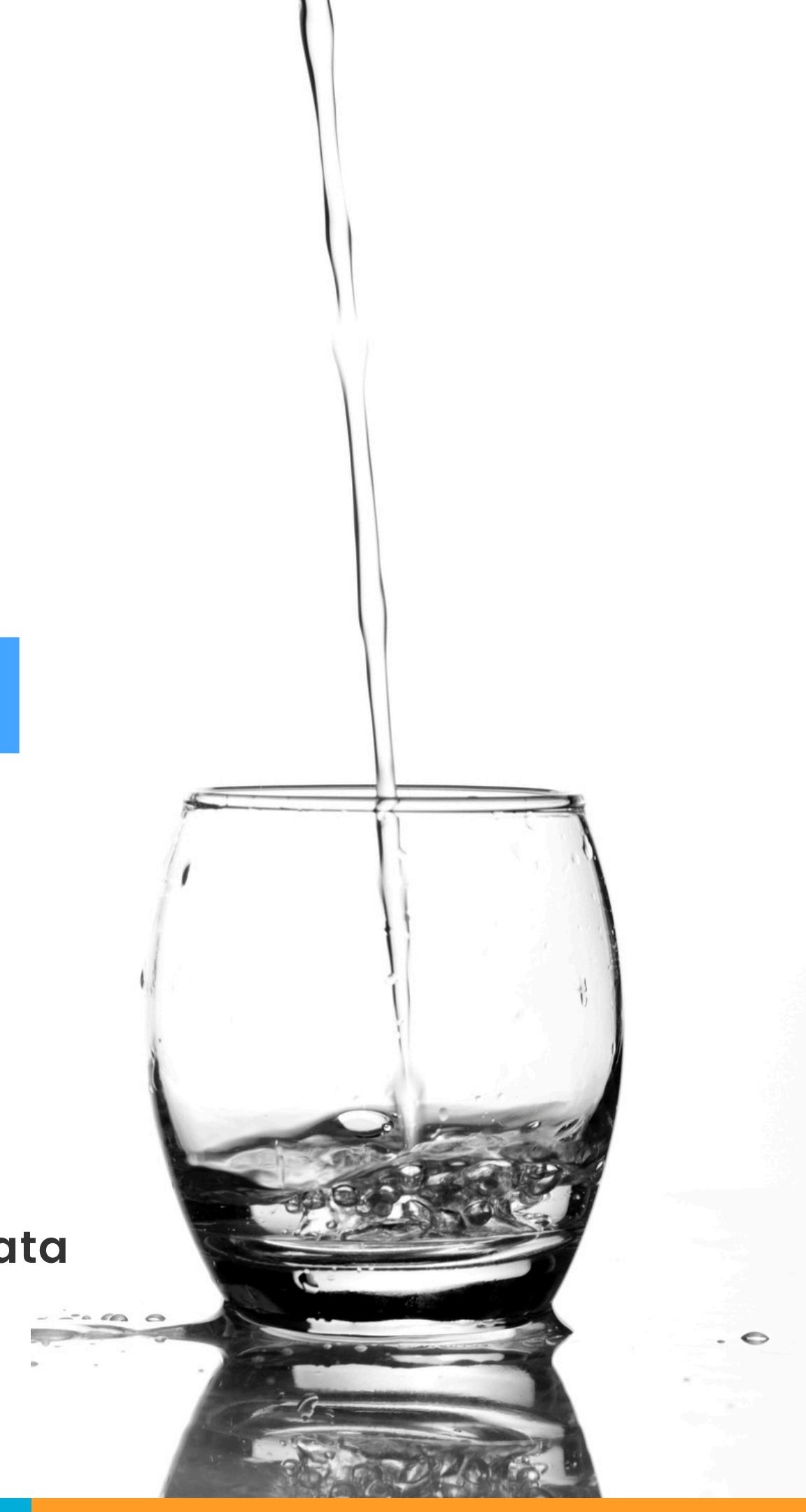




SUSTAINABLE WATER SUPPLY AMIDST HIGH HEAT INDEX



TEAM CHAD – Creative Humans Analyzing Data
Technological Institute Of the Philippines, Quezon City
De Guzman, Jemuel Andrew
Villamor, Kurt Russel



News About the High Heat Index is Rampant...

Extreme heat scorches Southeast Asia, bringing school closures and warnings

Manila (AFP) – Extreme heat scorched parts of South and Southeast Asia Wednesday, prompting schools across the Philippines to suspend classes, heat warnings in the Thai capital and worshippers in Bangladesh to pray for rain.

