



KENYA SPACE AGENCY

Possibilities beyond our skies

SPACE4WATER STAKEHOLDERS MEETING

SPATIAL ANALYSIS FOR ADDRESSING WATER SCARCITY IN ARID AND SEMI-ARID AREAS

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Kenya Space Agency

- ❑ Kenya Space Agency (KSA) was established as a State Corporation in **2017**, to promote, coordinate and regulate space related activities in the country.
- ❑ **Vision**
 - ❑ To be premier Space Agency in promotion of access and effective utilization of Space Economy for national sustainable development.
- ❑ **Mission**
 - ❑ To coordinate, nurture and develop Kenya's Space sector to maximize the utilization of Space opportunities.

Need for Water Scarcity map

3

- ☐ Access to clean water in Arid and Semi-Arid Areas is a major concern
- ☐ Women and children travel long distances in search of water.

Effects

- ☐ Health Implications
- ☐ Food Insecurity
- ☐ Education
- ☐ Conflict and Security

Intervention

Space Technology provides essential information and tools for monitoring water resources to be able to tackle water scarcity. By providing accurate and timely data on various water-related parameters

Project Objective

Identify communities or populations that are most affected by water scarcity and are far from water sources.

1

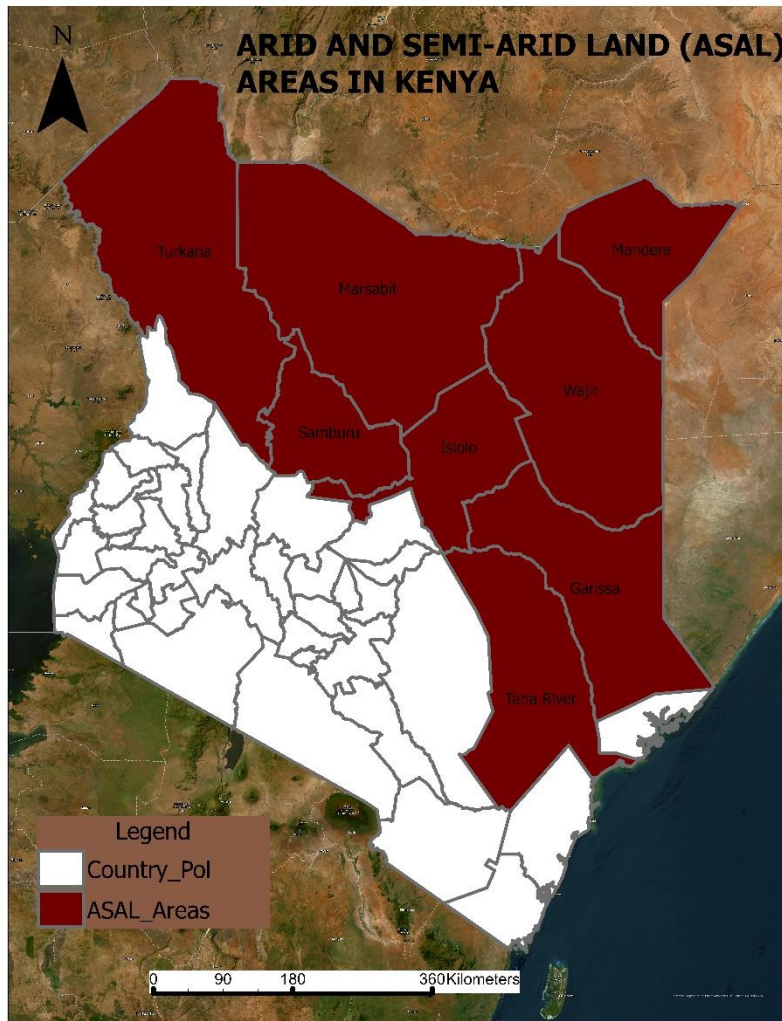
Identify and map areas that suffer from water scarcity

