Food and Agriculture Organization of the United Nations

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BRIEF 7

Applying gender equality, disability, and social inclusion principles

in agricultural water resources management

Next Generation Water Management Policy Briefs

Charles Sturt University

Gulbali Institute

Agriculture Water Environment

Cover photo:
A woman farmer posing with a basket of harvested vegetables in Cambodia.
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Prepared by
Caroline Turner
Leeann Ji
Melita Grant

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This brief was prepared by Caroline Turner, FAO Consultant, Leeann Ji, FAO Consultant, Melita Grant, Gender in WRM Expert, Institute for Sustainable Futures, University of Technology Sydney and Louise Whiting, FAO Water Management Officer.

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Next Generation Water Management
BRIEF 7

1. Introduction

Water resources management, although rooted in technical disciplines such engineering, science, data management, modelling, and hydroeconomics, is fundamentally a realm of social and political interactions. These technical disciplines, while informing decisions, are subject to trade-offs, power dynamics, negotiations and assumptions, particularly surrounding water usage and distribution during periods of scarcity (Grant *et al*, 2019). As such, it is crucial to discern whose interests are being prioritized in the management and distribution of water resources. This brings into focus the centrality of gender equality, disability, and social inclusion (GEDSI) in effectively managing water resources. GEDSI recognizes the need to address gender disparities, combat social exclusion, and champion equal opportunities for all individuals, irrespective of gender, age, ethnicity, disability or other identifying factors.

Box 1: Defining gender equality, disability, and social inclusion

GEDSI aims to ensure that all individuals have equal access to resources, services and decision-making processes, and that their diverse perspectives and needs are considered. It is an approach that recognizes that certain groups of people, such as women, people with disabilities, and marginalized communities, face various barriers and forms of discrimination that hinder their full inclusion and participation in society.

Gender equality: Gender equality focuses on achieving fairness and equal rights for women and men. It recognizes that gender roles and norms often result in unequal opportunities and outcomes. Gender equality seeks to challenge and overcome these societal norms, empowering women and promoting their equal participation and decision-making power in all areas of life.

Disability inclusion: Disability inclusion aims to ensure that people with disabilities have equal access to opportunities, services and facilities. It recognizes that disability is a diverse and natural part of human diversity and that people with disabilities have the same rights as everyone else. Disability inclusion involves removing physical, social and attitudinal barriers that prevent full participation, and promoting accessibility, reasonable accommodations, and respect for the rights and dignity of people with disabilities.

Social inclusion: Social inclusion focuses on creating an inclusive society that embraces and values all individuals and communities. It recognizes that certain groups, such as marginalized communities, face exclusion, discrimination and unequal access to resources and opportunities. Social inclusion involves addressing systemic barriers, promoting equity, and ensuring that all individuals have equal opportunities, representation and voice in decision-making processes.

GEDSI initiatives aim to address the intersecting challenges faced by these groups and promote inclusive policies, programmes and practices across various sectors, including water resources management, agriculture, education, healthcare, employment and governance. The goal is to create a more equitable and inclusive society where everyone can fully participate, benefit, and contribute to sustainable development.

The agriculture sector is the dominant user of water in many countries: Globally, agriculture accounts for 70 percent of freshwater withdrawals and 90 percent of its consumption (FAO and AWP, 2023). The intersection of agriculture and water resources impacts food security, ecosystem health and the sustainability of livelihoods. Additionally, agriculture is a key provider of employment, income and economic stability, especially for rural communities. Despite being in a period of rapid transition away from agrarian societies, agriculture still employs a total of 563 million people in the Asia-Pacific region (ILO, 2021).

Given the critical role of agriculture and water resources in livelihoods, economies and well-being, it is imperative to incorporate GEDSI considerations when designing projects or policies. This ensures that the benefits of integrated approaches and policies in agricultural water resources management are accessible to everyone. However, often marginalized groups – including women, children, Indigenous Peoples, cultural minorities, people with disabilities, the elderly, sexual and gender minorities, the extremely impoverished, and those regarded as low caste – are left out of agricultural water resource management conversations. This exclusion results in policies that fail to meet their needs.

