DESIGN AND BUILD KATO HOSPITAL REGION NO.8

MINISTRY OF HEALTH

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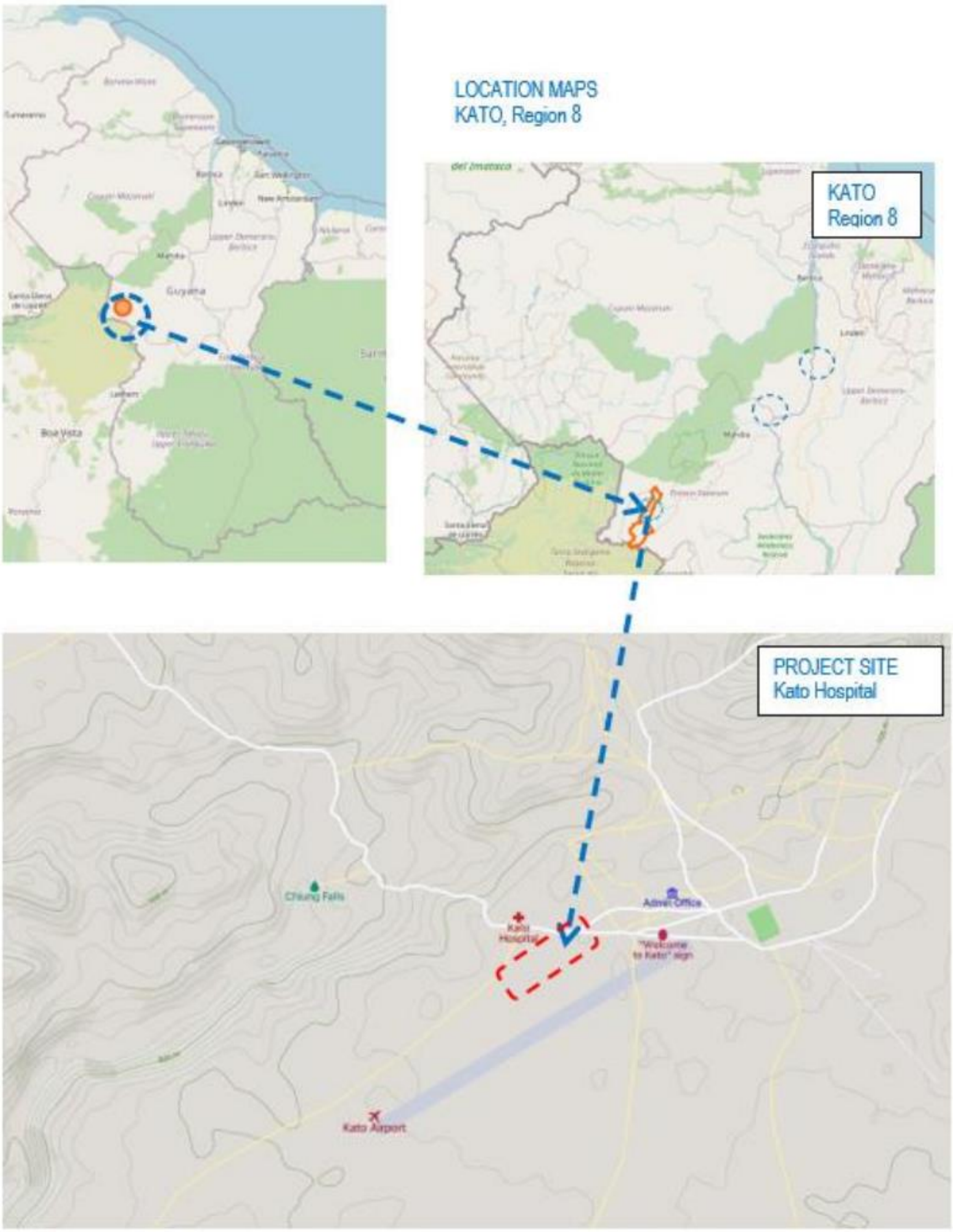
1. Site Description

