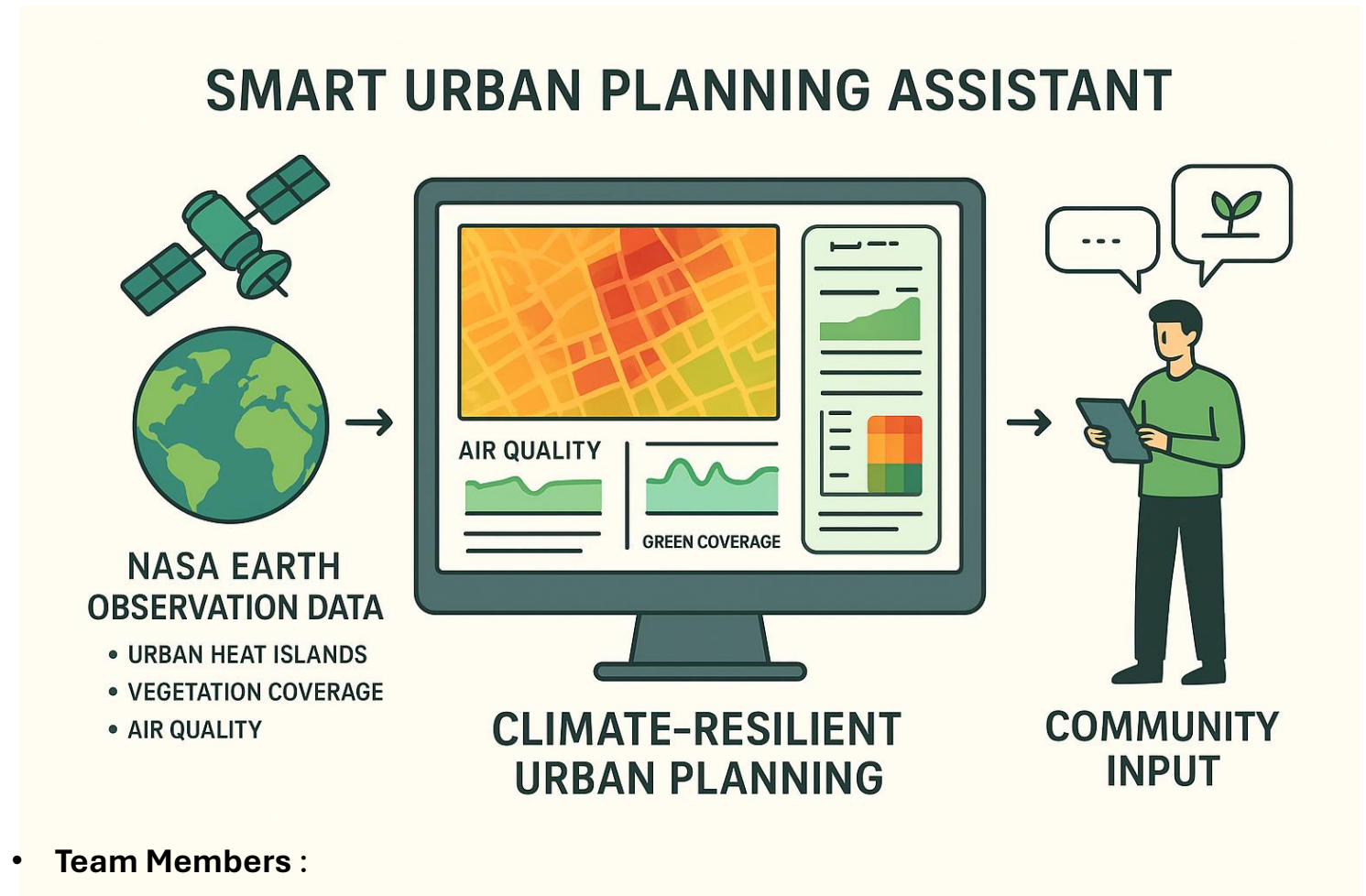


Smart Urban Planning Assistant Simulator



- **Team Members :**
- 1. Muna Salah Muhammad
- 2. Jana Ahmed Kotb
- 3. Rana shabib alfowaires
- 4. Rital Walid Mohamed amin