At a global level, only 22 percent of countries report having women formally represented or regularly consulted in integrated water resources management at a higher level (FAO, 2023). Many irrigation projects in the agriculture sector do not cater to the specific needs of women and people with disabilities. Further, certain practices, such as night irrigation, can pose safety threats to these vulnerable groups, contributing to their limited participation in irrigation schemes and the lower productivity of their fields. This exclusion from decision-making processes and water management programmes intensifies existing social and systemic inequalities, with far-reaching implications on health, resilience and prosperity.

GEDSI is crucial for building resilience in the agricultural water resources sector, given that climate change and other shocks disproportionately impact vulnerable communities. As population and economic growth continue to exacerbate water scarcity, the urgency to develop inclusive policies increases. These policies, particularly those concerning water allocation practices and access to infrastructure, knowledge and tools, need to prioritize the water requirements of vulnerable populations and include them in water reform processes.

2. Integrating GEDSI activities in water resources management and agrifood systems

There is no singular approach to designing gender-sensitive and inclusive water resources management or agrifood systems projects. Therefore, it is integral for policymakers, practitioners and other key stakeholders to understand and frame their projects according to identified community needs and contexts. To design a gender-sensitive and inclusive programme that accounts for different perspectives and needs, practitioners should think of GEDSI-transformative activities from a systemic perspective and align key activities and approaches with intended outcomes.

Systems Thinking

Systems thinking in GEDSI involves recognizing the interconnectedness and interdependencies of various social, cultural, economic and environmental factors that influence inclusion and equality. It emphasizes understanding the underlying systems, structures and norms that perpetuate inequalities and exclusion. By adopting a "systems thinking" approach, practitioners can identify leverage points and develop comprehensive strategies that address the root causes of exclusion and promote sustainable and inclusive development. This includes considering the broader social, cultural and economic contexts, power dynamics, policy frameworks and institutional arrangements that shape the experiences and opportunities of individuals and communities. Applying systems thinking to GEDSI enables a more holistic understanding of the complex interactions and dynamics at play, leading to more effective and transformative interventions. Box 2 provides an example of how practitioners can apply systems thinking to understanding inequalities in access to fish and the impacts of ecological changes.

Box 2: Example of systems thinking – access to fish and the impacts of ecological changes

Changes in the flow and ecological state of rivers, such as those caused by dams, irrigation weirs, hydroelectric projects and pollution, can disrupt people's access to fish. These changes can affect men and women differently in terms of nutrition and livelihood opportunities, highlighting the gendered impacts of ecological transformations in aquatic ecosystems. In addition to gender, access to fish and the impacts of ecological changes are influenced by diversity and social inclusion factors. For example, indigenous communities and ethnic minorities may have unique relationships with rivers and rely on fish as a crucial part of their diet and cultural practices. Changes in river ecosystems can disproportionately affect these communities, leading to food insecurity and the loss of cultural heritage. Understanding and respecting the diverse needs, knowledge and practices of these communities is essential for inclusive and sustainable water and food management.

Approaches used to assess projects or policies should encourage decision-makers and stakeholders to consider broader, higher-level factors on a systemic level, such as sociocultural norms, national policy goals and laws, as well as lower-level inputs, such as technology advancements and regulatory measures, when determining where to focus their efforts. By understanding the complex relationships between individual, relationship, community and societal factors, practitioners can develop innovative, comprehensive solutions that address multiple issues at once.

Types of GEDSI Activities

When approaching agriculture and water resources management projects or policies, there are two categories of GEDSI activities that can be applied based on the goal of the project, the identified needs of the priority population, and the situational context (e.g. cultural norms, political environment, resource capacity): practical needs and strategic outcomes.

Practical needs: Practical needs refer to changes that assist women and men of different needs and backgrounds within the existing norms and structures. These interventions aim to address immediate challenges and improve the lives of individuals within the prevailing social context by responding to the practical and short-term immediate needs. An example of a practical need might be supporting women by providing safe and reliable transportation options to attend water governance meetings, workshops and other decision-making fora, or providing small-scale farmers with access to irrigation technology to alleviate the burden of manually fetching water from distant sources.

Strategic outcomes: Strategic outcomes or interests involve changing social norms, power relations and underlying causes of existing inequalities. These initiatives aim to challenge and transform the existing structures and dynamics that perpetuate disparities. Examples of strategic outcomes might be empowering women, persons with disabilities and minorities to have strengthened voice and influence in decision-making processes related to water resources management, or encouraging changes in gender roles through shifts in power relations, thus enabling individuals to negotiate roles and responsibilities based on equitable dynamics.

