Activity No. 14: Build a Narrative on a Storyboard							
Course Code: CPE311	Program: Computer Engineering						
Course Title: Computational Thinking with Python	Date Performed: May 13, 2025						
Section: CPE22S3	Date Submitted: May 13, 2025						
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## 1. Discussion

# What is water scarcity?

Water scarcity limits access to safe water for drinking and for practising basic hygiene at home, in schools and in health-care facilities (*Water Scarcity*, n.d.). Some 1.1 billion people worldwide lack access to water, and a total of 2.7 billion find water scarce for at least one month of the year (*Water Scarcity*, n.d.).

## Causes of Urbanization:

- Education Free education has helped these vulnerable children to enter and remain in school.
  However, the quality of education and academic support received from family and/or community
  by these children still remain lower than that received by their urban counterparts who attend
  schools with better facilities ("Going to School From a Relocated Urban Community: Struggling for
  Education Within Imposed Walls," 2017).
- 2. Healthcare Access Some cities have advanced hospitals with top specialists. Patients with chronic conditions move for better treatment options. Access to high quality treatment improves quality of life. Therefore, healthcare availability significantly affects where people choose to settle (*Effect on Relocation*, n.d.).
- 3. Job Opportunity Relocating to a different location provides new exposure to employees. These will likely expand their skill sets, which in turn will open doors to career opportunities (*The Benefits of Relocation for Career Growth and Development*, 2023).

# 2. Materials and Equipment

- 1. Internet
- 2. Computer or Laptop
- 3. Jupyter Notebook
- 4. SAP Analytics Cloud

## 3. Procedure

Title: The Challenge of Clean Water Access in Rapidly Growing Urban Areas

#### **Problem**

We need to find out how rapid urban population growth affects access to clean and safe drinking water in Southeast Asian countries between 2018 and 2022, in order to provide recommendations based on best practices and identify areas where improvements in water infrastructure and policies are needed.

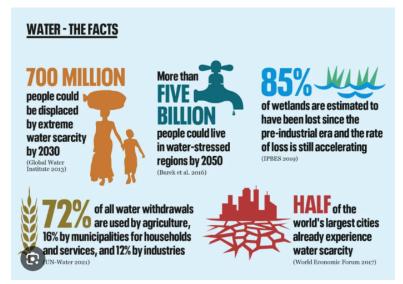
## **Statement Question**

- 1. Are countries with faster-growing urban populations more likely to experience a decline in clean water access?
- 2. How has the percentage of the urban population with access to clean water changed from 2018 to 2022 in Southeast Asian countries?
- 3. Which countries showed consistent improvements in clean water access despite urban population

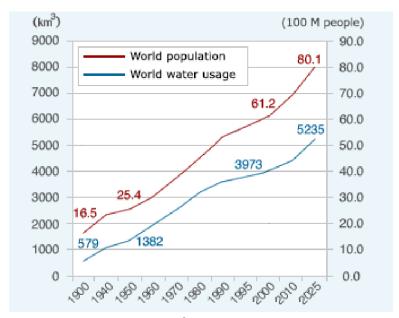
growth?

#### **Find Data**

According to a report by WWF, at least 2.7 billion people experience water shortage at least one month a year. From the report, water shortage affects nearly 27% of the world's population (Peluso, 2022).



Source: https://sustainablereview.com/how-population-affects-environment/



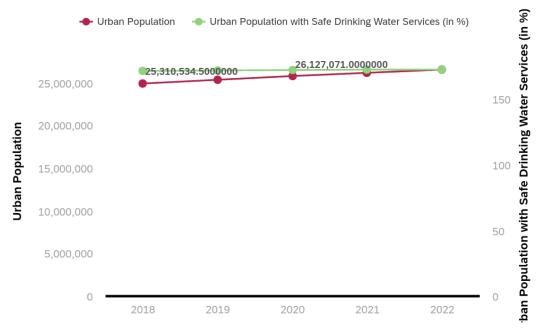
Source:

https://www.researchgate.net/figure/World-population-and-water-usage-trends-Source-UN-World-Popu

**Visualize** 

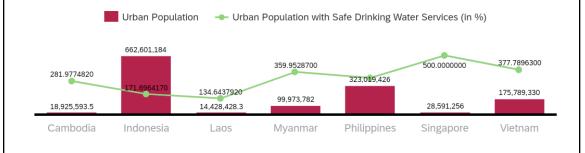
Urban Population, Urban Population with Safe Drinking Water Services (in %) per Year for Actual

## 1 Filter



This line chart show that while urban population grows, People with access to supply of clean water also grows.

Urban Population, Urban Population with Safe Drinking Water Services (in %) per Country for Actual



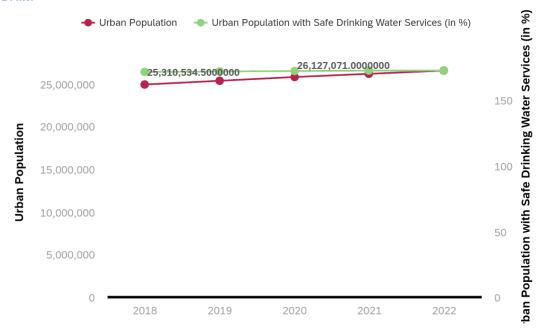
This chart depicts the ratio between the population who has access to clean water supply and urban population in each country

## 4. Output

Screenshot of your outputs based on the procedures.