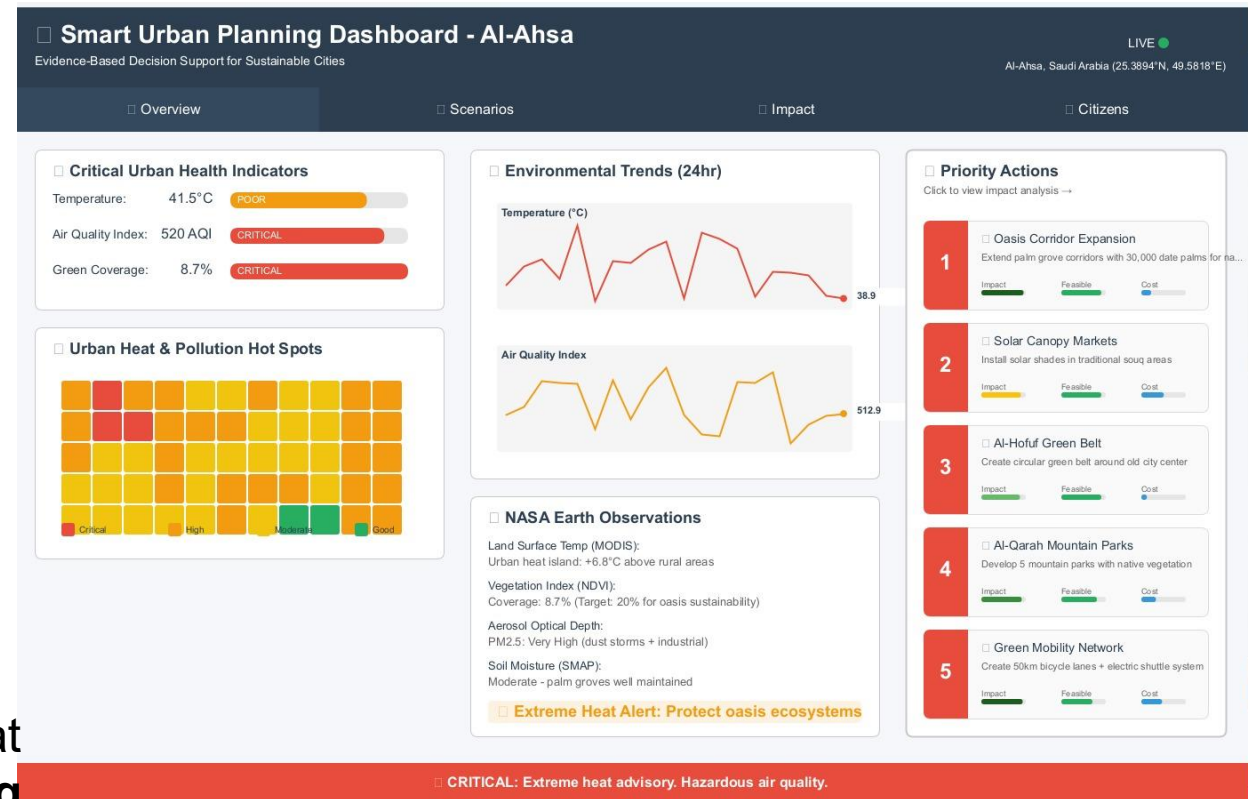
Our project is a **smart dashboard** that connects **NASA satellite data** with **ground sensors** to analyze conditions in **Al-Ahsa City**.

We identified the main problems: **high temperatures**, **severe air pollution**, and **a lack of green spaces**. Using NASA data such as **MODIS** and **SMAP**, we proved the existence of a **heat island** where temperatures are **6.5°C higher** than surrounding areas. We presented a **map highlighting the most affected neighborhoods**, helping urban planners know **where intervention is most needed**.

