Water is an important element for sustaining life and running businesses. The ever expanding demand for water from the world’s growing population, economy and environmental impact has made many truly wake up to its true value. As such, most businesses are beginning to realise the importance of integrating the cost of this natural resource into their decision making process.

The growing importance of water has and will continue to change the overall business landscape and proactive entities are today in search of the various methods to improve water efficiency and sustain profits. In fact, more and more are asking for better cost analysis, disclosures as well as tools to ascertain the risks involved. What is even more interesting is that some businesses have also applied best practices in order to improve water measurements, producers’ costs as well as enhance efficiency across internal operations, supply chains and even, products.

In a recent research conducted in Australia titled “Water Management Accounting in the AgriFood Sector: From Innovation to Action”, the study looked into the importance of having a strategic, well-integrated water management accounting tool in the agrifood sector. A tool such as this will ensure a more efficient, effective and user-friendly approach towards measuring, recording and analysing water costs in order to facilitate water use decision-making across crops, fields, farms and seasons. The research, undertaken in three phases, involved interviews with nine key individuals while 110 producers were surveyed to shape the framework in water-related decision making.

When it comes to getting the right tools in place to measure and analyse the various water cost drivers, it is essential to understand the challenges and complexities faced by the producers.

Here, the study highlighted that only minimum best practices were in place across both water accounting tools and water efficiency information systems to effectively manage water use and maximise profitability. 35% of the respondents indicated that there were no formal methods being used for produce costing while 56% of them were not accounting their water use in production, further highlighting the lack of elements suited to smaller producers and their ability to determine the water cost drivers. On a more positive note, 59% of the producers agreed that they needed a tool that linked the cost of water to production as it would improve profitability (34%) and competitiveness (25%). Another 52% said that the development of the water management accounting tool will help in improving regulator communication.

To provide further perspective in the development of a strategic water management accounting tool, it is essential that all farm water cost drivers be properly identified, factored in and thoroughly integrated on a single platform for better production decision making. Instead of water accounting systems just linking water efficiency to cost of product, the tool should be comprehensive in nature, covering various uses of water, avenues to save or increase water allocation. This will ensure that this tool will be also utilised by high water usage industries and those not solely reliant on the market. Once it is linked to actual accounting, this will then form a stronger foundation to make informed decisions, especially in the areas of budgeting, profit-margin analysis and planning.

In this regard, Figure 1 illustrates the development of this water management accounting tool that is low-cost and has a user-friendly interface available for farmers either in app or cloud format. Here, all on-farm water related cost drivers have been identified, understood, documented and integrated to ensure that they have been factored into production decision-making. All other sources and sensory data have also been included by the software provider for ease of input for farmers and enhanced decision-making.
When it comes to water and how it is managed, the agrifood sector often comes under pressure by various stakeholders as to how it is managed, used, the number of best practices in place and costs, indirect as well as direct. There have also been calls for more open communications on produce costing amongst producers and their various stakeholders, namely the neighbouring communities and regulators.

The research conducted highlighted that the pressure to undertake water integration into produce costing came mostly from their neighbours (27%), as it was a common resource, especially in regions of water scarcity while another 25% came from regulators who were seeking evidence on water-related performance through water accounting.

Protests and conflicts with stakeholders can and will harm the reputation of any organisation or for that matter, even farms. When it comes to water, which is a fundamental human right, it is important that there is open communication between stakeholders as this would increase understanding on policies, be in compliance with license and allocation requirements, reduce water-related costs and more importantly, improve profitability. Further to this, the development of this tool would lend support to the basis of water management accounting, thus helping producers clearly communicate their water-related performance to meet policy objectives of both sustainable agrifood and water resources.
The evolution of technology has changed the way data is obtained, analysed and used in the agrifood sector, as it is all done online and in real time. However, while technology has been a major driving force in driving productivity, leveraging on this technology to harness information will entail a certain amount of knowledge.

The research showed that though farmers were aware of the various tools in the industry, they were mostly only limited to primary production as they found it difficult to link these tools together, from the most basic to the complex ones. With this in mind, it was no surprise when results showed that 35% of the producers were unable to cost their products while another 17% did not even document their produce costing. Nevertheless, when asked about their preferred platforms, 44% identified iPhone or iPad applications as it helped them access information while they were in the field across multiple platforms, followed by Excel at 24% while another 21% opted for the personal computer.

