



"Water Security for Every Sector
Deliver it. Sustain it."



Non-Revenue Water and Water Resources Management: Implications of Inaction



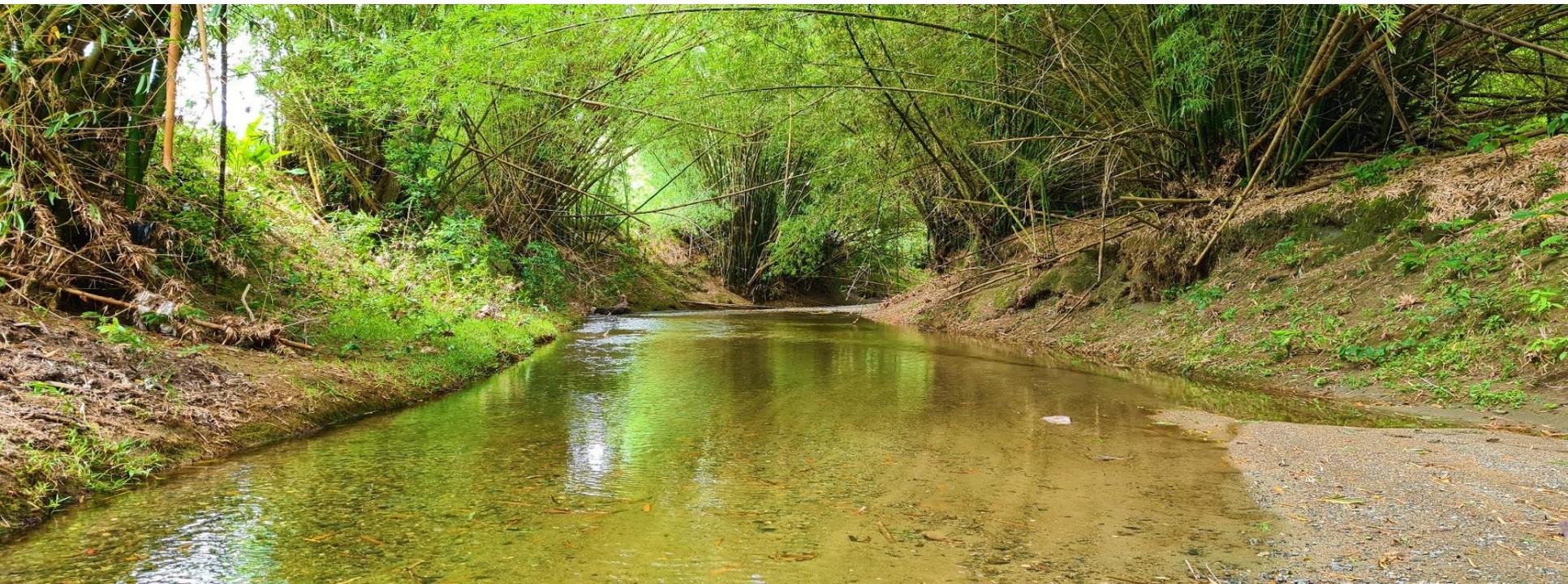
Presented by Keith Meade
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Global Water Resources Challenge

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- Climate change and the increase in global temperatures has led to an increase in water consumption and strain on fresh water sources around the world.
- This is compounded by the large amounts of water lost through NRW.





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Freshwater Water Availability in Trinidad and Tobago



3,840 MCM (844,800 IMG) of water is available annually (WRA, FAO)

79% is collected in rivers and surface water sources

21% is collected in groundwater sources

7.5 cubic meters/person/day (1,650 gallons/person/day) per person per year

Trinidad and Tobago is not water stressed because its available freshwater exceeds 1,700 m³ (0.4 IMG per person per year), according to the globally established Falkenmark water stress index