The system proposes **smart solutions**, such as **expanding oasis corridors**, with an evaluation of **impact, cost, and feasibility**.

Finally, **real-time alerts** like **CRITICAL** demonstrate that the system is **practical for saving lives and protecting public health**.

In short: our project turns NASA data into a clear plan — **where to act, what to do, and why it will succeed**.



This page presents **the future of Al-Ahsa based on NASA data.**

First, we illustrated **the dangerous path if no action is taken.**

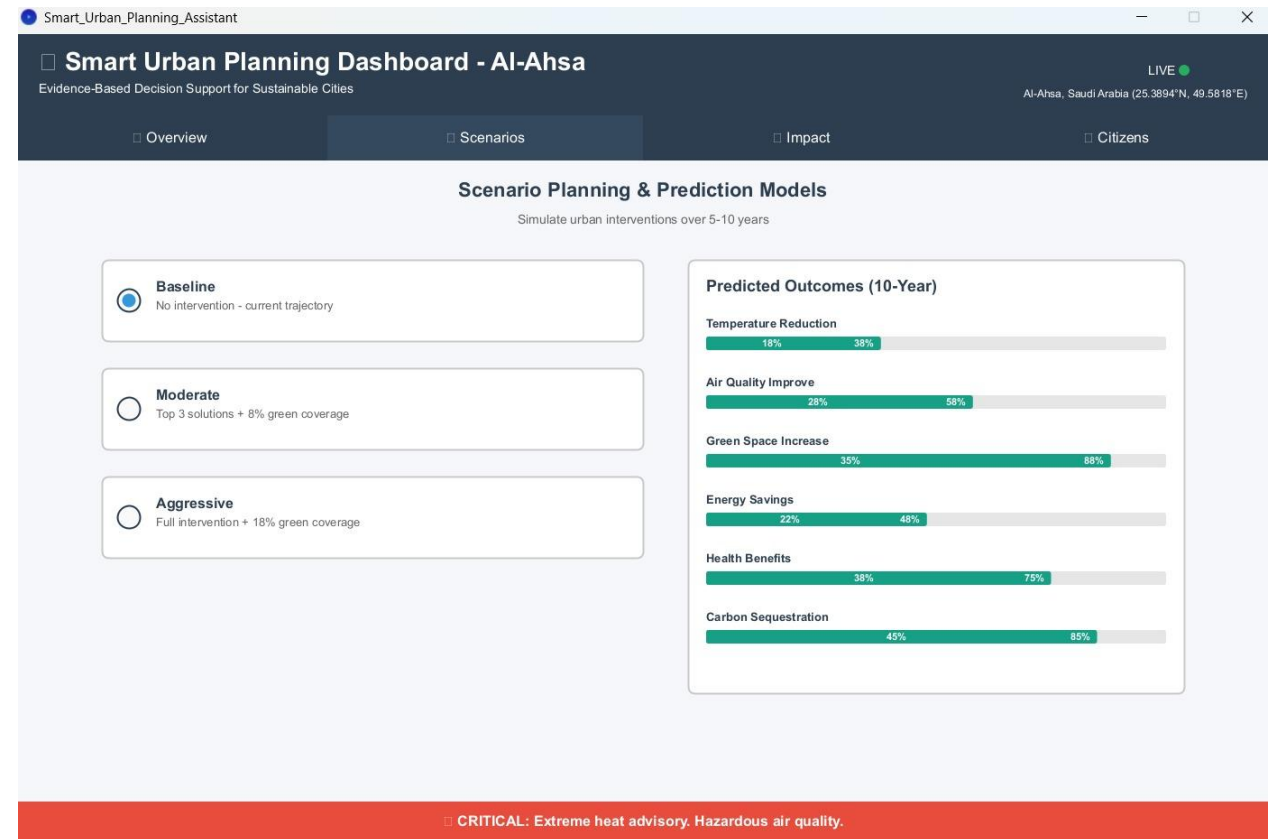
Then, we introduced **moderate and bold scenarios** showing how solutions like **oasis corridors** and **green mobility** can **drastically change the outcomes.**

The **benefits are precisely calculated** using NASA data:

- 38% reduction in temperature,**
- 58% improvement in air quality,**
- 80% increase in carbon capture.**

Most importantly, **bold intervention could achieve up to 75% health benefits**, proving that **data-driven decisions based on NASA insights** protect both people and the environment.