The proposed hospital construction project is located at KATO, Region #8 (Potaro Siparuni) Guyana at GPS:4.654843,-59.83026 [UTM N21]. Kato is 300 KM southwest of Georgetown. KATO and the surrounding settlements are primarily occupied by the Patamona Indigenous Nation. Nearby villages are Chiung Mouth, Kurukabaru Village and Paramakatoi. The village accommodates a large Secondary School, a police station, a cottage hospital, and an airstrip. The site is centrally located, around several out laying villages, whose inhabitants are predominately indigenous Amerindian. The land profile [KATO] is on an elevated mound with generally flat terrain, the site is at a general elevation of 600-700 meters approx.



Kato Hospital occupies a site area of approximately 67,972 square meters, with a developed land area of about 40,460 square meters. The Main Camp covers an area of 4.0 acres situated immediately adjacent to the east side of the proposed Kato hospital, The project site and campsite are virgin land and had no known previous land use or habitation/occupation.

There are the Kato Cottage Hospital and staff living rooms by the north side, and a airstrip by the south side, other than that, the surrounding are all empty land owned by the village council.

Since there is no municipal water supply in Kato, just a well and storage system for the whole village. The camp plans to use water from the pipe linked to the existing Kato Cottage Hospital for living purpose, use the water from the nearby river for construction purposes and after filtration as a supplement for living. The main river is about 830 meters northwest from the site, with adequate water flow. The camp will have sanitation facilities such as operating washrooms, bathrooms, hand washing stations and a wastewater sedimentation tank (septic tank). The sedimentation tank will be inspected regularly for leaks. Effluent will be released into the nearby ditch (waterway) after the sedimentation and anaerobic process has been completed in the tank. Water effluent to public drainage will be tested to meet the industrial effluent discharge guidelines. See the detail in the map.

2. The project design

2.1. Activities

Design phase: geological survey, detailed design of hospital drawings

Procurement phase: procurement of steel structures and other materials, transportation to site

Construction phase: earth excavation, foundation concrete pouring(sand, stone, cement and rebar), steel structure installation, floor slab pouring, wall masonry, decoration, furniture and medical equipment installation, outdoor road pouring, wall and gate installation

Commissioning: installation and testing of medical equipment and essential systems final inspection by regulatory agencies for compliance certification. Training of hospital staff on new equipment and safety protocols. Conducting trial operations before full-scale hospital functionality

Operational phase: delivery of healthcare services, patient care, and administrative functions. Continuous maintenance of facilities, equipment, and utilities. Waste management and compliance with environmental and health regulations. Regular monitoring, auditing, and reporting to authorities

2.2. Source of utility services

Water Supply and Treatment:
Water for construction and operation phases will be sourced from the river 830 meters northwest from the site. Treatment systems will be implemented as necessary to meet potable and operational standards.
Energy and Electricity:
Electrical power will be supplied through dedicated generators and solar panel. Backup systems, such as spare diesel generator or solar installations, will be installed to ensure continuous supply during outages.(Reserved interface, if the local power grid construction is completed later, it can be connected smoothly.)
Communication Facilities:
Communication infrastructure will be established planning to use Starlink satellite systems and internal networks to support project management, operational coordination, and emergency response systems.
Other Supporting Facilities:
Additional utilities, including wastewater management, solid waste handling, and stormwater drainage, will be developed to ensure compliance with environmental and operational standards.

2.3. *Waste management details*

Construction and site preparation activities generate various types of solid and hazardous waste. Proper handling, segregation, and disposal are essential to minimize environmental impact and ensure regulatory compliance.