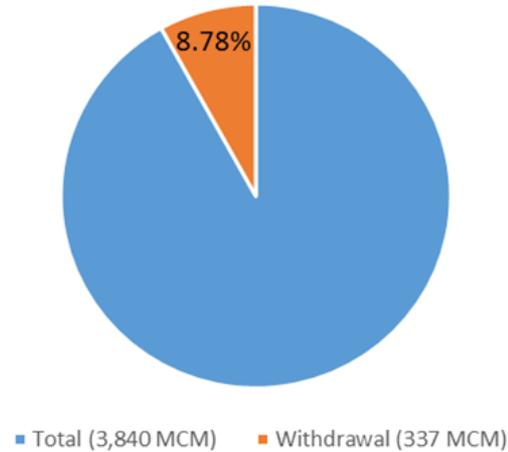


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Freshwater Withdrawal



Percent Freshwater Withdrawal

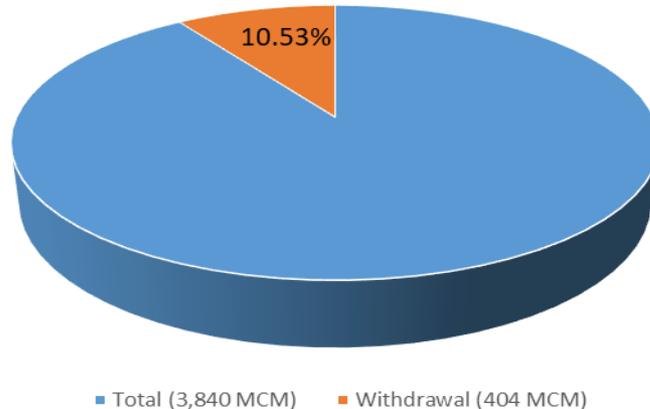


Levels of stress severity

- NO STRESS <25%
- LOW 25% - 50%
- MEDIUM 50% - 75%
- HIGH 75-100%
- CRITICAL >100%

25% is the upper limit for a full and unconditional safety of water stress

Percent Freshwater Withdrawal with EFR

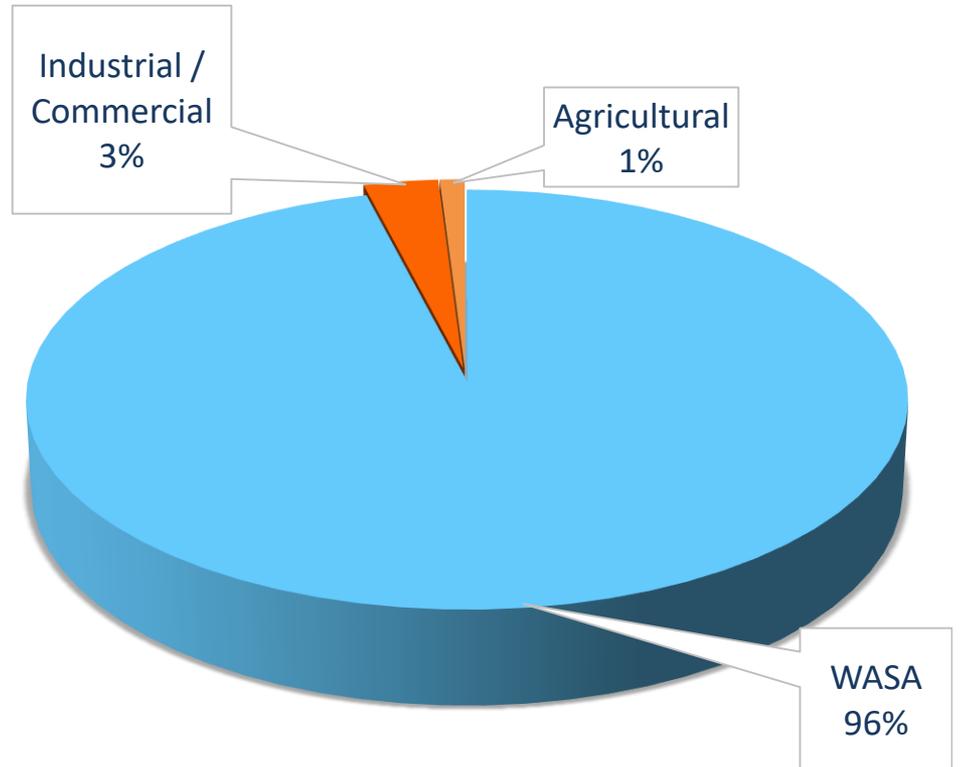


Environmental flow requirements (EFR) are defined as the quantity and timing of freshwater flows and levels necessary to sustain aquatic ecosystems



