IoT Constellation Mission Hisia

PRESENTED BY: FAMA JALLOW, UNISEC-GLOBAL IOT MISSION 2025

His:ia:

Early-Stage Startup Based in the US and The Gambia

1. Provide climate data insights on agricultural and environmental challenges in Africa.
2. Customizable CubeSats designed specifically for the African market.

Co-founder and CEO of Hisia

FAMA JALLOW

THE GAMBIA

- Population: **~2.4 million**
- Density: **176 people per Km square**
- Coastline: **60-km Atlantic coastline**
- Total Area: **11,295 km square**
- Economy: **Agriculture and tourism**
- Vulnerability: **Susceptible to climate change impacts**

THE GAMBIA

FLOODING

- Women and children are the most vulnerable to the impact of sea level rise
- Experts warned that a rise in sea level could submerge Banjul, the capital city.

CLIMATE RELATED CHALLENGES FACING THE GAMBIA TODAY

- **Rising sea levels** causing coastal flooding and erosion.
- **Saltwater intrusion** impacting rice farming and freshwater resources.
- **Unpredictable rainfall patterns** causing floods and droughts.
- **Lack of real-time climate and environmental** data.
- **Insufficient early-warning systems** for disaster preparedness.
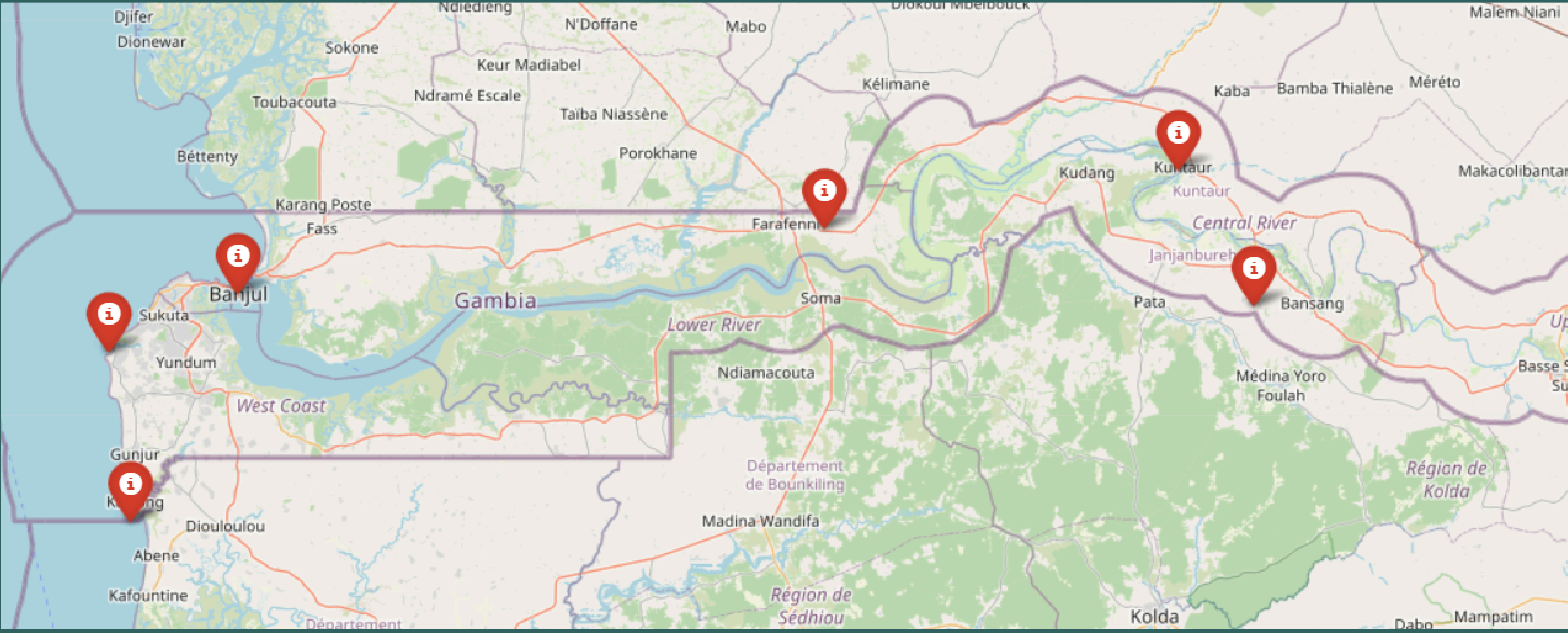
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IOT & SATELLITE SOLUTION

1. **Monitoring sea level rise**
2. **Flooding and coastal erosion**
3. **Salt water intrusion**
4. **Weather monitoring systems**

