

Integrated project: Maji Ndogo

Visualising the currents of change in Maji Ndogo (Overview)



Our story in **Maji Ndogo** continues.

In Maji Ndogo and across the world, access to clean and reliable water sources is a fundamental aspect of daily life.

The data collected on water sources, water collection, and crime in Maji Ndogo provide us with a deeper understanding of the daily life of its inhabitants and the critical role water plays in their lives.



Collecting water

Communities rely heavily on a few primary water sources, most of which are located quite a distance from their homes. Many residents, particularly **women and children**, spend a significant portion of their day collecting water. This task often involves long walks under the sweltering sun, carrying heavy containers, and waiting in long lines at the water sources. The physical and time demands of this chore can be gruelling, especially for those who must balance it with work and household responsibilities.

Moreover, the reliance on these limited water sources leads to water collection points becoming crowded and sometimes even tense, as people compete for access to this precious resource. Such situations can potentially lead to disputes, and in some cases, **escalate into criminal activities**.



Collecting water

In this next chapter of our story in Maji Ndogo, we will explore the **gender composition** of queues at shared water taps, consider new **crime-related data**, **report our insights** to decision-makers, and **report on progress** of the various projects addressing Maji Ndogo's water crisis.

We will **use Power BI** to showcase the insights we got from the survey and connect data from other sources to enhance our data story.

By the end of this project, you will have seen what a real data project looks like from inception to completion, **equipping you with the tools you will need to start your career as a data practitioner.**



Project instructions format

The format of the slides that **guide us through the project each week** will again mimic a chat-like interface.

This time, we meet Dalila Lesedi, a **visualisation expert** and Chidi's previous mentor.

As Chidi guided us through writing SQL queries, Dalila will help us **craft and analyse visualisations in Power BI**.

The screenshot shows a chat window with a user profile for Dalila Lesedi (Online). On the left is a sidebar menu with five items:

- Introduction: Setting the stage for our data exploration journey.
- 1 Importing our data: Updating our dataset
- 2 Visual analysis: Seeing the reality of the crisis
- 3 Mapping our data: Understanding spatial relationship
- 4 Who collects our water: Gender equality with water access
- 5 Crime and water: Linking data to find new insight

The main chat area contains a message from Dalila: "Anyway, here is an example of what her team did:" followed by a photograph of a long queue of people in a dry, dusty area, each carrying a yellow water container. Below the photo is the text: "42 Amani Loop, Sokoto, (record_id = ID:17399)".

At the bottom of the chat, a system message reads: "Here the AI identifies the different people in the image, classifies them, and then counts each type. Sanaa sent us a table with the record_id (linked to the one from the visits table), and % composition as M, F or child. So for each time a queue time was recorded, we now know how many men, women and children were in the queue at that time."

The interface includes a top navigation bar with a back arrow, a search icon, and a window icon. The bottom of the chat window shows a timestamp of 08:00 and a page number 6.

Finding the project data

We'll be using various datasets throughout this chapter of Maji Ndogo.

Luckily, Dalila will be there to **provide us with the data** as and when we need it.

Note: If you are using Power BI on a Mac via a Virtual Machine (VM), it is advisable to **copy all datasets from your local machine to the VM**, otherwise you might experience some timeouts and other difficulty in using the data.

The screenshot shows a chat window with a user named Dalila Lesedi (Online). On the left is a sidebar with a list of project steps:

- Introduction: Setting the stage for our data exploration journey.
- 1. Importing our data: Updating out dataset
- 2. Visual analysis: Seeing the reality of the crisis
- 3. Mapping our data: Understanding spacial relationship
- 4. Who collects our water: Gender equality with water access
- 5. Crime and water: Linking data to find new insight

The main chat area contains the following messages:

