligible, and so their responses have not been included in the analysis.

Table 4 – Composition of sample for supplier interviews (n=30)

Supply chain stage	Manufacturing		Importing		Wholesaling		Retailing	
	n=	%	n=	%	n=	%	n=	%
Showers	4	13%	11	35%	14	47%	5	17%
Dishwashers	0	0%	4	13%	4	13%	3	10%
Clothes washing machines	0	0%	3	10%	3	10%	3	10%
Lavatory equipment	3	10%	5	16%	7	23%	3	10%
Urinal equipment	3	10%	4	13%	6	19%	1	3%
Tap equipment	5	17%	12	39%	15	50%	3	10%
Flow controllers	3	10%	2	6%	6	20%	1	3%

The composition of the sample is discussed in more detail in the next section of the report titled Product supply chains on page 35.

Participants' responses have been analysed under the following headings:

- Impact of the WELS scheme on industry sectors
- Labelling requirements
- Capacity and willingness to comply
- Barriers to compliance
- Non-compliance
- Current enforcement practices
- Improvements to enforcement
- Making compliance easier
- Registration
- Additional comments.

## Impact of the WELS scheme on industry sectors

The majority of participants felt that the impact of the WELS scheme varied between industry sectors, though some also indicated that they had only limited awareness of other sectors.

Differences occurred between the various product categories, and in the responsibilities allocated to the various sectors. Some participants also cited differences due to the fact that some sectors dealt only with WELS products, while others also operated outside WELS.

Most of the comments about differences in the effect of WELS for different products were general, but some remarked on specific issues for particular products, for example, the additional difficulties for testing whitegoods because of their larger size.

“With the WELS standard apparently compiled on whitegoods, and taps or showers, it does not appear to have a good understanding of what is needed in our industry, like for stainless steel lavatories/urinals.”

“There is more impact on clothes washers and washing machines. There are substantial differences.”

“It varies so much because of different product categories.”

“I’d say the appliances are more disadvantaged because their items are large and have to be shipped. The smaller ones can be couriered or sent by mail for testing so it is easier for them.”

“It definitely varies. It is mainly to do with product cycle times and volumes, for example washing machines as opposed to taps, etc. The biggest thing would be cost.”

“Each sector has its own problems.”

“Yes, some sectors will only work within [WELS], others work outside it.”

Several participants commented on perceived differences due to geographical differences, either additional costs incurred, or clashes between different legislative structures.

“I think so, there are differences between levels. The cost of compliance for an overseas supplier is a burden compared to the effect further up the supply chain.”

“Problems occur with WELS rating when different state government codes, etc require different star ratings.”

## Labelling requirements

The WELS labelling requirements were generally thought to be fair and participants were generally happy with it. Some mentioned that the labelling requirements were clear and comprehensive, and provided a competitive advantage.

"The design is OK. It seems to cover the information needed by consumers."

"I don't mind the labelling scheme."

"It is more an advantage than a disadvantage."

"The labelling system is comprehensive. You know this when customers ask for a rating on a product. Many customers seem well-educated about the WELS rating scheme and look for it."

"Once you systemise it, it is quite simple."

"They appear simple. The labelling requirements are clear. They are fair."

However, there were reports of some difficulties with correctly displaying labels, and some apparent ambiguity or inconsistency in understanding the labelling requirements.

"Sometimes the academics haven't been in a shop where a little kid will rip the label off. Also, difficulties occur in labelling for different products. Where do you put a tag on a display shower? There is one problem, for example a toilet weighing 50 kg is too heavy for lifting if put in one box, so it is put in two. Where does the label go?"

"The labels are clear enough in their intent and their aims. I am not sure the point of sale specifications of the Act are clear for the display and retailing. It does not allow the retailer to present their showroom in the way they would like to. It is a visually disturbing concept to have blue stickers all over the showroom."

"In the actual branding and swing tagging, things fall off sometimes."

"With the physical aspects of the label, there are some ambiguities. There are some inconsistencies in the label layout, for example the size."

"There was the electronic advertising issue earlier this year. Where should the WELS sign be? On each screen? Home page?"

"Could the labels be magnetic, instead of stickers or a card allowed inside the machine? We get customers inquiring about how to remove the labels and they seem annoyed at this."

## Capacity and willingness to comply

The majority of participants felt their organisation had the capacity to comply with WELS. Most also said they supported the scheme or considered compliance important, and said they were careful to correct mistakes or lapses in compliance. However, there were also some feelings of resignation, in that the scheme is mandatory.

"I think the capacity to comply is good. Yes, no problem."

"Absolutely. Our system and processes are set up to manage these compliance issues."

"Yes. It is conformity or nothing. We reinforce to our members the importance of compliance."

"You have to do it. There are heavy fines involved and so on."

"We are supportive of the scheme in principle."

"I want to be recognised as doing the right thing and recognised in Australia."

"We are willing to do our utmost, but it has to be commercially viable at the same time."

"Basically, the law is the law and you can't get around it."

"I make sure to comply because it is the law."

When asked to rate their organisation's willingness to comply, using a 7-point scale on which 1 was not at all willing and 7 was very willing, participants gave an average willingness score of 6.4, indicating a high degree of willingness to comply. In fact, more than half of the participants gave the maximum score of 7, though in studies of this type, self-reported willingness to comply is typically over-reported to some degree.

Participants who reported lower willingness to comply pointed to problems with the current structure of the WELS scheme, such as perceived inconsistencies, difficulties with registration, and other accreditation schemes.

"I would rate it higher if WaterMark was a WELS requirement."

"Not in its current form. The site is not very helpful. If you miss something, you can not go from page to page. The application is rigid and inflexible. You can not transfer information. We do electrical applications as well and it will not copy data across."

"I would give it a 7 if it was more even, if it was not depending so much on how much money is thrown at the testing to get better results."

Value was put on the way WELS enhanced an organisation's good reputation and validated the high quality of their products.

"It is part of our overall strategies. Compliance is the most important thing."

"We value compliance and having a very reputable product."

"It validates what we say about the products. It backs up with a viable standard and that is all the better for us."

"We make the best product on the market, so a high rating is important."

"You buy a product in a box and sell it by its rating."

"The regulation has made it better for us. We are quite often putting the consumers at ease by explaining the WELS certification."

### Barriers to compliance

The main barriers to compliance fell into three broad categories:

- cost
- rating and testing
- awareness and understanding of the regulations.

### Cost

The high costs involved were commonly cited as a barrier to compliance. While this was primarily the costs associated with the registration of products, the demands on staff time for testing and registration were also cited.

"We comply 100%, but it costs us."

"Financially, I find it very hard."

"It is very costly."

"This is expensive."

"We would like to use WELS, but the costs are stopping us."

"I still feel it is expensive for a small company."

"Organising testing registration with only one member of staff is quite onerous."

"It does stretch you at times, when registering the first time and also in the initial stages, for a company it is a drain."

The additional cost of complying with WELS was seen to affect the commercial viability of some products, particularly those with a low volume of sales.

“This does restrict us from selling products that are not viable or low volume.”

“We are willing to do our utmost, but it has to be commercially viable at the same time.”

“We agree with the intent of the legislation, just sometimes with the process of getting a low water volume or technically complex product registered, the cost leads to a little or low return for the importer.”

“There are products we can not sell because of cost, etc.”

Another hidden cost was the ‘dead’ value of stock deemed non-compliant and hence unsaleable, which was seen as a potential deterrent to compliance.

“There are many people like me. I have got a product that could not be / was not rated. I was given six months to get rid of it, but you can’t sell it in time, so it is dead money which my company can not afford. There are others selling at much lower prices, but which are not rated. It is unfair. It [WELS] should be to make things better. For a full flow shower, I have to pay WELS and a laboratory to test.”

### Rating and testing

Some participants felt that for some products the rating or testing procedures did not adequately allow for the full range of products on the market. Linear urinals were cited as an example. Others mentioned difficulties understand the metrics of procedures.

“[Regarding urinal ratings] and how the standard reads. Now we try to work within the confines of a stall. If it could be expanded to include the ability to read on a lineal length for the wall and floor units, it would be more appropriate.”

“What was unclear to me in the beginning was the way in which flush volumes had to be given. Some used double digits. We had to round up. Whether you rounded up or down influenced the number of stars you rated.”

“We had an issue with a particular product, with testing results by CSIRO. We had difficulty applying this to the online WELS application, for example testing for four different pressures. WELS asked for a lower and higher pressure, the middle ground was not where it should be. They needed to allow for more variation in results and to take in standard average pressure, not absolute minimum, which does not happen. You need to test for the middle point; otherwise it is a low rating.”

“We had products that performed better, but were then registered as only 3 stars in the end.”

Some participants called for a third party laboratory to do all the testing, as a way to lessen inconsistencies of this type, and for the application process to take into account the individual characteristics of each different product line.

“It [testing] should be done properly, not passed off to another group, for example outside laboratories.”

“The Government should provide a system and set up their own lab and do the testing.”

### Awareness and understanding of the regulations

While a number of participants reported some difficulties understanding the regulations and completing the registration process, others had experienced few problems.

“Initially, when it was introduced, there were problems finding out what was required.”

“I found WELS hard to deal with. It all has to be done over the internet. There seems to be only one person who knows what is going on. But a lot don’t know what is appropriate with taps. It is hard to get answers. ‘Find it on the website,’ is not an answer.”

“We haven’t had any issues at all.”

“Navigating the website. The difficulties were easily resolved by the personnel. However, it is not the easiest of forms to fill out, but you get there in the end.”

“I think WELS is good for the industry, but it wasn’t rolled out well as many retailers missed out on information. It does not seem to be administered or regulated well.”

“As far as the will to capture every area of compliance, we stand willing, but sometimes we stand confused. The confusion leads to us being unsure of which steps to take as there are anomalies within the standards.”

### Non-compliance

Several participants reported that their own organisations had had issues with non-compliance.

“We had a brochure with a mistake in it. We got a complaint, but were also acting on correcting it.”

“We had a website issue to do with the way we were presenting the ratings; it wasn’t as required and we fixed it up when it was raised with us. It was an oversight in marketing, but corrected quickly as it was on the website.”

However, many participants discussed instances of non-compliance that they had encountered outside their organisations. Examples were provided of unethical practices, non-compliant industry participants, and consumers choosing non-compliant products.

"Some unverified WELS goods are being imported. ... Buildings are getting plumbing fittings by the container load; plumbing equipment that is not WELS rated, which is then being used throughout the building."

"There is a compliance problem when the retailers try to get stickers for the display of other products but use our stickers. Some Chinese companies get a WELS sticker then use it on other products or just for selling non-compliant products."

"We tested two other competitors' hoses which did not stand up to the testing. Who is to say after the label is on, that someone is not substituting a sub-standard product?"

"There are a lot that appear on websites that are dubious regarding compliance. There are a lot that make no reference to WELS."

"Tapware is the worst. ... Some products have no WaterMark, or bodgy WaterMark numbers ... Asian firms look at us as a joke, our laws aren't enforced."

"Removal of restrictors can be a problem. Some tradesmen will advise removal of the restrictors (flow controllers) when customers complain of poor flow."

"With the internet, the public can go to overseas sites and buy from them, for example from the UK, etc. The WELS Act says that you can install second hand goods on your own property. Joe Public can buy from overseas and install it himself legally. This gets under the radar with WELS."

### Current enforcement practices

Current enforcement of the WELS scheme was viewed poorly by participants, with more than a third not aware of any inspection or enforcement actions taking place. A similar proportion felt that the current enforcement was not sufficient.

"In terms of the governing body, reasonably poorly. We have not seen anybody."

"Poorly, very poorly."

"It is not enforced enough."

"I have not seen it enforced at all."

"I don't think it is. I have never seen a WELS inspector."

"I don't see any enforcement. I do not know who enforces it. In the early days, promises of two or three inspectors were made."

"One would anticipate it would be enforced in retail, at point of sale."

"I think it is only enforced by those who want to be responsible. I have not heard of any of the local plumbing outlets being inspected."

"It is self-regulated. I have not seen any evidence of inspectors or government bodies going around and checking, for example building sites."

Although many participants indicated that they did not know what the penalties were, or couldn't comment on their appropriateness, there was general support for the penalties in principle.

"The provisions laid out in the act are adequate."

"It is probably adequate."

"If you are doing the wrong thing, you should be fined and penalised."

### Improvements to enforcement

Almost two thirds of participants suggested that greater levels of policing were required. This would entail increases in resourcing or funding for enforcement, and also publicising policing and enforcement actions.

"Better policing and more definitive action for those flaunting the regulations."

"In principle, the idea is good, but the system is not policed enough."

"More money and resources being given to DEWHA for the WELS compliance team."

"It would require a large team to keep up with what is constantly being put out there."

"If only the WELS people were given more resources to follow up on non-compliance."

"More awareness should be brought to the attention of the public with results being published in a newsletter."

"Take the case of energy labelling. There is visible policing by DEWHA, so this could be a way of improving WELS."

Various methods of enforcement were endorsed. It was suggested that more attention should be paid at the testing stage, and that random audits of company records and data could be effective. Additional powers to allow Customs to stop non-compliant products at the import stage were also suggested.

"It is important that WELS and energy labelling be aligned, including the check test program."

"They should probably do their own testing."

"If you have enough inspectors, you can be effective. I believe it should be inspection at the border or point of entry, rather than at the point of sales."

"Customs should require WELS compliance. Enforcement and policing needs to be more forceful. Better available data and records for referral during enforcement. Ask for last month's invoice to be compared with WELS compliance records."

"Probably more information would be appreciated. A similar system of random audits as with WaterMark would be good."

"They need to stick to the principle of informing the consumer to make good choices."

"The range of products needs to be checked against the company."

Making fines proportional to the size of the non-compliant company was also suggested.

"The offence provision should be a fine as a percentage of annual turnover."

"The penalty has to impact on a business significantly and should be proportional to the size of the business."

Less than 10% of participants felt that no improvements or changes to WELS enforcement were necessary.

### Making compliance easier

Information was seen as the key to making compliance easier. Participants expressed a desire for more information and communication generally, and suggested mechanisms for providing additional information and communication.

"Information or contact."

"They need to open up the line of communication. We need people to help us."

"Could we have a local WELS conference in each state? For example, an information evening so that questions on notice could be given. Access to people is crucial."

"I would like to see them put together a reviewed or revamped information or compliance booklet, providing updates of information so that other groups could make members aware."

Participants also wanted a reduction in the fees, and streamlined reporting and testing for multiple products, which they thought would increase the ease of compliance.

"The registration is high. \$1,500 per product is a lot. It should be about one-third of that price."

"Fees should come down."

"The multiple testing and reporting was really onerous. There is a need for it to be more user-friendly."

About a quarter of participants volunteered positive comments about existing WELS requirements being explicit or straightforward.

"It seems a good system is in place at the moment."

"It is very straightforward and clear from our recent testing."

"The documents are pretty clear. It is pretty straightforward."

## Registration

About two thirds of participants had experienced some level of difficulty with the WELS registration process. The most common problems had occurred during the online process, with common criticisms being that it was generally difficult and that the online form was hard to use. Other participants were critical of aspects of the online structure, saying it was rigid and inflexible, cumbersome and slow, or hard to navigate.

"They make it too hard."

"18 months ago we had trouble dealing with the online aspect."

