eWater submission on Australia's New International Development Policy

eWater Ltd is a not-for-profit company jointly established and owned by the Australian Federal and all State and Territory governments to maintain and further develop Australia's world-class water modelling tools, and to provide support and training for nationwide and international application. eWater has strong international partnerships through managing the Australian Water Partnership and Mekong Water Solutions (based in Cambodia), both with DFAT support, and through support to the Mekong River Commission. eWater welcomes this timely review and is pleased to offer this submission for your consideration. (For more details see Annex A)

INTRODUCTION

Water is critical for all life on earth yet in many regions freshwater is becoming scarce, undermining economic growth, increasing poverty, and damaging the environment on which all life depends. Water is the primary medium through which climate change effects are manifest including through droughts, floods, water stress, and in driving degradation in water quality. Water is essential to achieving the Sustainable Development Goals. Water is the focus of SDG 6 but is also critical to achieving many of the other SDGs including SDG 1, 2, 3, 5, 11, 13, 14 and 15.

Water scarcity impacts poor and marginalized groups severely, impacting their livelihoods and health. For many women and girls, water scarcity means more laborious, time-consuming water collection, putting them at increased risk of attack and often precluding them from undertaking education or paid work.[i]

As the world's driest inhabited continent, Australians have had to live with highly variable rainfall and cycles of devastating floods and prolonged drought, often leading to severe bushfires and soil loss. In response, Australia has developed highly specialized water management skills and tools to deliver high quality water for urban centers and productive irrigation regions sustainably, despite the highly variable supply. The climate crisis is a water crisis and eWater submits that Australia can make a unique contribution assisting countries to strengthen their water security.

KEY TRENDS OVER THE NEXT 5-10 YEARS

Climate change will be the defining issue of this century and the focus of Australia's international development policy and actions for the next decade and beyond. The climate crisis is fundamentally reshaping our world with grave implications for developing countries and especially for poor and marginalised people. Climate change is impacting food security, energy security, public health, straining resources and potentially contributing to conflict and displacement.

The 2021 report from Intergovernmental Panel on Climate Change (IPCC) observed that the climate crisis is already affecting weather and climate extremes in every region across the globe.[ii] The estimated losses from natural disasters in 2021 amounted to more than $280 billion globally, 70 billion more than in 2020 and $114 billion higher than in 2019[iii]. The true costs of climate change are still hidden, from threats to food security as a result of drought to biodiversity loss from the destruction of nature.

The 2021 State of the Global Climate[iv] report is a chronicle of climate chaos. As the World Meteorological Organization shows clearly, change is happening with catastrophic speed -- devastating lives and livelihoods on every continent. The last eight years have been the warmest on record, making every heatwave more intense and life-

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threatening, especially for vulnerable populations. Sea levels are rising at twice the speed of the 1990s - posing an existential threat for low-lying island states, and threatening billions of people in coastal regions.[v]

COVID-19 prompted a global recession, but stark differences in vaccination rates between countries laid bare the economic divergence between rich and poor countries. At the beginning of 2022, 50 countries had vaccinated more than 70% of their population,[vi] with some receiving booster shots, while the vaccination rate in the poorest 52 countries—home to 20% of the world's population—was still only 6%.[vii] By 2024, the global economy is projected to be 2.3% smaller than it would have been without the pandemic.[viii]. By 2030, 51 million more people are projected to live in extreme poverty compared to the pre-pandemic trend.[ix]

The climate crisis lays bare issues of inequity and injustice and drives increasing polarisation and resentment within and between societies. When ranked by income, the top 50% of states are responsible for 86% of cumulative global CO2 emissions, while the lower half are responsible for just 14%.[x] Social cohesion is at risk, political consensus has been eroded, and the poorest states risk instability and possibly collapse.

In parts of the Southwest Pacific, sea surface temperatures and ocean heat are increasing at more than three times the global average and harming vital ecosystems, whilst sea level rise poses an existential threat to low-lying islands and their people, according to a new report from the World Meteorological Organization (WMO). The State of the Climate in the South-West Pacific 2021 shows how weather-related disasters are undermining socio-economic development, and threatening health, food and water security.[xi]

The "livelihood crises" caused by the climate crisis has been identified by the World Economic Forum as "one of the most potentially severe risks over the next decade." Millions of people are already seeking to cross borders in search of better economic opportunities. Over the last decade, the number of international migrants has grown consistently, from 221 million people in 2010 to 281 million in 2020.[xii]. The impact of climate migration in Europe and the US has had significant political repercussions. A sharp increase in 'livelihood migration' from the Indo-Pacific to Australia could ignite political instability in Australia.