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Water Use by Sectors



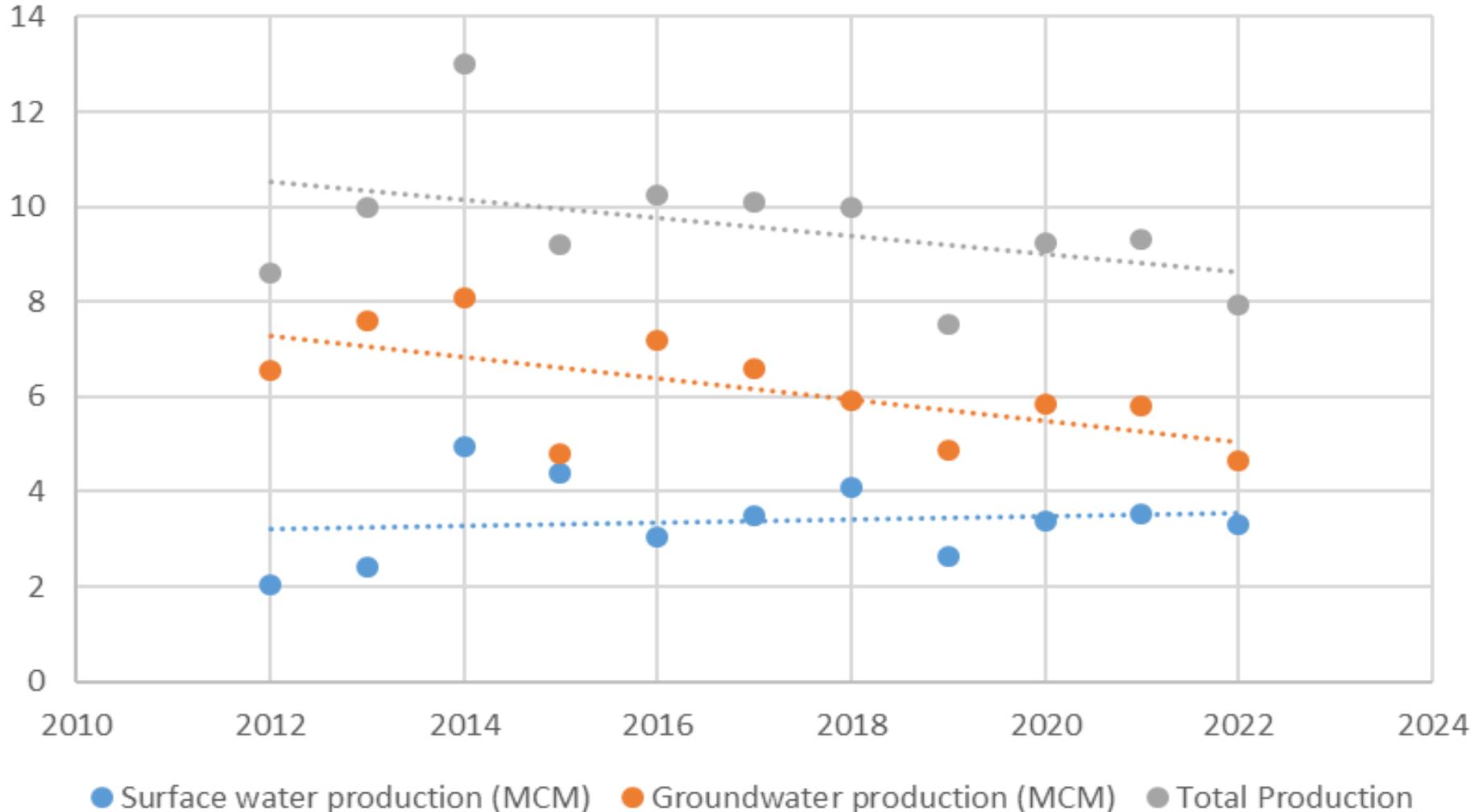
Major Water Abstractors



Trends in Private Water Abstraction

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Annual