STRATEGIC LOCATIONS FOR LORAWAN BASE STATIONS

SEA LEVEL RISE

Sensor Type

Ultrasonic & Radar Tide Gauges

Data Collected

Flood and water levels, Tide changes, Wave heights

Data Frequency

1. **Normal conditions:** Every 3 hours
2. **Storms and disasters:** Hourly

Impact

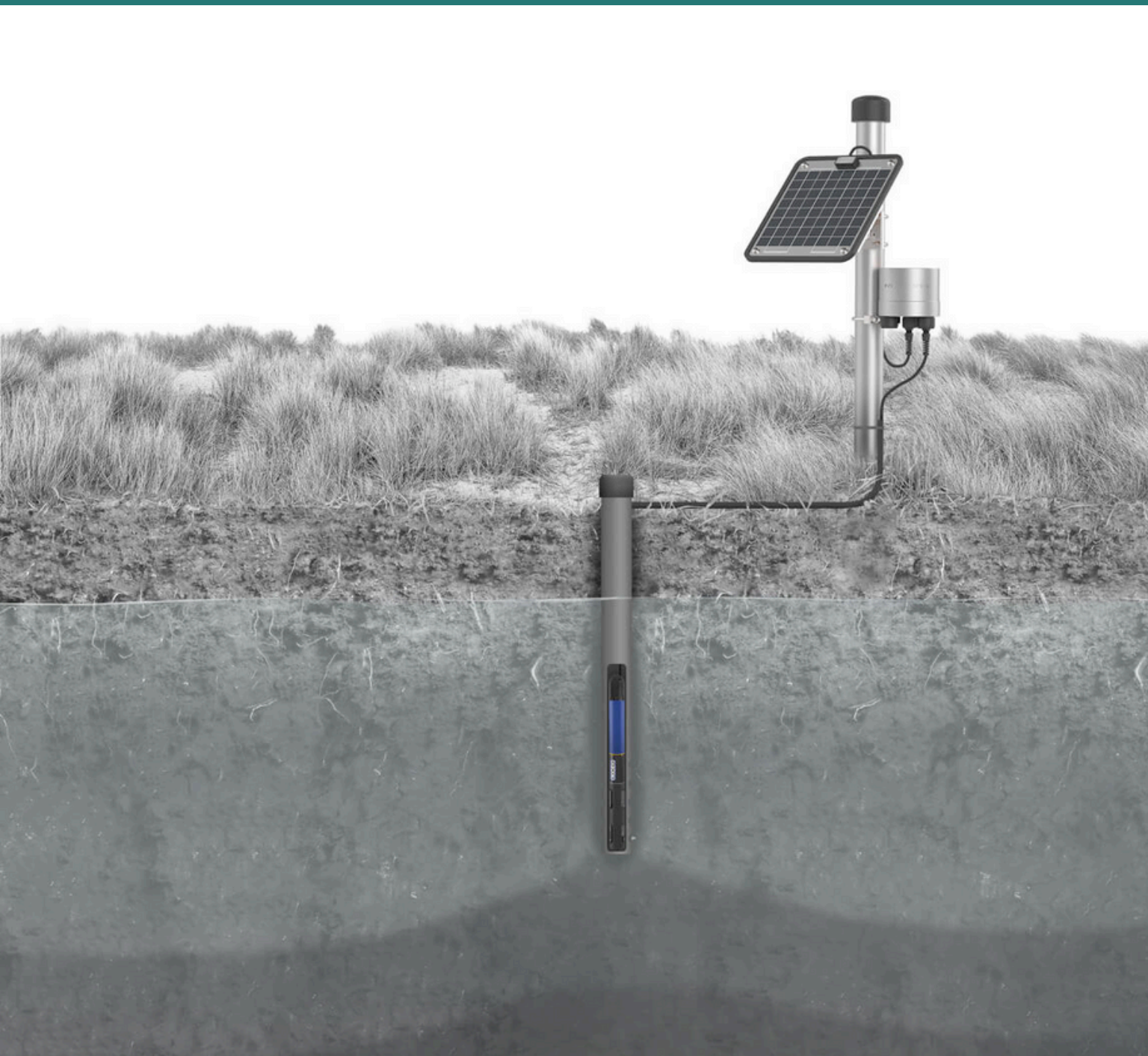Provides early flood warnings to prevent damage and displacement

Tracks sea level rise and coastal erosion trends

Deployment Location

Sensors placed every 2-3 kilometers along the Gambia River

SALTWATER INTRUSION

Sensor Type

Low-cost, easy-to-install salinity sensors

Data Collected

Salinity levels in groundwater and irrigation channels

Data Frequency

- **Normal conditions:** Every 4 hours
- **Storms and disasters:** Hourly

Impact

Protects freshwater resources and Supports agriculture, particularly rice farming, by detecting salt buildup in irrigation water

Location

Every 2 kilometers in agricultural and high-risk areas Focused on farmlands, river estuaries, and vulnerable freshwater wells

WEATHER MONITORING SYSTEM

Sensor Type

Low-cost, solar-powered weather stations

Data Collected

Temperature, humidity, rainfall wind speed & direction

Data Frequency

- **Normal conditions:** Hourly
- **Storms and disasters:** Every 30 Minutes

Impact

- Improves crop yields by optimizing planting and irrigation schedules
- Reduces losses from droughts, floods, and storms
- Supports farmers with real-time weather forecasts for better decision-making

Location

- Every 2 km in agricultural and high-risk areas
- Farmlands, river estuaries, and freshwater wells

CONCLUSION

Recap of Challenges

- Flooding, saltwater intrusion, and unpredictable weather are major threats.
- These challenge are impacting real people.

How Our Solution Helps

- Real-time IoT and satellite data provide early warnings and climate insights.
- Helps farmers, communities, and policymakers make better decisions.

Why This Matters

- This isn't just about technology it's about protecting people's lives and livelihoods.
- Ensures farmers can grow crops, families can stay safe, and climate action is based on real data.

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Thank you