SMART CITY DEVELOPMENT INITIATIVES OF THE WORLD BANK

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ACCELERATED URANIZATION: CHALLENGES & OPPORTUNITIES

- **4.2 billion people** (about 55% of total) live in urban areas today.

- By 2050, near 70% of the global population will reside in cities

- **1 billion people live in informal settlements**

- **75% of Carbon emissions are estimated to be produced in cities**

- **Waste is estimated to increase by 70%**

- **80% of global wealth** is generated in cities.

- Cities are prone to innovation, hosting the world's innovation hubs

- Emerging drive towards low carbon emissions

- Well managed density can make our cities greener, more livable and competitive.

Global Smart City Landscape

- Global Smart City Partnership Program (GSCP) supports demand from all regions

- 60% requested assistance on strategy development, access to best practices, baseline performance assessments, and smart city model development.

- 40 % requested assistance on smart city model roll-out, framework testing and other city specific activities.

Smart City Strategies and Models

Co-Creation of Smart City Solutions

- Definition of challenge and co-creation of solutions with experts, practitioners and city stakeholders.

- Izmir, Turkey took a bottom-up design thinking approach to the complex challenges of the city so that solutions can be shaped with greater citizen participation making them more inclusive.

- New Vision for the city focused on Mobility, Green Cities and Citizen Engagement.

Planning and Addressing of Strategic Priorities

- Ho Chi Minh Smart City Initiatives (HCMC)

- Scoping missions to take stock of current planning efforts, provide initial assessments on the gaps and challenges

- Help set priority areas for comprehensive development of the HCMC

- Enhancing livability through real-time supply of information on traffic, flood mitigation, environmental pollution, municipal competitiveness

- Increase citizen participation in city governance

Enabling Environ. and Human Team	Urban Labs, Sandboxes, Agile regulations, etc. Human Team and Population's skills
Applications	Sectors: Mobility, Utilities, Infra maintenance and servicing (eg, lighting, signals, etc.), Services (e.g., SWM, Education, Healthcare), Emergency Response, DRM , etc.
Soft Infrastructure	Intangible infrastructure: air corridors, Web3
	AR: multiplication of physical infrastructure
	Data: APIs
	Blockchain and AI: algorithms, protocols
Hard Infrastructure	Cybersecurity
	Data infrastructure: data centers, operation centers
	Sensor network: IoT, CCTV
	Connectivity infrastructure: fiber, wireless, etc.

Introducing Smart Application on Existing Infrastructure

- City of Johannesburg's Smart City Strategy

- Digitally transformation focused on universal access to services that are more inclusive, citizen-centric and make the city more livable and resilient.

- Creation of 24/7 City e-Services Portal

- Rolling out 34,000 smart meters to facilitate automated real-time reading of utilities (water, electricity) consumption

- Increasing public Wi-Fi to make City's services more accessible.

- E-Learning Program for Re-skilling

- Open Challenges

Solution-Specific Approaches

Mapping Zanzibar Using Low-Cost Drones

- Main objective of the project is to conduct risk assessment through collection and analysis of geospatial data.

- High-resolution map covering 2,300km^2 was created using the low-cost drones

- The pictures taken by drones for different regions are pieced together to create a comprehensive map

- Image with drones combined with other available data, such as household data, land surveys and underwater (bathymetric) surveys to develop flood risk models.

Identifying Seismic Vulnerability Using ML

- Identifying high-risk buildings can save lives and help prioritize retrofitting investments.

- Sending in large surveyor teams into the field is time consuming and expensive.

- Satellite, drones, 360 street-view images (Open Street Map) used to detect soft-story buildings that are vulnerable to earthquake activities.

- ML algorithm trained on street-view images to automatically detect large first-floor opening and windows (shown in the picture) that were exposed to seismic risk and required upgrading.