2

Provide Decision-Making Support: Suitable Areas for borehole drilling

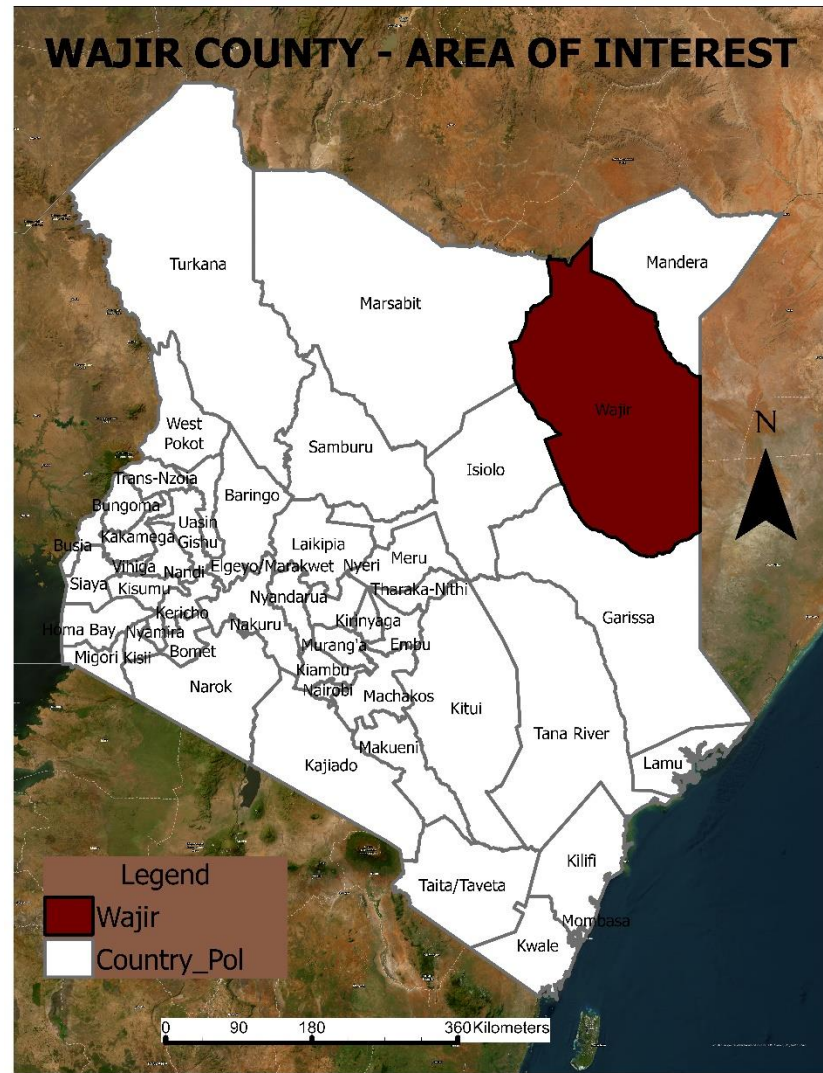
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Arid and Semi-Arid Land in Kenya



- Kenya has arid and semi-arid regions with low, erratic rainfall.
- These areas present challenges: agriculture, **water resources**, and livelihoods are affected.
- Susceptibility to drought and desertification is common in these regions.
- Challenges include food security, **water resources**, and sustainable development.
- Efforts to address these issues involve projects like **water harvesting** and drought-resistant crops.
- Community-based natural resource management is a key strategy for sustainability.
- Nomadic pastoralism is a common way of life in these regions, aiding adaptation to the arid environment.