"It was very complicated at first."

"The system does not copy data across when there is a change of appliance name."

"It could be more explicit and user-friendly, for example it does not at times accept variations, so [it would be good if] 'another' option was able to be typed in as some of the set items do not always fit the actual item."

"Many find it cumbersome, possibly because they do not do it all that often."

"The website is still clunky and could be made easier."

"A more direct or obvious starting point is required. If you go to the website, there is quite a string of screens that need to be gone through before you can start. They could have all

the information on the screen when you open up. If you are a current user, you could then go straight to the logon screen.”

“The site is not very helpful. If you miss something, you can not go from page to page. The application is rigid and inflexible. You can not transfer information. We do electrical applications as well and it will not copy data across.”

Some expressed frustration at being continuously referred to the website, and not being able to speak to a person, or get clear answers to questions.

“You can’t get answers. There is not a proper help desk.”

Difficulties with the structure of the families of products within WELS, or the registration of multiple products, were also mentioned.

“It was frustrating when taps did not fit in the same family, and I had to register each one.”

“The families of products causes great confusion to overseas suppliers.”

Many participants commented on the length of time required for the completion of the whole process, while others once again alluded to the costs involved and the onerous nature of the registration process.

“Time is an issue. It can take a fair while for the assessment to be done.”

“Time is an issue. It took us two months for the whole process.”

“Costly in time, compliance and funds.”

“The cost of testing and cost of lodging the application for a new product. We have spent nearly \$10,000 on testing.”

Nevertheless, some participants having no issues or problems with the WELS registration process. Recent improvements to the website were mentioned, and WELS staff were complimented.

“The new WELS website is very good and very easy.”

“It seems to have been improved a lot.”

“It was a pleasure to deal with the WELS people.”

“The staff are excellent, very helpful.”

## Additional comments

Additional comments made by participants fell into three broad categories:

- Adverse outcomes
- Regulation
- Positive feedback.

### Adverse outcomes

Suppliers discussed a range of adverse outcomes they saw arising from WELS. Some raised issues about consumer practices, saying that water efficient designs do not always lead to a decrease in the overall water consumption of the product over time, and can sometimes led to an actual increase, due to the way the product is used.

Although other suppliers had given alternative perspectives on consumer views in earlier comments, for example, those about the WELS system helping to validate the quality of products and enhance suppliers' reputations with consumers (see the section titled Capacity and willingness to comply, on page 22), some suppliers said that consumers disliked water efficient products, which meant they avoided them or tampered with them after installation.

"Ultimately, where WELS fails is it is not what you really need, because it does not acknowledge differences between water saving and water efficiency. ... WELS is not testing the human factor, for example, styles of showering."

"[With low volume toilets] people will often flush two or three times and that is not water efficient."

"The Government probably needs to look to other areas as well, such as 3 to 4 star showers but there is no limit to how long you stand under the shower."

"There are a lot of people who do not like WELS water efficiency."

"Nearly 70% of people take the water saving devices out of a shower because they want a full flow shower."

"The floor staff all pull out the water saving devices as people don't like them."

Suppliers also made a few comments about other negative effects on the market. As well as the difficulty of WELS products competing with cheaper, non-compliant products (discussed under Non-compliance, on page 25), suppliers talked about losses to their businesses from having to write off non-compliant stock, especially at the introduction of WELS, and the reduction in market competition, including some overseas suppliers withdrawing from the Australian market because of WELS.

"In the early days, there were problems moving old stock."

"We had to write off a lot of stock when WELS came in."

"Email, a big appliance wholesaler, just packed up and left because the standards were severely compromised."

"It is a non-competitive industry. There is no innovation under WELS; it is killing off initiative."

"The costs and intricacies of getting WELS and compliance is not worth it. There are a number of brands that have left Australia because of this."

Some technical issues were also brought up by suppliers, who reported some of the impacts that water efficient products could have on the rest of the plumbing.

"There is not enough done to stop the effects of water pressure, for example flow controllers lead to a back-up pressure in tapware."

"If [the water saving device] is at the shower, the pressure backs up and blows the o-ring, and there is water under the tiles, etc."

## Regulation

Many comments were made about WELS and WaterMark being brought into alignment, although, conversely, there were two expressions of interest in the two systems remaining separate. The industry associations, interviewed in the first phase of this assignment, were also strongly in favour of WELS and WaterMark being aligned.

"I understood that WaterMark and WELS was going to be a simplifying system. Could it be a compliance stamp that covers both? Could there be one thing that says an item complies with Australian Standards?"

"If WELS and WaterMark come together and compliance is made mandatory, it would be more efficient."

"WaterMark should be a requirement for WELS certification."

"I would like to see the Australian Standards, WaterMark and WELS all rolled into one. It would be more efficient to have one system. It should be able to be streamlined into two companies: one for testing and one for registration."

"I want WELS to remain as it is. I do not want it to have to incorporate the Australian Standards (WaterMarking). I do not agree with the move to incorporate both. It will turn WELS into a policeman. It is better to keep water efficiency apart from the WaterMark standards, which has to do with brass standards."

Some participants believed that regulation should also cover the grades of materials used and should ensure the quality of the products, particularly tapware, while others thought a closer alignment or interaction with the energy efficiency system would also be beneficial.

“Tapware has to be a basic quality of brass, but we have had samples [from overseas] tested that do not meet the standard.”

“The only test WELS needs to make mandatory is for all tapware. It needs to be earned, that is, testing should be mandatory. Also for the materials, tapware should be made of DZR brass as a requirement for compliance.”

“Specification for certain points of the product needs to be more definite. [There is] no standard for a grade of material.”

“It is important that WELS and energy labelling be aligned.”

“We should be looking at both areas of water efficiency and energy efficiency, i.e. saving electricity ... When you look at a product, we come up with a particular product that rates a 3 ½ star but the manufacturer wants a 4 star rating. This means the machine must work longer. Therefore, the power consumption goes up. You achieve water efficiency, but you lose out on energy efficiency, so we need to find a balance. For example, I had one person who bought a front loading washing machine. It had a huge water efficiency rating, but it took two hours to do a load, so what happens? They chose a short cycle and cut the size of the load, but this means more loads and the machine is working longer. You might be saving water, but using much more electricity, so there needs to be a balance.”

Participants noted difficulties with the product definitions and rating systems for products under WELS, such as when comparing equivalent star ratings across product types, or issues with fitting different products within the ratings.

“There is a need to distinguish classes of water using products, as well as water saving devices. It would need to be broader, for example, toilet water saver, that does not fall under WELS. For example, manual versus automatic, for the conversion of single button toilets.”

“There was another issue about twin tub washing machines. These should not meet the requirements, twin tubs were not considered under WELS. By nature in regional areas and in units, many people use these twin tubs. Perhaps a bigger or more flexible scheme to incorporate all appliances is needed.”

“Replacing labelling with a minimum water use requirement for [dishwashers] would be a good move. It would be much easier to comply if plumbing products could be separated from those that use energy. For example, category differences for taps, etc versus washing

machines. It is inefficient, as they are so different. A washing machine is so complex, a great range of performance required: washing, rinsing, drying, etc."

### Positive feedback

Some positive comments were made by suppliers about the general success of WELS, the work done by the regulators, and the responses by consumers.

"The scheme overall works well."

"Overall, I think that WELS is great."

"I think it is generally a success."

"I think the regulators are doing a good job in bringing about behaviour change and improving performance."

"Overall, the WELS scheme is a great way to communicate to people about the importance of saving water."

"In general, I think the system is a good idea. Customers seem to be paying more attention to the WELS labelling, rather than the energy labelling."

## PRODUCT SUPPLY CHAINS

The quantitative data analysed in this section has a number of limitations, including:

- the small sample size
- several participants preferred not to provide some of the data we sought, or were prevented by company policy from doing so
- a number of participants provided rounded data, for example, in millions of units or millions of dollars
- participants' estimates of their products' market shares were often optimistic<sup>6</sup>
- we were able to cross-check the survey results with data provided by the Department of Foreign Affairs and Trade (DFAT) only for dishwashers and clothes washing machines
- the margin of potential error arising from sampling is large in all of the product classes.

Given these caveats, the data presented in the following sections are our best estimates of the number of units and their value as they move through their supply chain.

## VERTICAL AND HORIZONTAL INTEGRATION

Table 4 on page 19 shows the composition of the sample for each of the seven product categories across the four supply chain stages of manufacturing, importing, wholesaling and retailing. It shows that many participants were active in a number of product lines and at different stages of the supply chain. A number of participants described themselves as importers, but examination of the data they provided showed that they were also acting as wholesalers by selling directly to retailers or as retailers to end customers.

While importing and wholesaling are conceptually distinct stages, the data showed that all importers were also acting as wholesalers by selling to retailers. The stages are kept separate in this analysis, however, in order to accommodate manufacturers and those who were niche wholesalers.

### Vertical integration

This section describes vertical integration within the plumbing and whitegoods sectors, and describes the level of horizontal integration across these sectors. Further

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<sup>6</sup> Often the self-assessed market shares added to more than 100%.

information on vertical integration is provided in later sections in the description of the sample for each product.

Figure 2 summarises the vertical integration within the plumbing products, and shows that the majority of participants participated in more than one stage in the product supply chain.<sup>7</sup>

Figure 2 – Vertical integration in plumbing products

Participant	Manufacture	Import	Wholesale	Retail
1				
2				
3				
4				
5				
7				
8				
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11				
12				
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23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

<sup>7</sup> A black cell indicates that the participant is active in that stage, a blank cell indicates that they are not active in that stage.

Figure 3 summarises the level of vertical integration in the whitegoods products, and shows that most of the participants were active in importing and wholesaling, and only one participant was a specialist retailer.

Figure 3 – Vertical integration in whitegoods products

Participant	Manufacture	Import	Wholesale	Retail
1				
2				
3				
4				
5				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
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32				

### Horizontal integration

Figure 4 shows the results of an analysis of horizontal integration across all of the product groups covered in this assignment. It shows that the majority of participants dealt in more than one product category.

Figure 4 – Horizontal integration

Participant	Showers	Dishwashers	Clothes washers	Lavatory equipment	Urinal equipment	Taps	Flow controllers
1							
2							
3							
4							
5							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

Figure 5 combines the data contained in Figure 2 and Figure 3 to simplify the presentation of information on horizontal integration across plumbing products and whitegoods. While the majority of participants were active in only one of these two categories, three participants were active in each.

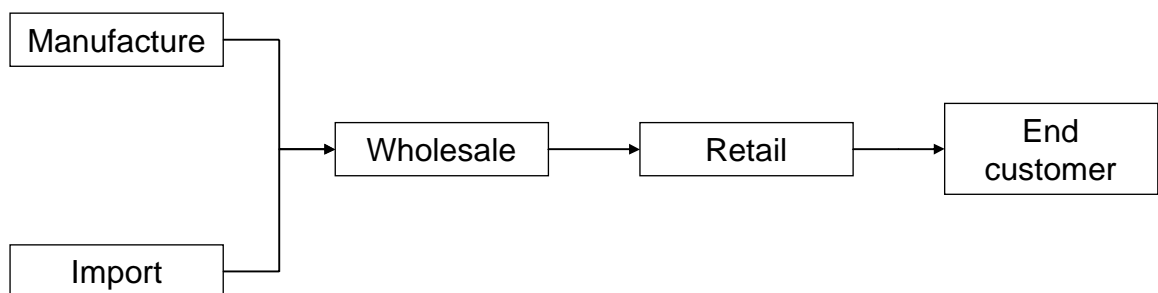
Figure 5 – Horizontal integration across plumbing and whitegoods products

Participant	Plumbing products	Dishwashers and clothes washers
1		
2		
3		
4		
5		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
21		
22		
23		
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27		
28		
29		
30		
31		
32		

### FINAL STAGES OF THE SUPPLY CHAINS

An ideal supply chain would have companies falling into one of the stages shown in Figure 6. The supply chains for the products covered by WELS are not so neat, with many of the industry participants spanning more than one stage, and working with more than one of the WELS products.

Figure 6 – Idealised supply chain



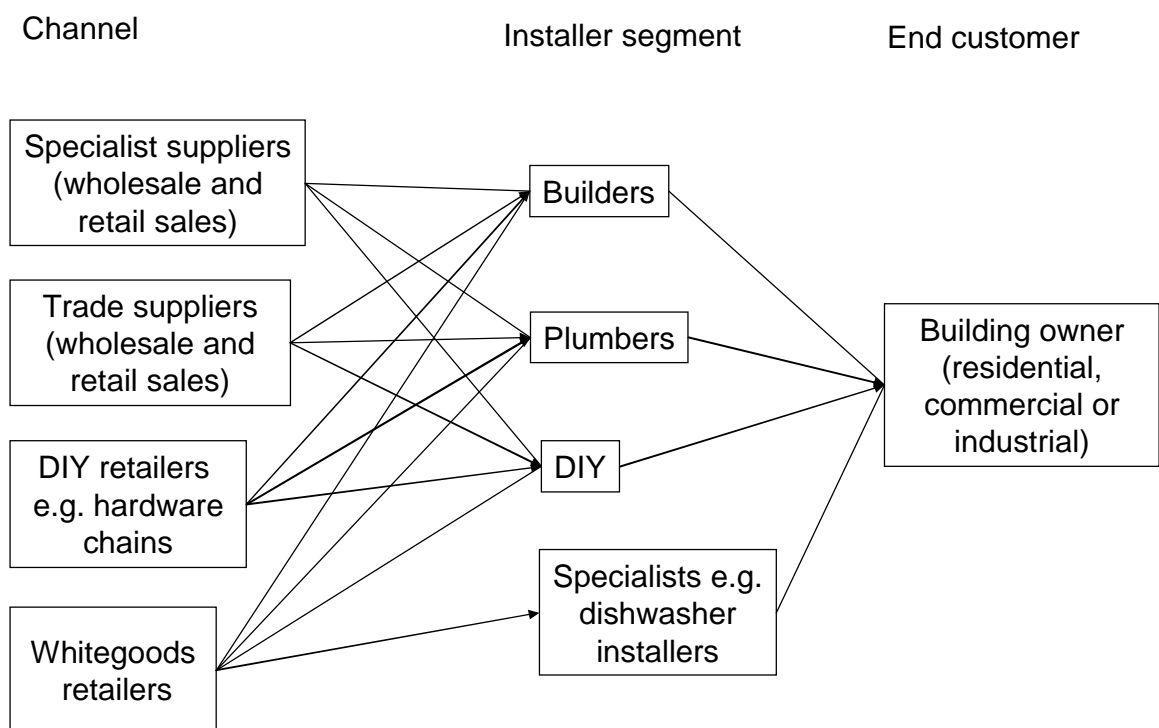
Another challenge to an understanding of the flow of products through the supply chains was the multiplicity of channels and installer segments, illustrated in Figure 7. Speciality suppliers, which typically operated as both wholesalers to the plumbing and building segments, also operated as retailers to the DIY segment. For example, the trade counter at specialist suppliers such as Reece Plumbing will sell to the plumbing and building segments at a trade discount, and to a DIY customer at list price. The trade suppliers channel tends to focus on sales to the plumbing and building segments,

but will also sell to members of the DIY segment who find their way to the sales counter. The retailer channel, which specialises in sales to the DIY segment, includes all the major hardware chains, such as Bunnings. However, because of their range of products and pricing strategies, they also make some sales to the building and plumbing segments.

