POLICY BRIEF

June 2020
The WRC operates in terms of the Water Research Act (Act 34 of 1971) and its mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa.

Knowledge exchange to improve irrigation water metering

A recently completed Water Research Commission (WRC) project investigated the efficacy of knowledge exchange to improve implementation of irrigation water measurement/metering at farm and scheme level.

Background

Accurate measurements and statistics on irrigation water use is vital for improving water-energy-food security. This is relevant for determining water used by the irrigation sector, or to create benchmarks from where water resource management institutions and growers can set targets to become more irrigation efficient and water productive.

The main objective of the knowledge exchange initiative was to update and re-package the guidelines that the Water Research Commission (WRC) has published in the past on irrigation water measurement and metering. The brief guides that were developed for the national roadshow comprise updated knowledge and guidelines from selected WRC reports on water measuring and metering that are relevant for the target audience. The guides created a platform for addressing key questions that were identified in interaction with the target audience during recent WRC projects.

Policy-wise, the study was based on the publication of regulations by the Department of Water and Sanitation (Government Notices 131 of 17 February 2017 and 141 of 23 February 2018), that required that irrigation water allocation be measured, recorded and reported. The study objective was to support uptake of water measuring and metering in commercial irrigated agriculture and the uptake of WRC's research in this regard by generating content and stimulating participation that specifically address key questions of commercial irrigators and WUAs.

Although the DWS has training courses in water measurement which focus on open channel flow and dams, results from this study recommended that the updated WRC research material on flow measurement, in combination with the DWS guides on flow measurement, be presented in the nine WMAs at regular intervals throughout a year, either in the form of workshops or training courses, or both. It is also recommended that the additional topics that the workshops attendees mentioned be included in these workshops or training courses.

To enhance continuous learning, three levels are proposed:
- An introduction to flow measurement
- Flow measurement – an intermediate course
- Flow measurement – an advanced course.

A series of workshops and roadshows were conducted to assess how stakeholders take water metering in the irrigation sector. The activities were attended by all stakeholders including suppliers who usually provide training on the basic principles of flow measurement, and the operation and maintenance of their products.

In addition to workshops and roadshows, a website was developed from the project (watermeter.org.za) and was highly successful in the short period since it went live. The website was an instant success with stakeholders with thousands of visitors within the first month of its inception from all provinces.

Major outcomes

The study comprised:
- A national roadshow on water measurement and metering held at selected sites to cover all nine Water Management Areas (WMAs), with supplier exhibitions;
- Brief guides (hard copy and online) for WUAs and growers, based on the WRC's reports and guidelines for water measuring and metering; and
- A new website (www.watermeter.org.za) with a blog, videos, useful links, news and latest updates and downloadable reports, articles, guidelines and presentations.

Nine workshops were conducted from July to August 2019 across the water management areas of the country; 243 people attended the workshops. Presentations were given by Ms Sarlet Barnard of the research team and representatives of DWS, the local water management institutions and growers.

Local suppliers of water measuring devices were invited to exhibit their products. SAAFWUA actively supported the initiative and invited Ms Barnard to give a presentation at their Annual General Meeting in Somerset West.

The feedback from attendees was overwhelmingly positive. Of the attendees who filled in the evaluation sheets, 99% said that the workshop met their expectations and that the content was useful to them. In replying to the question as to how the workshops could be improved, attendees said that the workshops should be held more often and that more water users should be invited. They also listed a range of topics that they would like to see addressed in follow-up workshops.

Observed needs observed from stakeholders

Stakeholder noted the following important issues for future activities to disseminate such information on the importance of water metering:

- Discuss the status quo of water metering and measurement implementation in different regions;
- Discuss conservation of water resource;
- Discuss the practicability of implementing regulations on water use measurement and how this will be considered by the DWS;
- Discuss moisture probes, irrigation scheduling software.
- Integrate with application management and measurement to provide evidence of savings and gains;
- Water metering should not be negotiable.
- Expand it to include officials from DWS and other interested and affected parties without losing the key success factor of open, consultative learning-and-sharing discussions aiming to implement the law successfully in a fair, practical and uniform manner;
- Get more people who present practical cases for better understanding on how to improve water management in practice;
- Involve more growers to tell the audience about the importance of water measurement;
- Conduct workshops for poor rural farmers;
- Improve marketing and communicate the benefits of attendance;
- Invite more suppliers.

The South African Association of Water User Associations (SAAFWUA) encourages the installation of water use measuring devices. For this reason, they took a special interest in the workshops.

Figure 1. A video to demonstrate the inline flowmeter installation on the website

Website administration

The cost of the website is small yet its impact, is considerable. The website is an immediate source for: sourcing new content;

- sourcing new blog articles;
- WordPress updates;
- responding to visitor's questions and request for information;
- sourcing responses from experts;
- moderating comments on the blogs;
- uploading new content;
- removing old content;
- updating contact lists;
- email correspondence with stakeholders;
- updating social media; and
- exploring new social media avenues.

Major findings

Attendees at workshops and roadshows highlighted the following:

- Importance of metering to manage water resources and the problems to address;
- Better understanding of water use and irrigation;
- Cooperation among DWS, agriculture and business;
- Practical with technical details about specific products and new technology;
- Information on water meters, metering and measurement options and costs (the guideline booklets);
- What is expected of water users and the use of different

devices for the same objective;
- Supplier exhibitions;
- The Water Act, plus challenge water users face to apply the Act;
- Information on GN 131 and 141 and the application thereof;
- Legal, statutory and financial requirements of water measurement compliance;
- Institutional arrangements;
- Insightful information on water use, distribution and management and how these processes should be managed;
- SAAFWUA presentation in terms of legal provision for local water management institutions and how billing agency agreements can work;
- Potential customers (feedback from a supplier);
- The political aspects and discussions;
- New contacts and networking;
- Discussions with informed people and the willingness of everyone to learn;
- WRC presentation was very informative;
- Different perspectives on metering and practical experience from other users.

Recommendations

- There is a need in the agricultural sector for these workshops to be continued and extended.
- Additional topics should be included in future workshops or training courses, which include:
  - An introduction to flow measurement
  - Flow measurement – an intermediate course
  - Flow measurement – an advanced course.
- The website is evidently very popular in the agricultural sector, and should be continued, with new content added regularly to continue supplying new information to stakeholders.

Related report:
Knowledge exchange to improve implementation of irrigation water measurement/metering at farm and scheme level (**WRC Project no. K5/2957**). For more information, contact Executive Manager, Dr Sylvester Mpandeli, at Email: sylvesterm@wrc.org.za