Private Abstractions

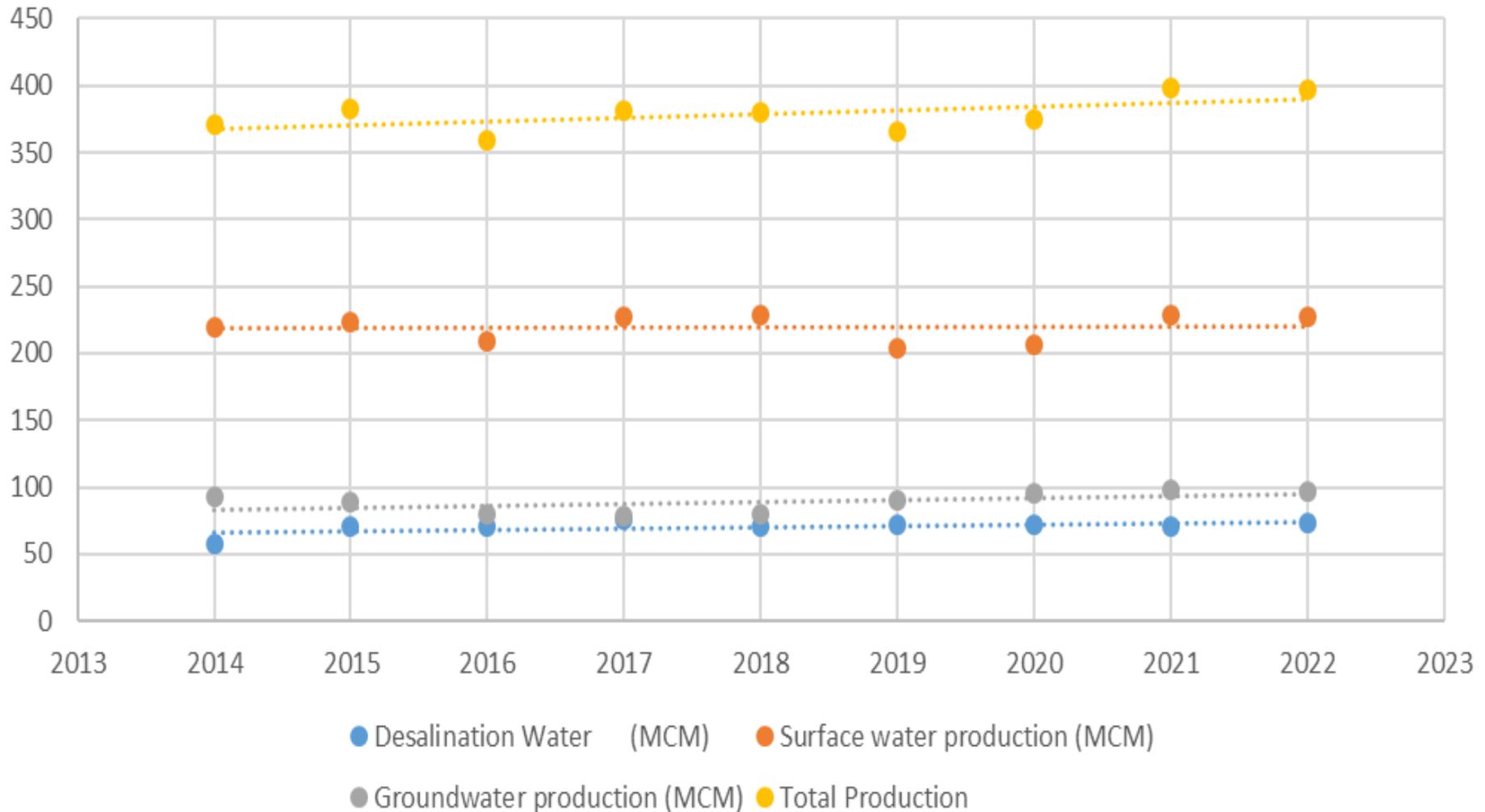




Trends in WASA Water Abstraction

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Annual WASA Abstractions (2014 -2022)

