Household plumbing products, materials and practices play an important part in the effective and efficient delivery of water and sanitation services. The use of good-quality plumbing products can reduce wastage of treated water and ultimately help conserve what is arguably one of the country’s scarcest resources. Inferior products, on the other hand, increase the risk of failures and leakage, and can even have negative health impacts due to leaching of toxic elements from the materials used.

South African legislation requires that all plumbing components installed are improved by the South African Bureau of Standards (SABS) or alternatively by a local authority. Municipalities generally make use of the so-called JASWIC list, compiled through the Joint Acceptance Scheme for Water Services Installation Components. JASWIC membership includes water services authorities. Once a plumbing product is supported and published on the JASWIC list, even if it does not carry the SABS mark, it becomes acceptable to be installed in any municipality that accepts the use of JASWIC approved products.

South Africa’s basic service delivery efforts are being seriously undermined by the use of inferior plumbing products and practices, a Water Research Commission (WRC) funded study has revealed. Lani van Vuuren reports.
Unfortunately, South African legislation does not explicitly prohibit the importation and sale of non-compliant products. Over the last few years this has resulted in the local market being flooded with cheap, often pirated products, especially from Asian countries.

This state of affairs, in addition, to concerns over deteriorating quality of workmanship and a lack of capacity to regulate the sector, prompted the WRC to launch an investigation into the state of the South African plumbing industry. The two-year research project was undertaken by the University of Johannesburg (UJ) in partnership with the University of the Witwatersrand.

**FLOODED MARKET**

During the two-year study, 2 626 plumbing products, ranging from valves, to taps and cisterns, were evaluated for compliance. A total of 58% were found to be non-compliant, i.e. they were neither SABS approved nor appeared on the JASWC list.

Valves showed the lowest level of compliance (17%) while taps showed the highest (48%). In addition, 10% of products claimed to be SABS mark holders while they were, in fact, not included in the SABS list of mark holders.

"When you go into a hardware store, chances are you will find it much easier and cheaper to purchase a non-compliant plumbing component than a compliant equivalent," reports Prof Kobus van Zyl, Rand Water Chair in Water Utilisation at UJ and project leader on the WRC study."These products are squeezing out local manufacturers all the while consumers are largely unaware of the problems associated with applying these products." Regulation proved to be a big challenge. Only the City of Cape Town has dedicated water inspectors.

**WASTED RESOURCE**

Inferior products are increasingly finding their way into basic service delivery developments. The project team visited several low-cost housing schemes around Gauteng to inspect their plumbing fittings. It was found that less than 10% of the fittings displayed the SABS mark.

"The general lack of quality of the products was reflected in the fact that more than half of the fittings inspected were broken or leaking. Also 50% of the toilets were leaking," notes Prof van Zyl. "This is despite the fact that the average age of the low-cost houses visited was less than two years."

Of the 108 standpipes, only 45% had SABS approved taps, 41% had non-compliant taps and 13% had no taps at all. The maintenance officer does not purchase taps or tap components himself. Thus, the local water services authority is directly responsible for the large fraction of non-compliant fittings.

"The tap is the most important component of a standpipe installation, and has to be exceptionally robust to withstand the high wear and tear due to frequent

**MAIN FINDINGS OF THE WRC FUNDED STUDY**

- Nearly 60% of plumbing products are not SABS or JASWC compliant.
- Nearly 40% of plumbers surveyed considered leakage from plumbing components to be a large or very large problem, with toilet cisterns identified as the main contributor, followed by taps, geyser, pipes and other valves.
- Plumbers and product manufacturers considered a lack of enforcement of legislation due to a lack of trained inspectors as the biggest problem in the sector at present.
- The installation of non-compliant products seems to be a particular problem in new installations and less of a problem in renovations and maintenance.
- There is a high percentage of application of non-compliant products in rural water supply schemes leading to continuous leakage and unusable standpipes.
- Less than 10% of plumbing products surveyed in low-cost housing schemes showed the SABS mark.
Water services

The tap is the most important component of a standpipe installation and has to be exceptionally robust to withstand the high wear and tear.

Non-compliant plumbing products can lead to unnecessary leakage and wastage of water.

A beautiful structure of size is still more important than the materials which go into it. The most important element, namely the user and his convenience, is still largely ignored.

The use of a cheap import, which is guaranteed to fail within a few weeks will have huge repercussions on the functioning of a water supply system, notes Bhagwan. "Similarly, in our drive for efficient water use very little is achieved when the cheapest, inefficient devices are used in basic service delivery."

Unfortunately there are still unscrupulous contractors who merely get involved in basic services development contracts to make a quick buck. "These contractors are rarely caught or held responsible when a cheap tap fails within the first week. It is also the item totally neglected by site engineers," says Bhagwan.

It is believed that this study has uncovered what may be a much larger problem, and the project team has called for a full-scale, national, investigation into the state of plumbing fittings in low-cost housing developments. "We cannot allow the most vulnerable people in society to be exploited in this way. The WRC will continue to fund new research to not only expose bad practice, but find practical solutions to these challenges," reports Bhagwan.

At the time of going to press the final report on the state of plumbing in South Africa was being published.

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<th>Compliant products</th>
<th>Non-compliant products</th>
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<td></td>
<td>Number of</td>
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