WAJIR COUNTY - AREA OF INTEREST



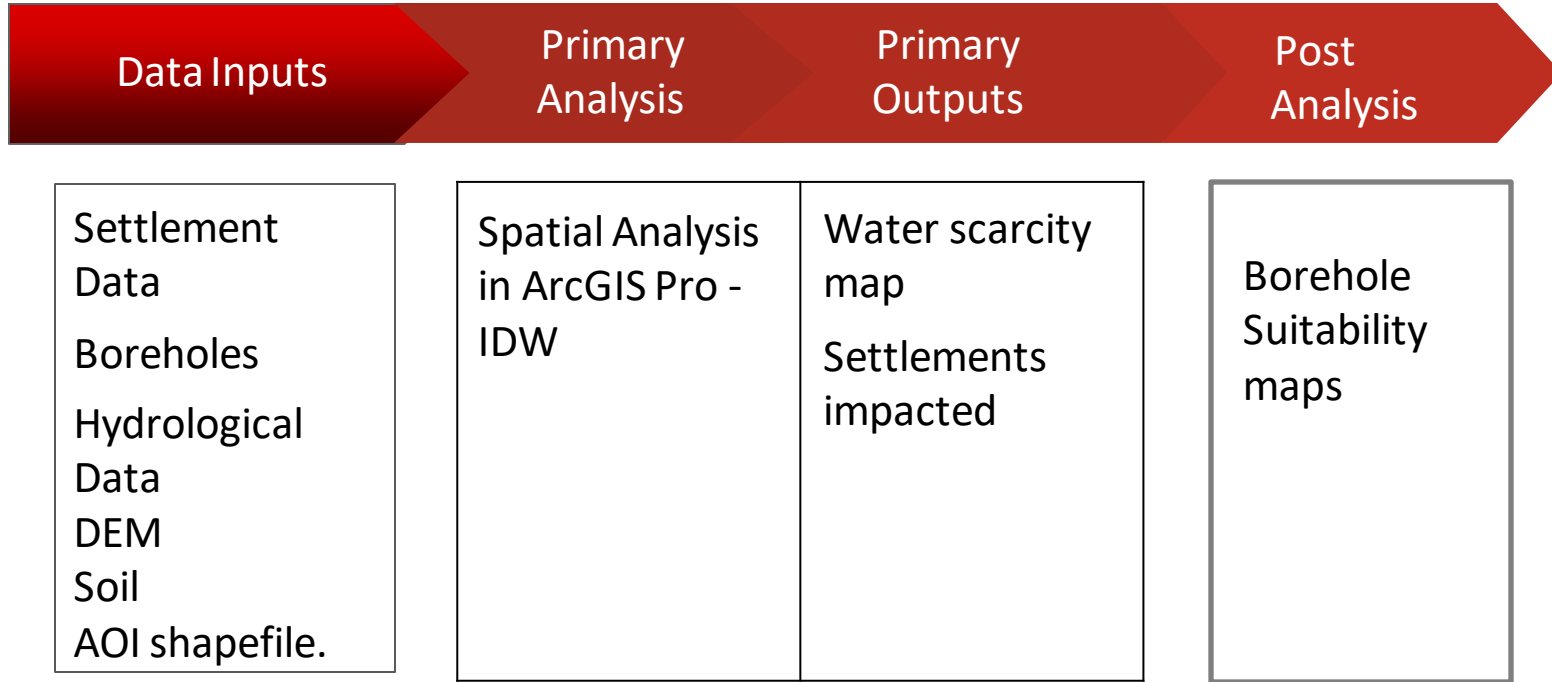
WAJIR COUNTY



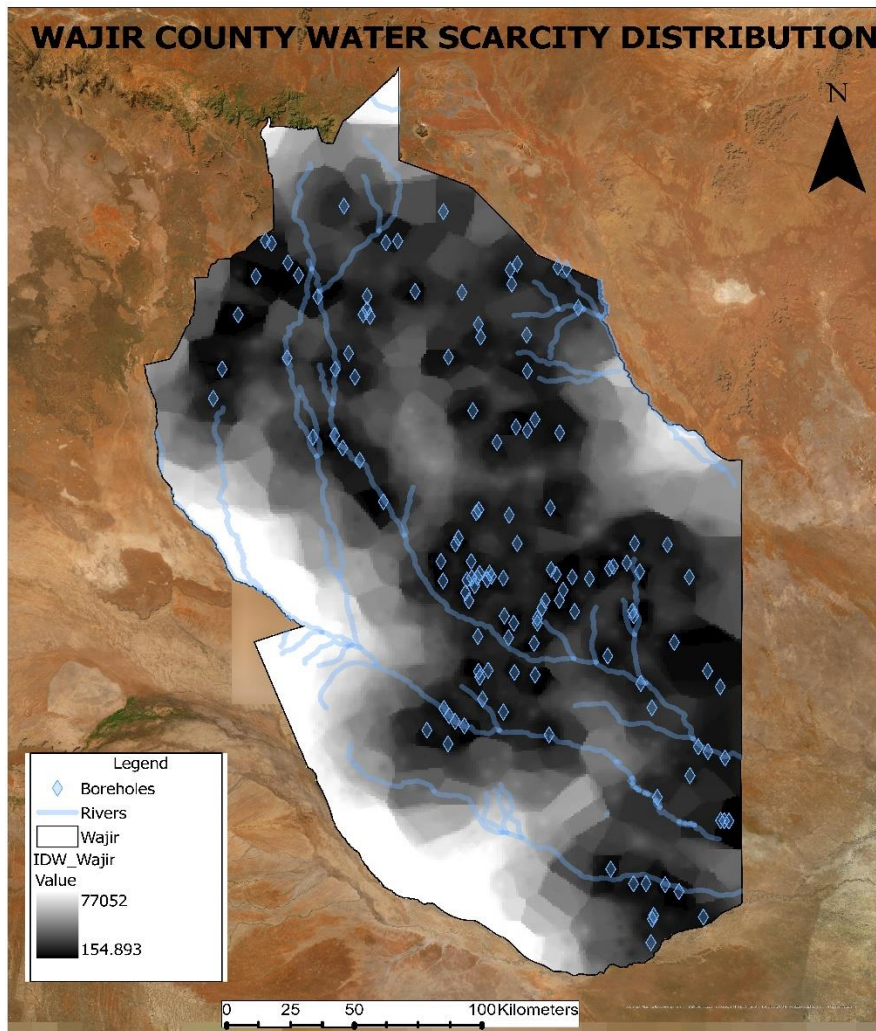
- ❑ Pronounced Aridity
- ❑ The county has no permanent rivers and surface water sources. The water sources that exist, such as seasonal rivers, are often insufficient to meet the needs of the population, especially during dry seasons.
- ❑ The primary source of water for the people in Wajir County is often boreholes. These are deep wells drilled to access groundwater. However, even boreholes can run dry during extended periods of drought, exacerbating water scarcity.
- ❑ Many communities in Wajir County are pastoralists, relying on livestock for their livelihoods. Water scarcity puts the health and survival of their animals at risk, leading to loss of income and food security.
- ❑ Inadequate access to clean and safe drinking water can lead to waterborne diseases, posing significant health risks to the population.