- Algorithm can detect with 85% accuracy

Improving Urban Mobility in Haiti
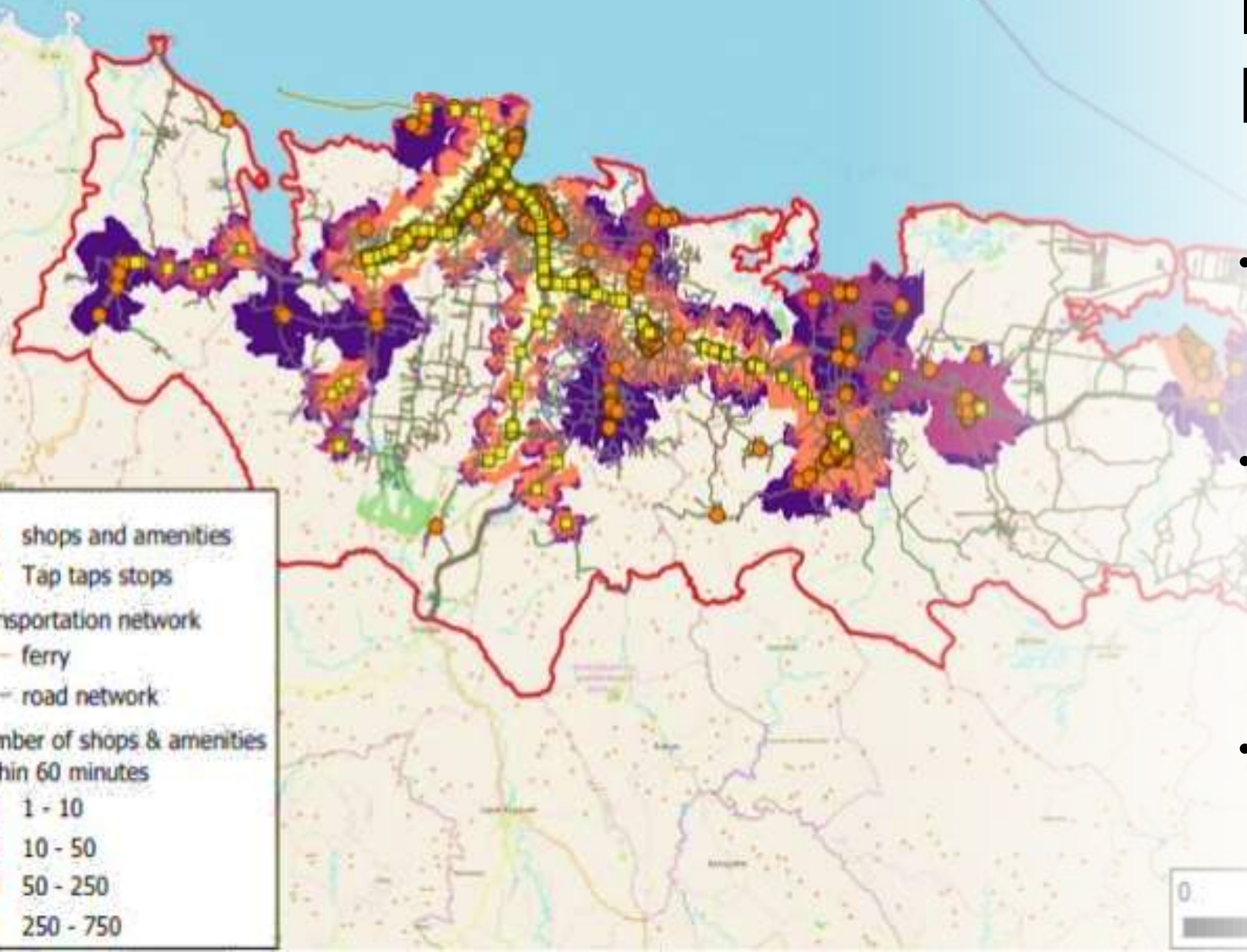
- Poorest residents lived more than 30 mins away from the local informal minibus services (called Tap Taps)

- Using cellular phone data combined with satellite images and field surveys, Bank team was able to map resident mobility patterns and areas where mobility access was impaired.

- Design policy and target transport investments

shops and amenities
Tap taps stops
nsportation network
- ferry
- road network
nber of shops & amenities
hin 60 minutes
1 - 10
10 - 50
50 - 250
250 - 750

Climate-Smart Cities

Low-Carbon Climate-Smart Cities

- Introducing additional dimensions to traditional smart city agenda – green cities, low-carbon cities, resilient cities

- It is not enough for cities to be "smart" in terms of urban analytics, service delivery or competitiveness

- Cities need to be smart about the technology, but also about climate change which will lead to evolving demands from the citizens.
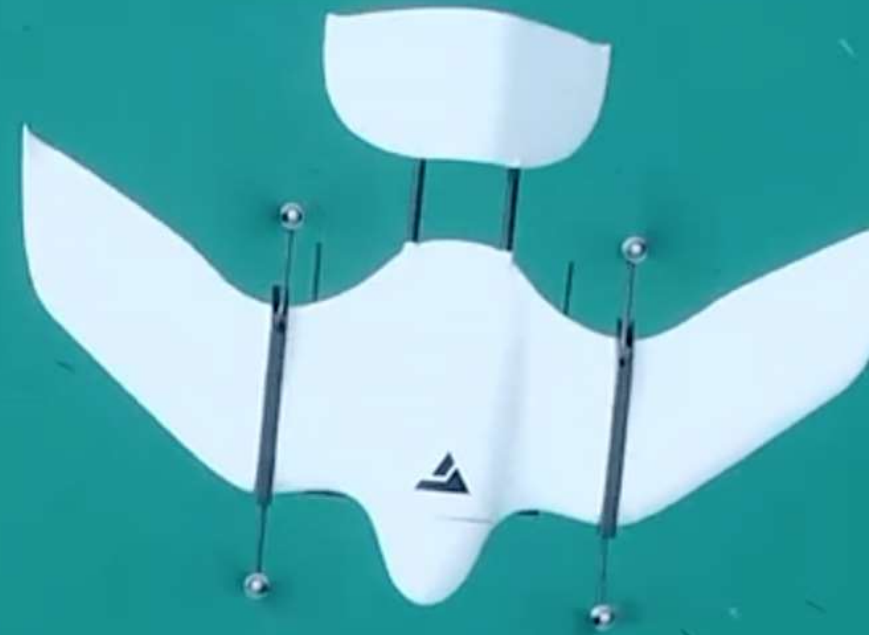
Transforming Cities to be Smarter & Greener

- Ongoing support to Amman, Jordan, to develop a city transformation roadmap

- An integrated and cross-sectoral approach towards a smart and green city

- Greener existing infrastructure
  - ✓ Solid waste management to circular economy
  - ✓ Green (energy efficient) buildings, nature-based solutions

- Behavioral change
  - ✓ Transit-oriented development, increased walkability

- Long-term Sustainable Financing
  - ✓ Capital investment and asset management plans that integrate climate risks