Against this backdrop, it is important to recognise the enormous potential of technology to farmers. To power growth, innovation is vital in order to develop a robust water management accounting tool that not only provides real time information, but also enables easy integration of all cost drivers and business applications. Above all, it must be user-friendly. In order to be competitive, the right technology would enable producers to make informed decisions, increase water efficiency and improve profitability.

The dynamic nature of water management accounting has made many farmers realise that how they manage their operations and productivity will leave an impact on their long-term sustainability. With more tools being technology-based, continuous flow of information with stakeholders on production costs based on various variables such as year, number of fields and other business aspects as well as, integration of their operations has led to the need for highly qualified individuals to manage their costs.

For instance, 25% of the respondents wanted added information and training, 25% preferred skilled water accounting personnel while another 21% required financial support to undertake water management accounting. While 43% highlighted that they desired more time to organise and set up water management accounting, 34% of the respondents requested that management accountancy firms provide support via online, face-to-face modes and even through interdisciplinary platforms.

Clearly, these findings present an opportunity for the development of training modules that integrate the elements found in best practices in water accounting, technical tools and management accounting. This will help them in creating valid, real-time measurements that help in making informed decisions. Given the added pressure and scrutiny from regulators and other stakeholders, management accounting practitioners will be able to assist in implementing water management accounting initiatives for this industry, thus creating the link between management accounting science and technical science to enhance and sustain profitability.

With costs of doing things, especially where water is concerned, attached to the overall agrifood production supply chain, there is a need for a strategic, integrated, multidisciplinary water management accounting tool that is not only cost effective, but also helps farmers optimise production and profitability. The development of an effective tool will lead to more informed decisions, deeper insights and knowledge, better intelligence gathering and most importantly, build resilience for farmers in the agrifood sector in the longer term.
WHAT CIMA MEMBERS SAY ABOUT THE OVERALL RESEARCH

IN GAINING INTEREST FROM OTHER INDUSTRIES

If there is a commercial opportunity to integrate and commercialise end-to-end water management solutions, management consultants (PwC, Cap Gemini and others) or agri-software providers may wish to assess the potential for future products and/or sponsor further research to identify market opportunities (useful R&D spend). This could also be of interest to organisations like the United Nations or UNESCO.

Peter Franklin
ACMA, CGMA

IN TAKING THE FINDINGS FORWARD FOR OTHERS TO USE

If a user-friendly water management accounting tool is developed to encourage producers in the agrifood sector to apply management accounting innovations to the critical problems of increasing variability of water supply and rising water costs, I think the output could be used in a number of ways including improved performance reporting in Agribusiness activities particularly in resource use and yield (extended to other agricultural inputs such as fertilisers); used by other industries using water (Resource Technologies and Manufacturing); and finally, the process could be modified to record usage on other scarce commodities.

Steven Lakotij
FCMA, CGMA

ON THE IMPROVEMENTS THAT CAN BE DONE TO THIS RESEARCH

I think it displays the difficulty in bringing real time water management accounting tools together with water management accounting to support profitability decisions. So I would think efforts made on identifying the accounting methodology, cost drivers, activities, resource pools, cost pools, key performance indicators and metrics might form a common platform. Then it would be up to the water accounting measurement and other agricultural variables factors to provide the data to support accurate accounting, which is where the difficulty lies.

Timothy Woods
ACMA, CGMA

ON THE IMPACT ON THE AGRIFOOD INDUSTRY

An easy to use tool to account for input and yield could assist the industry to understand and measure an important element of business activity. This measurement will assist the management to identify areas to reduce use or improve yield to maximise profitability.

Steven Lakotij
FCMA, CGMA

I would like to see greater emphasis on “Yield” in the research as this would lead to consideration of input and yield when developing the tool. To achieve the stated goal “from innovation to action”, I think more market testing with Agribusiness users is necessary. A path to commercialisation should be thought-through and developed.

Steven Lakotij
FCMA, CGMA
Dr Joanne Tingey-Holyoak is a Senior Lecturer and Researcher in the Sustainable Engineering, Accounting and Law Group in the UniSA Business School. Since completing her PhD in sustainable dam management on an Australian Research Council Discovery Project in 2012, Joanne has had over 40 publications, including three publications in top water journal Agricultural Water Management, and also a number of awards, such as the 2013 Emerald Social Impact Award. With a background in agriculture and industry, strong links to business and Certified Practicing Accountant (CPA) status, Joanne’s research has made end-user informed assessments of water storage accounting and management resulting in policy and practical guidance. Through most recent industry consulting projects, Joanne is seeking to develop linked financial and management solutions that enable farmers, policymakers and community and environment groups to maximize efficient and safe management of precious water resources.

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