Australia's International Development policy must maintain a focus of reducing global policy and assisting those people and states most severely impacted by climate change. Australia faces significant risks from potential state failure leading to increased instability and potentially conflict in our region as well as increased 'livelihood migration' from Asia to Australia. But climate change also provides opportunities for Australia to share its technology and expertise, especially in the water sector, as this submission argues, with countries in the region and those facing water scarcity, strengthening existing partnerships and forging new ones for international trade and mutual benefit.

AUSTRALIA'S UNIQUE CONTRIBUTION

Australia's drought and flooding rains provide intense water security challenges. In response, Australia has built significant capability and expertise. From efficient irrigation, a transparent water allocation system, drought mitigation measures, capping water diversions, allocating environmental water flows, to urban water and sanitation reforms, Australia has become an internationally recognized leader in water policy and management. More importantly in the context of climate change, Australia's reforms include an explicit focus on economic efficiency and environmental sustainability.[xiii] However, Australia is a continent with many different climate zones and many different irrigation water use profiles.[xiv] Consequently, Australian states have had to develop water governance frameworks appropriate to their climate and environment contexts. One size does not fit all.

Australia's water problems are not solved; clearly challenges remain in managing water in the Murray Darling Basin and in remote areas. But many countries facing serious water shortages are interested to learn from Australia's experience and to use the tools and technologies developed over the past 30 years. No other 'rich' aid donor country has the experience of managing water in the context of scarcity and responding to a large-scale water crisis, the Millennium Drought. In response, Australia developed a new approach built on leading science, innovative technology and proven water management tools to achieve sustainable and efficient water use.

When Australia participated in the UN-World Bank initiated High Level Panel on Water (2016-18), it became clear that Australia was recognized for its leading international experience and expertise in water scarcity and many countries facing water scarcity sought Australia's assistance.

Water management in the context of water scarcity is Australia's unique contribution to international development and climate resilience. Australia is best placed to assist in following broad areas:

- Assessing climate change impacts on water availability and demand over time
- Establishing effective water policies, regulatory systems and institutions to enable infrastructure investments (governance policies and systems)
- Collecting and managing water data and developing water information systems
- Increasing irrigation efficiency at small and large scale
- Enabling water allocations and management of river basins and urban water supply
- Assisting water sensitive urban design and increased water use efficiency in urban centers

By making water management a headline priority in development assistance, Australia could contribute to:

- ***Improve water management and efficient water use***

2.3 billion people live in water-stressed countries, of which 733 million live in high and critically water-stressed countries.[xv] Climate change is exacerbating water scarcity and water must be treated as a scarce resource.

Ensuring sustainable water availability and strengthening water security will require investments in water infrastructure as well as effective and efficient management of water resources. Integrated water resource management (IWRM) provides a broad framework for governments to align water use patterns with the needs and demands of different users, including the environment.

eWater Source, Australia's agreed National Hydrological Modelling Platform (NHMP) supports integrated planning, operations, and governance from urban, catchment to river basin scales including human and ecological influences. Source accommodates diverse climatic, geographic, water policy and governance settings for both Australian and international climatic conditions. Source integrates water resource assessment and policy, to produce water accounts and operate rivers and share water according to allocations and agreements

Designed to be adaptive and readily customized to meet local or specific needs, Source is underpinned by world-class science and technical innovation and has been applied and validated extensively in a wide range of real-world water use situations, both in Australia and internationally. Source has been applied to rivers in the Mekong region, across South Asia, in Africa and the Middle East.

IWRM depends on good quality data on water resources and Australia has given high priority to data collection and analysis and communications to the public through the Bureau of Meteorology

In urban water management, there is growing adoption of nature-based solutions (NBS) to use, or mimic, natural processes to help communities to recycle and reuse water. NBS can bring about multiple economic, environmental, and social benefits, such as reduced infrastructure costs, job creation and green growth, and health and recreational opportunities. NBS approaches are widely practiced in urban Australia.

- ***Food Security***

The agricultural sector accounts for 85% of the world's freshwater consumption. [xvi]The World Bank estimates that agricultural production will need to expand by up to 70 percent by 2050 to feed humanity, requiring up to 50 percent more water.[xvii] Global food security will depend on improved water management in agriculture, especially irrigated agriculture, and eWater Source has become an important tool for understanding water supply and demand, managing allocations between users and delivering water when and where it is needed by irrigation farmers. eWater has also worked with Geoscience Australia and their data management tool (Data Cube) to use satellite data and water management tools to develop streamflow forecasts for small hold farmers in Cambodia.