The whitegoods channel tends to be more specialised in terms of the WELS products carried, but will sell to all installer channels.

Because of this interaction of channels and installer segments, participants were typically unable to describe the volume and value of products going to each segment.

Figure 7 – Final stages of the supply chains



## THE SUPPLY CHAINS

The supply chains are described in the following sections by product category under the headings of:

- Showers
- Dishwashers
- Clothes washing machines
- Lavatory equipment
- Urinal equipment
- Tap equipment

- Flow controllers.

## Showers

Wilkenfeld estimated that Australian sales of shower roses were about 1 million units each year in 2004.<sup>8</sup>

### Showers sample

Table 5 shows the frequency of different types of vertical integration of the participants within the sample for the showers supply chain. Of the participants, only 12% were pure retailers and 6% pure wholesalers. The remaining 82% were vertically integrated to some extent.

Table 5 – Showers sample

Supply chain stages	Percentage of shower product participants (n=17)
Import / wholesale	41%
Manufacture / import / wholesale	12%
Manufacture / wholesale	12%
Retail	12%
Import / wholesale / retail <sup>9</sup>	6%
Import / retail	6%
Wholesale / retail	6%
Wholesale	6%

### Showers results

Table 6 summarises the main features of the supply chain for showers. The products were supplied by a mixture of Australian-based manufacturers (9%), some of whom also imported products (23%), and importer/wholesalers (68%). The data indicate that the majority of showers were imported. The survey data suggests that there was a wide variation in the unit price of showers, depending on the brand. The volume of shower products passing through the supply chain was in the order of 143,000 units per year, which has probably been enhanced by the replacement of existing showers by low flow showers. The total value of showers as they leave the manufacturing or wholesaling

<sup>8</sup> George Wilkenfeld and Associates. 2004. Regulatory impact statement: proposed national system of mandatory water efficiency labelling for selected products. Source: <http://www.waterrating.gov.au/publications/pubs/ris.pdf>. Last accessed: 15 December 2009. Page 26.

<sup>9</sup> This participants imports and retails within its own organisation, and wholesales to other retailers.

stages of the supply chain was in the order of \$6 million. The data provided by participants does not allow us to follow the supply chain with confidence after this point, but we estimate the average retail price of showers to be in the order of \$112/unit.

Table 6 – Showers supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Manufacture	\$33	13,000	9%	\$437,450
Manufacture / import / wholesale	\$60	33,000	23%	\$2,000,130
Import / wholesale	\$41	97,000	68%	\$4,022,590
Retail	\$112	No data	Not applicable	No data
Total units		143,000		

Figure 8 summarises the data on the volume and value of shower products moving through the supply chain. It shows that there were a variety of supply chains, that some participants only manufactured, while others both manufactured and imported, and others only imported and wholesaled. Even though those who both manufactured and imported declined to say what proportion of their product came from each sources, imports clearly dominate this supply chain.

Figure 8 – Supply chain for showers

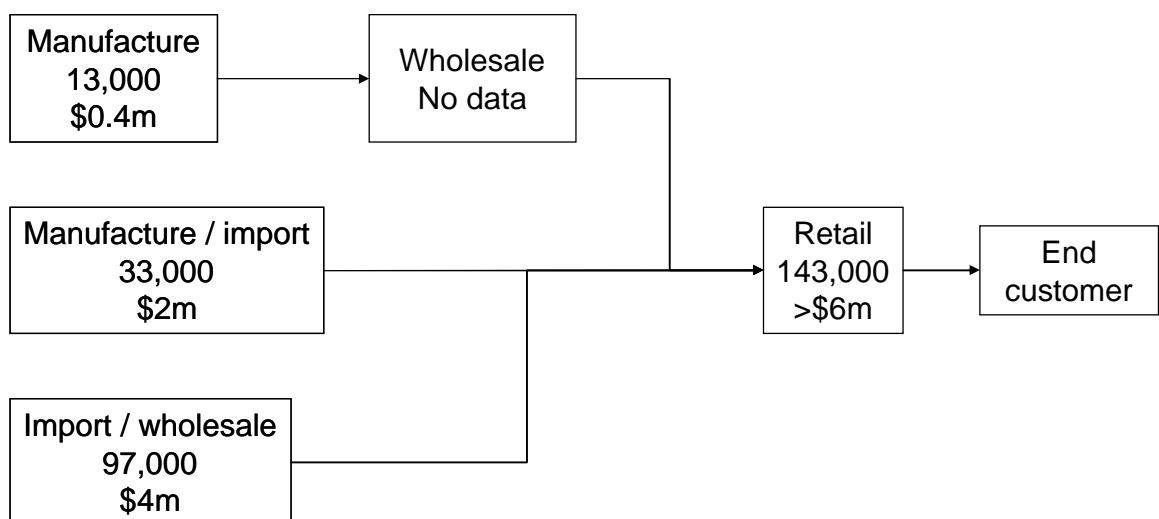


Table 7 shows that China was the main country of origin for showers, supplying more than 45% of imports. Australian manufacturing accounted for approximately 10%.

Table 7 – Countries of origin for showers

Source	Percentage
China	45%
Germany	26%
Australia	9%
Taiwan	6%
New Zealand	1%
Other <sup>10</sup>	13%

## Dishwashers

In 2004, Wilkenfeld estimated that about 35% of Australian households owned a dishwasher in 2002, and that the share was rising steadily.<sup>11</sup> Sales in 2004 were estimated at about 220,000 units, increasing by about 5.5% per year.

In 2008, Wilkenfeld estimated that about 45% of Australian households had a dishwasher, and the share was rising steadily.<sup>12</sup> Most dishwashers were about 600 mm wide by 850 high, designed to fit under a bench top. There were also smaller models which were narrower or half height. Wilkenfeld estimated that 296,045 dishwashers were sold in 2006.

## Dishwashers sample

Table 8 shows the frequency of different types of vertical integration within the dishwasher sample. Of the participants, 33% were pure retailers. The remaining 67% were vertically integrated to some extent.

<sup>10</sup> Other includes France, UK, Italy and country of origin not stated. It also includes 12% of units attributed by one respondent to Italy/Germany/China.

The actual total volume sourced from China is likely to be nearer 55% than 45%, if we assume that 10% of the 12% attributed to Italy/Germany/China are from China.

<sup>11</sup> George Wilkenfeld and Associates. 2004. Regulatory impact statement: proposed national system of mandatory water efficiency labelling for selected products. Source: <http://www.waterrating.gov.au/publications/pubs/ris.pdf>. Last accessed: 15 December 2009. Page 34.

<sup>12</sup> George Wilkenfeld and Associates. 2008. For consultation regulation impact statement minimum water efficiency standards for clothes washers and dishwashers and water efficiency labelling of combined washer/dryers. Source: <http://www.waterrating.gov.au/publications/pubs/ris-whitegoods-draft.pdf>. Last accessed: 23 December 2009. Page 57.

Table 8 – Dishwasher sample

Supply chain stages	Percentage of dishwasher product participants (n=6)
Import / wholesale	50%
Retail	33%
Import / wholesale / retail	17%

### Dishwashers results

Table 9 summarises the data provided by participants on the supply chain for dishwashers, which has been reconciled to match data on the number of units and their value as provided by DFAT on the number of units and their aggregate value. No participants identified the manufacture of dishwashers in Australia, so we believe that the DFAT data covers the entire supply chain into Australia.

The dishwasher supply chain survey data was dominated by one large importer. The majority of imported dishwashers were sold to retailers for on selling (99%), with the exception of a small number of units that were imported and retailed directly (1%). The unit price of dishwashers as they left the wholesale stage of the supply chain was \$414. The DFAT data shows 435,000 dishwashers were imported in 2008/09. The aggregate value of dishwashers over the year was in the order of \$180 million.

Table 9 – Dishwasher supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Import / wholesale	\$414	430,993	99%	\$178,431,102
Import / retail	\$500	4,353	1%	\$2,176,500
Total units		435,346		

Figure 9 summarises the data for the supply chain for dishwashers. Note the absence of any manufacturing in Australia, and the presence of a company which covers the full chain from importing to retailing within its own operations. However, the vast majority of imports are on-sold to separate entities which act as retailers.

Figure 9 – Supply chain for dishwashers

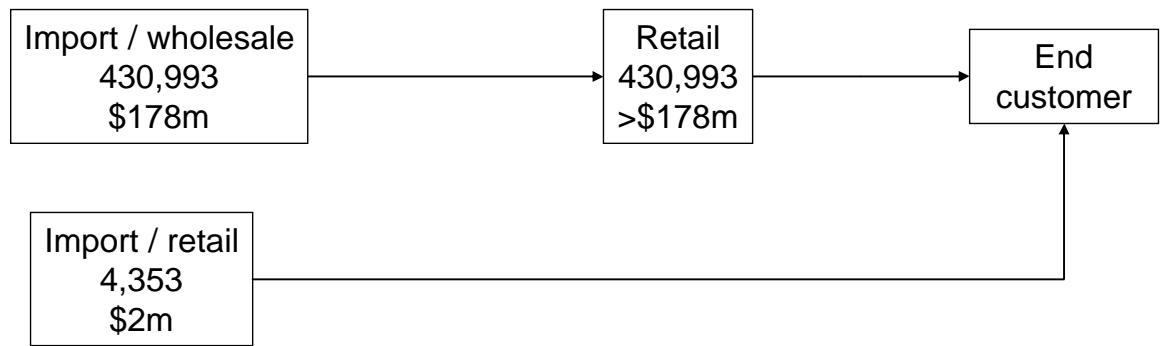
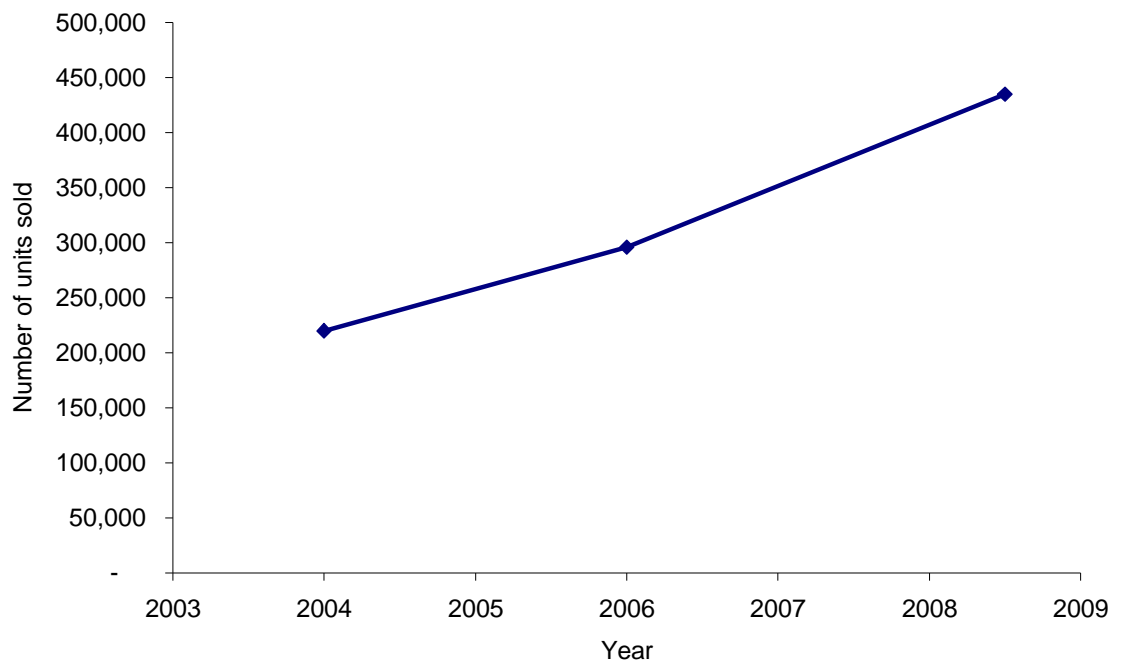


Figure 10 shows the trend in the sales of dishwashers over time, based on work by Wilkenfeld and DFAT data.

Figure 10 – Sales of dishwashers over time



The DFAT data provides information on countries of origin, total value and average value per unit, as shown in Table 10.

Table 10 – DFAT data on dishwashers

Source	Quantity	Value (A\$ ,000)	Average value (A\$)
China	109,006	\$29,351	\$269
Germany	91,014	\$51,808	\$569
Poland	74,739	\$25,209	\$337
Republic of Korea	39,208	\$13,842	\$353
Turkey	28,170	\$10,518	\$373
New Zealand	25,582	\$19,390	\$758
Czech Republic	10,183	\$5,323	\$523
Hong Kong (SAR of China)	3,582	\$878	\$245
Mexico	1,307	\$580	\$444
Spain	982	\$477	\$486
United States	567	\$232	\$409
Belgium	473	\$247	\$522
Singapore	263	\$129	\$490
United Kingdom	105	\$11	\$105
Switzerland	33	\$13	\$394
No Country Details	50,397	\$22,422	\$444

Figure 11 illustrates the net number of dishwashers imported by country of origin, sorted in descending order from the country with the highest volume (China). Note that there was no data on the country of origin of over 50,000 dishwashers.

Figure 11 – Number of dishwashers by country of origin

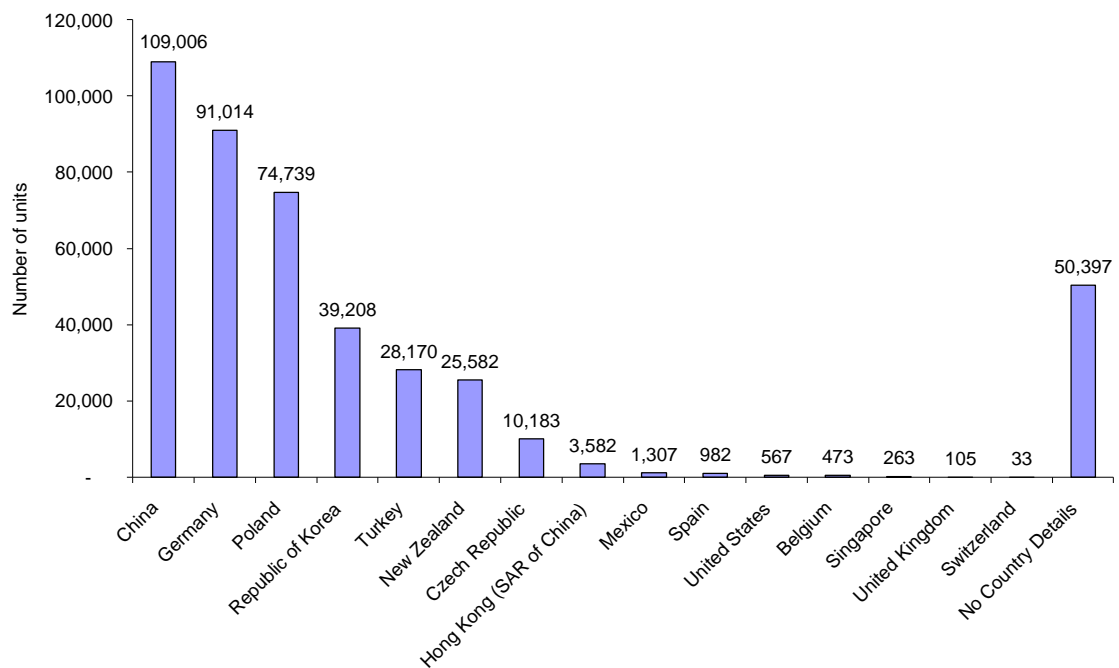


Figure 12 shows the total value of dishwashers by country of origin, with Germany supplying the greatest value (\$52 million), followed by China (\$29 million).