Waste Categories, Disposal Methods, and Sites

Type of Waste	Description	Disposal Method	Identified Disposal Site
Excavated Soil & Debris	Excess soil, rocks, and demolition materials	Used for site leveling or disposed at designated landfill	Municipal construction landfill or backfill site
Concrete Waste	Broken blocks, over-poured or excess concrete	Crushed and reused as road base material or recycled	Local concrete recycling plant or civil works reuse site
Wood Waste	Formwork, crates, pallets	Reused on-site or chipped for biomass/fuel	Timber recycling on site
Scrap Metal	Steel bars, wires, pipes, sheet metal	Collected and sold for metal recycling	Local municipal recycling facility
Plastic and Packaging	PVC pipes, wrappings, containers	Segregated and sent to Local municipal recycling facility	Local municipal recycling facility
Hazardous Waste	Paint, solvents, adhesives, oils, fuel residues	Send to approved hazardous waste disposal sites	Approved hazardous waste disposal sites
Domestic Waste	Food Waste, Packaging, General Refuse From Worker Camps	Collected Daily And Disposed By Local Services	Local Waste Management Site
Sanitary Waste	Sewage From Temporary Toilets	Collected In Septic Tanks And Treated/Emptied By Licensed Service	Municipal Sewer System - On-Site Leach Fields (If Septic-Based)

3. *The project size*

Capital investment in the project:
From inter-American Development Bank (IDB), total twenty-seven million, four hundred and twenty-nine thousand, three hundred and seven united states dollars and one cent (USD$27,429,307.01)

Design phase: geological survey, detailed design of hospital drawings. The designers will be in the back office, about 15 people, and will not live on site.

Procurement phase: procurement of steel structures and other materials, transportation to site. The bulk purchase will be carried out in china in the early stage, and when it arrives in Guyana and is transported to the site, there will be about 10 people on site to transport and load and unload.

Construction phase: earth excavation, foundation concrete pouring, steel structure installation, floor slab pouring, wall masonry, decoration, furniture and medical equipment installation, outdoor road pouring, wall and gate installation. Depending on the different processes, the number of people involved fluctuates between 40-72.

Commissioning: installation and testing of medical equipment and essential systems, final inspection by regulatory agencies for compliance certification. Training of hospital staff on new equipment and safety protocols. Conducting trial operations before full-scale hospital functionality. About 25 people including quality control inspectors, medical equipment technicians, plumbers & electricians, HVAC & ventilation specialists and it & network engineers.

Operational phase: delivery of healthcare services, patient care, and administrative functions. Continuous maintenance of facilities, equipment, and utilities. Waste management and compliance with environmental and health regulations. Regular monitoring, auditing, and reporting to authorities. About 75 people including doctors, nurses & midwives, pharmacists & lab technicians, pharmacists & lab technicians, radiologists & imaging technicians, administrative staff and facility maintenance & support staff.

The hospital is designed to have 45 beds.

4. *Explanation of the project*

Kato Hospital occupies a site area of approximately 67,972 square meters, with a developed land area of about 40,460 square meters. The hospital is designed to accommodate 45 beds and includes functions such as outpatient services, medical technology, wards, and ancillary rooms. The total construction area of the project is 5375.97square meters, with an outdoor patient parking lot provided. The project includes the following facilities:

Medical Comprehensive Building (Building A): 4,898.52 square meters

Ancillary Rooms (Building B): 415.45 square meters

Fire Water Pool (Building C):(structure)

Substation (Building D): 54 square meters

Security Guard Room (Building E): 8 square meters

The project also includes service and support infrastructure such as roads and landscape design.