In short: this is a **forecasting and decision-making tool** that shows leaders **what happens if we act now — and how the future can improve.**



On the **Impact Analysis** page, we present the **detailed plan** for the top solution recommended by our system: **expanding the oasis corridors**.

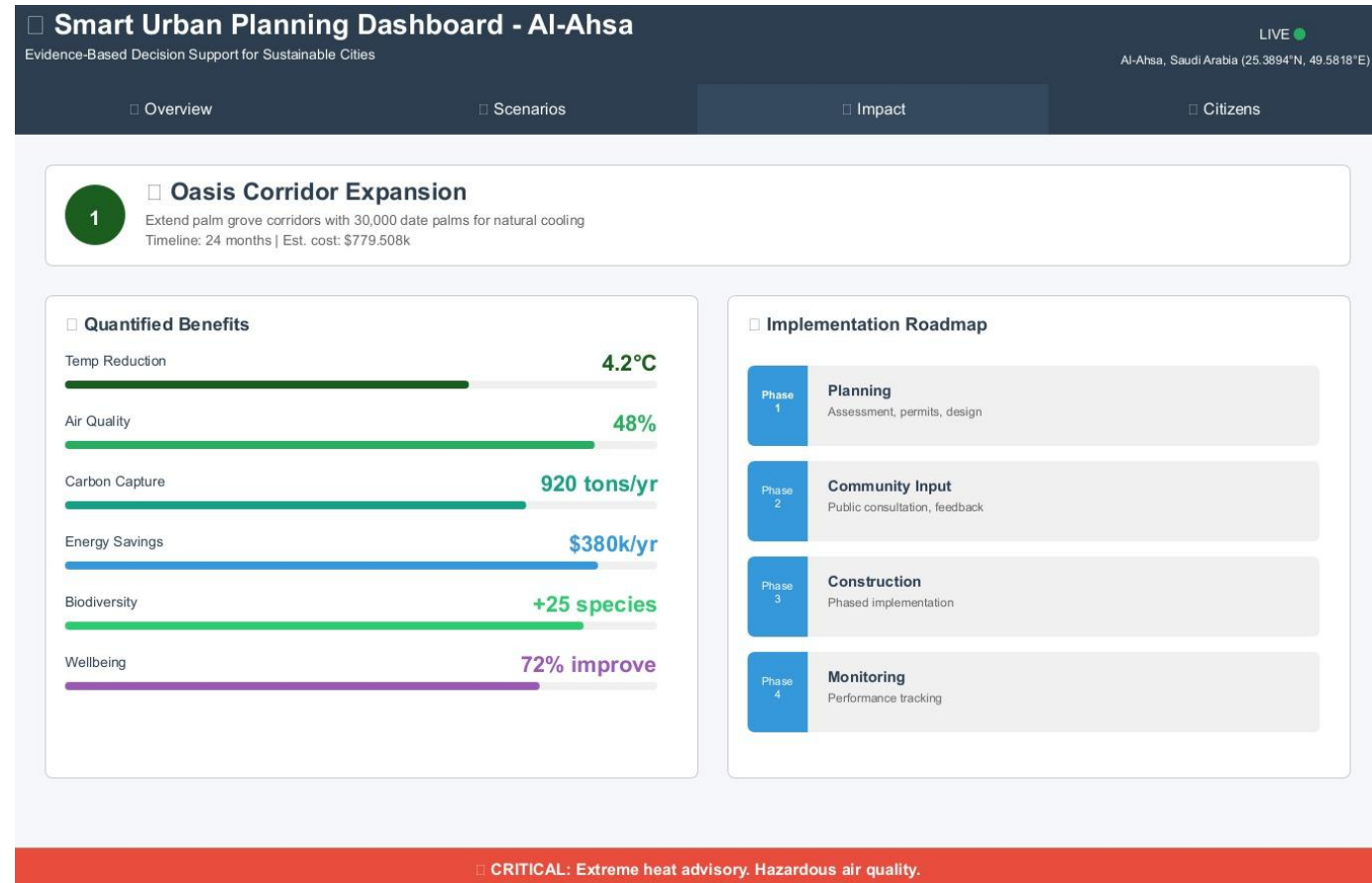
This solution was **selected by AI** because it directly addresses **extreme heat** and **weak green coverage**, as confirmed by **NASA data**.