Figure 12 – Total value of dishwashers by country

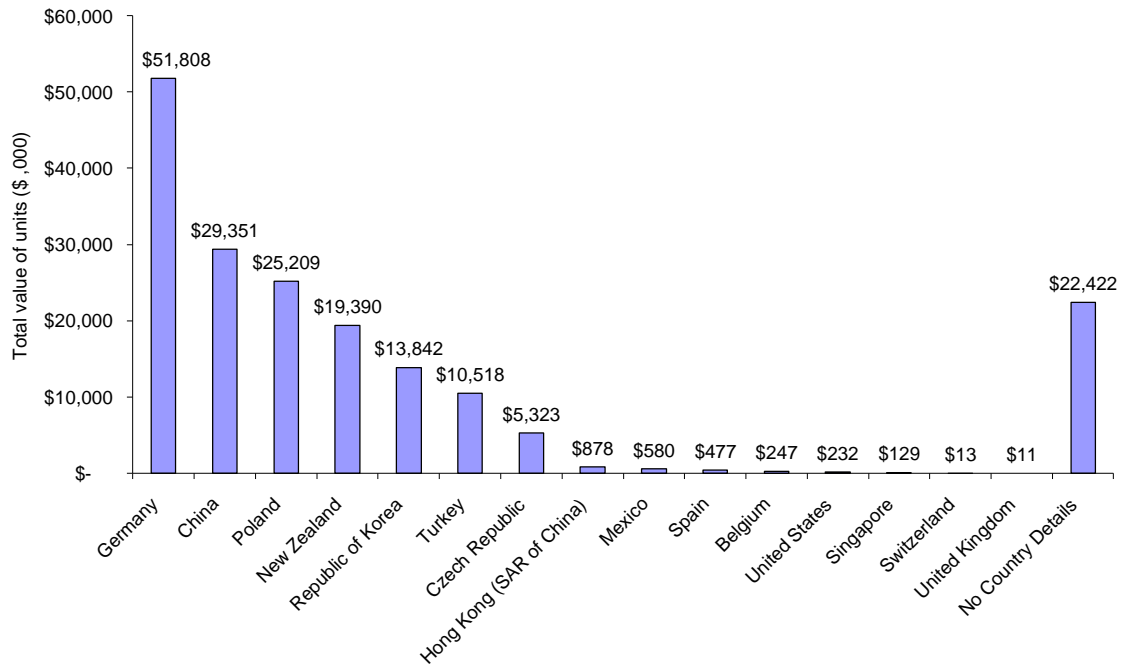
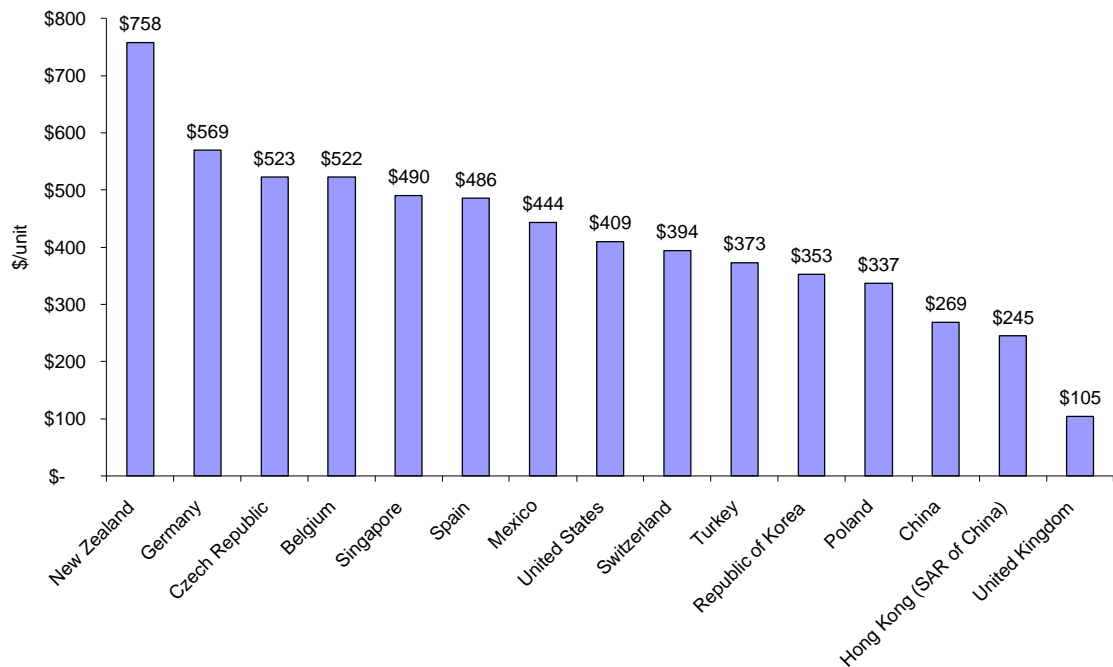


Figure 13 shows the average value per dishwasher by country of origin. In spite of the volume and value of imports from China, the average declared value was at the low end of the range (\$269), as was the Special Administrative Region of Hong Kong (\$245). The data from the UK, which gave even lower average values, are probably an error in the source data. The highest average value per unit was for New Zealand (\$758).

Figure 13 – Average value per dishwasher by country



### Clothes washing machines

In 2004, Wilkenfeld estimated that over 95% of Australian households had a clothes washing machine.<sup>13</sup> Sales are driven mainly by replacement, and to a lesser extent, by the formation of new households. While sales vary from year to year, Wilkenfeld estimated that the trend for sales would be about 566,000 units per year in 2002.

<sup>13</sup> George Wilkenfeld and Associates. 2004. Regulatory impact statement: proposed national system of mandatory water efficiency labelling for selected products. Source: <http://www.waterrating.gov.au/publications/pubs/ris.pdf>. Last accessed: 15 December 2009. Page 32.

In 2008, Wilkenfeld estimated that 790,000 clothes washers were sold in Australia in 2006, made up of top loading, front loading, combined washer/dryers, twin tub and other types, as shown in Table 11.<sup>14</sup>

Table 11 – Sales of clothes washers by type, 2006

Type	Units sold
Top loading	463,400
Front loading	278,600
Combined washer/dryer	35,700
Twin tub	11,000
Other	2,200
<b>Total</b>	<b>790,900</b>

### Clothes washing machine sample

Table 12 shows the composition of the sample for clothes washing machines and frequency of different types of vertical integration. Of the four participants, 25% were pure retailers. The remaining 75% were vertically integrated to some extent.

Table 12 – clothes washing machine sample

Supply chain stages	Percentage of clothes washing machine participants (n=4)
Import / wholesale / retail	50%
Import / wholesale	25%
Retail	25%

<sup>14</sup> George Wilkenfeld and Associates. 2008. For consultation regulation impact statement minimum water efficiency standards for clothes washers and dishwashers and water efficiency labelling of combined washer/dryers. Source: <http://www.waterrating.gov.au/publications/pubs/ris-whitegoods-draft.pdf>. Last accessed: 23 December 2009. Page 40.

## Clothes washing machines results

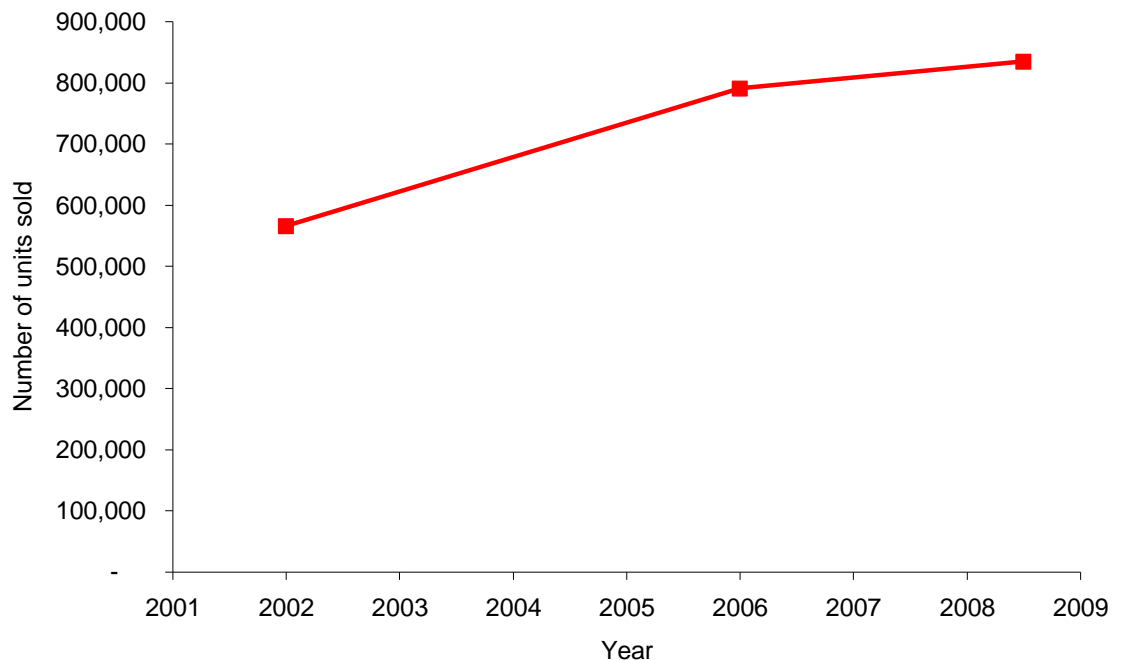
Table 13 summarises the survey data on the supply chain for clothes washing machines, which has been reconciled with DFAT data on the number and value of imports. As no respondent identified any Australian manufactured clothes washing machines, we have assumed that the DFAT data covers the entire supply chain. The DFAT data shows that approximately 835,000 clothes washing machines were imported in 2008/09.

Table 13 – Clothes washing machines supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Import / wholesale	\$363	826,927	99%	\$300,174,501
Import/retail	\$426	8,352	1%	\$3,557,952
Total units		835,279		

Figure 14 shows the trend in sales of clothes washing machines over time, based on data provided by Wilkenfeld and DFAT.

Figure 14 – Sales of clothes washing machines over time

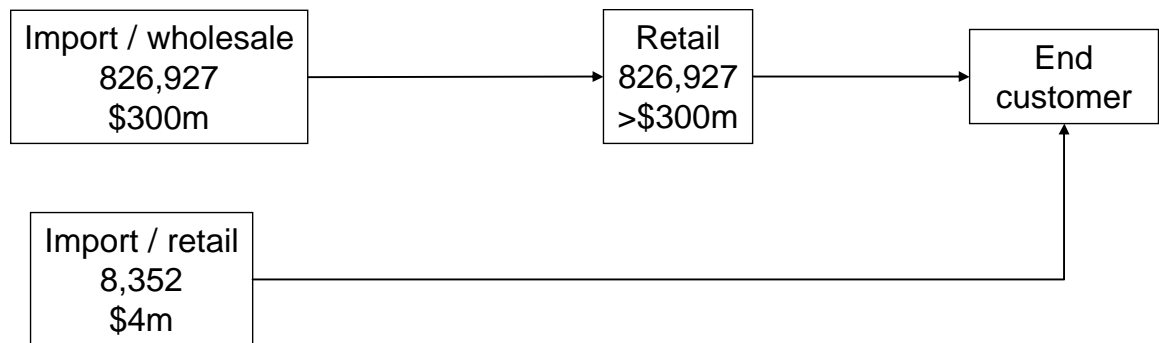


The clothes washing machine supply chain survey data was dominated by one large importer. The typical unit price for clothes washing machines as they left the wholesale

stage of the supply chain was approximately \$360. Ninety-nine percent of clothes washers were supplied via import/wholesalers, with the remaining 1% being retailed by the organisation which arranged their import. The value of clothes washing machines as they left the wholesale stage was in the order of \$303 million.

Figure 15 shows the key features of the supply chain for clothes washing machines. Note that no units are manufactured in Australia, and that one participant covered the complete supply chain from importing to selling directly to the end customers. However, the vast majority are sold to an end customer via retailers.

Figure 15 – Supply chain for clothes washing machines



The DFAT data provides information on countries of origin, total value and average value per unit of clothes washing machines, as shown in Table 14.

Table 14 – DFAT data on clothes washing machines

Source	Quantity	A\$'000	\$/unit
Thailand	492,585	\$173,218	\$352
China	170,954	\$44,562	\$261
United States	43,620	\$16,562	\$380
Germany	30,005	\$25,456	\$848
Republic of Korea	20,779	\$8,279	\$398
Turkey	9,773	\$3,584	\$367
Italy	3,632	\$1,272	\$350
Hong Kong (SAR of China)	3,523	\$605	\$172
Poland	3,440	\$1,734	\$504
Belgium	1,381	\$595	\$431
Czech Republic	1,366	\$1,767	\$1,294
New Zealand	1,171	\$643	\$549
Indonesia	785	\$235	\$299
Mexico	102	\$38	\$373
Other <sup>15</sup>	854	\$365	\$427
No Country Details	59,597	\$26,749	\$449

<sup>15</sup> Other includes imports from Sweden, Japan, Singapore, India, Spain, United Kingdom, France and the United Arab Emirates, each of which exported less than 100 units per year to Australia.

Figure 16 illustrates the net number of clothes washing machines imported by country of origin, sorted in descending order from the country with the highest volume (Thailand). Note that there was no data on the country of origin for almost 60,000 clothes washing machines.

Figure 16 – Number of clothes washing machines by country of origin

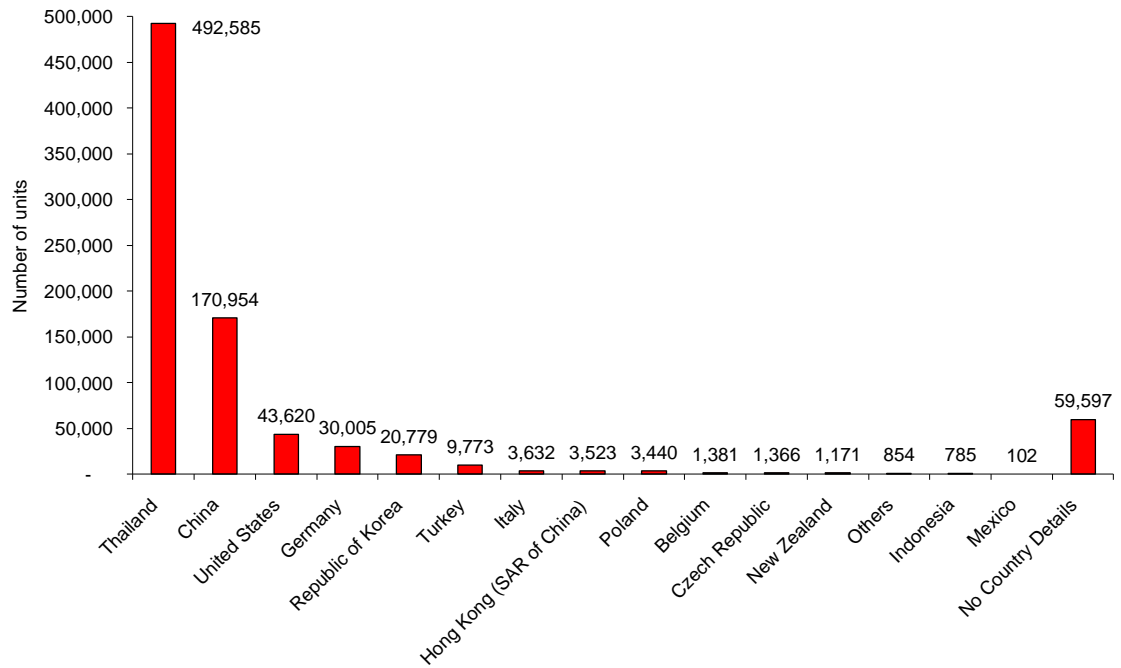


Figure 17 shows the total value of clothes washing machines by country of origin, with Germany supplying the greatest value at over \$173 million, followed by China at over \$44 million.