Issued on: 24/04/2024 - 10:27 Modified: 24/04/2024 - 14:18 4 min



A ‘once-in-200 years’ heat wave caught Southeast Asia off guard. Climate change will make them more common

Southeast Asia is enduring a brutal, record-setting heat wave

Schools close and crops wither as ‘historic’ heatwave hits south-east Asia

Climate Inaction Drives Heat Wave in Southeast Asia, Report Says

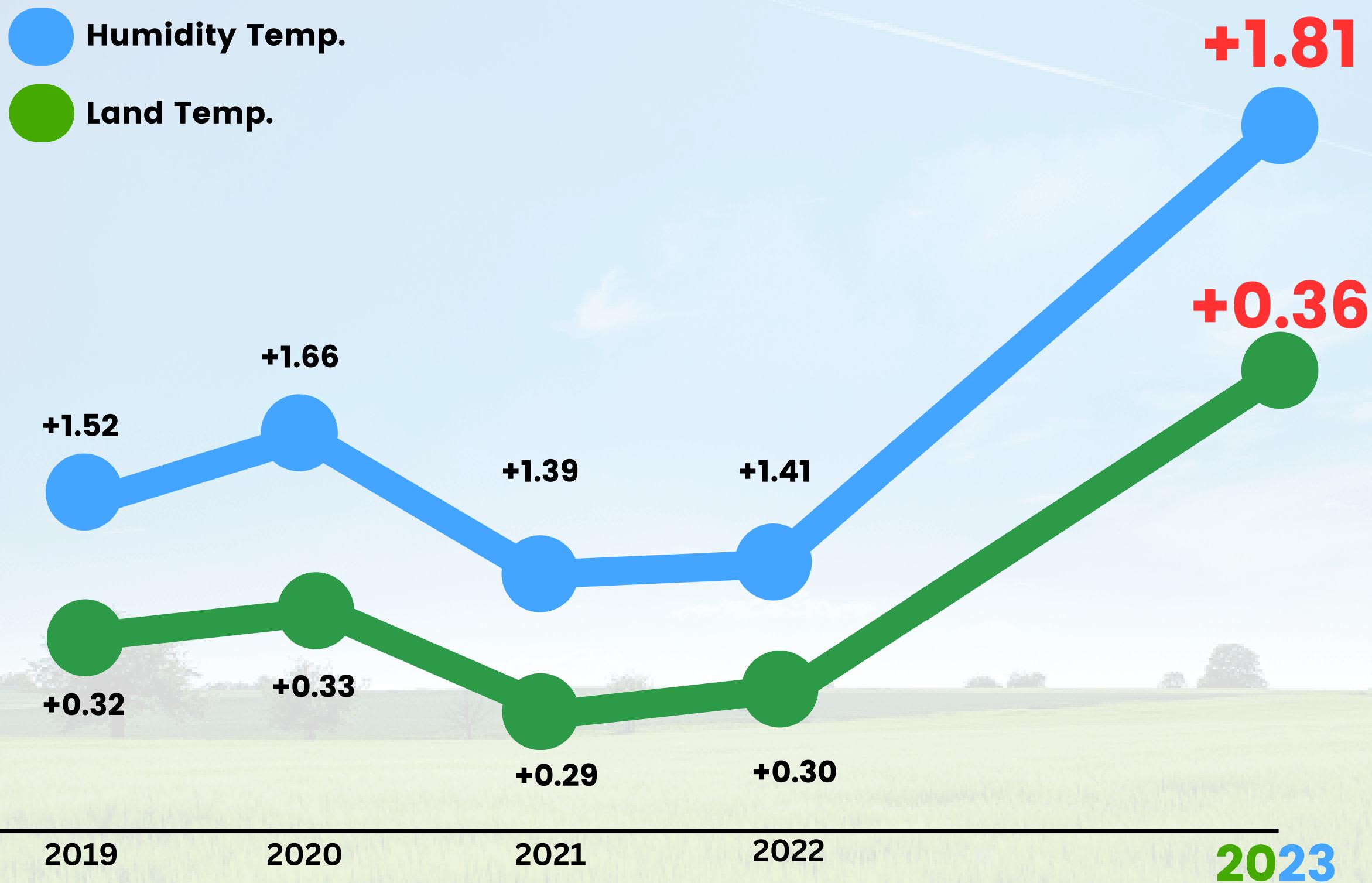
Officials, Citizens Struggling with High Heat in Southeast Asia



Mostly in the ASEAN Regions!