Strengthening activities that focus on practical needs and strategic outcomes for marginalized communities is key to transforming gender relations and social inclusion. Incorporating either activity type into programmes can help practitioners ensure that project solutions for resilient water resources management and agrifood systems benefit all people in both the short and long terms.

Implementing GEDSI Acitivties

The concepts of developing GEDSI activities that target either practical needs or strategic outcomes inform project design. As well as determining if activities will focus on practical and/or strategic needs and outcomes, program designers will also need to consider if these activities are targeted (towards specific people) or mainstreamed (applied throughout and across). The following section unpacks these terms further.

Mainstreaming actions: Mainstreaming actions involve integrating GEDSI considerations into all aspects of an organization, project or programme. It entails incorporating GEDSI perspectives, needs and priorities as core components of the overall strategy and activities. Mainstreaming ensures that GEDSI is not treated as a separate or isolated issue but is integrated into the mainstream decision-making processes, policies and practices. By adopting a mainstreaming approach, organizations strive to create inclusive environments and promote equal opportunities for all individuals, regardless of their gender, disability or social background. Key features of mainstreaming actions include: ensuring gender disaggregated data; ensuring that GEDSI considerations are integrated into all aspects of an organization's operations, programmes and policies; transforming organizational and societal structures, norms and practices; and facilitating collaboration and engagement with a range of stakeholders, including policymakers, practitioners and communities, to ensure that diverse perspectives are considered in decision-making processes.

Targeted actions: Targeted actions address the unique needs and challenges of specific groups or individuals facing discrimination or exclusion. Targeting actions recognize that certain groups may experience more severe or specific forms of inequality and require tailored support to overcome barriers. Key features of targeting actions include identifying and prioritizing specific groups or individuals who are marginalized and ensuring that interventions are designed to address the specific needs and challenges of the targeted groups. Such targeting actions aim to empower marginalized groups by providing opportunities for their meaningful participation in decision-making processes, and to ensure that essential services, such as healthcare, education or employment opportunities, are accessible and responsive to the specific needs of the targeted groups.

In summary,mainstreaming actions ensure that GEDSI considerations are integrated into broader strategies, policies and practices, while targeting actions provide specific interventions that address the unique needs of marginalized groups, ensuring that no one is left behind. However, mainstreaming and targeting actions are not mutually exclusive. They can be applied in combination to achieve comprehensive and effective GEDSI outcomes. This is called a "twin track" approach. The Case Study featured in Section 3 demonstrates a twin-track GEDSI strategy that incorporates mainstreaming and targeting activities for inclusive fish passage design.

3. Prioritizing fish migration and fish passage in irrigation infrastructure

The rapid expansion of dams, hydroelectric projects, road infrastructure and pollution disrupt fish passage and migration pathways necessary for breeding and maintaining healthy fish habitats. These changes affect men, women, indigenous communities and people with disabilities differently: Fish are a vital source of protein, micronutrients and income, particularly for rural and remote populations; thus the depletion of fish stocks poses a great threat to nutritional status, poverty reduction and livelihoods (Béné *et al.*, 2016). From social and gender exclusion standpoints, women play a significant role in fisheries management, but their contributions are often overlooked due to a misunderstanding and lack of awareness of gender issues in fisheries policies that reinforce norms, rules and roles that perpetuate gender inequalities. Additionally, people with disabilities, ethnic minorities and indigenous groups, and other marginalized people experience barriers to participation or negative stereotypes that keep them from participating in the social and economic life of fishing communities.

While designing a solution to improve fish stocks, the FishTech project led by Charles Sturt University (CSU), used both mainstreaming and targeted approaches to meet a broader range of health, safety and livelihood needs among marginalized groups. FishTech is a project operating in Cambodia, Indonesia, and Lao People's Democratic Republic (PDR) that aims to boost livelihoods, food security and climate resilience for communities dependent on river systems. The initiative works to integrate fisheries into irrigation projects for mutual benefits regarding livelihoods, biodiversity and water management by reconnecting upper and lower river ecosystems through the design and implementation of Fishways. GEDSI analysis and corrective actions can ensure the project benefits all stakeholders.