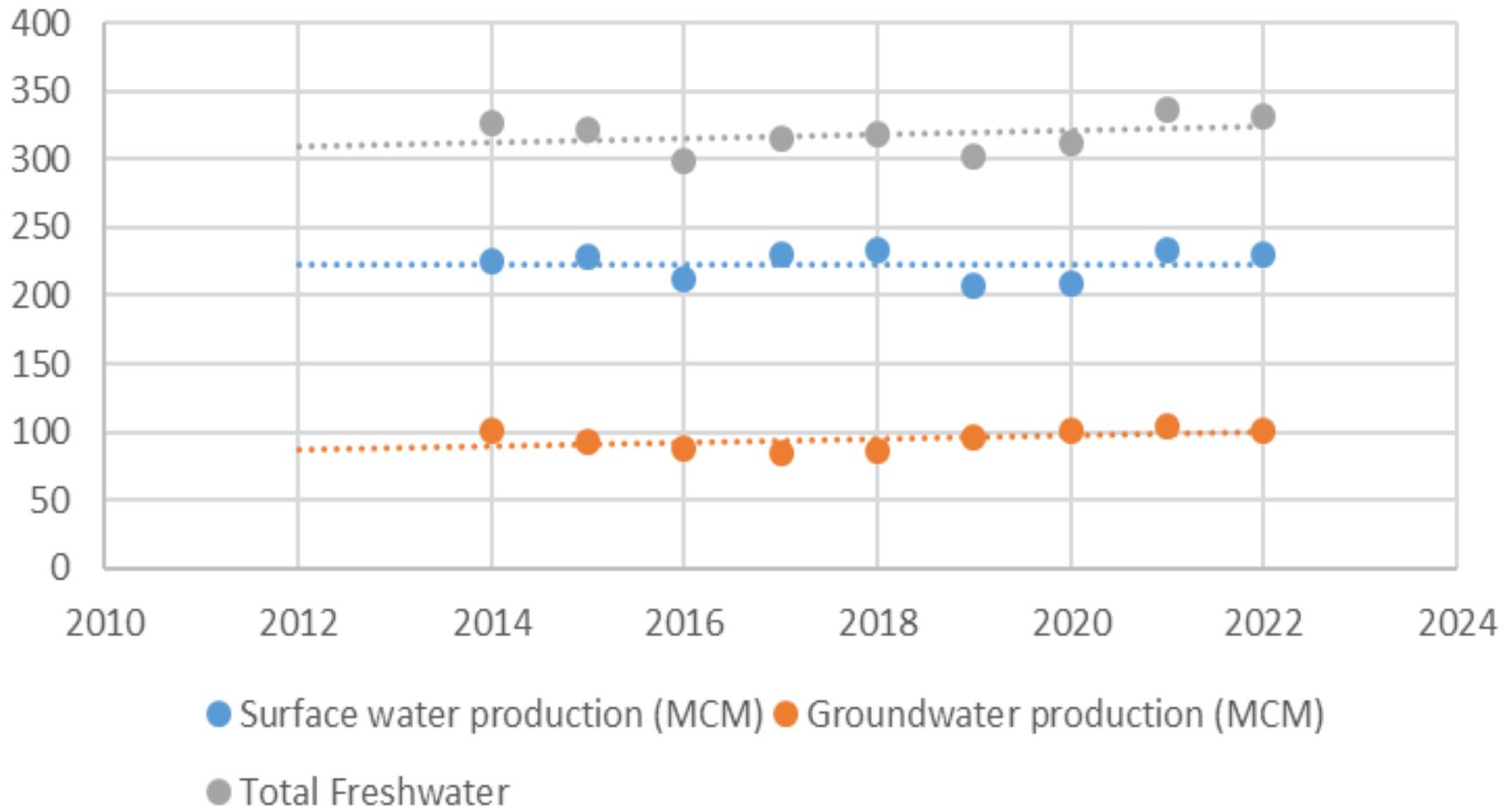




Overall Trends in Water Abstraction

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Total Abstractions





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Comparative Water Use



- WASA's water production, when apportioned to the population, is approximately 0.71 m³/person/day (156 gallons/person/day)

When contrasted

- Jamaica's per capita water production of 0.29 m³/person/day (65 gallons/person/day)
- Barbados' estimated 0.30 m³/person/day (66 gallons/person/day)

T&T effectively produces more than two times per citizen than both countries.

Cabinet Sub-Committee Report of Nov 2020



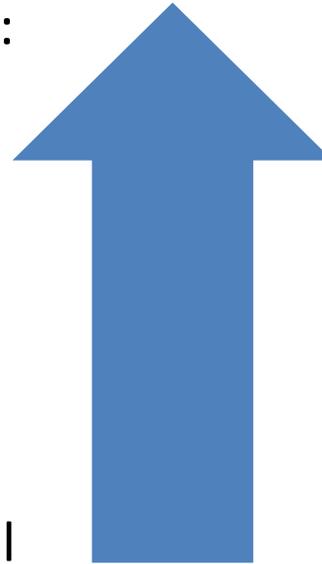


Climate Change – The Creeping Crisis

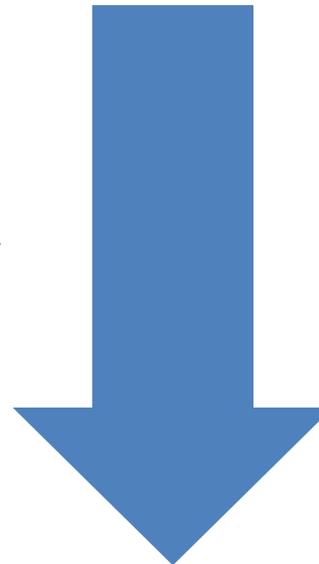
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The Caribbean region is experiencing:

- an increase in the frequency and intensity of storm and hurricane type events
- Many islands have also grappled with hydrological drought conditions, dryer than usual dry seasons and even dryer than usual wet seasons
 - Changes in the total precipitation
 - Seasonal distribution, frequency and intensity
 - Impacts on surface water runoff time of concentration and magnitude
 - Impacts on groundwater recharge



Major hurricanes with higher rainfall rates and stronger winds are already occurring and an increase in the frequency and intensity of major hurricanes is projected to continue. Flooding as an extreme event linked to climate change has become progressively evident in the Caribbean, due to an increased number of intense rainfall events, and storm surges from hurricanes



The WRA and Meteorological Services Division (MET) projects for T&T that rainfall can decrease by as much as 30% below the long-term average in a dry year. Climate change projections reveal that by 2050, T&T will experience a 14% reduction in rainfall and a 5% increase in potential evaporation. By 2100, rainfall will further reduce to 21% and potential evaporation by 8% .