Source: (1) Sharples, B. (2023, May 17). Climate inaction drives heat wave in southeast Asia, report says. Bloomberg.com. <https://www.bloomberg.com/news/articles/2023-05-17/climate-inaction-drives-heat-wave-in-southeast-asia-report-says>

World Average Humidity & Land Temp. Change in 5 years



In 2023 there is a,
**28%
▲**
increase in Avg. Humidity
Temp. change and a
**20%
▲**
increase in Avg. Land
Temp. from 2022.

- This increase is also heightened by the Phenomenon “El Niño” and Climate Change that currently Present

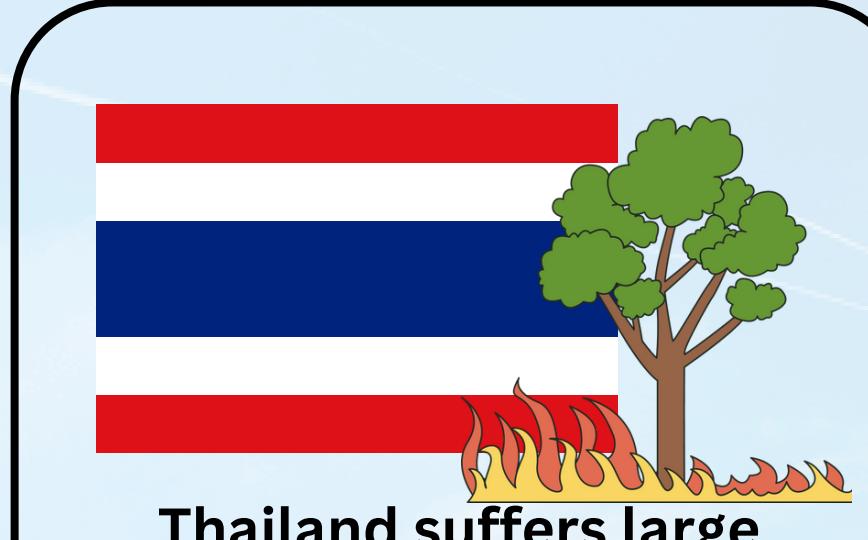
— Effects of 2023 High Heat Index to ASEAN Countries —