The **benefits are clear and measurable**:

- 4.2°C** temperature reduction,
- 48%** improvement in air quality,
- 920 tons** of carbon captured annually,
- 25 new species** added to local biodiversity,
- and a **72% improvement** in residents' well-being.

We also provide a **practical implementation map** with **clear phases** and **community participation** to ensure long-term success.

In short: this page answers leaders' key questions — **What do we build? How much does it cost? What impact will it have? And how do we make it happen?**



This page shows **how local residents contribute to urban planning** by combining **community insights with NASA data**. Citizens can report issues like **heat, pollution, noise, or lack of greenery**. Each report is **verified through sensors and NASA data**, ensuring **credible and accurate results**. Examples:

- Al-Hofuf City Center**: high heat — needs palm shading.
- King Abdullah Road**: dust and car emissions.
- Industrial Zone**: mixed factory emissions — needs filters.

With **1,200+ contributors and 94% accuracy**, the community is **an active part of the solution**.

In short: this page proves that **real sustainability** comes from merging **NASA data with local knowledge**, making citizens **partners in shaping a healthier, smarter city**.

Smart Urban Planning Dashboard - Al-Ahsa

Evidence-Based Decision Support for Sustainable Cities

LIVE

Al-Ahsa, Saudi Arabia (25.3894°N, 49.5818°E)

Overview

Scenarios

Impact

Citizens

Community Observations & Engagement

Local knowledge enhances data-driven decisions

Submit Local Observation

Help improve urban planning with your insights

Location (neighborhood or coordinates)

Describe observation (heat, air, noise...)

Heat

Air

Green

Noise

Water

Submit Observation

Tip: Observations validated with sensor data

Community Impact

Total: 8 | Contributors: 1,247 | Accuracy: 94%

Recent Community Reports

Verified observations from residents

Al-Hofuf City Center

Extreme heat in concrete areas - needs palm shade urgently

Verified

King Abdullah Road

Dust storms and vehicle emissions affecting air quality

Verified

Al-Qarah Mountain

Mountain parks provide natural cooling - expand more!

Verified

Traditional Aflaj

Ancient irrigation system works perfectly - preserve it

Verified

Prince Nayef Road

Traffic noise disturbing residential areas

Al-Omran District

Traditional buildings stay cooler than modern ones

Verified

Industrial Zone

Factory emissions mixed with desert dust - air filters needed

Verified

CRITICAL: Extreme heat advisory. Hazardous air quality.

Our second solution is the **Solar Canopy Markets Project**.