Case Study 1: FishTech

FishTech a project adopted a twin-track GEDSI strategy, incorporating mainstreaming and targeted activities. Mainstreaming involved ensuring equal access to basic needs for marginalized groups, while targeted activities addressed specific needs to empower and support individuals and groups. This strategy allowed for flexibility, adaptivity and foundational change in dynamic socioecological systems.

To address GEDSI mainstreaming, Fish Tech included activities such as promoting diversity in team roles, integrating GEDSI into monitoring, evaluation and learning plans, maintaining gender balance in scholarship support, conducting GEDSI baseline assessments, and enhancing the reference to GEDSI in project scopes and capacity-building content. Additionally, targeted GEDSI activities involved engaging with local organizations and networks representing women, people with disabilities, and ethnic minority groups to consult on community interactions with rivers, as well as organizing fisheries and fishways masterclasses with their participation.

This engagement enabled the FishTech team to make several modifications and increased GEDSI- sensitive project outcomes. For example:

- The FishTech team identified concerns regarding the vertical concrete design of a fishway, which could pose risks to children's safety when swimming in that section of the river (e.g. Pak Peung, Lao PDR). As a result, modifications were made to flatten slopes and remove rocks, minimizing harm to children. These adjustments not only improved safety but also provided a space for children to socialize, play and develop their fishing skills.

- In Indonesia, local communities emphasized the importance of reinstating the glass eel population for their livelihoods. A hydropower project inadvertently led to a decline in the local glass eel population, impacting the lucrative exports to the Japanese market. Recognizing this need, the design of the fishway incorporated measures to support the recovery of the glass eel population, thus ensuring the continued prosperity of families reliant on this resource.

- Recognizing that smaller fish are crucial for subsistence in the community and are often collected by women, children and the most economically vulnerable members, fish passage designs were developed to accommodate the migration patterns of these fish. By considering the needs of vulnerable communities, these designs promote their food security and economic well-being.

These examples illustrate how incorporating local community needs and knowledge into fish passage designs can better address a broader range of health, safety and livelihood requirements. Women, people with disabilities (including those impacted by unexploded ordnance), ethnic minorities and indigenous groups possess unique needs, values and knowledge concerning the utilization of river resources and fish stocks. Therefore, their perspectives are crucial for understanding, planning and constructing any infrastructure related to the rivers on which they rely.

Source: adapted from Syddall, V. and Grant, M. 2023. *Water, Food, and Gender Equality Synergies: Exploring the water security, fisheries and gender equality nexus learning brief.* Australian Water Partnership.

4. Incorporating GEDSI into each stage of the project cycle

FishTech is a successful example of integrating a GEDSI strategy into fish passage design by using both mainstreaming and targeting approaches to carry out project activities. However, using the concepts of practical need, strategic outcomes, mainstreaming actions and targeting actions to inform water resources management and agrifood projects requires practitioners to address GEDSI throughout the cycle of the project, from the pre-design to design, implementation and monitoring stages.

Incorporating GEDSI considerations into all stages of a project cycle is paramount for creating more inclusive and equitable interventions. By understanding the complex interplay of factors at the pre-design stage, practitioners can root the project in awareness and sensitivity towards diverse needs and experiences. As the project progresses to the design phase, partnerships with rights-holder organizations enrich the approach by providing varied perspectives. During implementation, increased government coordination and meaningful community involvement become key to ensure the effective execution of GEDSI strategies. Lastly, the monitoring, evaluation and learning stage not only assesses project outcomes but also analyses who benefits and bears the costs of the interventions. Table 1 below recommends a set of actions that practitioners can take during each stage of the project cycle to create sustainable projects that challenge systemic inequalities and foster inclusive growth.