Methodology

6



WAJIR COUNTY WATER SCARCITY DISTRIBUTION



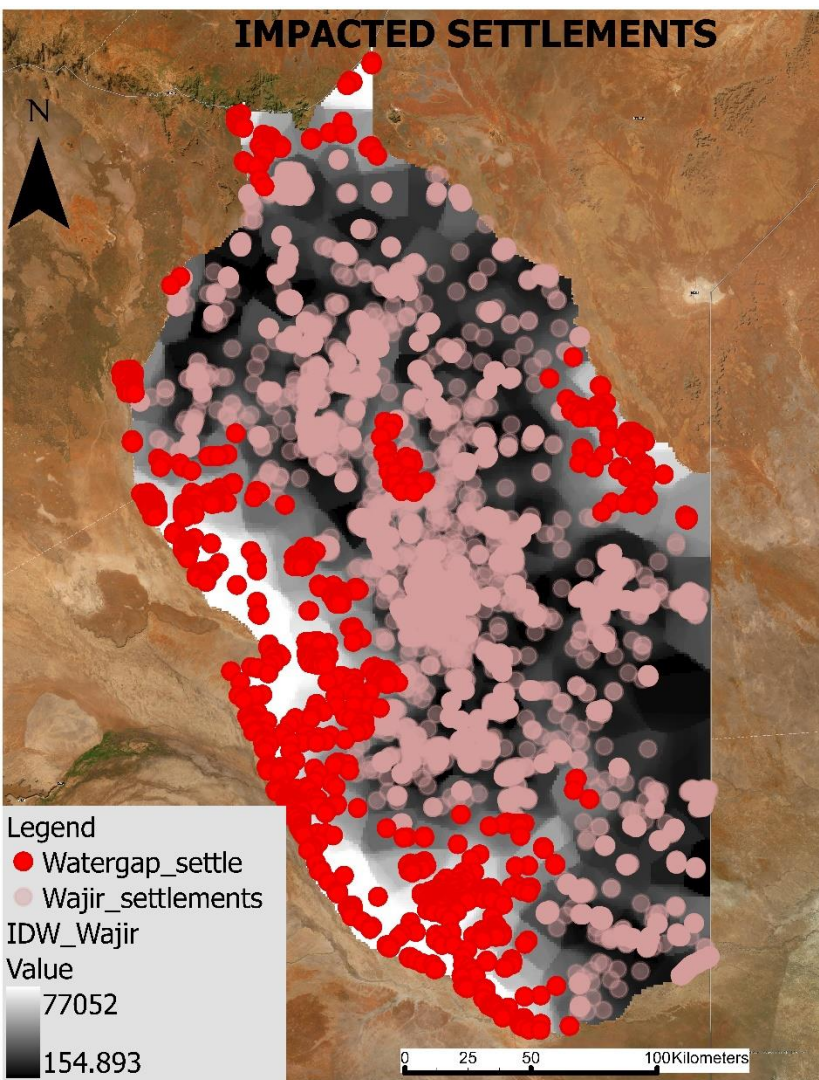
Water Scarcity Map



- The black parts are water sufficient
- The lighter parts are water scarcity regions
- Most boreholes are along the river banks
- All the rivers are seasonal rivers

Impacted Settlements

- The red dots represent the settlements which are more than 6 km buffer



WAJIR COUNTY NDVI MAP

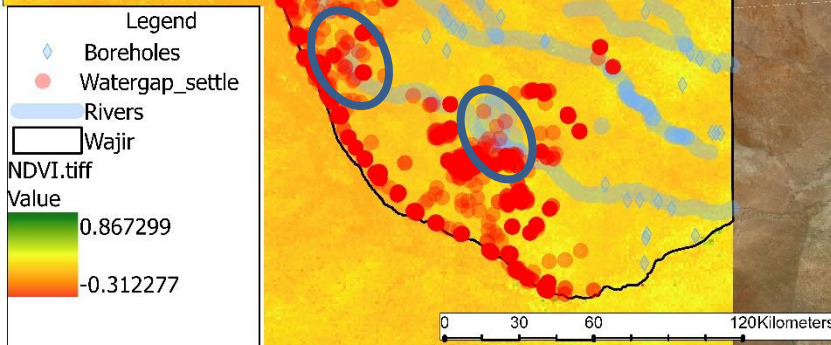


Borehole Drilling Assumptions

Assumption: Regions with higher NDVI indicate the presence of water meaning the water table might be high

From the NDVI map, the whole county has low NDVI

- Way forward – Use of indigenous knowledge
- Suitable areas for borehole drilling are near the seasonal rivers



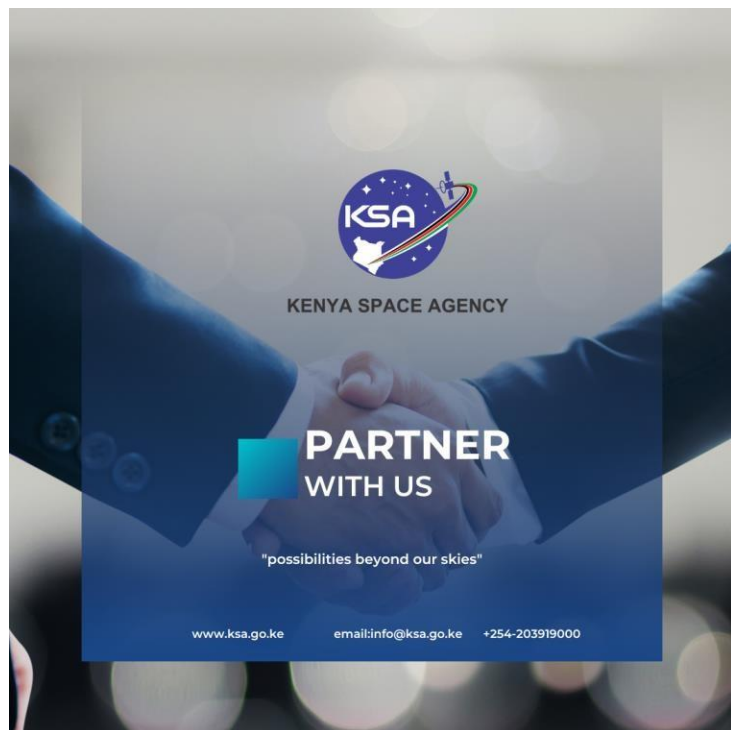
Lesson Learnt

10

- ☐ County Government inclusivity
- ☐ Policy Integration for long term impact
- ☐ Data Gaps and Prioritization



Future Plans



- ☐ Work with the County Government for policy integration
- ☐ Replicate the project in other Arid and Semi-Arid Areas
- ☐ Look for partners to fund borehole drilling and water pan construction

Acknowledgement



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Thank You



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