



Water Access and SDG 6: A Data- Driven Solution

This presentation explores a data-driven approach to address the global challenge of water access, specifically focusing on SDG 6: Clean Water and Sanitation.



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Understanding SDG 6

SDG 6 aims to ensure availability and sustainable management of water and sanitation for all by 2030.

1 Key Goals

Provide access to safe and affordable drinking water for all.

2 Key Goals

Achieve sustainable sanitation and hygiene for all.

3 Key Goals

Protect and restore water-related ecosystems.

4 Key Goals

Increase water-use efficiency across all sectors.



The Challenge of Water Access

Millions lack access to safe drinking water and adequate sanitation, leading to health issues, poverty, and hindered development.

Health Risks

Waterborne diseases like diarrhea are common in areas with unsafe water, leading to significant mortality, especially among children.

Economic Impacts

Lack of water access limits productivity, hinders economic growth, and perpetuates poverty cycles.

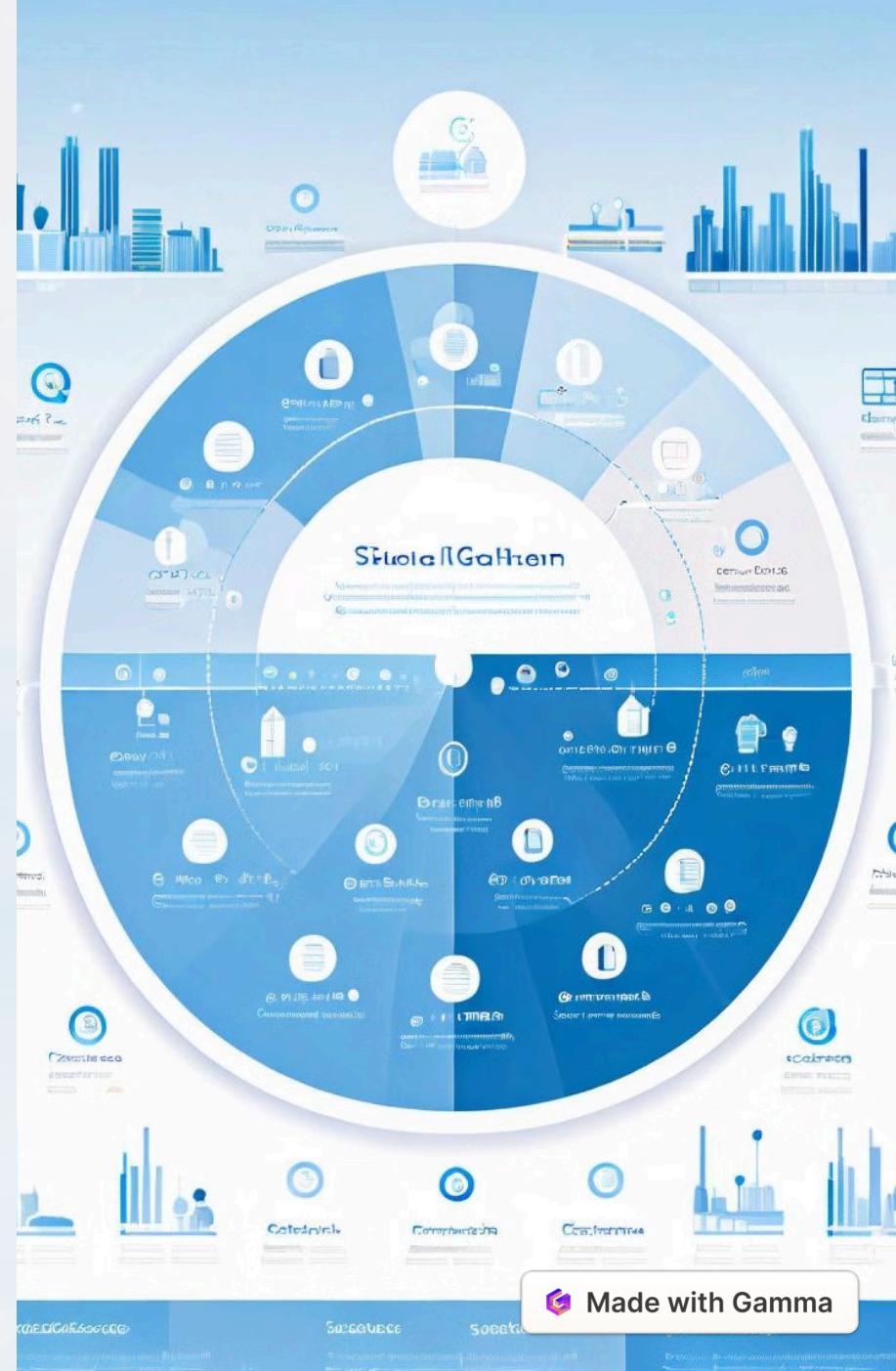
Social Inequality

Inadequate access to water disproportionately affects marginalized communities, exacerbating existing social inequalities.

Database Design for Water Access Monitoring

The database design utilizes a relational schema to effectively store and manage water-related data.

Table Name	Columns
Water Sources	Source ID, Location, Type, Status
Population Data	Region ID, Population, Age Distribution, Access Status
Water Quality	Sample ID, Source ID, Date, Parameters, Results
Infrastructure Projects	Project ID, Location, Type, Status, Funding





Data Retrieval and Analysis: SQL Queries

SQL queries are used to retrieve specific information from the database, enabling analysis of water access trends and identifying areas requiring intervention.