KATO SCHEDULE				
Item		**Indicator**	**Unit**	**Remarks**
Total Land Area		67,972	m^2	
Land Area for Construction		40,460	m^2	
Total Building Area		5,375.97	m^2	
	- Comprehensive Medical Building (A)	4,898.52	m^2	
	- Ancillary Rooms (B)	415.45	m^2	
	-Fire Water Pool (C)	0	m^2	Structure not included in area calculation
	-Substation (D)	54	m^2	
	-Security Guard Room (E)	8	m^2	
Land Occupied Area		3070.2	m^2	
Building Density		4.5%		
Plot Ratio		0.08		
Green Space Ratio		58%		
Parking Spaces		25	vehicles	including 4 accessible spaces and 2 ambulance spaces
Number of Beds		45	beds	

5. The duration of the project

Design phase: 3 months, from 2025/4/13 to 2025/7/6

Construction phase: 27 months, from 2025/7/6 to 2027/9/29

Commissioning: one and half months, from 2027/9/30 to 2027/11/12

Operational phase: 2027/11/15-*******

6. Potential effects on the environment and Mitigation Measures:

1. Land Disturbance and Soil Erosion

Adverse Impact:

Site clearing, excavation, and grading may cause soil erosion, land degradation, and sediment runoff into nearby water bodies.

Alteration of the natural drainage system can lead to localized flooding.

Mitigation Measures:

Erosion Control:

Install silt fences, sediment traps, and retention ponds to control soil movement.

Use mulching, vegetative cover, or erosion control blankets on exposed soil.

Stormwater Management:

Design temporary drainage channels to direct runoff away from construction areas.

Implement permeable ground cover to reduce waterlogging.

Minimizing Land Disturbance:

Clear only the necessary area to preserve natural vegetation and minimize exposure of bare soil.

Implement phased land clearance to reduce large-scale soil exposure.

2. Air Pollution and Dust Generation

Adverse Impact:

Dust emissions from excavation, drilling, and construction vehicle movement reduce air quality.

Exhaust emissions from diesel generators and machinery contribute to air pollution (CO_2, NOx, PM).

Mitigation Measures:

Dust Suppression:

Water spraying on dusty roads and construction areas to minimize airborne dust.

Use dust barriers (tarpaulin, fences) to contain dust spread, especially near residential areas.

Emission Control:

Regular maintenance of construction machinery to reduce fuel inefficiency and excessive emissions.

Use low-emission equipment and biofuel or electric-powered construction vehicles when possible.

Restrict vehicle idling to reduce unnecessary fuel consumption.

3. Water Pollution and Wastewater Management

Adverse Impact:

Sediments, oil, and chemicals from construction sites can pollute nearby water bodies.

Cement washout and concrete runoff can alter water pH and harm aquatic life.

Sanitary wastewater from worker camps can contaminate soil and groundwater.

Mitigation Measures:
Prevent Contaminant Runoff:
Construct sedimentation basins and stormwater retention ponds to trap pollutants.
Use bunds and barriers to prevent hazardous material spills from reaching water bodies.
Proper Wastewater Management:
Install temporary toilets and septic tanks for worker sanitation needs.
Treat wastewater from equipment washing before safe disposal into municipal drains.
Concrete and Chemical Waste Control:
Designate concrete washout areas to prevent cement runoff into the soil.
Store fuels, oils, and hazardous chemicals in bunded areas to prevent leakage.

4. Noise and Vibration Pollution
Adverse Impact:
High noise levels from heavy machinery, drilling, and transportation disturb nearby communities and wildlife.
Vibrations from pile driving and excavation may impact nearby structures.

Mitigation Measures:
Noise Reduction Strategies:
Use low-noise equipment and install mufflers on heavy machinery.
Erect temporary noise barriers (acoustic walls, sandbag enclosures) near residential areas.
Work Schedule Management:
Limit construction hours to daytime (e.g., 8 AM – 6 PM) to reduce nighttime disturbances.
Notify nearby residents in advance about high-noise activities.
Vibration Control:
Limit use of heavy-impact machinery near sensitive buildings.
Use alternative low-vibration construction techniques when working close to existing structures.

5. Waste Generation and Management
Adverse Impact:
Construction debris (wood, metal, concrete, bricks) can accumulate and cause environmental hazards.
Hazardous waste (paints, adhesives, oils, asbestos) requires special handling.
Unmanaged solid waste leads to land pollution and health risks.