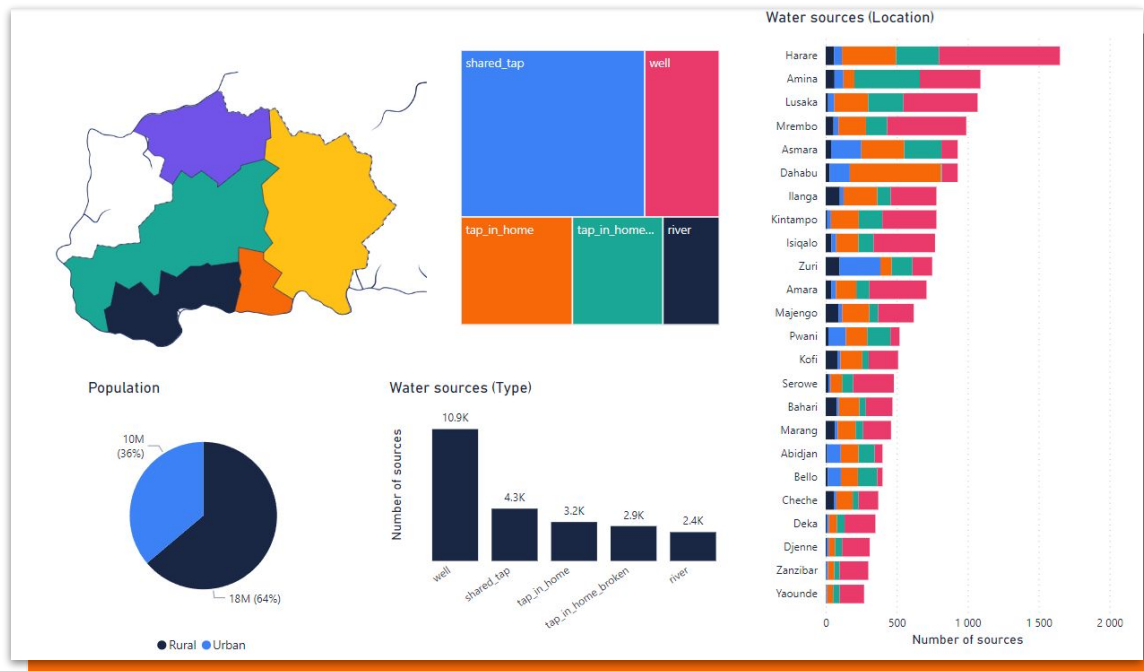
- A message from Dalila: "So here is a link to the latest version of the data:" followed by a link icon and the text `Md_summary.csv`. This message is highlighted with an orange box.
- A message from the user: "If you are using a virtual machine (VM) - mac users - I have some advice... Before you import data into Power BI, make sure the file you are using is on the VM. Copy it from the shared drive into the Downloads folder on the machine. If you don't, Power BI will take VERY long to load your data." (Timestamp: 08:03)
- A message from the user: "The data is now in one table to keep it simple. Since the new data is going to guide us, we have to first analyse it a bit so we know what story the data has to tell." (Timestamp: 08:06)
- A message from the user: "First things first, go ahead and import the CSV file into Power BI. Just one thing to look out for; Power BI tries its best to identify the data types of data, but it fails sometimes. It may identify these columns as text: (percent_male, percent_female, percent_child), but they're actually numbers. Make sure you check that the data has the correct format in the Table view." (Timestamp: 08:09)

The chat interface includes a top bar with a back arrow, the user's name and status, and icons for video call, search, and a window. The bottom bar shows a navigation icon and a status bar with system icons and a play button.

What to expect?

Throughout this project, we will be creating many visualisations in Power BI, and most of these we will need to use to answer the **compulsory MCQs**.

So, it's important that we **create all the visualisations in Power BI** according to the instructions, **save** them somewhere safe, and **practise creating, analysing, and interpreting** the different types of visualisations.



Our main goal



To make sure **we're the ones standing out** in an interview, we should be able to **solve any problem** we're given using our problem-solving, visualisations, and Power BI skills.



Engaging with this project fully will help you to do that! So forget about the marks, and **build your skills** in this project.



Several points in this project will be challenging, so we should rely on each other to learn. If you get stuck, **reach out to your teammates** and ask for help.



Dashboards and visuals are a great way to **stand out** from the crowd. **Apply** what we have learned in this course and customise the visuals to make a **portfolio** you can show off!