As a global leader in agricultural production and trade, Australia has extensive knowledge and experience in agriculture and fisheries with a strong agricultural research sector. Australia has developed innovative technology to increase the efficiency, sustainability, and productivity of agricultural water, such as Rubicon technology for automatic distribution of water for irrigation. The Australian Centre for International Agricultural Research (ACIAR) focuses on improving food security and reducing poverty among small holder farmers and rural communities

globally. CSIRO has also developed technology (Virtual Irrigation Academy) to assist small holder farmers to improve their food security and climate resilience through more equitable and sustainable irrigation.

- ***Improved health outcomes***

Sustainable water management is essential to achieving SDG 6; it is also critical to wellbeing and life chances for women and girls. Access to safe and affordable water will free women and girls in many developing countries from the time burden of walking long distances every day to collect water for their families. It will reduce the number of babies that die as a result of mothers giving birth in unhygienic health care facilities that lack safe water. Girls will no longer miss school because there are no appropriate water and sanitation facilities.[xviii]

Washing hands regularly was the key public health measure to reduce the spread on COVID-19, but this was not possible for many millions of people who do not have access to safe water. Australia's knowledge and expertise in assessing and managing surface water and groundwater reserves can assist in delivering the goals of SDG6.

- ***More secure energy generation***

States across the Indo-Pacific are turning to hydropower as a low carbon way to increase their electricity generation. But in many rivers, building dams for hydropower is causing concern over environmental impact and increasing competition with other water users. In the Mekong, eWater has been assisting the Mekong River Commission to increase regional understanding of the seasonal flow regimes so that the water resources can better managed for the benefit of all users.

- ***Improved economic development and investments***

Inadequate water supply can be a major constraint to investment in inclusive and sustainable development. The OECD estimates that most countries in the Asia-Pacific need to allocate 1 – 2% of their GDP to water supply and sanitation infrastructure over the period 2015-2030 to achieve universal access to safely managed water supply and sanitation for all.[xix] In East, South Asia and the Pacific, it is estimated that USD 7.8 billion of investments are needed each year between 2015 and 2030 for irrigation expansion and efficiency and water management improvements.[xx]

But as the OECD notes 'a weak enabling environment for investment, [is] hindering the development of sustainable financing models[xxi]. Australia's experience in water reform demonstrates that water governance, including laws, regulations, policies, institutions and processes are critical to better decisions about water use. See Annex B. Australia's knowledge of water governance is a key entry point to improving the enabling environment for investment in water resource development.

- ***Sustainable water and wastewater management in urban centers***

The unprecedented scale and pace of Asia's urbanization exacerbates its water deficits. Developing Asia has become more urbanized, with nearly half of its population living in cities in 2018, up from 20% in 1960.[xxii] This rapid urbanization and increasing frequency of extreme weather events sharply exposes Asia's water and sanitation access deficits. The *Water Futures and Solutions: Asia 2050* report notes that up to 1.4 billion people could be living in water-stressed regions of Asia and the Pacific by 2050.[xxiii]

Urban water services in Australia are recognized as delivering efficiency, productivity, and security of supply as well as upholding robust environmental standards. A review of Australia's Urban Water Reform experience for the World Bank noted that "this has not always been the case."[xxiv]

As climate induced water scarcity poses new challenges to urban centres, water sensitive urban design (WSUD) seeks to blend traditional rainfall-dependent and alternative water supplies (such as recycled water, rainwater tanks) to provide water security. To understand this blend of supplies and potential trade-offs, eWater has combining three models to form an integrated modelling platform able to handle the interaction between various systems as well as capture all water cycle components - including rainfall-runoff driven stormwater, potable water, and recycled wastewater – to assist a robust and reliable decision making for reliable urban water supplies.

LESSONS FROM EXPERIENCE

COVID-19 and climate change are creating new urgency for action and underscoring the need to do things differently. The pandemic has made it even clearer that a dispersed ability to act and resolve problems, and strong

local governance, are both critical to responding quickly and effectively during a crisis. The experience in responding to the pandemic has shown that digital technology and the Internet of Things is a game changer for sharing information and advice with local and isolated communities. It has enabled local communities to access information when and where they needed it – and in the languages they needed. The virtual mode of interaction and online training brought benefits in terms of a larger audiences, enhanced participation and increased frequency of interactions. These lessons can help inform actions for climate resilience.

eWater's experience in the Mekong region has shown that a well-informed understanding of the needs of the relevant stakeholders (and the public) has been critical in shaping support from eWater for appropriate products and services. Clear and regular communication between partners is essential to keep track of project implementation, to manage expectations, eliminate potential risk/confusion and promptly address emerging challenges. Improving upstream-downstream cooperation in transboundary basins lies in the importance of reliable data, good science and public information to enable informed debate on complex water management issues.