Mitigation Measures:
Waste Reduction and Recycling:
Sort and separate construction waste for reuse and recycling (metal, wood, concrete, plastic).

Partner with local recycling facilities for proper disposal of recyclable materials.
Implement on-site waste bins and waste segregation stations to encourage responsible disposal.

Proper Disposal of Hazardous Waste:

Store hazardous materials in sealed, labeled containers to prevent spills and contamination.
Contract licensed hazardous waste handlers for safe disposal of chemicals and toxic materials.

Organic and General Waste Management:

Establish composting systems for organic waste from worker camps.
Dispose of non-recyclable waste at approved landfill sites according to environmental regulations.

6. Biodiversity and Habitat Protection

Adverse Impact:
Deforestation and land clearing reduce local biodiversity and disrupt ecosystems.
Wildlife displacement due to habitat destruction.

Mitigation Measures:

Minimizing Habitat Destruction:

Identify sensitive ecological areas before construction and avoid unnecessary clearance.
Retain green buffer zones and plant native vegetation after site preparation.

Wildlife Protection Measures:

Relocate affected species where feasible in collaboration with environmental agencies.
Restrict construction activities near water bodies and protected areas.

7. Traffic and Transportation Disruptions

Adverse Impact:
Increased construction vehicle traffic may cause congestion, accidents, and road damage.
Heavy truck movement may disrupt local road networks.

Mitigation Measures:

Traffic Management Plan:

Schedule off-peak-hour material transport to reduce congestion.
Designate separate entry/exit points for construction vehicles.
Coordinate with local authorities to implement temporary road diversions if needed.

Road Safety Measures:

Install warning signs around the construction site.
Provide protective barriers to prevent accidents involving pedestrians and workers.
Conduct driver training to ensure safe vehicle operation on-site.

8. Social and Community Impacts

Adverse Impact:

Construction activities may disrupt daily life, leading to complaints from nearby residents.
Temporary influx of workers may strain local resources and services.