Water Shortages in Cambodia



Vietnam suffers Power Shortages



Thailand suffers large number of Forest Fires



61 heat-related Deaths recorded in Myanmar



Malaysia suspended many weeks of classes



Number of Heat Stroke Patients increased in Philippines

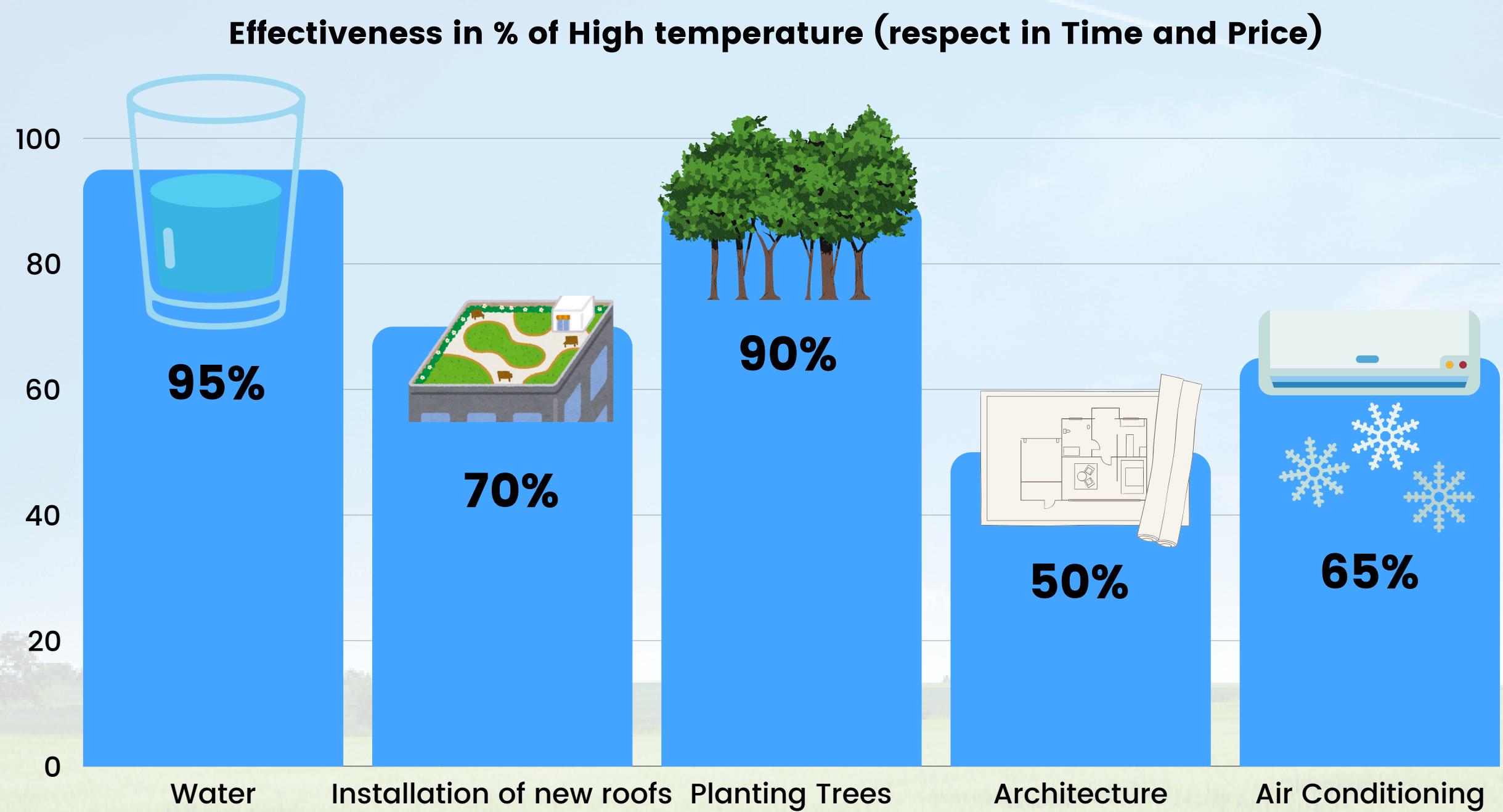


Singapore adjusted rules for students' Uniforms



High Temperatures breaking Laos Own records

What could be the solution to mitigate High Heat Index?



