INSAP
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INSAP Brief: Malaysia's Water Woes

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Malaysia is a country blessed with relatively robust water reserves via a wide access to ample rainfall averaging 3,000mm annually and rich surface water resources such as rivers which provides approximately 97% of raw water used in agricultural, domestic and industrial sectors.[1] Given this rich supply of liquid gold, one would expect that the mass population would receive uninterrupted access to clean water. However, the country has faced a myriad of water problems over the years which includes the ageing piping system, increasingly worrying pollution affecting our water sources and the rising non-revenue water (NRW) figures at national level.

Penang: A 96-hour "drought"

Recently, water woes in Penang have been a constant presence in news cycles. The 4-day water disruption which started on 10th January 2024 due to valve replacements[2], threatens not only major inconvenience to almost 600,000 domestic consumers[3] but also potentially run into billions of ringgits in losses for business, particularly in the manufacturing sector, warns the Federation of Malaysian Manufacturers in Penang (FMM).[4] FMM expects close to 500 factories to halt operations momentarily as they rely on using large amounts of water in their manufacturing.[5]

Also, the Penang division of the Malaysian Trades Union Congress reports concerns from workers about employers resorting to work replacements, annual leave deductions and even no pay during the 4-day water shutdown.[6] While the HR Ministry warned that docking wages or forcing leave during the 10th to 14th January water cut risks RM50,000 fines under the Employment Act 1955, do we have enough manpower and resources to actually investigate and prosecute violators?

[1] https://www.wwf.org.my/our_work/freshwater/
[2] https://www.thestar.com.my/news/nation/2023/12/07/penangites-told-to-brace-for-96-hour-water-cut-from-jan-10
[3] https://www.msn.com/en-my/news/national/penang-water-woes-most-factories-to-close-business-will-be-greatly-affected/ar-AA1mrrRZ
[4] https://www.thestar.com.my/news/nation/2023/12/09/penang-water-cut-factories-staring-at-billions-in-losses
[5] https://www.freemalaysiatoday.com/category/nation/2024/01/04/majority-of-500-penang-fmm-members-to-stop-work-for-2-days/
[6] https://aliran.com/civil-society-voices/pay-workers-salaries-during-penang-water-supply-disruption

Additionally, there has been valid concerns and queries raised on the lack of planning prior to the announcement of the 4-day closure, with experienced individuals in the construction and water industries stating that the valve replacements can be done in a much more efficient and speedier manner while avoiding the extensive water disruption.[7] This raises serious questions on if this disruption could have been handled better by the current Penang government.

Digging deeper into Malaysia's water issue

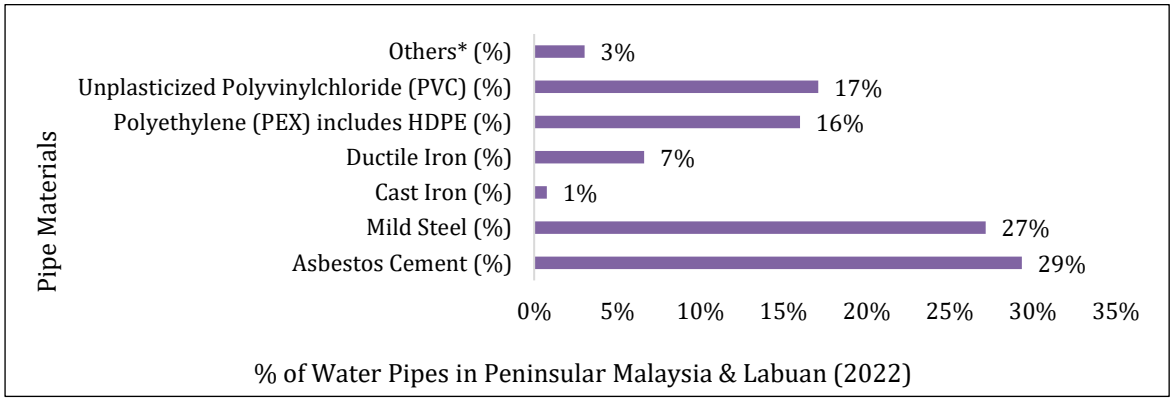
First, the escalating threat of pollution demands immediate attention. Malaysians should no longer tolerate the disruptions and potential health risks caused by contaminated water. For instance, in the Klang Valley, consistent unscheduled water disruptions[8] caused by odour[9] and river[10] pollution serve as a constant reminder of the consequences of water contamination. These issues pale in comparison to larger events like the 2019 Kim Kim River tragedy, which had devastating consequences for both the environment and human health. The illegal dumping of toxic waste not only contaminated nearby rivers[11], impacting the livelihoods of village fishermen, but also released toxic fumes that hospitalized nearly 3,000 individuals[12].