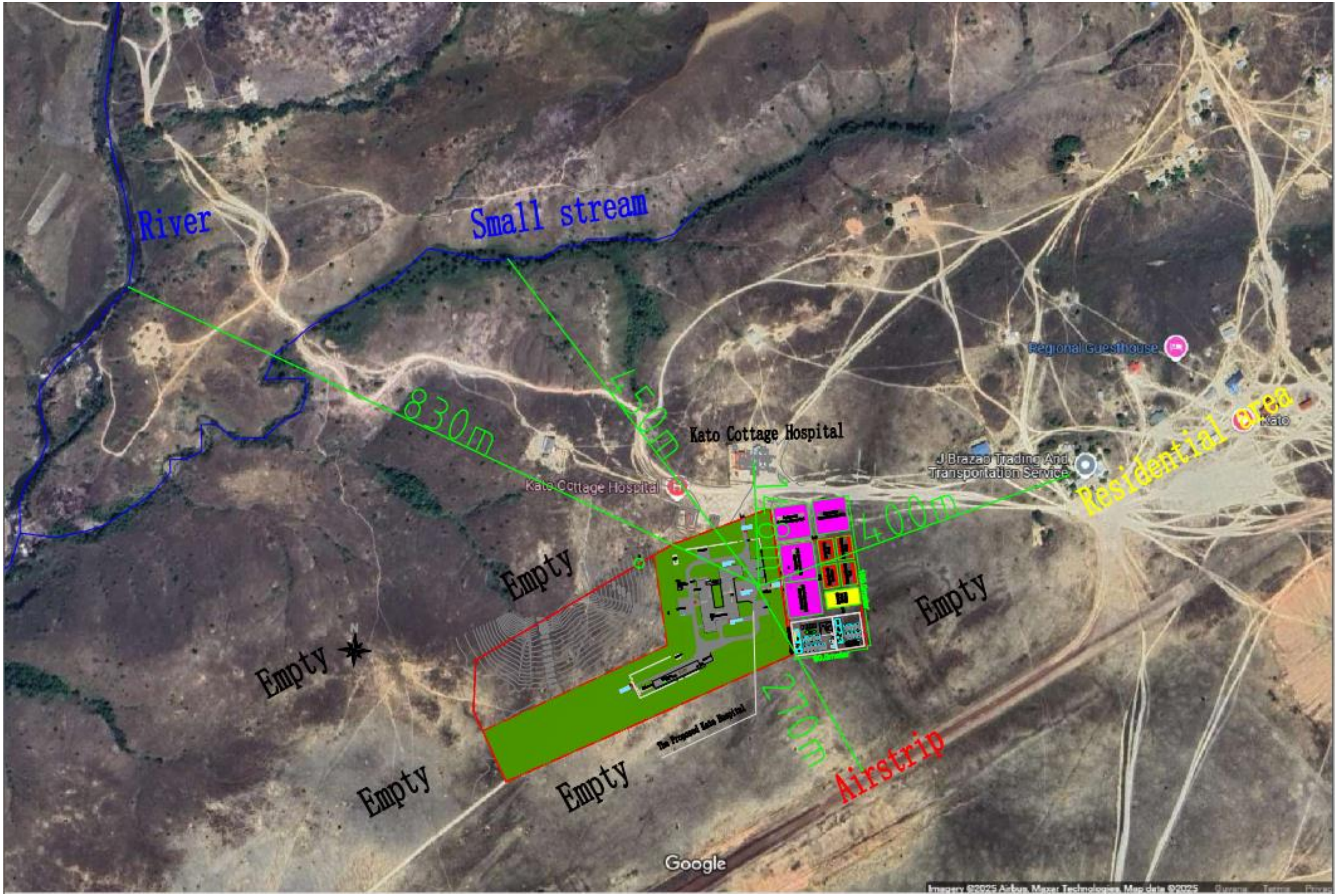
Mitigation Measures:

