Not timely to water down issue

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GLOBALLY we are facing a water crisis, which will require a multitude of responses. For governments, this means addressing more specifically the main pillars of climate adaptation, water governance, water quality and water investment.

Water security may not be an immediate risk to us as Malaysia is a water-rich country, with rainfall exceeding 3,000 mm annually, contributing to an estimated 900 billion cubic metres of annual water resources.

Despite this, we are seeing limits to water abundance and access. Critically, there is no climate resilience without water resilience.

As Malaysia transitions towards cleaner and more sustainable energy sources as part of the National Energy Transition Roadmap (NETR), we need to take stock of the amount of freshwater required.

For example, in terms of electric mobility, a key lever of the NETR, the decision to use either lithium ion batteries or hydrogen fuel-cell batteries needs to be weighed carefully given the high usage of water required for the lithium extraction process; approximately 1.9 million litres of water are used per metric tonne of lithium.

Within South-East Asia, we are dealing with a paradox — there is either too much water (flooding), or too little water (drought and supply disruption). These issues also impact water quality and sanitation.

The risks are significant as evidenced by the estimated RM6.1bil worth of damage from flooding events in December 2021 and January 2022 (equivalent to 0.4% of Malaysia's nominal GDP), according to the Department of Statistics Malaysia.

To address climate change and nature preservation in South-East Asia, there needs to be a structural revamp of drainage systems. Improved drainage systems can help reduce the potential for systems overload and prevent the flow of sediments and toxins into rivers and streams.

To build greater water resilience, changes in rain patterns, including rainfall frequency and intensity, need to be monitored and accounted for. Presently, there is limited access to weather information tailored to economic sectors, which could hinder efforts to channel water where it's most needed.

Keeping up with needs of population

For Malaysia, Indonesia and Thailand, it's concerning that the water infrastructure is inadequate for the population, especially with increased migration from rural to urban zones. All three countries consistently flip-flop on the same issues around flooding and water supply disruption.

More work needs to be done in the water utilities sector to address climate change at the structural level, including in governance and financing. Non-revenue water (NRW) — where water is lost before reaching the end consumer — is a long-standing issue and can be minimised albeit not totally eradicated via the structural and systematic upgrading of water infrastructure. Old water supply pipes facing leakages and other issues are in critical need of an overhaul.

In Sarawak, the country's largest state, the NRW rate as of 2021 is at 45.6%. Its NRW replacement exercise for ageing water pipes is expected to span some 2,700km.

Malaysia's current NRW nationally is 37.2% (with four states' NRW exceeding 50%). Getting to the root cause of the issue involves fixing leaks, addressing water theft issues through investment in monitoring technology and working with the public to report water loss activities, among other solutions.

Effective water management and governance is critical in building sustainable utilities and increasing climate resilience. A stocktake of public infrastructure, gap analysis and comprehensive review of policy effectiveness is essential to address changing conditions and population pressures.

Where investments are borderline profitable, they can be restructured with the view to include them in the list of profitable projects. Additionally, the government can consider new innovations to address water challenges.

Countries like Singapore are exploring desalination technology (traditionally only applied in desert countries like the United Arab Emirates) to boost freshwater availability. While water desalination has not taken off in Malaysia due to the abundance of water sources and the high investment cost per tonne of water, it could potentially be an area of opportunity especially for remote or coastal areas that lack clean water.

In addition, the blue economy is also gaining traction — focused on responsible and sustainable use of the ocean and its resources, including options for climate mitigation through nature-based solutions. Recent research has shown that without proactive mitigation measures, the cost of climate impacts on the ocean could add up to US$428bil (RM2.05 trillion) a year by 2050.

> ■ Critically, there is no climate resilience without water resilience

> ■ Effective water management requires a whole-of-government approach

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Addressing nuts and bolts of the issue

Water equity needs to be discussed hand in hand with investment issues in pursuing a just transition. Everyone has the right to access clean water, yet there are stories of Malaysians in rural areas having to walk up to 16km a day to get water.

More awareness is needed among residents on not wasting water. In 2022, Malaysia's average consumption was 237 litres per capita per day (LCD) according to the National Water Services Commission (Span), higher than the recommended value by the World Health Organisation (WHO), which is 165 LCD.

While some states recently had water tariff updates, the rates are currently inadequate and historically did not cover the operating expenditure of the water operators while capital expenditure has always been borne by the government. This is not uncommon even in advanced countries like Japan, which arguably has a 'good' water management system.

Charging more accurately for water is important for responsible use, especially in South-East Asia where water has been traditionally undervalued and underpriced. Access and affordability are key considerations in tweaking the water pricing structure.

In conclusion, effective water management requires a whole-of-government approach where different levels of the government (federal, state, local) across various ministries/agencies need to collaborate. We also need to invest in water infrastructure financing through public-private partnerships that can promote sustainable solutions such as a circular water economy.

Water investment and management needs careful planning and due consideration of critical factors such as land usage and proper rehabilitation of mining sites to avoid water pollution and waste management for nature preservation. All affected parties need to be engaged.