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Water Resources Challenges

Poor landuse practices

Pollution

Spatial and temporal
variation in rainfall

Climate change

Culture of waste

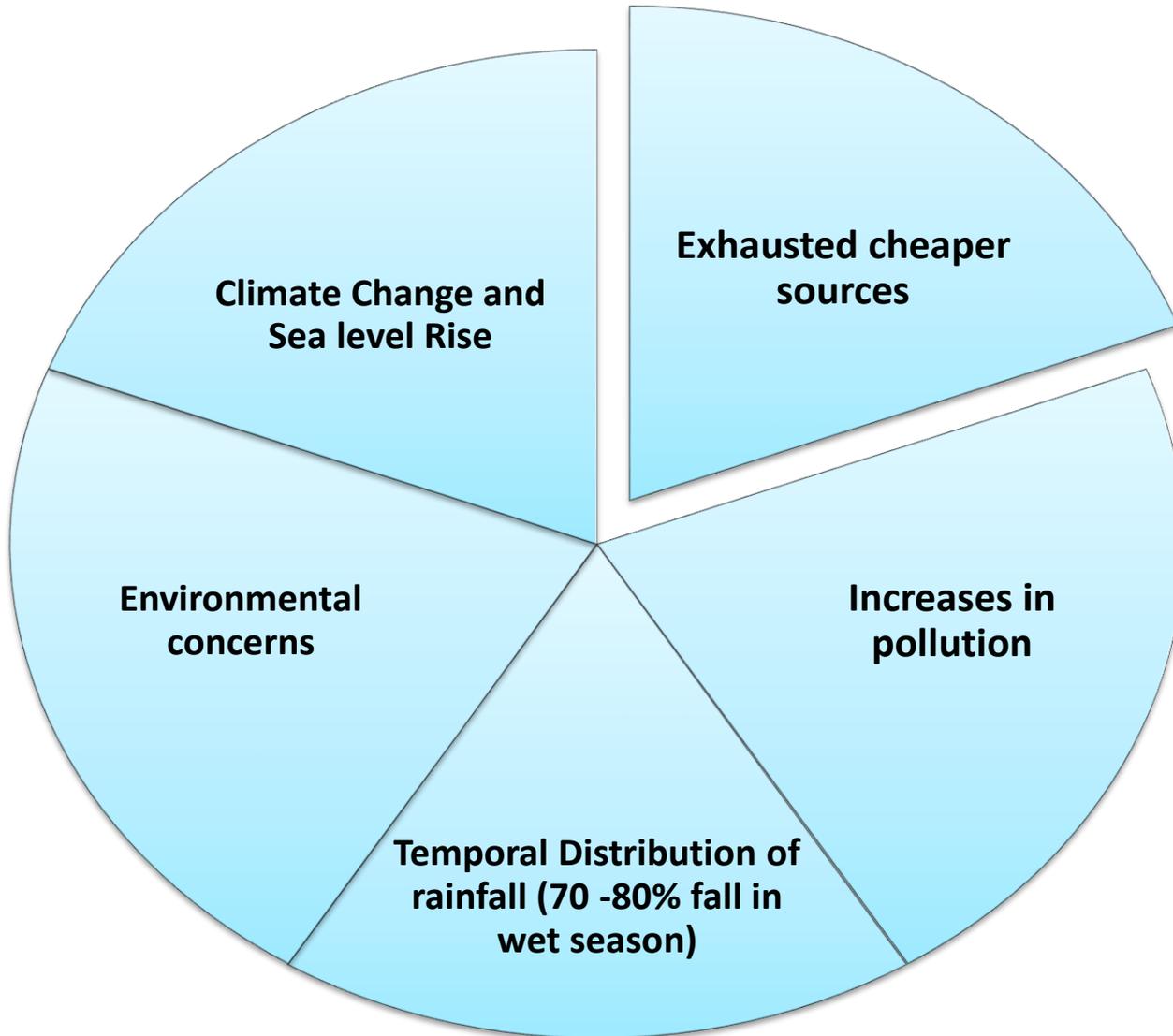
High water demand





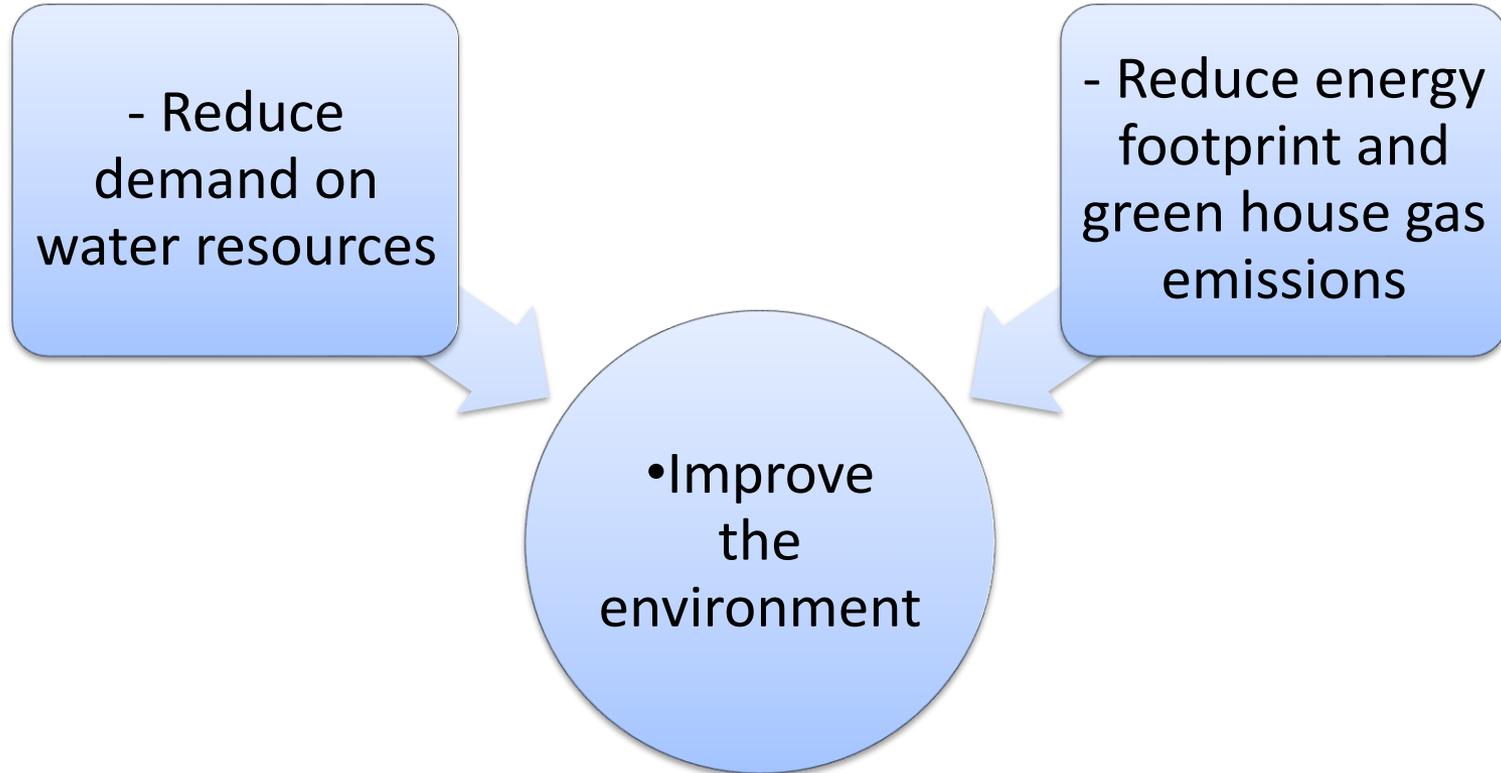
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Challenges with Harnessing More Freshwater





Benefits of Taking action against NRW



NRW is one of the more manageable challenges that can be tackled to improve operational efficiency and build resilience in potable water supply.



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"The price of inaction is far greater than the cost of making a mistake" – Meister Eckhart

"An inch of movement will bring you closer to your goals than a mile of intention" – Steve Maraboli

For any more information and discussions, feel free to contact

Mr. Keith Meade

Senior Manager, Water Resources Agency

keith.meade@wasa.gov.tt