In addition to that, the majority of water pollution in Malaysia originates from non-point sources, contributing to a staggering 70% of river pollution[13]. Do existing legislations adequately address this complex challenge? Our ageing water pipes also further exacerbates the issue. As illustrated in Figure 1, Asbestos Cement (AC) continues to be the predominant pipe material in Malaysia, despite its extensive use being discontinued in the mid-20th century due to health concerns associated with asbestos.

[7] https://aliran.com/thinking-allowed-online/why-cut-water-for-up-to-four-days-in-penang
[8] https://www.straitstimes.com/asia/se-asia/tempers-flare-as-water-supply-cuts-in-selangor-and-kl-will-last-for-at-least-four-days
[9] https://selangorjournal.my/2023/10/several-areas-face-water-disruption-after-sungai-selangor-odour-pollution/
[10] https://www.straitstimes.com/asia/se-asia/malaysia-river-pollution-leads-to-water-supply-cut-to-more-than-300000-people
[11] https://www.bharian.com.my/berita/kes/2019/08/597373/sungai-daingsungai-kopok-pula-berminyak-dan-berbuih
[12] https://www.businessinsider.my/johor-gas-poisoning-victims-now-at-2775-but-pm-mahathir-says-the-situation-is-under-control/
[13] https://www.thestar.com.my/news/nation/2023/05/02/much-ado-about-malaysias--water-woes

While the newer and safer materials like PVC and PEX are gradually gaining traction, accounting for 17% and 16% respectively in 2022, the sheer volume of old and hazardous AC pipes still in use is daunting. In numerical terms, National Water Services Commission (SPAN) faces an uphill task of replacing nearly 35,000 km of these outdated AC pipes.[14]

Figure 1: Pipes used in Peninsular Malaysia & Labuan by Material (%) in 2022



Source: Data from Suruhanjaya Perkhidmatan Air Negara, Water & Sewage Fact Book 2022, Compilation and Visualizations – Edwin Oh | Others* include (GI) Galvanised Iron & (ABS) Acrylonitrile Butadiene

This underscores the antiquity of our old piping systems, which are prone to frequent damages and breakdowns leading to water disruptions. In fact, the number of complaints related to pipe bursts, breakages, and leaks has seen a significant increase, rising from 465,767 in 2018 to 525,567 in 2022.[15] This data further backs INSAP's argument regarding the ageing state of the piping infrastructure.

The ageing pipe system contributing to frequent water disruptions leads us to another issue, non-revenue water (NRW). NRW refers to water that had been produced but lost before it reached the customers possibly due to water leaks, pipe bursts and theft. In terms of megaliters per day (MLD), Malaysia's NRW at national level stands at 5,389 MLD in 2022 (34.4% of total water), a 9.71% increase from 2018[16] which indirectly

[14] Pipe Length by Material - https://www.span.gov.my/document/upload/Q3O4LCEjI8HFumOTO2OMxO64o9tNAnOw.pdf
[15] No of Complaints – Pipe Burst/Breakage/Leaks https://www.span.gov.my/document/upload/Q3O4LCEjI8HFumOTO2OMxO64o9tNAnOw.pdf
[16] Non-Revenue Water https://www.span.gov.my/document/upload/Q3O4LCEjI8HFumOTO2OMxO64o9tNAnOw.pdf

reflects increased monetary losses. SPAN estimates an annual RM2 billion losses due to NRW.[17]

Further complicating the picture, complaints about faulty water meters have skyrocketed 19.33% between 2018 and 2022, according to SPAN, with a staggering 1.59 million meters exceeding their 7-year lifespan.[18] This raises urgent questions about meter accuracy, billing to consumers and potential under-recording of our NRW.