Brahmanbaria, Bangladesh - Nazma Begum a CBO group member holds a monosex Tilapia fish

Table 1: Best practices for incorporating GEDSI throughout the project cycle

Project Phase	Actions
Pre-design	**Map interconnections between sectors and disciplines, stakeholders and environmental systems** to minimize unintended consequences and maximize benefits to society. **Invest in GEDSI awareness and personal transformation:** Prioritize raising awareness among staff and communities about GEDSI will foster understanding and sensitivity towards diverse needs and experiences (Kabeer, 2005). **Increase investments in GEDSI-aware labour rights and laws:** Pay attention to labour rights and laws relevant to the project target sector. Ensure that marginalized groups, such as women, ethnic minorities, and people with disabilities, are protected and their rights upheld. **Conduct robust GEDSI analysis research:** Perform comprehensive analysis to identify diverse knowledge, expertise, roles and responsibilities in the project target sector, disaggregated by gender and other social identities. This will inform targeted interventions and resource allocation Weeratunge *et al.*, 2010; Resurreccion, 2006). **Ensure designs consider access to and control over resources:** Conduct a political economy analysis of target sectors to understand how different people access and control resources. Consider sociopolitical factors that influence resource distribution and management. **Establish clear and open communication:** Foster collaborative partnerships by establishing transparent and open communication channels with community stakeholders. Engage with diverse groups and identify their knowledge and expertise in water management and agriculture, which is crucial for sustainable resource use (Olsson *et al.*, 2004; Bavinck *et al.*, 2013).
Design	**Form partnerships with rights-holder organizations:** Collaborate with women's groups, organizations for people with disabilities and other relevant rights-holder organizations to include their perspectives and expertise in the design, implementation and monitoring of projects (Water for Women, 2022). **Consider and involve community needs in designs:** Take into account the specific needs of community members. Design infrastructure, such as irrigation and water management systems, to ensure safety and accessibility for everyone, including children and people with disabilities (WHO, 2017). **Consider connections between agriculture and the wider ecosystem:** Take a holistic approach by considering the connections between agriculture and water resources, including their uses, patterns and impacts on the wider ecosystem. This perspective will enable sustainable management and enhance the understanding of benefits, opportunities, costs and risks associated with resource use (Béné *et al.*, 2016; Cinner *et al.*, 2018).
Implementation	**Improve coordination between government agencies:** Enhance collaboration and coordination among government agencies responsible for food, water and gender-related issues. Work beyond departmental silos to ensure a comprehensive and integrated approach (Kabeer, 2005). **Deliver meaningful participation activities:** Foster the active involvement of the entire community and engage stakeholders across the entire agriculture and water value chain. Create opportunities for inclusive participation, consultation and decision-making processes to ensure that diverse perspectives are considered (Cinner *et al.*, 2018; Bavinck *et al.*, 2013). **Engage GEDSI experts and local groups:** Collaborate with GEDSI experts and local organizations focused on promoting inclusion and equality. Involve these experts and groups in the implementation processes to ensure effective execution of GEDSI strategies while prioritizing safety and well-being (Fröcklin *et al.*, 2013;).
Monitoring, evaluation and learning (MEL)	**Disaggregate data by relevant social categories:** Ensure that data collected during monitoring and evaluation processes are disaggregated by sex, age, ethnicity and other relevant social identities. This approach allows for a comprehensive understanding of the inclusiveness of water and agriculture projects and programmes (Béné *et al.*, 2016; Weeratunge *et al.*, 2010, Seager, 2015, Pangare, 2015, Kadel *et al.*, 2017, Lefore *et al.*, 2017). **Design inclusive MEL processes:** Collaborate with GEDSI experts and rights-holder organizations to design MEL processes that consider diverse perspectives and promote inclusion. Engage these stakeholders in the design, implementation and interpretation of MEL activities (Fröcklin *et al.*, 2013). **Consider water, agricultural and social ecosystems together:** Ensure that MEL activities examine the interconnections between water, agricultural and social ecosystems. Assess the cultural impacts, power dynamics and económico implications of the projects. This holistic approach will provide insights into the broader impacts and sustainability of the interventions (Cinner *et al.*, 2018). **Identify beneficiaries and costs:** In MEL processes, strive to identify who benefits from the projects and programmes and who bears the costs. Assess the unequal access to water resources and determine who is left out and why. Additionally, examine who is empowered or financially supported and whose voices and opinions are heard or not heard in decision-making processes related to these resources (Kabeer, 2005; Bavinck *et al.*, 2013).

Source: Adapted from Syddall, V., and Grant, M. 2023. *Water, Food, and Gender Equality Synergies: Exploring the water security, fisheries and gender equality nexus learning brief.* Australian Water Partnership.