ODA/ Non ODA and partners

A focus on climate change for Australia's new International Development Policy (IDP) and program will require a strong focus on **technology exchange** and technical cooperation. New and improved technology will be critical in response to the climate crisis and its impacts on the water-food-energy nexus. Increasingly technology is available to empower farmers with simple to use tools that strengthen the adaptive capacity and productivity for smallholder farmers in rainfed and irrigated areas. Sharing such tools generates confidence, innovation and ownership for small holder farmers. Equally technology include satellite-based data and systems can be used for remote management of large-scale irrigation systems.

Critical to introducing new technology is providing **capacity building** for people to effectively use the technology. Australia has a long and proud experience in providing training and capacity building in a range of sectors for people from the region. Studying in Australia with support from a DFAT scholarship or fellowship has built long term relationships with organizations and government officials from across the region. eWater strongly supports the continuation of scholarships for undergraduates to study water resource management in Australia.

Australia's expertise in managing water resources in the context of scarcity could most easily be further applied in the regions that are facing the most severe water scarcity: South Asia, Central Asia, Africa and the Middle East. eWater submits that a small program of assistance in technology exchange, and water governance in water scarce regions should be maintained.

Australia enjoys long-standing **partnerships** with governments and key regional organizations in the Indo-Pacific. Australia's investment in Digital Earth Africa, sharing Australia remote sensing capacity and satellite data system developed by Geoscience Australia and CSIRO, has been warmly welcomed across the continent. For a relatively small investment Australia could help participating countries in Africa to use water observations from space to improve their management of water in the face of threatening scarcity. Such an investment could help build support in Africa for Australia's bid for a seat on the UN Security Council.

United Nations agencies and the **multilateral** banks (World Bank, Asian Development Bank, and others) are aware of and keen to apply the lessons from Australia's water expertise. This provides Australia with a unique opportunity to share our experience and technology to strengthen climate resilient water management in regions facing scarcity. However, Australia must negotiate stronger partnerships with the Development Banks to ensure Australia's water technology is trialed in water management projects to assist water scarce regions.

Conclusion

Climate Change is exacerbating the water scarcity crisis through changing weather patterns and increasing frequency and intensity of extreme weather events. The water challenge has become "too much, too little or too polluted". Climate change adaptation primarily demands climate resilient water management. Australia has the opportunity to deliver a comprehensive program of assistance to countries facing increasing instability and poverty due to climate driven water scarcity.

Michael Wilson, Group CEO – eWater Limited

ANNEX A

Who is eWater?

1. eWater Ltd is a not-for-profit company jointly established and owned by Australian Federal and State and Territory governments to maintain and further develop Australia's world-class water modelling tools, and to provide support and training for nationwide and international application. eWater is governed by a Board of Directors who bring a diverse range of skills and experience including water policy and management, commercial application of Australian technology, research and development, and strategic planning.

2. Managing water to find the balance in allocations between agriculture, industry and growing urban centres while protecting our unique environment are an ongoing activity for governments, and hydrological models remain a vital tool, particularly when it comes to predictions of the future. Following two decades of scientific research to develop a next generation set of tools for water management, Federal and State governments agreed to apply, maintain and further develop these unique tools through eWater Ltd.

3. eWater provides modelling tools, technical support, capacity building and a community of practice in:

- Integrated catchment management
- Water resource planning
- River system management and operations
- Stormwater quality modelling
- Urban water management
- Planning environmental water use
- Water management governance

4. Over the past 7 years, eWater has developed close working relations with DFAT, the World Bank, Asian Development Bank, the Mekong River Commission and established partnerships with a range of government water authorities in India, Laos, Cambodia, Pakistan, Afghanistan, China and Egypt.

5. In 2015, eWater Ltd was selected by DFAT to establish and manage the Australian Water Partnership (AWP). The 2017 Foreign Policy White Paper names AWP as the vehicle to share Australia's water sector expertise internationally through requests for assistance from the Indo-Pacific region. The unique partnership approach of the AWP results in an agile, collaborative initiative that can quickly respond to critical needs, ensuring positive development outcomes and diplomatic successes. The AWP has over 200 Australian partners, many from the private sector, that work collaboratively with many governments and multilateral partners in the region to enhance sustainable water management in the Indo-Pacific region.

6. More recently eWater has established Mekong Water Solutions (MWS) in partnership with the Australian Government to provide services to improve the sustainable management of water and provide irrigation design in the region. Based in Phnom Penh, MWS offers advice, project management and delivery services for irrigation and sustainable water management. MWS combines Australia's proven expertise in water management with local staff experienced in irrigation efficiency and local conditions to deliver regional water solutions across the Mekong Region.

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