Figure 17 – Total value of clothes washing machines by country

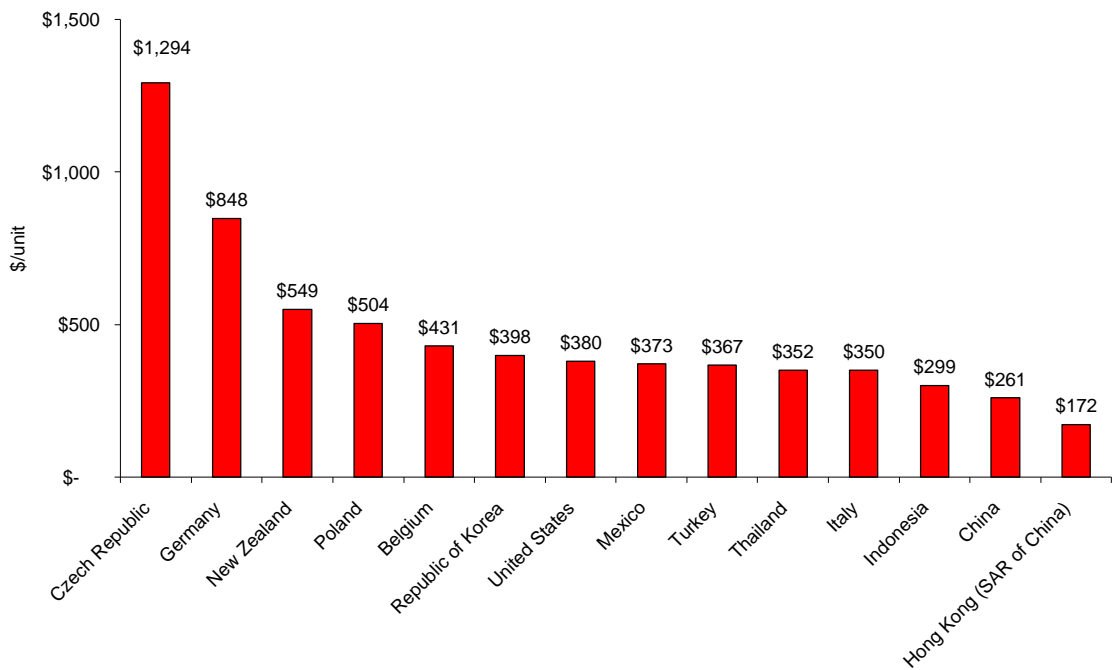
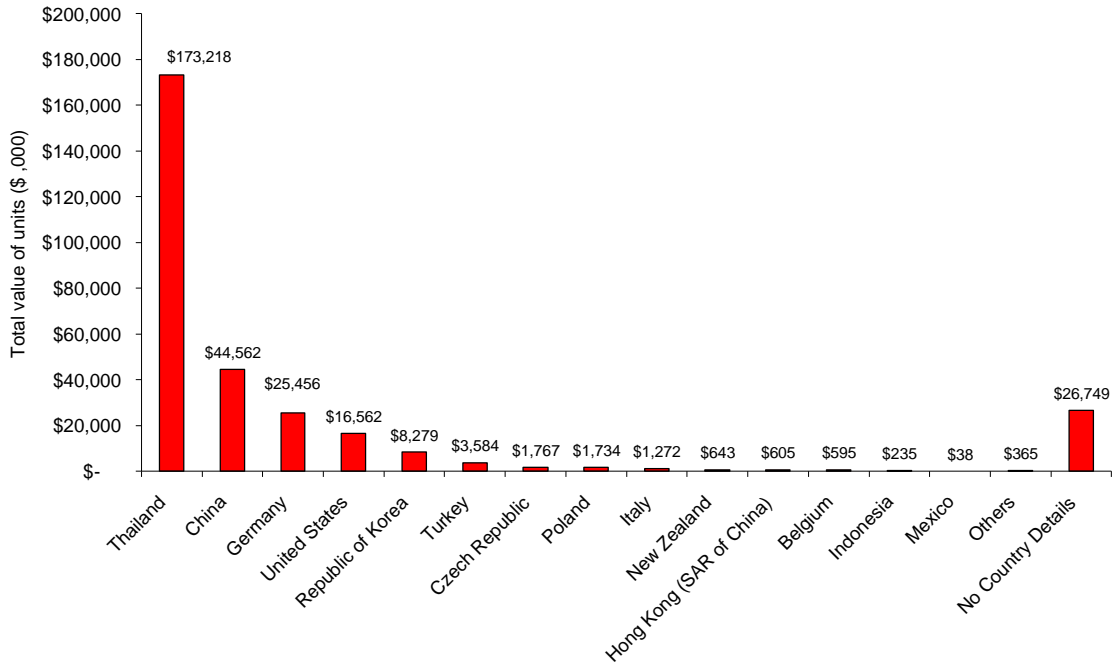
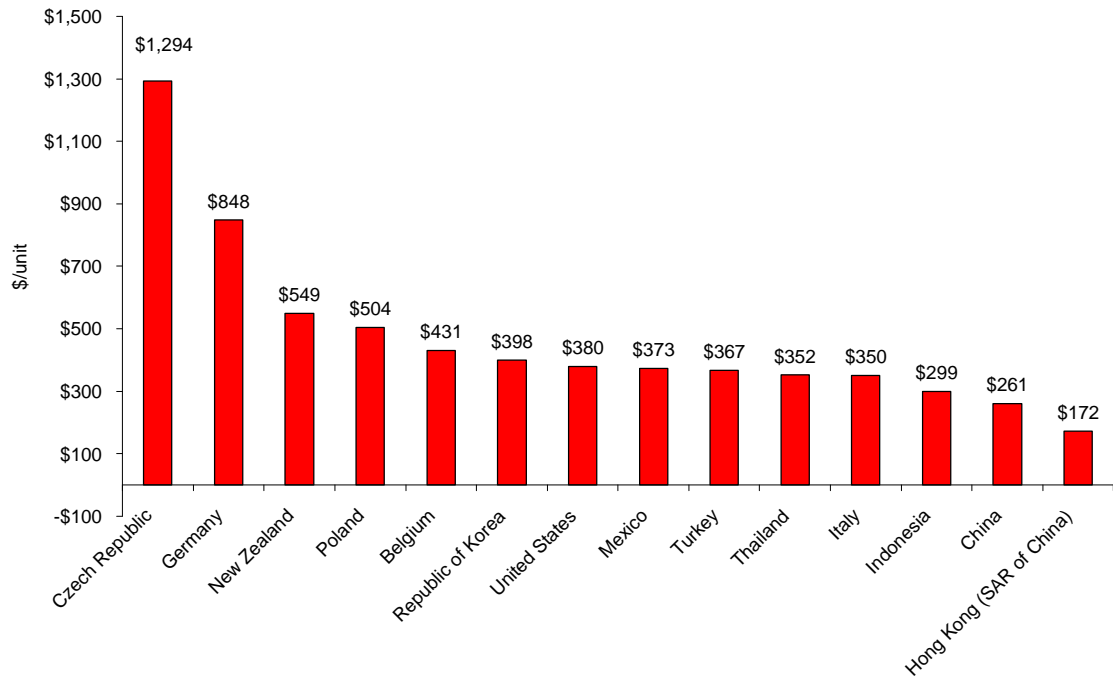


Figure 18 shows the average value per clothes washing machine by country of origin. In spite of the volume and value of imports from Thailand, the average declared value was in the middle of the range. The highest values per unit were for the Czech Republic (\$1,294) and Germany (\$848).

Figure 18 – Average value per clothes washing machine by country



## Lavatory equipment

Wilkenfeld estimated in 2004 that about 1 million toilets were sold each year in Australia.<sup>16</sup>

<sup>16</sup> George Wilkenfeld and Associates. 2004. Regulatory impact statement: proposed national system of mandatory water efficiency labelling for selected products. Source: <http://www.waterrating.gov.au/publications/pubs/ris.pdf>. Last accessed: 15 December 2009. Page 29.

### Lavatory equipment sample

Table 15 shows the frequency of different types of vertical integration within the sample for the lavatory equipment supply chain. Of the 11 participants, 27% were pure retailers, 18% were pure wholesalers, and 9% were pure manufacturers. The remaining 46% were vertically integrated to some extent, making this appear to be one of the least vertically integrated of the supply chains.

Table 15 – Lavatory equipment sample

Supply chain stages	Percentage of lavatory equipment participants (n=11)
Import / wholesale	27%
Retail	27%
Manufacture / import / wholesale	18%
Wholesale	18%
Manufacture	9%

### Lavatory equipment results

Table 16 summarises the information on the supply chain for lavatory equipment provided by participants to the survey. The survey data suggest that there are a number of medium-sized importer/wholesalers active in the supply chain.

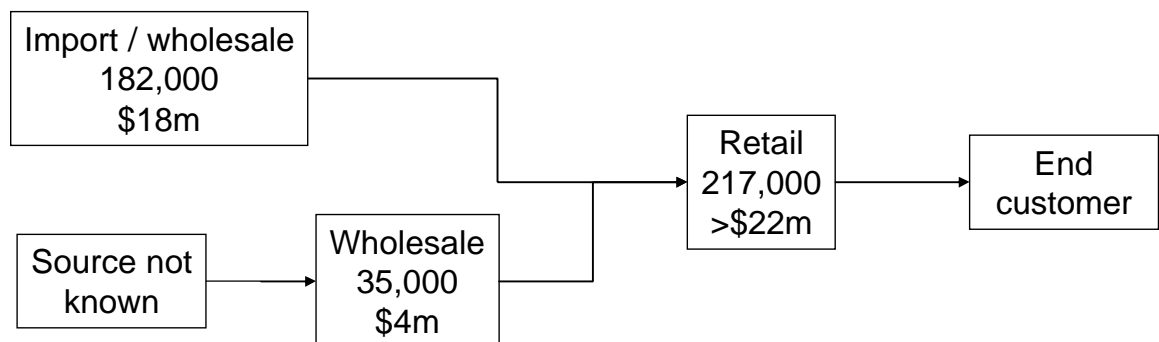
The typical unit price as an item left the wholesale stage of the supply chain was in the order of \$100 to \$110. The survey data suggests that about 217,000 units moved through the supply chain during 2008/09, which is well below the estimate provided by Wildenfeld in 2004. The reasons for this difference are not apparent, and the source of Wilkenfeld's estimate is not known. Based on the data provided by participants, the aggregate value of lavatory equipment as it left the wholesale stage was in the order of \$22 million in that year. The average retail value for lavatory equipment was in the order of \$250/unit.

Table 16 – Lavatory equipment supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Import / wholesale	\$100	182,000	84%	\$18,200,000
Wholesale	\$110	35,000	16%	\$3,813,260
Retail	\$245	No data	Not applicable	No data
Total units <sup>17</sup>		217,000		

Figure 19 shows the movement of lavatory equipment through the supply chain, as described by participants. While no manufacturers were identified among the participants, approximately 35,000 units whose origin is not known are shown at the wholesale stage.

Figure 19 – Supply chain for lavatory equipment



The survey participants identified products manufactured in Australia, but no quantities were given. Imports were identified as coming from Sweden, Germany and China.

### Urinal equipment

As noted by Fane et al., the urinals market is complex and diverse, consisting of urinals, flushing devices and sensors.<sup>18</sup> Urinals are typically stainless steel floor-mounted or wall-hung slab urinals, or wall-hung pods made of vitreous china or stainless steel. Flushing mechanisms can be manually operated, motion triggered, urine sensing and / or programmable. Beyond the point of sale, there is a variety of

<sup>17</sup> Estimates of total units are based on manufacture and imports.

<sup>18</sup> Information from Fayne supplied by DEWHA.

combinations of urinals and flushing mechanisms that could be used in a given situation.

### Urinal equipment sample

Table 17 shows that 25% of the sample for urinal equipment were purely wholesale, 12% were purely manufacturers, and 12% were purely retailers. The remaining 50% were vertically integrated to some extent.

Table 17 – Urinal equipment sample

Supply chain stages	Percentage of urinal equipment participants (n=8)
Manufacture / import / wholesale	25%
Import / wholesale	25%
Wholesale	25%
Manufacture	12%
Retail	12%

### Urinal equipment results

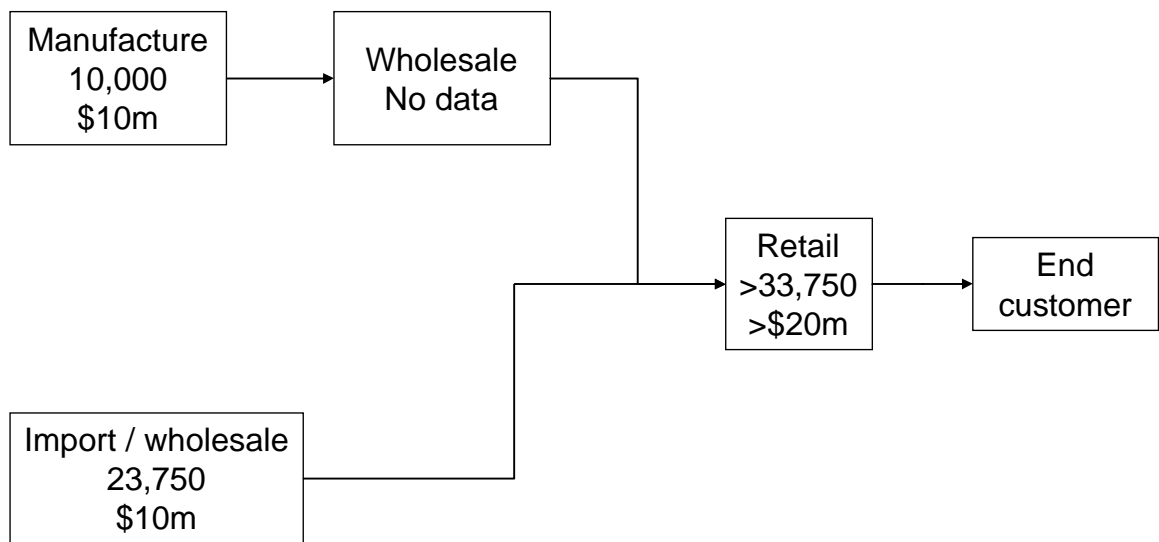
Table 18 summarises the survey data on the supply chain for urinal equipment, which suggests that approximately 34,000 units are manufactured or imported into Australia per year, in the ratio of about 30% manufactured versus 70% imported. The data also suggest that the units manufactured in Australia are larger, because their unit price is almost twice that of the imports. Verbatim comments indicated that many of the Australian-made units were custom-made to order. Based on the comments provided by participants, we believe that many of the Australian manufactured units were made from stainless steel. The total value of urinal equipment as it leaves the manufacture or wholesale stage was in the order of \$20 million. Following the supply chain after wholesaling is more difficult. The survey participants identified a small number of units moving through a purely wholesale stage, and we estimate that about 34,000 units move through the retail stage, but are unable to estimate their aggregate value at retail.