The alarming figures and the escalating trend of water disruptions and non-revenue water losses highlight the urgent need for a comprehensive and proactive approach to address this issue. The administration must prioritize the replacement of ageing and hazardous AC pipes with safer alternatives like PVC and PEX. The cost of inaction, both in terms of public health and financial losses, is too high to ignore.

Moreover, the authorities need to be held accountable for the estimated RM2 billion annual losses due to NRW. Are the proposed measures under the 12th Malaysian plan – expected to reduce NRW rates nationwide by 35% realistic?[19] Is there a concrete plan in place to expedite the replacement of AC pipes? How is the administration planning to reduce the NRW losses? These are critical questions that demand immediate attention and action.

In terms of action, there has been a RM1.1 billion allocation by the government under the 2024 budget to resolve water supply issues, especially in Kelantan, Sabah and Labuan. The long-term initiatives highlighted by Prime Minister Datuk Seri Anwar Ibrahim include water treatment plants and replacing old pipes in Kelantan and Sabah.[20] While the motives behind this allocation is valid and of good intent, would this allocation be unfair from a national interest perspective? What about Johor, Kedah and Selangor which have more than 6,000 km (in 2022) worth of Asbestos Cement Pipes in use? These densely

[17] https://www.malaymail.com/news/malaysia/2020/12/30/span-says-will-ensure-water-supply-operators-replace-problematic-pipes-to-p/1936034
[18] No.of Meters (>7 years) and No. of Complaints – Billing & Meter https://www.span.gov.my/document/upload/O3O4LCEjI8HFumOTO2OMxO64o9tNAnOw.pdf
[19] https://www.nst.com.my/news/nation/2022/02/770602/tuan-ibrahim-govt-targets-resolve-nrw-issue-under-12mp
[20] https://www.mof.gov.my/portal/en/news/press-citations/budget-2024-unity-gov-t-allocates-rm1-1-billion-to-resolve-water-woes

packed areas also require adequate attention. Also, while both replacement of old problematic pipes and building new water treatment plants – the government should approach this in a more systematic manner with focus on immediate impactful projects (pipe replacements) on a national level scale besides constructing new water treatment plants.

Ultimately, this allocation would not be sufficient and we hope that there is more fiscal injection into these efforts before both social and financial costs experience further hikes.

Are more expensive water bills the right way forward?

With the deteriorating climate of our water resources, there has been talks of a water tariff hike where the National Water Services Commission (SPAN) stated that the possible hike is to cover expenses required to carry out upgrading work on old pipes and facilities[21]. However, should the administration first tackle the existing problems of leaks and inefficiencies especially in our piping system before expecting consumers to shoulder the weight via water tariff hikes, where consumers could be paying 10 cents more per day.[22]

While the estimated RM3 monthly addition to water bills may seem modest, it's imperative for authorities to minimize the multiplier effect by ensuring businesses and companies refrain from exploiting the situation to raise prices of goods and services. Ultimately, a water tariff hike may be inevitable to ensure the sustainability of our water resources and infrastructure but INSAP believes that the timing and implementation raises valid concerns. Firstly, the additional financial burden comes on top of recent cost increases like the 10% tax on Low Value Goods[23] and the anticipated rise in electricity bills.[24] Secondly, non-domestic users already faced a water tariff hike in 2022 (a 20 sen increase per cubic metre)[25], leading to potential spillover effects that could indirectly

[21] https://www.thestar.com.my/news/nation/2024/01/05/water-tariff-hike-to-keep-taps-running-not-for-profit-says-span
[22] https://www.malaysiakini.com/news/692179
[23] https://insap.org.my/quick-economic-update-why-malaysias-proposed-lvg-tax-misses-the-mark/
[24] https://www.thestar.com.my/news/nation/2023/12/23/price-of-electricity-to-go-up
[25] https://www.thestar.com.my/news/nation/2022/07/30/new-water-tariffs-for-non-domestic-users-from-monday

impact consumer prices as businesses adjust their costs. Also, with recent water disruptions still fresh in their minds, asking citizens to shoulder a tariff hike is particularly untimely.