**WATER is the
Fastest and
Cheapest Solution
for High
Temperatures**
- Stinson (2023)

But we have an **ongoing problem with water...**

80%



of ASEAN Domestic Waters are Polluted.

- United Nations Environmental Program (2023)



The availability of freshwater in ASEAN is limited and unevenly distributed

- Asian Development Bank (2023)

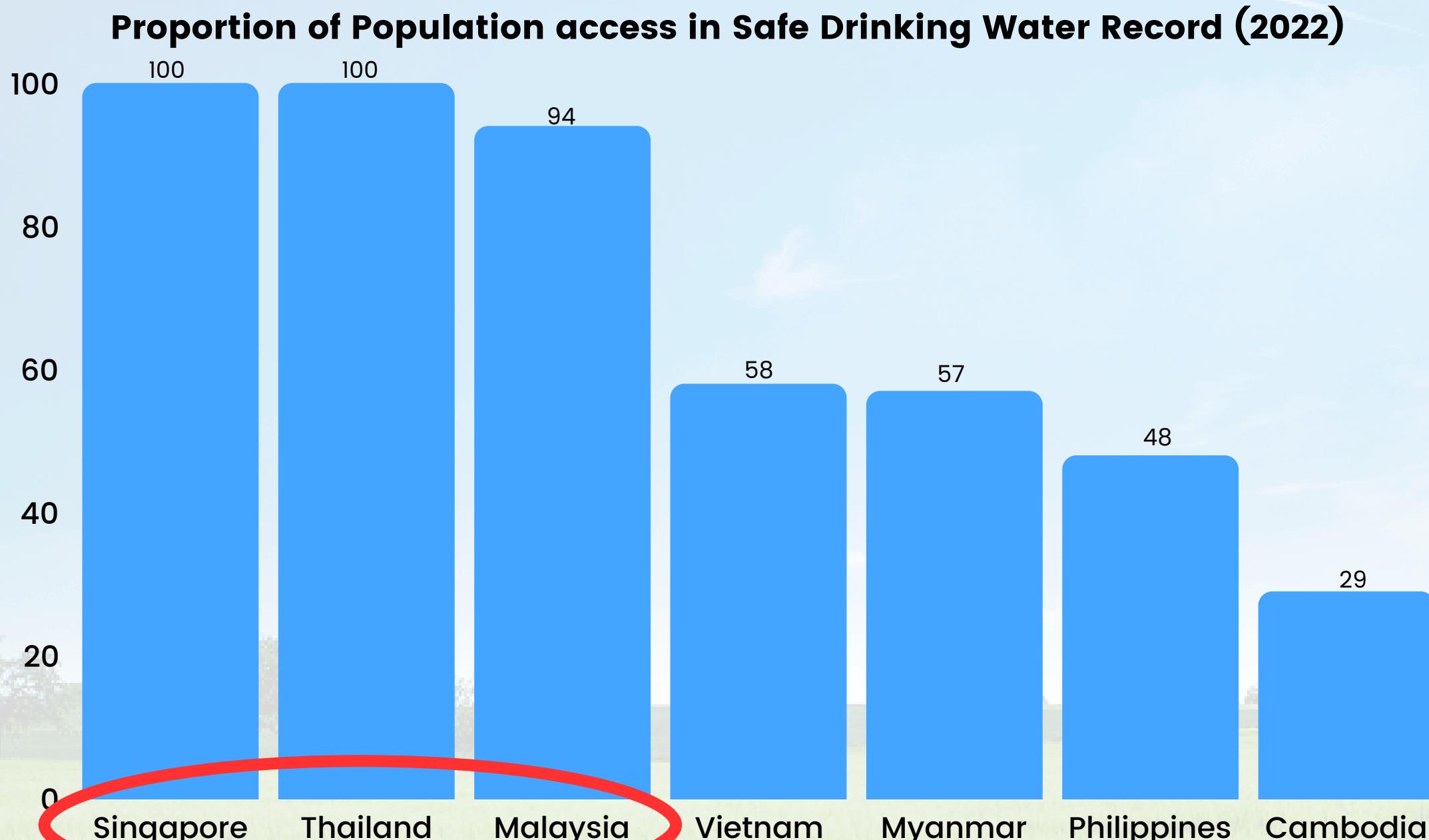
But we have an **ongoing problem with water...**