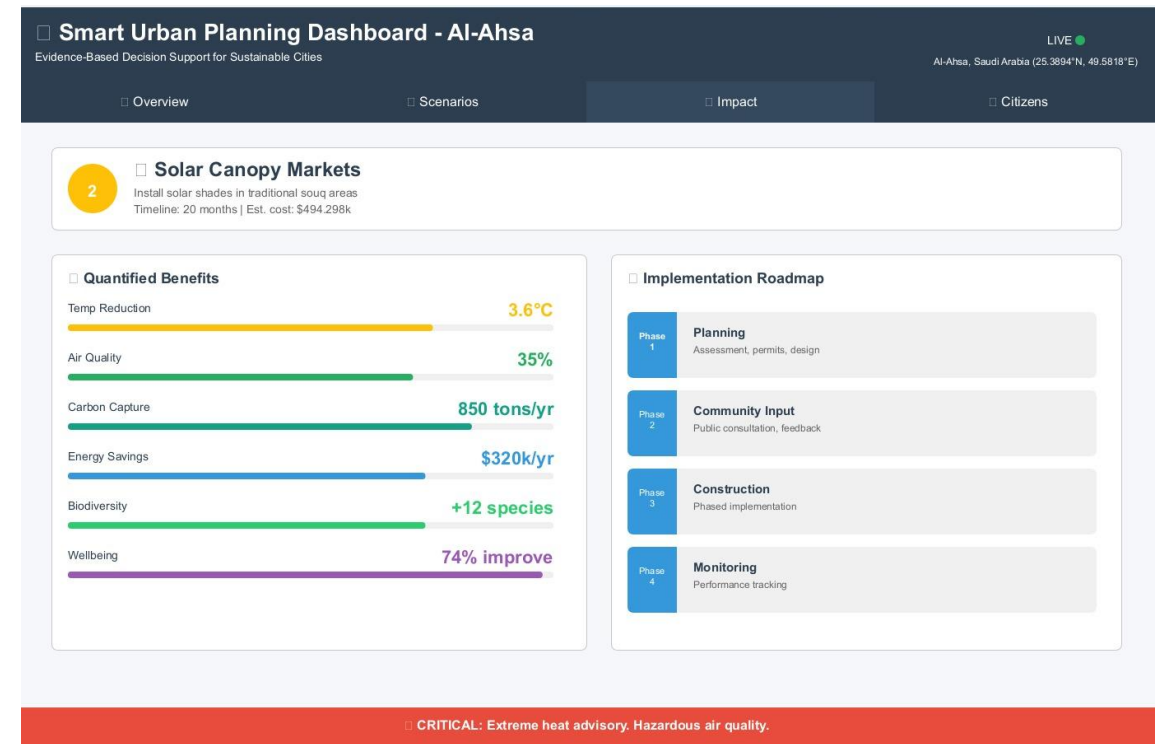
This initiative tackles **two challenges at once**: **extreme heat in traditional markets** and the **need for clean energy**.

The **solar canopies** reduce temperature by **3.6°C**, while **generating solar power** that saves **\$320,000 annually** and captures **850 tons of carbon** each year.

Most importantly, it improves the **well-being of visitors and vendors by 74%**, making markets **more comfortable and vibrant**.

It also **preserves the cultural identity** of traditional markets while adding a **sustainable economic dimension**.

In short: this project proves that our solutions deliver **multiple benefits at once — cooling, clean energy, economic savings, and cultural preservation**.