Therefore, the administration to carefully consider the cumulative impact of these price increases on individual and household affordability, especially during these challenging economic times. Prioritizing efficient water management through leak repair and piping systems upgrades via more strategic spending (from the RM1.1 billion allocation in Budget 2024) before seeking increased consumer contributions would demonstrate a commitment to responsible fiscal policy and shared sacrifice.

There has also been talks on adjustments to the current mechanism for water tariffs[26] which is said to contribute in overcoming the non-revenue water problems and boost our water infrastructure. INSAP hopes that updated tariff setting mechanism is one that reduces the growing disparity in tariffs between Malaysian states, continues to protect interest of low-income users and promote transparency while being sustainable.
Next, the administration must revisit existing legislation. For instance, a review on the Environment Quality Act 1974 (Act 127) is needed along with added initiatives to introduce stringent measures to combat those whom do not practice proper industrial waste disposal. In addition to that, there have been hints by the administration that nation's Ministry of Natural Resources, Environment, and Climate Change (NRECC) is on the brink of presenting a Cabinet Paper, proposing a new water tariff mechanism that devolves the power to determine water tariffs to individual state water operators, eliminating the need for federal approval – in other words, decentralizing the water tariff control to state level.[27] While this possible move would align well with the 9th schedule of the Federal Constitution, there could be further pressure on the already evident disparity in tariff across different states. Hence, the federal government must work with the National Water Services Commission (SPAN) to ensure there is consistent monitoring

[26] https://www.thestar.com.my/news/nation/2023/12/10/suggested-mechanism-for-new-water-tariffs-to-be-brought-to-cabinet-next-week
[27] Malaysia Proposes Decentralized Water Tariff Mechanism Amidst Water Crisis - BNN Breaking

and communication with all states to ensure there is no abuse of authority and avoid further leakages.

Next, the administration in Putrajaya must also help facilitate sharing of water sources and expand areas of cooperation among states. For example, there has been a verbal agreement where the Perak will sell treated water from Sungai Perak to Penang. However, the project which is expected to take up to 8 years long will not be able to materialize as of now since the federal government has yet to allocate the money to build a plant.[28] Given their long-term vision whereby they aim to transform the water sector to one that has investment value[29], shouldn't this project serve as a prime example for immediate action? Its potential to foster inter-state cooperation and generate long-term returns through the sale of treated water aligns perfectly with their stated goals.

With new taxes implemented and more upward revisions on existing taxes (SST to increase to 8%)[30] taking place in 2024, the federal government must put these new revenue sources to good use – for the people.

Finally, while it's crucial for the administration and local authorities to address these issues, tackling the water issues in Malaysia also requires collective action where we as consumers must play a role in ensuring usage of water is at a sustainable level and conservation is done where possible. Water consumption in Malaysia is generally high. While Malaysia's daily per capita water consumption dipped from 251 litres in 2021 to 237 litres in 2022, it remains relatively high compared to United Nation's international benchmarks at 165 litres.[31] With our population expected to reach 41.5 million by 2040[32], water resources must be protected before it is too late.

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[28] https://www.freemalaysiatoday.com/category/nation/2024/01/05/perak-penang-water-deal-will-take-6-to-8-years-to-realise-says-chow/
[29] https://www.malaymail.com/news/malaysia/2023/11/22/by-2040-malaysias-water-sector-will-no-longer-be-seen-as-welfare-but-having-investment-value-says-nik-nazmi/103569
[30] https://ringgitplus.com/en/blog/budget-2024/govt-to-increase-sst-to-8-for-selected-services-introduce-capital-gains-high-value-goods-tax.html
[31] https://www.malaymail.com/news/malaysia/2023/12/08/span-perlis-terengganu-kedah-record-highest-amount-of-domestic-water-use-in-malaysia/106494
[32] https://dev.dosm.gov.my/portal-main/release-content/population-projection-revised-malaysia-2010-2040