Majority of ASEAN Countries still have High Proportion of Untreated Waste water

- Based in United Nations Records(2022)

But we have an ongoing problem with water...

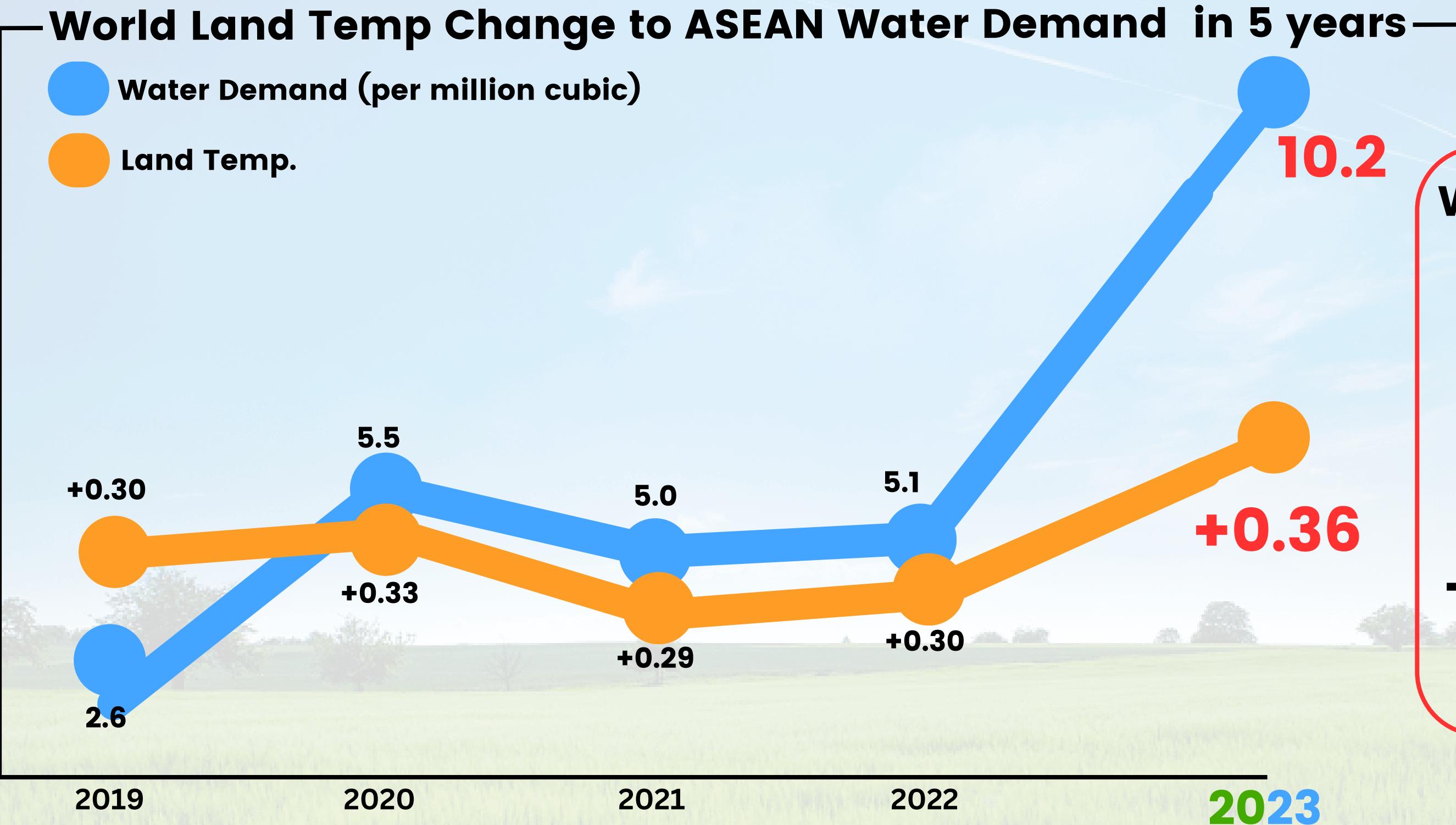


Only,

3/10
of **ASEAN countries**
Have High proportion
of population that has
access to clean water

- Based in United Nations Records (2022)

While this water problem is happening...



**Water Demand in ASEAN
Increased by
2X
(From 2022)
as the Land
Temp. Increases**

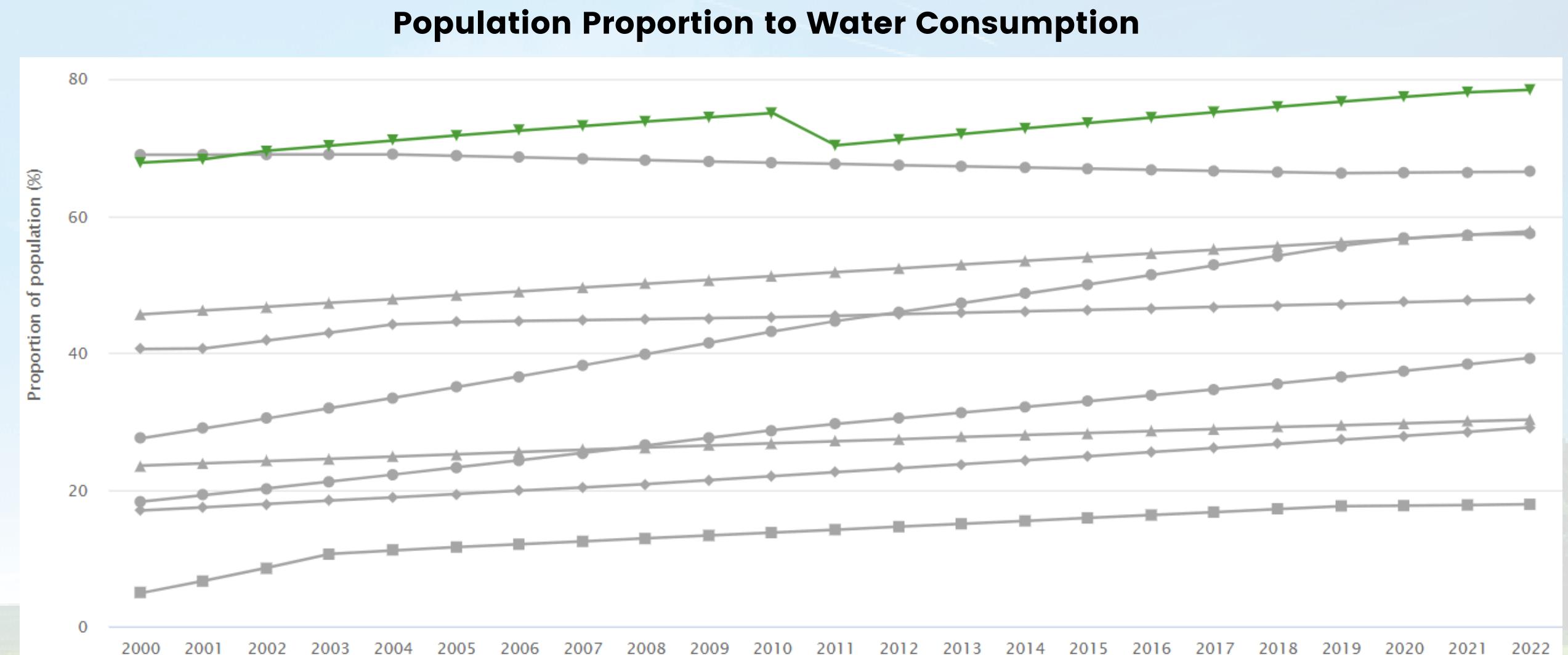
- Based in UNICEF(2023)

While this water problem is happening...