Table 18 – Urinal equipment supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Manufacture	\$1,000	10,000	30%	\$10,000,000
Import / wholesale	\$410	23,750	70%	\$9,737,500
Wholesale	\$404	100	Not applicable	\$40,400
Retail	\$480	No data	Not applicable	No data
Total units		33,750		

Figure 20 shows the movement of urinal equipment along its supply chain. It appears that a large volume of relatively low value units are imported, and a lower volume of higher value units are manufactured in Australia.

Figure 20 – Supply chain for urinal equipment



The data from the survey is not adequate to analyse the proportion of units coming from different countries of origin. Some units were manufactured in Australia, and some imports came from Sweden, Germany and China. An analysis of the DFAT data on the Customs classification that included urinal equipment is shown in Table 30 on page 69.

## Tap equipment

Wilkenfeld cited industry sources which estimated the total value of the market for taps at \$210 million per year in 2004.<sup>19</sup>

### Tap equipment sample

Table 19 summarises the composition of the sample for tap equipment. It shows that 11% were purely wholesalers and 11% were purely retailers, and the remaining 78% were vertically integrated to some extent.

Table 19 – Vertical integration in the tap equipment supply chain

Supply chain stages	Percentage of tap equipment participants (n=18)
Import / wholesale	44%
Manufacture / import / wholesale	17%
Wholesale	11%
Manufacture / wholesale	11%
Retail	11%
Import / retail <sup>20</sup>	6%

### Tap equipment results

Table 20 summarises the main features of the supply chain for tap equipment as described by the participants in the survey. The tap equipment supply chain appears to be made up of a limited number of large players, and a large number of small players.

Based on the results of the survey, approximately 580,000 units of tap equipment were manufactured or imported into Australia per year. The total value of tap equipment as it left the manufacture or wholesale stage of the supply chain was in the order of \$100 million.

<sup>19</sup> George Wilkenfeld and Associates. 2004. Regulatory impact statement: proposed national system of mandatory water efficiency labelling for selected products. Source: <http://www.waterrating.gov.au/publications/pubs/ris.pdf>. Last accessed: 15 December 2009. Page 35.

<sup>20</sup> This participant imported and retailed within its own organisation.

Table 20 – Tap equipment supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Manufacture	\$120	125,000	21%	\$15,000,000
Import / wholesale	\$187	458,182	79%	\$86,119,889
Total units		583,182		

Figure 21 summarises the information on the supply chain for tap equipment and shows that the supply chain is dominated by importer / wholesalers. While a large volume of tap equipment is manufactured in Australia, the participants did not provide any information on the number of units moving through the wholesale stage.

Figure 21 – Supply chain for tap equipment

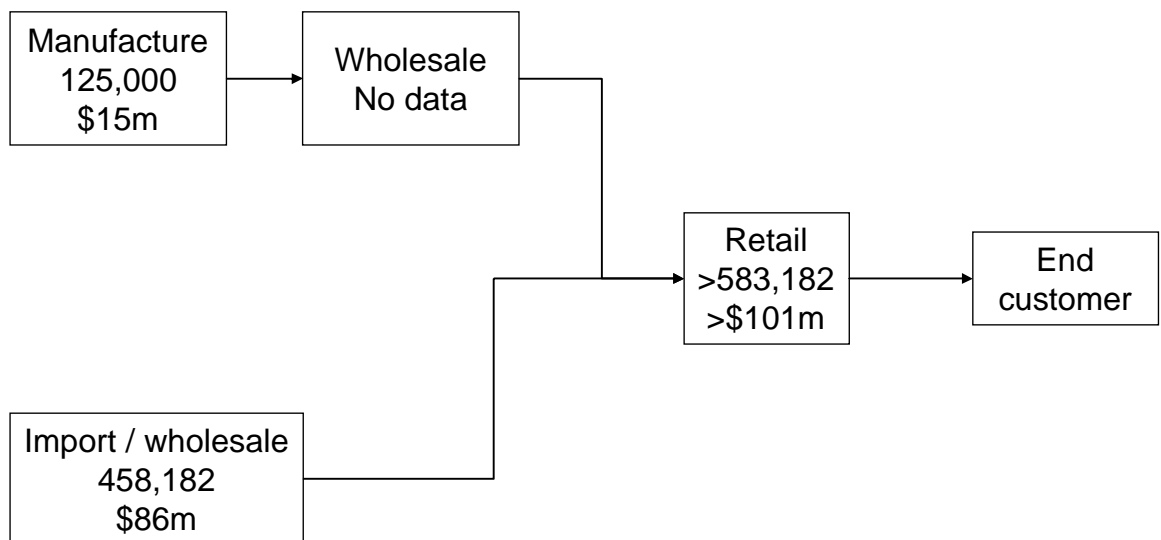


Table 21 shows that China dominates the supply of tap equipment (61%), with Australia providing 30% of tap equipment. The volume of supply coming from other countries was 8%.

Table 21 – Countries of origin for tap equipment

Source	Percentage
China	61%
Australia	30%
Other (undefined)	9%

## Flow controllers

### Flow controller sample

Table 22 summarises the composition of the sample for flow controllers and shows that 14% were purely wholesalers and 14% were purely retailers, and the remaining 72% were vertically integrated to some extent.

Table 22 – Flow controller sample

Supply chain stages	Percentage of flow controller participants (n=7)
Manufacture / wholesale	43%
Import / wholesale	29%
Wholesale	14%
Retail	14%

### Flow controller results

Table 23 summarises the data on the supply chain for flow controllers. The data provided by the survey participants suggests that approximately 900,000 flow controllers were manufactured in Australia or imported per year. The cost of flow controllers as they leave the manufacturing or wholesaling stage was in the range of \$2 to \$3. The total value of flow controllers as they leave the manufacture or wholesale stage of the supply chain was in the order of \$2 million.

Table 23 – Flow controllers supply chain

Stage of supply chain	Channel stage selling price (\$/unit)	Number of units via channel	Percentage of units via channel	Total value for each channel stage
Manufacture	\$2	500,000	56%	\$1,000,000
Import / wholesale	\$3	400,000	44%	\$1,200,000
Total units		900,000		

Figure 22 summarises the information on flow controllers provided by participants. Slightly more units were manufactured than imported, but there is no information on them as they pass through the wholesale and retail stages. From the comments provided, it appears that a large number of flow controllers are fitted to taps either at manufacture or at import, at which stage they become incorporated into the tap and effectively disappear from the supply chain.

Figure 22 – Supply chain for flow controllers

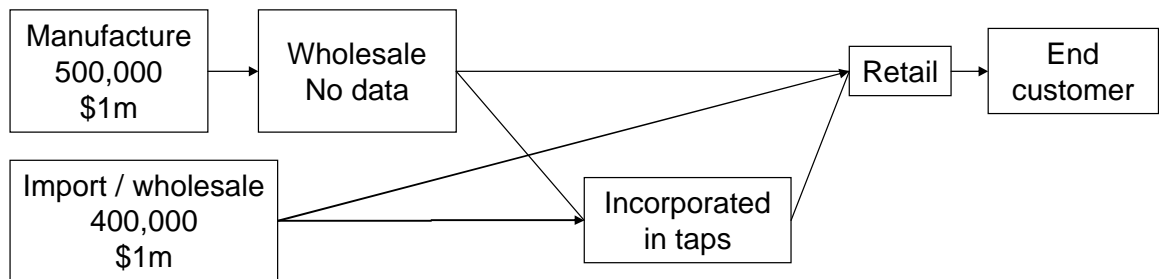


Table 24 shows that the survey data indicates that Australia was the main source of flow controllers, supplying 70% of the units. This data includes information on flow controllers that was not able to be included in the analysis in Table 23, because price data were not provided. As a result, only 56% of the units were identified as being manufactured in Australia in Table 23.

Table 24 – Countries of origin for flow controllers

Source	Percentage
Australia	70%
China	1%
Other (undefined)	29%

### Summary of data on volumes and values of units

Table 25 summarises the data on the volume of units moving through each stage of the supply chain for each product line.

Table 25 – Summary of the volume of products by supply channel stage

Stage in the supply chain	Showers	Tap equipment	Flow controllers	Urinal equipment	Lavatory equipment	Dish washers	Clothes washers
Manufacture	13,000	125,000	500,000	10,000	No data	No data	No data
Manufacture / import / wholesale	33,000	No data	No data	No data	No data	No data	No data
Import / wholesale	97,000	458,182	400,000	23,750	182,000	430,993	826,927
Import / retail	No data	No data	No data	No data	No data	4,353	8,352
Wholesale	No data	No data	No data	No data	35,000	No data	No data
Retail	143,000	583,182	900,000	33,750	217,000	435,346	835,279
Total units <sup>21</sup>	143,000	583,182	900,000	33,750	217,000	435,346	835,279

<sup>21</sup> Estimates of total units are based on manufacture and imports, which is assumed to be the number of units flowing through the retail stage of the supply chain.

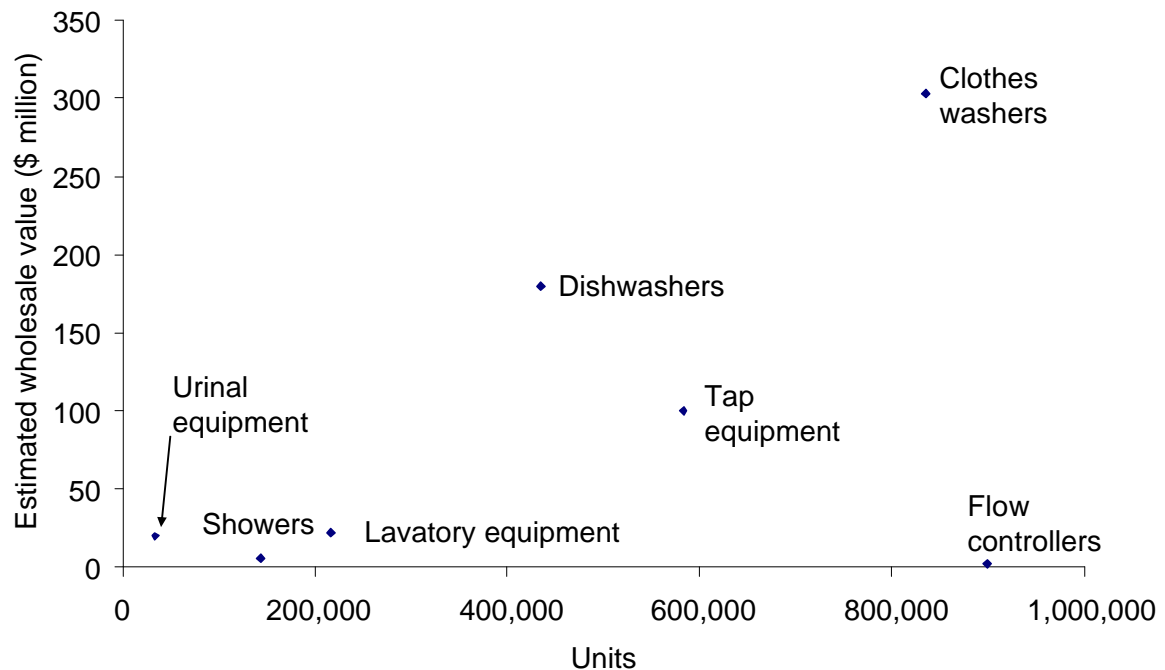
The aggregate value of all the product categories described by the participants as the products move through the wholesale stage is approximately \$630 million, as shown in Table 26. If we assume that the retail margin is in the order of 30%, the retail value is in the order of \$820 million.

Table 26 – Estimated wholesale value by product

	Wholesale value (\$ million)
Clothes washers	303
Dishwashers	180
Tap equipment	100
Lavatory equipment	22
Urinal equipment	20
Showers	6
Flow controllers	2
Total	633

Figure 23 combines the information on volumes and values for each product category. It shows that while there are large numbers of flow controllers, their aggregate value is low. In contrast, the large number of clothes washing machines represents a high aggregate value. Urinal equipment, showers and lavatory equipment represent modest numbers of units, and relatively low aggregate values.

Figure 23 – Volume and value by product



### Customs data

Customs data on import and export values was obtained for the following categories:<sup>22</sup>

- 39229003 Bidets, lavatory pans, flushing cisterns and similar sanitary ware, of plastics (excluding baths, shower-baths, sinks, wash basins and lavatory seats and covers)
- 39249000 Household articles (excluding tableware and kitchenware) and hygienic or toilet articles of plastics
- 69101000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures of porcelain or china
- 69109000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures (excluding of porcelain or china)
- 691190 Household articles (excluding tableware and kitchenware) and toilet articles of porcelain or china

<sup>22</sup> The number at the start of each category entry is the relevant Customs code.

- 73249000 Sanitary ware (excluding baths and stainless steel sinks and wash basins) and parts of iron or steel
- 74182000 Copper sanitary ware and parts thereof
- 84221100 Household dish washing machines
- 84501100 Fully automatic washing machines of a dry linen capacity not exceeding 10 kg
- 84501200 Washing machines with built-in centrifugal drier (excluding fully automatic) of a dry linen capacity not exceeding 10 kg
- 84501900 Washing machines (excluding fully-automatic or with built-in centrifugal drier) of a dry linen capacity not exceeding 10 kg
- 84819001 Parts for taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like (including pressure reducing valves and thermostatically controlled valves).

This was analysed to find, where available, net import quantities and values for the various categories, as shown in Table 27.

Table 27 – Net imports for 2008/09, by DFAT category

Net imports	Quantity	A\$ million
39229003 Bidets, lavatory pans, flushing cisterns and similar sanitary ware, of plastics (excluding baths, shower-baths, sinks, wash basins and lavatory seats and covers)	No data	\$14
39249000 Household articles (excluding tableware and kitchenware) and hygienic or toilet articles of plastics	No data	\$92
69101000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures of porcelain or china	1,402,032	\$68
69109000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures (excluding of porcelain or china)	423,921	\$23
691190 Household articles (excluding tableware and kitchenware) and toilet articles of porcelain or china	No data	\$(0)
73249000 Sanitary ware (excluding baths and stainless steel sinks and wash basins) and parts of iron or steel	No data	\$26
74182000 Copper sanitary ware and parts thereof	No data	\$17
84221100 Household dish washing machines	435,347	\$180
84501100 Fully automatic washing machines of a dry linen capacity not exceeding 10 kg	820,330	\$301
84501200 Washing machines with built-in centrifugal drier (excluding fully automatic) of a dry linen capacity not	12,654	\$3

exceeding 10 kg		
84501900 Washing machines (excluding fully-automatic or with built-in centrifugal drier) of a dry linen capacity not exceeding 10 kg	2,626	\$(0)
84819001 Parts for taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like (including pressure reducing valves and thermostatically controlled valves)	No data	\$1,124

The categories used by DFAT do not precisely match the various WELS categories, as not all the products included in the DFAT categories are subject to WELS. We are not able to estimate with confidence the ratio of WELS to non-WELS products within these other categories.