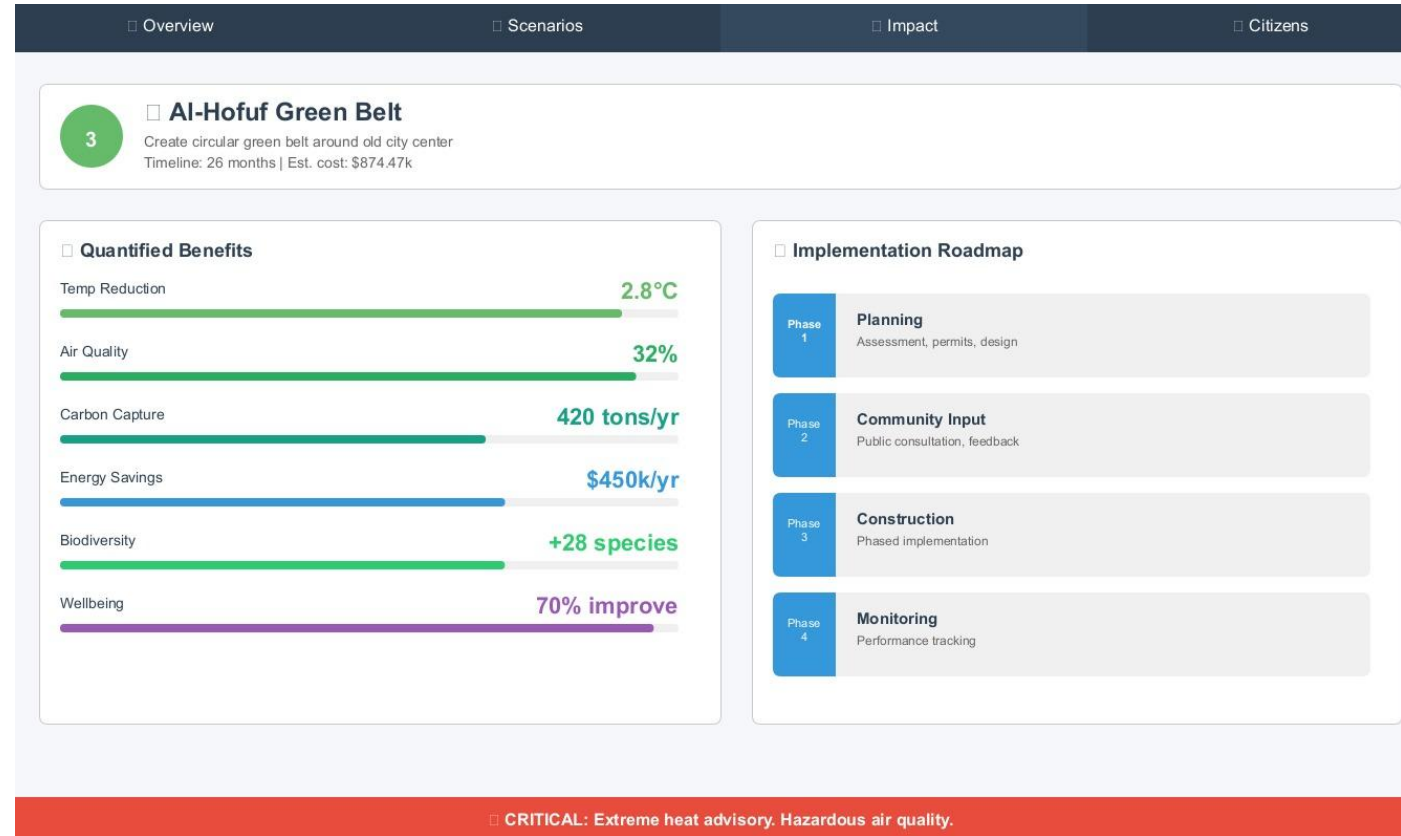
Our third solution is the **Al-Hofuf Green Belt Project**.

Its goal is to **create a circular green belt around the old city center** within **26 months**, at a cost of about **\$875,000**.

The project will **reduce temperature by 2.8°C**, **improve air quality by 32%**, and **capture 420 tons of carbon annually**. It will also **save \$450,000 per year in energy costs**, **add 28 new biodiversity species**, and **boost community well-being by 70%**.

This is **not just a beautification project**, but a **vital response** to rising heat and severe air pollution warnings.

In short: the Green Belt is a smart investment with environmental, economic, and health benefits, making our city more resilient to climate change.