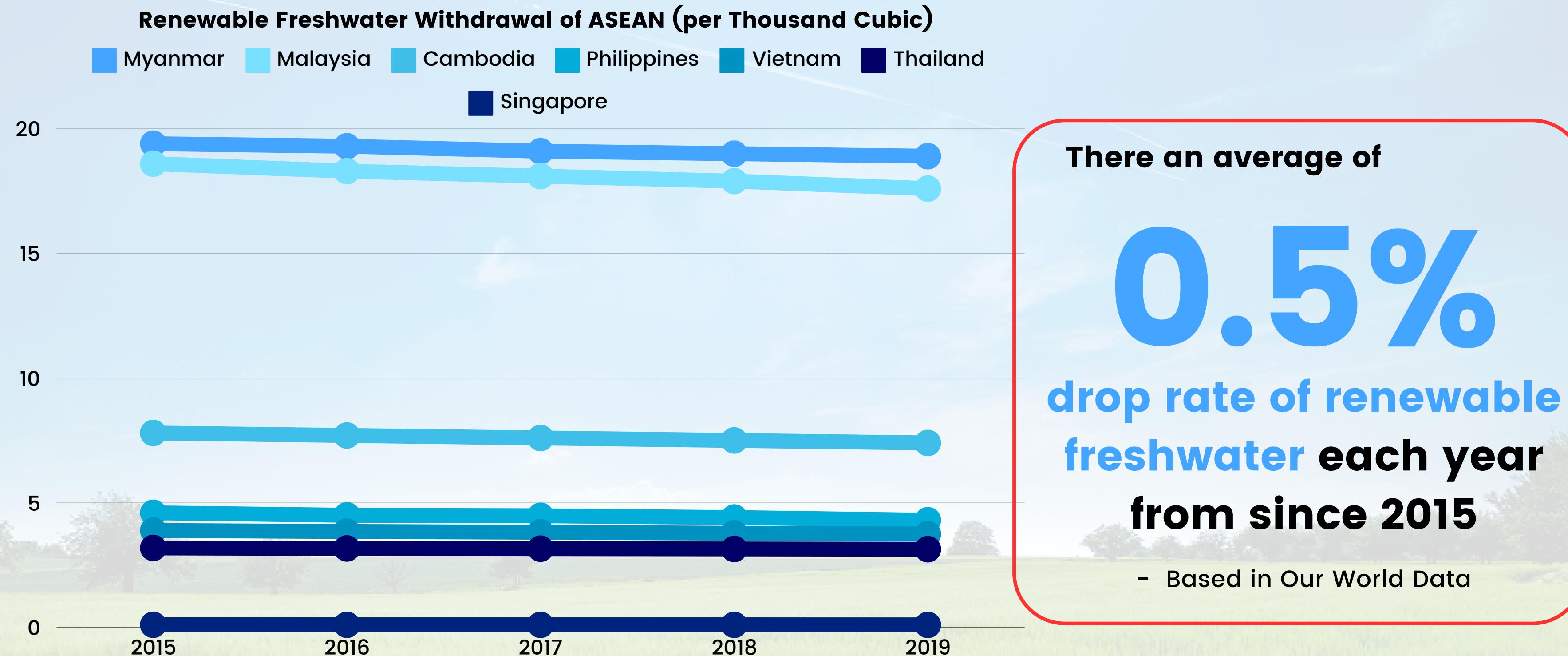
**Water Consumption Accounting to
20-30% Increase rate up to 2050**

Water use has been increasing worldwide by about 1% per year since the 1980s,

- Based in UN Water Development Report (2019)



For References,



How do we **manage** this problem currently?