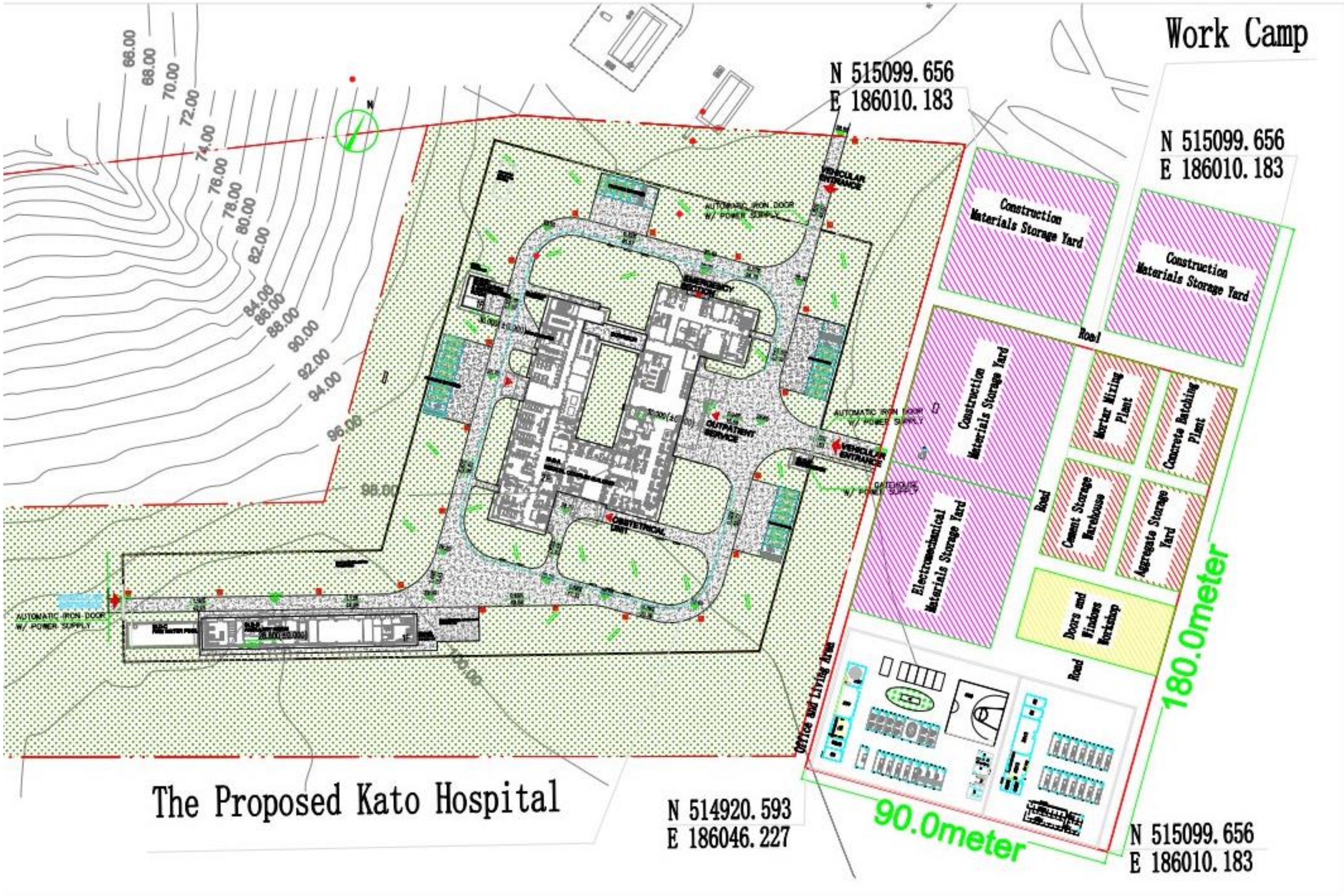
Stakeholder Engagement:

Hold regular community meetings to update residents on construction progress.
Establish a grievance redress system for handling complaints.

Worker Welfare Programs:

Provide adequate worker housing, sanitation, and medical facilities to prevent overburdening local infrastructure.
Enforce strict labor standards to prevent worker exploitation and ensure safety.


River
Small stream
830m
450m
Kato Cottage Hospital
Kato Cottage Hospital
Regional Guesthouse
J Brazao Trading And Transportation Service
Residential area
Kato
400m
Empty
Empty
Empty
Empty
Empty
The Proposed Kato Hospital
270m
Airstrip
Google
Imagery ©2025 Airbus, Maxar Technologies, Map data ©2025


Work Camp
N 515099.656
E 186010.183
N 515099.656
E 186010.183
Construction Materials Storage Yard
Construction Materials Storage Yard
Road
Construction Materials Storage Yard
Morter Mixing Plant
Concrete Batching Plant
Electromechanical Materials Storage Yard
Road
Cement Storage Warehouse
Aggregate Storage Yard
Doors and Windows Workshop
Road
Office and Living Area
180.0meter
90.0meter
N 515099.656
E 186010.183
N 514920.593
E 186046.227
The Proposed Kato Hospital
VEHICULAR ENTRANCE
AUTOMATIC IRON DOOR W/ POWER SUPPLY
EMERGENCY SECTION
OUTPATIENT SERVICE
VEHICULAR ENTRANCE
AUTOMATIC IRON DOOR W/ POWER SUPPLY
OBSTETRICAL UNIT
AUTOMATIC IRON DOOR W/ POWER SUPPLY
66.00
68.00
70.00
72.00
74.00
76.00
78.00
80.00
82.00
84.00
86.00
88.00
90.00
92.00
94.00
96.00
98.00