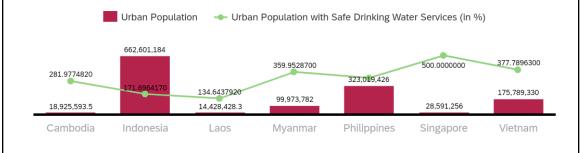
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# 5. Supplementary Activity

- Map out your datasets to your described objective.
  - Objective: Predict customer churn for a telecom company.
  - Dataset: Contains customer age, contract type, usage data, and churn status.
- 2. Link and cite all your data.

- <a href="https://www.urbanbound.com/blog/the-benefits-of-relocation-for-career-growth-and-devel">https://www.urbanbound.com/blog/the-benefits-of-relocation-for-career-growth-and-devel</a> opment
- https://ciaobellamoving.com/?p=3056
- https://journals.sagepub.com/doi/10.1080/21632324.2016.1164941
- <a href="https://www.populationmedia.org/the-latest/population-growth-and-water-scarcity">https://www.populationmedia.org/the-latest/population-growth-and-water-scarcity</a>
- https://www.unicef.org/wash/water-scarcity
- https://www.worldwildlife.org/threats/water-scarcity
- 3. What do you aim to prove with your dataset and visualization?
  - We aim to prove that rapid urban population growth may negatively impact the
    percentage of the urban population with access to clean and safe drinking water in
    Southeast Asian countries. This is to support evidence based recommendations for more
    sustainable urban planning and water resource management.
- 4. What is the narrative you want to write based on your data?
  - Start off with the relation of COVID 19 to rapid population growth in urban areas
  - Personal experience regarding relocation
  - Factors that may affect the decisions of citizens to relocate
  - Visualized data showing the comparisons and correlations
  - Propose a solution/recommendation
  - Flowchart of how the recommendation might work
  - Conclusion

# 6. Conclusion & Analysis:

Individually, write a conclusion and analysis to the activity.

# Esteban, Prince Wally G.:

This activity has helped me realize the deep connection between urbanization and water scarcity. Through data visualization, I was able to see how Southeast Asian countries are being impacted by this trend between 2018 and 2022.

## Fernandez, Don Eleazar T.:

I learned that as more people move to cities, it can become harder for everyone to get clean and safe water. By looking at the data, I saw that some country is having trouble keeping up with the growing number of people in urban areas. This made me understand that how important it is to plan better for water use and city development. In my home area, we also experienced water interruptions, so I can relate to this issue.

#### 7. References:

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Retrieved May 13, 2025, from

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https://ciaobellamoving.com/?p=3056

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June 1). Migration and Development, 6(2), pp. 1-17.

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Peluso, C. (2022, October 13). The Relationship Between Population Growth and Water Scarcity.

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https://www.worldwildlife.org/threats/water-scarcity

## 8. Assessment Rubric

Criteria			F	Ratin	gs						Pts
© SO 7 Pl 1  Student Outcome 7.1 Acquire and apply new knowledge from outside sources. threshold: 4.8 pts	exist and flourish exist and flourish outside classroom requirements,knowledge and/or experiences are and/or experiences are		and pursuits flourish	4 pts Satisfactory   Look beyond classroom requirements, showing interest in pursuing knowledge independently		3 pts Unsatisfactory   Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently		Relies on classroom instruction only		1 pts Very Poor   No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 Student Outcome 7.2 Learn independently threshold: 4.8 pts	Excellent   Completes an assigned task independently and practices	5 pts Good   Completes an assigned task without supervision or guidance	4 pts Satisfactory   Requires minimal guidance to complete an assigned task	Requires deta or step-by-st to instructions to an complete a to		ailed little intere ep complete a to independe		est to a task	1 pts Very Poor   No interest to complete a task independently		6 pts
Student Outcome 7.3 Critical thinking in the broadest context of technological change	Excellent   Synthesizes and integrates information from a variety of sources; formulates a clear and precise	5 pts Good   Evaluate information from a variety of sources; formulates a clear and precise perspective.	Analyze information	Satisfactory   Analyze information from a variety of sources; formulates a clear and precise		3 pts Unsatisfactory   Apply the gathered information to formulate the problem		2 pts Poor   Gather and summarized the information from a variety of sources but failed to formulate the problem		pts ery Poor   sather formation rom a variety f sources	6 pts
SO 7 PI 4  Student Outcome 7.4 Creativity and adaptability to new and emerging technologies threshold: 4.8 pts	6 pts Excellent   Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good   Ideas creative and adapt the ne knowledge tr solve a probl or address an issue	ldeas are creative in solving a problem, o	Shows creativ solve the		ome ways	Pool inition to attended devices to s	2 pts Poor   Shows initiative and attempt to develop creative ideas to solve the problem		pts  fery Poor   feas are opied or estated from the sources onsulted	6 pts