Each project stage involves a unique set of actions that imbue the project's lifespan with GEDSI-sensitive activities. By incorporating these best practices into the project cycle, practitioners can design inclusive and gender-responsive water resources management and agrifood system projects that not only build resiliency but also expand the accessibility of solutions to historically marginalized communities.

5. Recommendations and conclusions

The nexus between agriculture and water is vital for ensuring food security, promoting sustainable livelihoods and achieving the Sustainable Development Goals. However, the exclusion of vulnerable populations, including women, children, people with disabilities, Indigenous Peoples and marginalized communities, from decision-making processes in these sectors results in inequitable policies and missed opportunities for inclusive and sustainable development.

To address this, it is essential to prioritize inclusion in integrated approaches and policies in agriculture, fisheries, and water management, and GEDSI can frame these considerations as a central part of all stages of project design, implementation and monitoring.

Viewing GEDSI through a systems-thinking lens helps stakeholders and policymakers understand how water resources and agricultural management projects need to consider the economic, political and social contexts in which they are implemented. By applying GEDSI and systems thinking concepts, stakeholders can identify and correct inequities in programmes and policies while focusing on achieving inclusive outcomes and building resilience in water resources and agricultural management projects. The case study presented in this policy brief demonstrated how fisheries related projects can integrate GEDSI perspectives into project design and implementation. This initiative emphasized the importance of considering diverse needs, promoting active engagement, and fostering partnerships with rights-holder organizations and local communities.

To advance inclusive policies and practices, it is important to invest in GEDSI awareness, conduct comprehensive GEDSI analysis, ensure access to and control over resources, promote meaningful participation, improve coordination between government agencies, and incorporate GEDSI into monitoring, evaluation and learning processes. Table 1 provides specific recommendations for each project phase, highlighting the importance of incorporating GEDSI throughout the project lifecycle.

Achieving inclusive and sustainable outcomes in the agricultural water resources sector requires systemic changes, including challenging social norms, empowering marginalized groups, and promoting equal opportunities for all. By integrating GEDSI principles into policies and practices, decision-makers can create a more equitable and inclusive society, where the diverse needs and contributions of all stakeholders are recognized and valued.

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The Next Generation Water Management Policy Brief Collection

This Briefing Collection has been developed to inform policymakers of new and improved approaches to different aspects of water resources management for agriculture and food security across Asia and the Pacific. Each brief promotes cutting-edge approaches to water management that are being developed and implemented by FAO and its technical partners. Content for this Briefing Collection draws from two programmes led by FAO's Regional Office for Asia and the Pacific:

Asia Pacific Water Scarcity Programme (WSP): The WSP aims to bring water use to within sustainable limits and prepare countries for a productive future with less water. The WSP is assessing the scope of water scarcity in the region, evaluating effective management response options (primarily water accounting and allocation), supporting improvements in governance, and assisting partner countries to implement adaptive water management in the agriculture sector using appropriate and newly developed tools and methodologies. The WSP is also establishing a regional cooperative platform to enable countries to share solutions and experiences, in addition to ensuring national engagement at the highest political level.

Next Generation Irrigation and Water Management Programme (NextGen): Gen draws on global best practices to accelerate the modernization of irrigation systems and water management practices in Asia and the Pacific. NextGen aims to ensure a bioeconomy that balances economic value and social welfare with environmental sustainability. The programme addresses cross-cutting issues in irrigation and water management, such as irrigation performance, food security, eco-system health, gender equality, fisheries, and aquatic biodiversity. In this way, NextGen promotes the implementation of integrated and evidence-based policies and practices in micro and macro environments, using technological, organizational, and social innovations. NextGen is undertaken in collaboration with the Australian Water Partnership, supported by the Australian Department of Foreign Affairs and Trade.

For further information please contact:
FAO Regional Office for Asia and the Pacific
E-mail: FAO-RAP@fao.org
Tel: (+66) 2 697 4000
Fax: (+66) 2 697 4445
Food and Agriculture Organization of the United Nations
Bangkok, Thailand

Australian Water Partnership UC Innovation Centre (Bldg 22),
University Drive South, Canberra ACT 2617, Australia
Phone: +61 2 6206 8320
Email: contact@waterpartnership.org.au
Webiste: waterpartnership.org.au

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