

Infrastructure Development Assistant: IDA

A chatbot that uses AI to parse open access databases and assist city planners with infrastructure development across Africa.

Challenge: Data Pathways to Healthy Cities and Human Settlements

Team: the try guys

Members: Yogita Senthil and Suruchi Rastogi



IDA: the chatbot that assists city planners with infrastructure development

About

This assistant provides information about African infrastructure development based on curated articles and case studies.

Articles Loaded
24

Unique Sources
10

Data Sources


- Research articles on African infrastructure
- WorldPop population data (worldpop.org)


Clear Chat History

Fork

Infrastructure Development Assistant

Ask questions about African infrastructure development, case studies, and recommendations.

 Where do new healthcare facilities need to be set up in Kenya?

 To determine where new healthcare facilities need to be set up in Kenya, particularly in urban slums, we must focus on areas with significant gaps in healthcare access, especially concerning antenatal care, immunizations, and emergency obstetric services.



Clear Answer:

New healthcare facilities should be established in the following urban slum areas in Kenya: Kibera (Nairobi), Mathare (Nairobi), Mukuru (Nairobi), and Korogocho (Nairobi). These areas are characterized by high population density, poor access to healthcare, and significant health disparities.

Specific Details and Examples:

- Kibera, Nairobi:**
 - Known for its dense population and high rates of maternal and child health issues.
 - Existing facilities are overburdened and often lack essential services.
- Mathare, Nairobi:**
 - Faces significant challenges with access to antenatal care and vaccinations.
 - High levels of poverty and limited transportation options hinder access to available services.
- Mukuru, Nairobi:**

Ask about infrastructure development...



Purpose:

Users: City planners and urban developers across Africa

Application: To assess future land usage

Basis: Myriad variables, including but not limited to: population health, existing infrastructure, environmental factors, etc.

Link: <https://nasahack2025-pv9svg478jsriq3cmnfzhw.streamlit.app/>

Walkthrough of IDA: User enters inquiry

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 Stop Fork  




Infrastructure Development Assistant



Ask questions about African infrastructure development, case studies, and recommendations.

 Where do new healthcare facilities need to be set up in Kenya?

  Searching knowledge base...

Ask about infrastructure development...



Walkthrough of IDA: Chatbot Response

To determine where new healthcare facilities need to be set up in Kenya, particularly in urban slums, we must focus on areas with significant gaps in healthcare access, especially concerning antenatal care, immunizations, and emergency obstetric services.

Clear Answer:

New healthcare facilities should be established in the following urban slum areas in Kenya: Kibera (Nairobi), Mathare (Nairobi), Mukuru (Nairobi), and Korogocho (Nairobi). These areas are characterized by high population density, poor access to healthcare, and significant health disparities.

Specific Details and Examples:

1. Kibera, Nairobi:

- Known for its dense population and high rates of maternal and child health issues.
- Existing facilities are overburdened and often lack essential services.

2. Mathare, Nairobi:

- Faces significant challenges with access to antenatal care and vaccinations.
- High levels of poverty and limited transportation options hinder access to available services.

3. Mukuru, Nairobi:

- High maternal and infant mortality rates due to inadequate healthcare infrastructure.
- Limited emergency obstetric care facilities.

4. Korogocho, Nairobi:

- Residents have reported barriers to accessing quality healthcare.
- Needs targeted interventions for immunization and maternal health services.

Next Steps:

- Data Collection:** Collect baseline data on healthcare access and needs in the identified areas.
- Planning Meetings:** Hold meetings with stakeholders to discuss findings and outline a strategy for facility establishment.
- Funding Proposals:** Develop and submit proposals to attract funding for the construction and operation of new healthcare facilities.

By addressing these specific areas and implementing targeted strategies, we can significantly improve healthcare access and outcomes for residents in urban slums in Kenya.

Population Context:

- Country: Kenya
- Latest WorldPop data: 2020
- Source: WorldPop Global Population Dataset
- Citation: WorldPop (www.worldpop.org) - School of Geography and Environmental Science, University of Southampton; Department of Geography and Geosciences, University of Louisville; Departement de Geographie, Université de Namur and Center for International Earth Science Information Network (CIESIN), Columbia University (2018). Global High Resolution Population Denominators Project - Funded by The Bill and Melinda Gates Foundation (OPP1134076).
<https://dx.doi.org/10.5258/SOTON/WRP0645>

> Sources

Actionable Recommendations:

• Conduct Assessments:

- Collaborate with local health ministries and NGOs to conduct assessments that identify specific health service gaps in these slums.

• Establish Health Facilities:

- Prioritize the construction of health centers that provide comprehensive maternal and child health services, including antenatal care, immunizations, and emergency obstetric care.

• Community Outreach Programs:

- Develop programs to raise awareness about available health services, using local organizations to disseminate information effectively.

• Training Programs:

- Implement training for healthcare workers to ensure culturally sensitive care is provided. Engage local health volunteers who understand the community dynamics.

• Referral Systems:

- Establish referral pathways to ensure patients can access higher-level care promptly when needed.

Stakeholders to Involve:

- Health Ministries:** For policy support and funding.
- Local NGOs:** For community engagement and outreach.
- Community Organizations:** To facilitate participation from residents in the planning process.
- Healthcare Workers:** For training and service delivery.

Community Engagement Strategies:

- Focus Group Discussions:** Engage community members to identify specific health needs and barriers to accessing services.
- Surveys:** Conduct geolocated household surveys to gather data on healthcare needs and current service usage.
- Workshops:** Organize workshops to educate residents about maternal and child health services.

Response Structure:

Each response contains key elements:

- **Answer**
 - A summary response and a detailed response directly responding to the question
- **Recommendations**
 - Outlines a plan of action
- **Stakeholders**
 - Identifies agencies or organizations with key interests, or that can provide assistance
- **Community Engagement**
 - To keep the community involved in the outlined process
- **Next Steps**
- **Sources and Images**

→ Resource Usage

World Pop:

<https://www.worldpop.org/>

The demographic data available through World Pop is centered around health and development applications, making its application within our project vital.

NASA Earthdata:

<https://www.earthdata.nasa.gov/worldview>

The data sets and images available through NASA Earthdata Worldview are comprehensive and thorough, detailing key environmental factors. These files provide further detail and insight to the predictions generated by IDA.



Thank you!

We deeply appreciate the time and work that volunteers have put into ensuring that this event stays running during the government shutdown.

Thank you so much for your continued passion and support during the hackathon!