In addition, some of the DFAT categories do not have counts of the items, and are shown as 'No data' in the net imports column. The following section provide data on the countries from which some of these classes of items are imported, and those to which they are exported. No data were available on the number that are imported and then re-exported.

Table 28 summarises the DFAT data on countries of origin, quantities and values of plastic lavatory equipment. The largest volume and value was from China, which supplied more than twenty times the number of items from Germany, the next largest source.

Table 28 – DFAT data imports of plastic lavatory component

39229000 Bidets, lavatory pans, flushing cisterns and similar sanitary ware, of plastics (excluding baths, shower-baths, sinks, wash basins and lavatory seats and covers)	Quantity	A\$'000
China	762,215	\$6,537
Germany	32,188	\$2,054
Netherlands	28,752	\$1,756
Italy	24,245	\$1,427
Malaysia	56,319	\$1,156
Taiwan	62,169	\$980
New Zealand	26,936	\$708
Republic of Korea	3,639	\$663
United States	91,543	\$627
United Kingdom	27,030	\$586
Switzerland	5,967	\$400
Denmark	2,980	\$326
Canada	4,302	\$240
Indonesia	2,448	\$117
Philippines	893	\$106
Turkey	1,878	\$75
Singapore	4,940	\$74
Japan	740	\$63
Hong Kong (SAR of China)	3,097	\$57
Other	5,770	\$124
All countries	1,148,273	\$18,085

Table 29 summarises the DFAT data on exports of plastic lavatory equipment. No data were available on the number of items. The major destination was New Zealand, which took over half of the value of these exports.

Table 29 – DFAT data on exports of plastic lavatory component

39229003 Bidets, lavatory pans, flushing cisterns and similar sanitary ware, of plastics (excluding baths, shower-baths, sinks, wash basins and lavatory seats and covers)	Quantity	A\$'000
New Zealand	No data	\$2,877
Malaysia	No data	\$185
Greece	No data	\$179
United Kingdom	No data	\$142
New Caledonia	No data	\$141
Papua New Guinea	No data	\$112
India	No data	\$74
Macau (SAR of China)	No data	\$74
Canada	No data	\$73
Reunion	No data	\$71
Belgium	No data	\$62
China	No data	\$62
Cambodia	No data	\$58
Hong Kong (SAR of China)	No data	\$56
Brunei	No data	\$53
Other	No data	\$253
All countries	No data	\$4,468

Table 30 summarises the DFAT data on imports of items in the class which includes urinals and sanitary fixtures made of porcelain or china. The major sources were China and Malaysia, which supplied more than 1 million items with a value greater than \$45 million.

Table 30 – DFAT data on imports of the class which includes urinals and sanitary fixtures of porcelain or china

69101000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures of porcelain or china	Quantity	A\$'000
China	800,917	\$33,970
Malaysia	337,438	\$11,670
Italy	29,215	\$4,459
Germany	31,395	\$4,092
United Kingdom	54,122	\$2,644
Thailand	46,115	\$2,575
United Arab Emirates	47,870	\$2,360
Indonesia	60,004	\$1,802
Hungary	16,450	\$1,705
Spain	16,082	\$1,586
Romania	5,014	\$949
Turkey	20,014	\$850
France	5,658	\$750
Austria	2,015	\$530
Hong Kong (SAR of China)	11,106	\$519
Sweden	3,919	\$515
Netherlands	765	\$494
Denmark	1,481	\$426
Switzerland	555	\$139
United States	8,163	\$138
Czech Republic	597	\$85
Portugal	1,185	\$76
Taiwan	968	\$58
Other	4,865	\$239
All countries	1,505,935	\$72,637

Table 31 summarised DFAT data on exports of items in the class which includes urinals and sanitary fixtures made of porcelain or china. The major destinations were New Zealand and Papua New Guinea, which accounted for almost 100,000 items with a value of over \$4 million.

Table 31 – DFAT data on exports of the class which includes urinals and sanitary fixtures of porcelain or china

69101000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures of porcelain or china	Quantity	A\$'000
New Zealand	61,650	\$3,466
Papua New Guinea	35,925	\$861
China	530	\$106
Hong Kong (SAR of China)	319	\$73
Cambodia	42	\$67
United Kingdom	16	\$65
Macau (SAR of China)	80	\$55
United Arab Emirates	140	\$52
Other	5,187	\$294
<b>All countries</b>	<b>103,903</b>	<b>\$5,039</b>

Table 32 summarises the DFAT data on imports of items in the class which includes urinals and similar sanitary fixtures that are not made of porcelain or china. The major source was China, with approximately 350,000 items with a value of almost \$14 million.

Table 32 – DFAT data on imports of the class which includes urinals and sanitary fixtures not made of porcelain

69109000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures (excluding of porcelain or china)	Quantity	A\$'000
China	346,992	\$13,614
Italy	30,052	\$4,303
Thailand	44,211	\$2,997
Turkey	22,566	\$1,341
Malaysia	15,057	\$552
United Kingdom	1,794	\$377
Hungary	3,406	\$371
Spain	2,179	\$331
Portugal	2,448	\$286
Indonesia	4,677	\$220
Hong Kong (SAR of China)	5,402	\$157
Germany	803	\$128
New Zealand	1,308	\$93
France	846	\$91
United Arab Emirates	1,317	\$65
Austria	132	\$55
Other	2,929	\$123
<b>All countries</b>	<b>486,176</b>	<b>\$25,159</b>

Table 33 summarises the DFAT data on exports of items in the class which includes urinals and similar sanitary fixtures that are not made of porcelain or china. The major destinations were New Zealand, Papua New Guinea and Fiji.

Table 33 – DFAT data on exports of the class which includes urinals and sanitary fixtures not made of porcelain

69109000 Ceramic sinks, wash basins, baths, bidets, urinals and similar sanitary fixtures (excluding of porcelain or china)	Quantity	A\$'000
New Zealand	13,695	\$799
Papua New Guinea	18,683	\$364
Fiji	12,861	\$294
Singapore	6,590	\$184
United States	1,630	\$121
Vanuatu	6,398	\$85
Republic of Korea	209	\$77
Germany	180	\$61
Other	2,007	\$130
All countries	62,255	\$2,119

Table 34 summarises the DFAT data on imports of tap related components. The largest volume was from China (30 million items) but the highest value was from the United States (\$190 million). No data were available from DFAT on the export of these components.

Table 34 – DFAT data on imports of tap related components

84818090 Other taps, cocks and similar appliances for pipes, boiler shells, tanks and vats	Quantity	A\$'000
United States	11,831,867	\$193,849
China	30,476,531	\$165,893
Italy	5,065,859	\$92,423
Germany	2,765,412	\$78,186
Singapore	4,961,271	\$68,774
Malaysia	2,333,211	\$57,940
United Kingdom	1,267,556	\$52,624
Japan	2,500,012	\$37,882
Taiwan	1,488,674	\$27,062
Spain	1,226,255	\$22,860
Republic of Korea	1,120,912	\$19,719
France	227,809	\$17,350
India	798,532	\$15,640
Mexico	414,563	\$14,694
Denmark	305,598	\$13,325
Sweden	338,632	\$12,894
New Zealand	1,178,233	\$12,084
Thailand	14,561,755	\$12,056
Netherlands	1,033,611	\$11,415
Switzerland	160,432	\$10,214
Norway	8,602	\$10,045

84818090 Other taps, cocks and similar appliances for pipes, boiler shells, tanks and vats	Quantity	A\$'000
Canada	74,494	\$9,078
Israel	486,252	\$7,987
Australia	45,827	\$5,988
Finland	10,892	\$4,612
South Africa	53,389	\$3,604
Indonesia	30,284	\$3,487
Austria	78,087	\$3,083
Belgium	39,564	\$2,715
Czech Republic	44,935	\$2,615
Brazil	60,450	\$2,129
Turkey	28,125	\$2,040
Hong Kong (SAR of China)	1,952,611	\$1,598
Hungary	19,176	\$1,210
Ireland	1,362	\$881
Vietnam	75,239	\$845
Romania	121	\$807
New Caledonia	9	\$749
Luxembourg	12,629	\$556
Poland	8,368	\$532
Argentina	3,772	\$415
United Arab Emirates	1,241	\$390
Chile	3,767	\$308
Bulgaria	2,579	\$254
Portugal	2,953	\$216
Slovak Republic	1,062	\$178
Philippines	1,707	\$94
Slovenia	1,619	\$83
Malta	8,802	\$70
Antigua & Barbuda	23,572	\$65
Other	8,724	\$196
All countries	87,146,939	\$1,003,710

Table 35 summarises the data for the class of items which includes parts for taps and valves which are not specified elsewhere in the Customs categories. Based on the description of this class, it is not clear what proportion would fall into a WELS category. The largest supplier by value was the United States, followed by China. No data were available on quantities.

Table 35 – DFAT data on imports of parts for taps and related items

84819090 Parts for taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like (excluding parts for hydraulic control valves for agricultural tractors or parts of valves for use with aerosol containers)	Quantity	A\$'000
United States	No data	\$34,142
China	No data	\$28,110
Germany	No data	\$16,121
United Kingdom	No data	\$15,622

84819090 Parts for taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like (excluding parts for hydraulic control valves for agricultural tractors or parts of valves for use with aerosol containers	Quantity	A\$'000
Singapore	No data	\$8,534
Malaysia	No data	\$8,310
Taiwan	No data	\$7,406
Italy	No data	\$6,351
Japan	No data	\$6,157
Denmark	No data	\$5,458
New Zealand	No data	\$5,323
South Africa	No data	\$5,096
Switzerland	No data	\$4,503
India	No data	\$3,733
Republic of Korea	No data	\$2,614
Canada	No data	\$2,339
Netherlands	No data	\$2,250
Israel	No data	\$1,253
Indonesia	No data	\$1,176
Sweden	No data	\$945
Norway	No data	\$816
France	No data	\$773
Thailand	No data	\$674
Austria	No data	\$563
Finland	No data	\$424
Australia	No data	\$422
Hong Kong (SAR of China)	No data	\$422
Spain	No data	\$405
Belgium	No data	\$339
Mexico	No data	\$286
United Arab Emirates	No data	\$179
Brazil	No data	\$144
Luxembourg	No data	\$120
Poland	No data	\$89
Argentina	No data	\$76
Ireland	No data	\$71
Vietnam	No data	\$59
Czech Republic	No data	\$56
Other	No data	\$222
All countries	No data	\$171,579

Table 36 summarises the DFAT data on exports of parts for taps, which includes pressure reducing valves and thermostatically controlled valves, which could include items covered by WELS. The major destinations by value were the United States, New Zealand and Thailand, but there were a large number of other destinations with smaller values. No data were available on the quantities exported.

Table 36 – DFAT data on exports of parts for taps and related items

84819001 Parts for taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like (including pressure reducing valves and thermostatically controlled valves)	Quantity	A\$'000
United States	No data	\$8,945
New Zealand	No data	\$5,235
Thailand	No data	\$5,153
New Caledonia	No data	\$3,657
Malaysia	No data	\$3,512
China	No data	\$3,351
United Kingdom	No data	\$3,289
Papua New Guinea	No data	\$3,267
Japan	No data	\$2,453
Germany	No data	\$1,193
Philippines	No data	\$1,164
India	No data	\$1,089
South Africa	No data	\$918
Singapore	No data	\$891
Indonesia	No data	\$802
Chile	No data	\$435
Taiwan	No data	\$434
Czech Republic	No data	\$431
French Polynesia	No data	\$373
International Waters	No data	\$331
Hong Kong (SAR of China)	No data	\$303
Norway	No data	\$282
Egypt	No data	\$257
United Arab Emirates	No data	\$257
Tanzania	No data	\$254
Italy	No data	\$225
Zambia	No data	\$223
Fiji	No data	\$161
Angola	No data	\$146
France	No data	\$145
Sri Lanka	No data	\$107
Switzerland	No data	\$106
Denmark	No data	\$94
Brazil	No data	\$88
Cuba	No data	\$85
Ghana	No data	\$81
Republic of Korea	No data	\$81
Sweden	No data	\$79
Venezuela	No data	\$77
Netherlands	No data	\$70
Kenya	No data	\$62
Trinidad & Tobago	No data	\$51
Pakistan	No data	\$50
Other	No data	\$598
All countries	No data	\$50,804

## Copper sanitary ware and parts

DFAT also provided data on imports and exports of copper sanitary ware, which is summarised in Table 37 and Table 38. While data on the numbers of items making up this category were not available, the imports were \$17 million and the exports were approximately \$0.4 million, so Australia was a net importer of these products.

Table 37 – DFAT data on imports of copper sanitary ware

74182000 Copper sanitary ware and parts thereof	Quantity	A\$'000
China	No data	\$12,982
Taiwan	No data	\$1,595
Italy	No data	\$1,149
Hong Kong (SAR of China)	No data	\$298
Indonesia	No data	\$259
India	No data	\$158
Thailand	No data	\$111
Germany	No data	\$110
United Kingdom	No data	\$55
Other	No data	\$187
All countries	No data	\$16,902

Table 38 – DFAT data on exports of copper sanitary ware

74182000 Copper sanitary ware and parts thereof	Quantity	A\$'000
New Zealand	No data	\$268
China	No data	\$64
Other	No data	\$40
All countries	No data	\$373

## WELS SUPPLIERS IN AUSTRALIA

Attempts were made to quantify WELS suppliers in Australia through:

- ABS Australian business counts
- MMA supplier lists.

The results are discussed briefly in the following sections.

### ABS Australian business counts

Using the ABS classifications which appear to best relate to WELS, data was collected on the number of businesses active at the end of the financial year 2006/07. This data is reproduced in Table 39.

The most numerous category contained domestic appliance retailers, of which there were over 12,000 businesses. The second most numerous were fabricated metal product manufacturers, with over 7,000 businesses. While this is a diffuse class, many of these firms would be able to carry out part of the manufacturing process for products such as taps, showers and flow controllers. The third most numerous category was building supplies wholesalers, with over 6,000 businesses. Again, this is a diffuse category, and we have no information of the number of these businesses that were likely to have wholesaled WELS products. There were just over 800 household appliance wholesalers, and just under 800 household appliance manufacturers. There were over 300 manufacturers of ceramic products, which could include toilet bowls. There were only 54 manufacturers of non-ferrous pipe fittings, which could include taps and tap components.