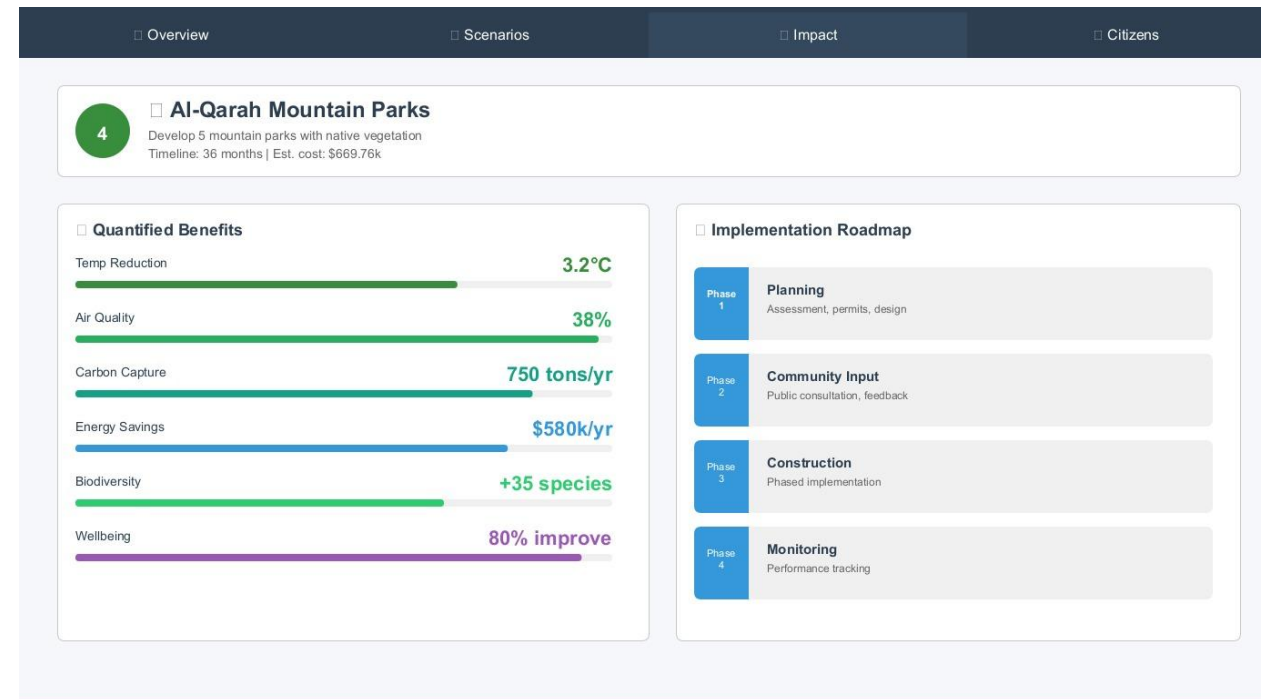


The **Smart Al-Qarah Mountain Parks Project** is a **36-month initiative** to develop **five mountain parks** using **native plants**. The project costs around **\$670,000** and aims to **improve the environment and air quality**, **reduce heat**, **enhance biodiversity**, and **increase community well-being**.

We expect a **3.2°C temperature reduction**, a **38% improvement in air quality**, **750 tons of carbon absorbed annually**, and **\$580,000 in yearly energy savings**. The project will also boost **community well-being by 80%** and support **over 35 species** of wildlife.

Implementation follows **four stages: planning, community engagement, construction, and monitoring**, ensuring goals are achieved effectively.

Compared to the **Al-Hofuf Green Belt Project**, this initiative offers **greater environmental impact and cost efficiency**, focusing on **developing natural recreational spaces for the community**.



- The **Green Mobility Network Project** is a **28-month urban initiative** to build **50 km of bicycle lanes** and an **electric bus system**, with a total cost of **\$532,000**.
- The project aims to **improve air quality**, **reduce emissions**, and **enhance community well-being**. Expected outcomes include:
 - **3.5°C temperature reduction**,
 - **55% improvement in air quality**,
 - **1,200 tons of carbon captured annually**,
 - **\$220,000 in yearly energy savings**,
 - **increased biodiversity** and **75% improvement in residents' well-being**.
- It will be implemented in **four phases: planning, community engagement, construction, and monitoring**.
- **In short:** this is a **low-cost, high-impact investment**, especially effective in **reducing transportation emissions** and promoting sustainable urban living.