Republic of the Philippines
PHILIPPINE NEWS AGENCY

HOME NATIONAL PROVINCIAL OPINION BUSINESS FEATURES HEALTH FOREIGN SPORTS TRAVEL ENVIRONMENT SCI

House OKs creation of Department of Water Resources

By Filane Mikee Cervantes
December 6, 2023, 6:43 pm

Mapping river connectivity for improved water resource management in Indonesia

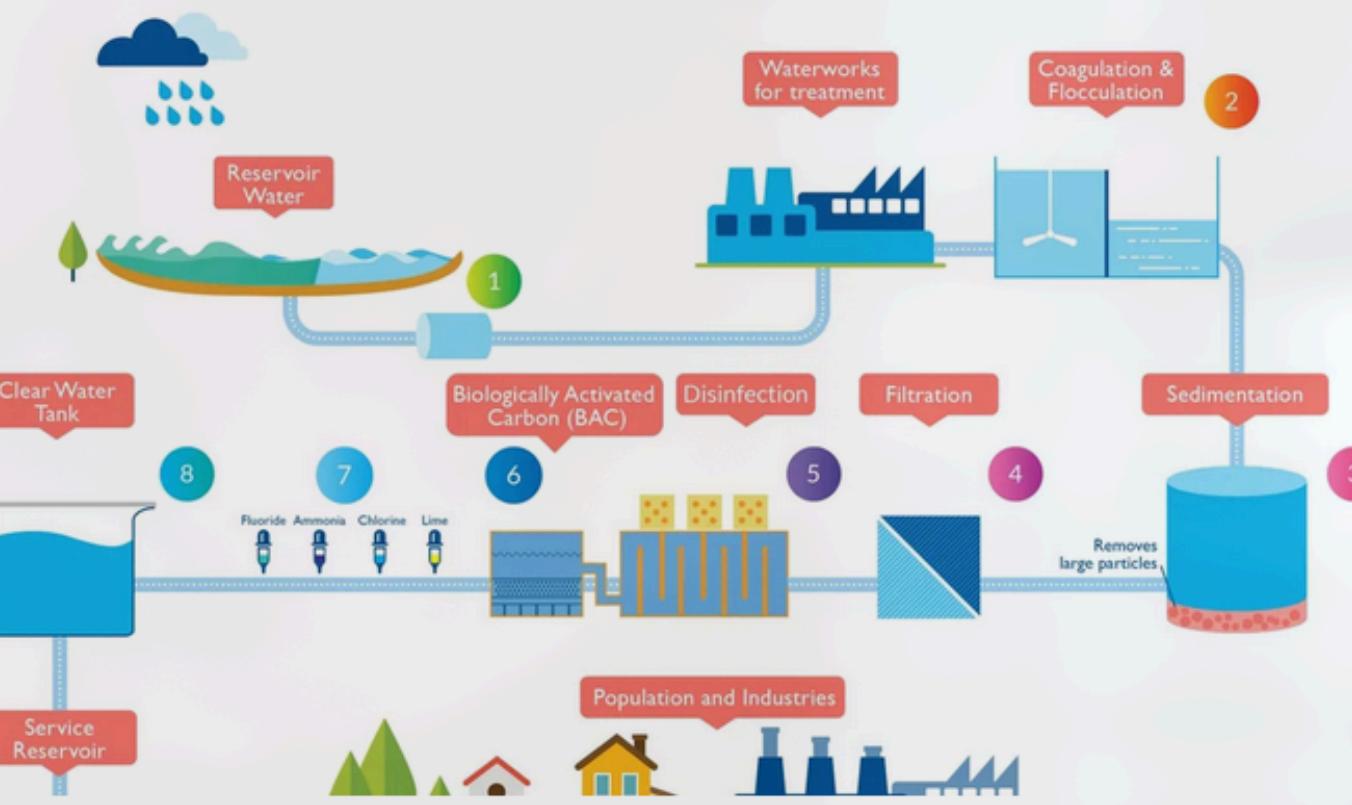
25 SEPTEMBER 2023

MALAYSIA

Water tariff adjustment necessary to strengthen resource management amid climate change, says SPAN chairman

Singapore's Innovative Approach to Water Management: Technology, Diplomacy, and Community Involvement

Dr. Jessica Nelson
25 Feb 2024 08:30 EST



News | 12 Mar, 2024

Launching a bilateral collaboration project between the Lao People's Democratic Republic and Viet Nam on strengthening integrated water resources management and ecosystems health in the Neun-Ca and Ma river basins.

Our Recommendation!

- ASEAN slowly supporting Singapore's NEWater System for the other countries

Introduced in 2002, NEWater is produced through a 3-step treatment process (microfiltration, reverse osmosis, disinfection) using advanced membrane technologies. It has passed through more than 150,000 scientific tests and is well within the World Health Organisation guidelines for Drinking - Water Quality. As a weather-resilient source, NEWater plays an important role in enhancing the resilience of our water supply.

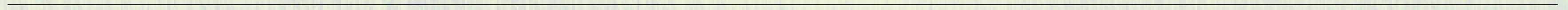
CRITICAL FACTORS:

- STRONG GOVERNMENTAL SUPPORT CREDIBLE REFERENCES
- Technology demonstration in the local context, alongside comprehensive water safety assessments that were endorsed by experts nomenclature
- Extensive public and community engagement with a consistent message
- Media engagement
- Targeted engagement with one of Singapore's manufacturing industries – water fabrication
- Organisational changes for integrated water management



During dry periods, NEWater is added to our reservoirs to blend in with raw water. The raw water from the reservoirs is treated at the waterworks before it is supplied to consumers as tap water.

THANK YOU!



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