Table 39 – Business counts based on ABS data

Supply chain stage	Relevant classifications from 8165.0 - Based on old ANZSIC codes (1993)	Number of businesses operating at end 2006/07
Manufacturing	2851 Household appliance manufacturing	795
	2629 Ceramic product manufacturing n.e.c.	336
	2765 Non-ferrous pipe fitting manufacturing	54
	2769 Fabricated metal product manufacturing n.e.c.	7,293
Wholesaling	4539 Building supplies wholesaling n.e.c.	6,174
	4731 Household appliance wholesaling	810
Retailing	5234 Domestic appliance retailing	12,378

Based on this analysis, we recommend that these numbers be viewed as indicative of the maximum potential number of businesses that could be involved in the manufacturing, wholesaling and retailing activities. The survey data and MMA supplier list data (discussed in the next section) suggest that the number of businesses active in WELS products is a small percentage of these potential numbers. However, in terms of communicating the requirements of WELS, these data show that the retail sector is the most numerous group to address, and therefore probably warrants the most effort.

### MMA supplier lists

Attempts to compile comprehensive supplier lists were frustrated by the level of partial horizontal and vertical integration, which was also identified in the interview data. This meant that companies could not be accurately allocated to either distinct stages of the supply chain, or discrete product supply chains, as they typically operated in more than one supply chain stage, and in more than one product category. The situation was exacerbated by the often poor quality of data in many of the secondary sources, such as out of date information, exaggerated claims on behalf of individual organisations, the holding of multiple brands by some entities and the low visibility of some entities.

Supplier lists were compiled using data from the following sources:

- Yellow Pages
- Business Who's Who
- Kompass
- Association membership lists or directories, including:
  - NSW Master Plumbers
  - MasterPlumbers.com
  - Independent Plumbing Suppliers
  - Appliance Industry Association
- Yahoo and other online directories.

A total of 1,266 businesses were identified as Australian suppliers of WELS whitegoods, while 1,835 plumbing product businesses were found.

As could be expected, for both business types, greater numbers operated within the more populous eastern states.

Many businesses operated across different states, different areas of the supply chain, or under multiple ABNs, making the actual number of suppliers involved with WELS products difficult to estimate.

Table 40 shows the number of the suppliers of whitegoods, and the number of the suppliers of plumbing goods, by state and territory, that are included on MMA's lists of suppliers.

Table 40 – Number of suppliers, by state and territory

State	Whitegoods suppliers	Plumbing suppliers
NSW	432	658
VIC	390	515
QLD	246	394
WA	126	156
SA	113	143
TAS	28	53
ACT	24	27
NT	18	15
Estimate for whole of Australia <sup>23</sup>	1,266	1,835

Table 41 summarises the number of suppliers of plumbing goods, by category, by state and territory.

Table 41 – Number of suppliers within plumbing categories, by state and territory<sup>24</sup>

	NSW	VIC	QLD	WA	SA	TAS	ACT	NT
Plumbers' supplies or SIC code 3088, 3429, 5074, 5251	382	311	232	95	93	31	12	10
Bathroom equipment and accessories - wholesalers and manufacturers or SIC codes 3261, 3431, or sanitaryware	93	73	52	22	14	6	4	2
Bathroom equipment and accessories - retail	267	197	164	58	50	26	16	10
Tap wholesalers and manufacturers or SIC codes 3432, or tapware	16	19	18	6	8	1	-	1

<sup>23</sup> Note that some suppliers operate in more than one state or territory, so the total number operating within Australia is less than the sum of the number within each state and territory.

<sup>24</sup> Note that the total number of suppliers within each state will be greater in this table than in Table 40, as some suppliers are included in more than one plumbing category.

Table 42 shows the total number of suppliers within each plumbing category, within Australia, compared to the number given in 2009 Australian Business Directory.<sup>25</sup> The greatest difference is for bathroom equipment and accessories retailers. This suggests that there may be a number of retailers which supply, but do not specialise in, WELS products, and therefore do not highlight this area in their advertising.

Table 42 – Number of suppliers within plumbing categories, Australia

	MMA list <sup>26</sup>	Australian Business Directory
Plumbers' supplies or SIC code 3088, 3429, 5074, 5251	1,089	1,255
Bathroom equipment and accessories - wholesalers and manufacturers or SIC codes 3261, 3431, or sanitaryware	221	255
Bathroom equipment and accessories - retail	697	1,816
Tap wholesalers and manufacturers or SIC codes 3432, or tapware	81	60

<sup>25</sup> 2009 Australian Business Directory is a marketing database sold by Custom Lists, which lists businesses using the same business categories as used by Yellow Pages. It contains 1,816,565 listings for 1.4 million unique Australian businesses. (Some businesses are listed under multiple categories.)

<sup>26</sup> Note that these totals are not the sum of the number of suppliers within each state and territory, as shown in Table 40, as some suppliers operate in more than one state or territory.

## OTHER DATA SOURCES

Extensive searching for data on WELS products was performed across a range of sources, as summarised in Table 43. Search efforts were concentrated on WELS plumbing products, as less was known by the Department about the plumbing product markets, than the whitegoods markets.

Table 43 – Secondary data searches

Sources	Examples	Outcomes
Australian Bureau of Statistics (ABS)	Household water use and consumption reports for Australia and individual states.	Data on the number of households with some water saving devices and the number of businesses in various WELS sectors in 2006/07 were obtained.
Annual and other public company reports	Annual reports from companies listed on the Australian stock market, such as GWA International, Crane Group and Reece.	Companies did not provide breakdowns of sales or turnover by product type, and annual turnover could not be disaggregated to show WELS products only.
Trade periodicals	Plumbing Connection and industry association newsletters and journals, like Australian Plumbing Industry Magazine	Trade periodicals did not contain market data, or numbers or values of products.
Consumer publications	Choice magazine	Product reviews of WELS appliances were common, but market data were not included.
Reports on retrofit or rebate programs	Reports on Sydney Water's WaterFix retrofit program, running since 2000.	Some data on the numbers of products installed under the programs is available, but limited to program recipients, and the particular products supplied.
Industry reports	HIA and Reed building and construction data, for example, HIA Kitchens and bathroom report – past and future prospects, 2008/09	The kitchen and bathroom report contains some information on annual changes in materials usage, for example, different types of tapware, but numbers or dollar values of products used were not provided and the data was only presented as an increase or decrease compared to the previous two years.

Sources	Examples	Outcomes
Other	Businesses' annual reports for The National Packaging Covenant  Trademark hearings, IPAustralia	These tended to contain references to WELS product sales figures only.

### Other potential sources of market data

Several industry reports covering aspects of the Australian WELS product market are available for sale. No reports were found to cover WELS products exclusively or comprehensively.

This section discusses the reports sold by:

- BRG Consult
- IBISWorld
- Freedonia.

### BRG Consult report

The most relevant report to this supply chain study is a BRG Consult publication, called Australian bathrooms 2008. BRG Consult is a UK based market research consultancy which specialises in heating and bathroom products, producing regular bathroom industry reports for Europe, America and some other countries around the world. The first and only Australian bathroom report by BRG Consult to date was published earlier this year. It includes sections on:

- Distribution
- Ceramic sanitary ware and alternatives
- Taps and mixers.

It also contains some manufacturer and distributor profiles as appendices.

### IBISWorld

IBISWorld produces a range of Australian industry reports which are produced in a standard format covering:

- information on the report
- key statistics

- segmentation
- market characteristics
- industry conditions
- key factors
- key competitors
- industry performance
- outlook
- news.

The IBISWorld reports which include areas of the WELS products supply chain are shown in Table 44.

Table 44 – IBISWorld reports

Industry code	Report title	Date published	Report segments relating to WELS products
F4539	Building supplies wholesaling	September 2009	Plumbing supplies
C2629	Ceramic sanitary ware and other ceramic product manufacturing in Australia – Industry report	November 2008	Ceramic sanitary ware
C2765	Non-ferrous pipe fitting manufacturing in Australia – Industry report	June 2009	Taps
C2759	Sanitary ware and other sheet metal product manufacturing in Australia	May 2009	Metal sanitary ware

The market information included in the IBISWorld reports is aggregated, market-wide data.

## Freedonia

In 2007, Freedonia published a market study on the global plumbing industry, titled World plumbing to 2010. It includes historical demand data and forecasts by plumbing product type. Chapter six is dedicated to the Asia/ Pacific region, and there are sections that specifically focus on Australia.

The following Australian sections were purchased separately, and form the basis of the next section:

- Australia: Plumbing product demand by market (text)
- Australia: Plumbing product demand by market 1995-2015 (table)
- Australia: Plumbing product supply and demand (text)
- Australia: Plumbing product supply and demand 1995-2015 (table).

Demand for plumbing fixtures in Australia is forecast to expand 4.2% per annum through 2010 to more than US\$280 million. Opportunities will be strong for applications in the improvement and replacement of existing kitchen and bath facilities in residential units. Construction of new housing will also contribute to growth. Concerns about water conservation will contribute to efforts in the retrofit segment.

Demand for plumbing fittings in Australia is expected to rise 2.3% per year through 2010 to more than US\$130 million. Opportunities for plumbing fittings will be provided by aesthetically driven replacement of existing fittings. In appeals to affluent consumers, manufacturers have increasingly tried to market plumbing fittings as aesthetic items in hopes of generating replacement before the end of the fitting's useful life.

Shipments of plumbing products from facilities in Australia are forecast to expand 3.5% annually through 2010 to nearly US\$400 million. Increases will be fostered by a combination of domestic demand and export gains.

Australia is home to GWA International, which dominates the Australian and New Zealand plumbing fixture market. The company's Caroma unit has also introduced its dual-flush technology toilets to the US. Because of the propensity for drought in Australia, local plumbing manufacturers have been at the forefront of research into water-conserving fixtures, including waterless urinals."

The report also provided the data shown in Table 45, which included projections for 2010 and 2015. The values are in US\$ for using 2000 dollars. We have not converted the data to Australian dollars because we do not know what conversion rate was used in the preparation of the original data. Data on the volume of units was not provided by Freedonia.

Table 45 – Data from Freedonia on Australian plumbing product supply and demand (US\$ million, Y2000 dollars)

Item	1995	2000	2005	2010	2015
Fixtures:					
Bathtubs and showers	46.2	58.3	88.7	110.5	141.5
Toilets	34.7	42.4	62.6	77.0	98.0
Sinks	32.3	39.2	56.1	67.0	80.0
Other	13.3	16.1	23.6	29.5	37.5
Total fixtures	126.5	156.0	231.0	284.0	357.0
Fittings:					
Bathtub and shower	19.3	21.9	26.1	29.5	33.0
Lavatory	18.7	21.3	25.3	29.0	33.0
Kitchen and other sink	16.8	19.4	22.9	25.5	27.5
Other	32.4	37.6	42.9	47.0	52.5
Total fittings	87.2	100.2	117.2	131.0	146.0
Plumbing product demand	213.7	256.2	348.2	415.0	503.0
Net exports	-8.5	-11.0	-13.0	-16.0	-19.0
Plumbing product manufacturing	205.2	245.2	335.2	399.0	484.0

### Data collection by industry – potential development options

One of the expectations at the outset of this study was that the industry players would have access to accurate aggregate data on WELS products. However, it soon became clear that no one body currently collects or collates this data. Unlike other industries, which have one main peak body representing them, the plumbing industry has a large number of industry associations, which means that there is no single clear candidate for the role of data collection. One good example of data collection by industry is the Australian Food and Grocery Council (AFGC). Though dealing exclusively with fast moving consumer goods (FMCG) in a less complex supply chain, the AFGC coordinated a syndicate of the largest market players in the supermarket supply chain, who provided monthly sales data by state in a range of product categories. This data was aggregated and analysed regularly, then distributed to all the contributors. This allowed the industry to quickly track sales trends from month to month, to make seasonal forecasts, and to assess the impact of external changes. The air conditioner industry also produces regular reports in this manner.

During our searches for data sources, we encountered a number of organisations which have an interest in WELS products or operate in peripheral, but related areas, such as the various plumbing industry bodies. We suggest that DEWHA consider working with these organisations to form an affiliated approach to data collection, in order to establish methods for obtaining comprehensive data on the WELS products markets in the future. This will allow greater analysis of the impact of WELS in the future.

Table 46 summarises the types of organisations encountered during the course of this project, and the ways in which they are likely to be of assistance to WELS, should such a relationship be established. We also note that representatives of many of the organisations we spoke to were supportive of WELS and willing to assist, but simply did not have aggregated WELS product specific data to provide for this study.

Table 46 – Potential organisations for data collection

Type of organisation	Examples	Potential
Government	Australian Bureau of Statistics (ABS)	While we understand the resourcing is limited for specialised surveys, it may be worth discussing the coverage of future issues of periodical surveys, such as the water conservation issues of Australia’s environment: issues and trends, Cat. no. 4613.0
Plumbing associations	Master Plumbers and Mechanical Services Association of Australia (MPMSAA), including GreenPlumbers  Plumbing Industry Climate Action Centre (PICAC)	These associations could provide plumbers’ perspectives on WELS product use and water efficient plumbing market, as well as end-user behaviour and trends.  The larger associations may be willing to either coordinate or contribute to syndicate reporting of WELS product sales.
Building and construction associations	Housing Industry Association (HIA)	HIA collects extensive housing construction and renovation data and may be willing to produce some WELS product specific data.
Private construction researchers	Reed Construction Data	Although this is likely to be a commercial relationship, it is possible that a specialised WELS-related data provision could be negotiated.

Table 46 – Potential organisations for data collection

Water authorities and local councils	Sydney Water Yarra Valley Water	Water authorities and local councils will often collect information on the water efficient products in use within their jurisdictions, especially when running retrofit programs. Some long running programs, such as Sydney Water's, collect the numbers of each type of product fitted under the program, by year.
Private businesses	All participants in the WELS supply chain	Businesses could be encouraged to participate in syndicate reporting of WELS product sales.

## CHALLENGES

We faced a number of unexpected challenges during this assignment, which have already been discussed throughout this report. Those challenges have been collated into one section below.

Challenges encountered in the interviews with stakeholder associations included the following:

- due to the large number of rival stakeholder associations within the plumbing industry, no one entity currently collects accurate industry data. This meant that participants from the stakeholder organisations were unable to provide meaningful quantitative information on the supply chain.

Challenges encountered in the interviews with suppliers included the following:

- several participants preferred not to provide the sales data we sought for confidentiality reasons, or were prevented by company policy from doing so for commercial reasons
- a number of participants provided rounded data, for example, in millions of units or millions of dollars
- a number of participants gave estimates of their market shares that were overly optimistic.

Challenges encountered with the secondary data collection included the following:

- the categories used by DFAT do not precisely match the various WELS categories, as not all the products included in the DFAT categories are subject to WELS. This meant that Customs data could only be used only for dishwashers and clothes washing machines, as we were not able to estimate with confidence the ratio of WELS to non-WELS products within these other categories
- some of the DFAT categories did not have counts of the items, and were shown as 'No data' in the net imports column
- the unexpectedly poor quality of data in many of the secondary sources, such as out of date information, exaggerated claims on behalf of individual organisations, the holding of multiple brands by some entities and the low visibility of some entities hindered the compilation of comprehensive supplier lists, as companies could not be accurately allocated to either distinct stages of the supply chain, or discrete product supply chains.

Challenges encountered in the data analysis included the following:

- the high degree of partial vertical and partial horizontal integration meant that it was not possible to accurately map the flow of products through the supply chain.

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