Query 1: Water Quality

```
SELECT * FROM WaterQuality WHERE SourceID = 123 AND Date  
BETWEEN '2023-01-01' AND '2023-12-31';
```

Query 2: Population Access

```
SELECT COUNT(*) FROM PopulationData WHERE RegionID = 456  
AND AccessStatus = 'No Access';
```

Query 3: Infrastructure Projects

```
SELECT * FROM InfrastructureProjects WHERE Type = 'Water  
Treatment Plant' AND Status = 'Under Construction';
```

Data Import and Visualization

Data from the database is imported into Excel for further analysis and visualization using charts and graphs.

1

Data Extraction

Extract relevant data from the database using SQL queries.

2

Data Cleaning

Ensure data accuracy and consistency, handling missing values or duplicates.

3

Data Transformation

Transform data into a format suitable for visualization and analysis in Excel.

4

Data Import

Import the cleaned and transformed data into an Excel spreadsheet.



Insights from Data Analysis

Data analysis reveals critical insights into the water access situation, allowing for targeted interventions and resource allocation.



Increased Access

The data shows a positive trend in water access for certain regions, indicating the effectiveness of existing programs.



Persistent Challenges

Some regions continue to face significant water access challenges, requiring focused interventions and resource allocation.



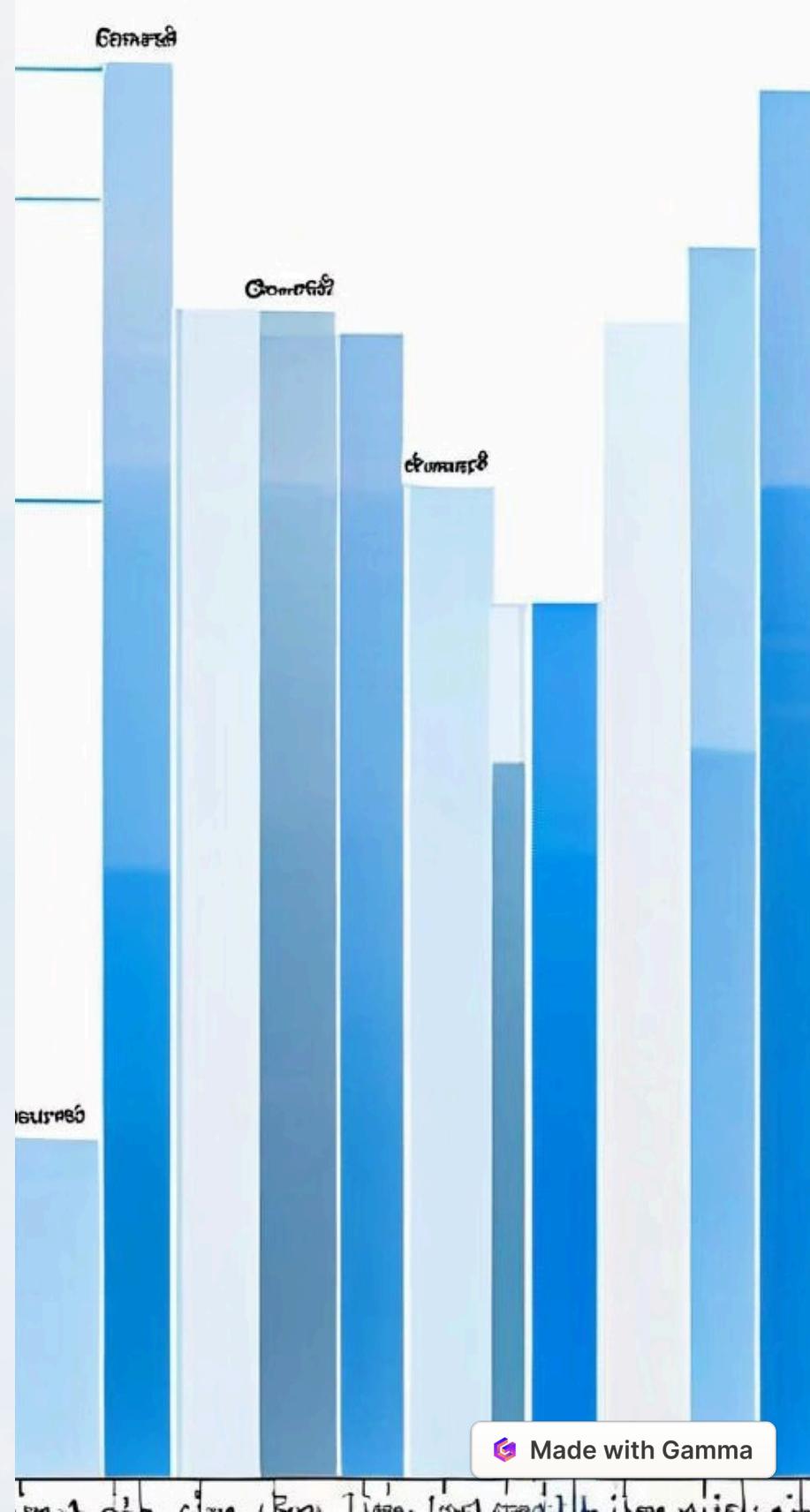
Water Quality Issues

Analysis of water quality data identifies areas with potential contamination, necessitating remedial measures.



Infrastructure Needs

The data highlights the need for investments in water infrastructure development, including sanitation facilities and water treatment plants.





Conclusion: Addressing the Water Access Challenge

The data-driven approach provides valuable insights and actionable information to address the water access challenge.

1

Data-Driven Decision Making

Leverage data analysis to guide policy, prioritize interventions, and allocate resources effectively.

2

Targeted Interventions

Implement targeted programs in areas with the greatest need, addressing specific water access challenges.

3

Sustainable Solutions

Promote sustainable water management practices, ensuring long-term water security and environmental protection.



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