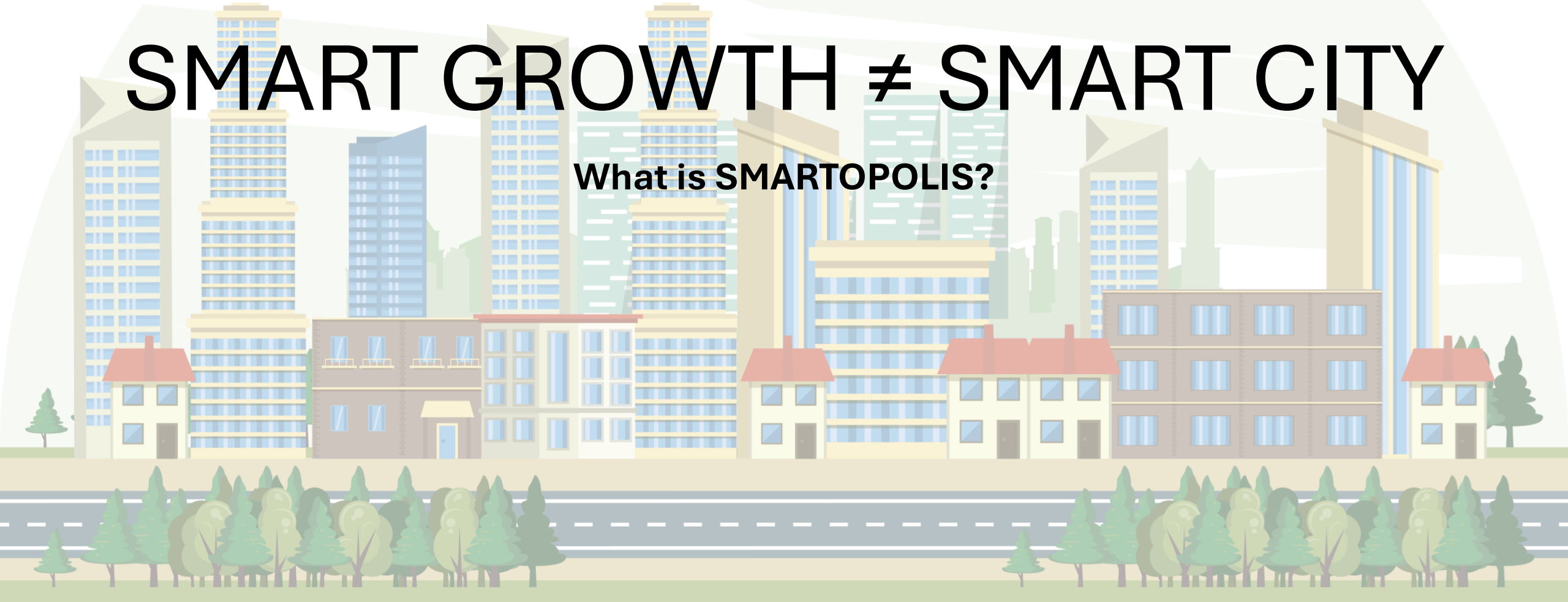
UCLG ASPAC United Cities and Local Governments Asia-Pacific

CLG INSTITUTE CITIES AND LOCAL GOVERNMENTS INSTITUTE

SMART GROWTH ≠ SMART CITY

What is SMARTOPOLIS?



Definitions of Smart Urban Growth

"**SMART GROWTH** is an approach to **development** and **conservation strategies** aims to protect our health and natural environment, making our **communities** more attractive, **economically stronger** and **resilient to climate change**."

United States Environmental Protection Agency (EPA) (2025). *About Smart Growth*

"**SMART GROWTH imparts the growth in the centre of a city** to **decrease the urban sprawl**: creating compact, transit-oriented, walkable, bicycle-friendly land use, and mixed-use development with huge range of housing choices.

SMART GROWTH invests **time, attention**, and **resources** in **community**, influences town-centered policy, transit and pedestrian orientation, greater mix of housing, commercial and retail uses, as well as **open space** and other **environmental amenities**."

Shrivastava & Sharma (2011). *Smart Growth: A Modern Urban Principle*

"**SMART GROWTH** supports **choice and opportunity** by promoting **efficient and sustainable land development**, incorporating redevelopment patterns that optimize prior infrastructure investments, and consuming less land that is otherwise available for agriculture, open space, natural systems and rural lifestyles."

American Planning Association (2012). *APA Policy Guide on Smart Growth*

"**SMART GROWTH** is a way of planning cities and towns that focuses on **sustainability, walkability,** and **giving people more options** in their activities—creating vibrant, mixed-use neighborhoods reducing reliance on cars and protecting the environment—also aims to **curb urban sprawl** that leads to **environmental problems and social isolation.**

SMART GROWTH focuses on **building communities** that are good for the people and the planet through efficient land-use and **improving accessibility**."

Khosravani, S (2025). *Understanding Smart Growth vs New Urbanism: Key Differences and Impacts on Modern Cities*

Principles of Smart Urban Growth

Source: Smart Growth Network in United States Environmental Protection Agency (EPA) (2025). *About Smart Growth*

MIXED LAND USES

COMPACT BUILDING DESIGN

RANGE OF HOUSING OPPORTUNITIES AND CHOICES

WALKABLE NEIGHBORHOODS

DISTINCTIVE, ATTRACTIVE COMMUNITIES WITH STRONG SENSE OF PLACE

PRESERVE OPEN SPACE, NATURAL BEAUTY AND CRITICAL ENVIRONMENTAL AREAS

STRENGTHEN & DIRECT DEVELOPMENT OF EXISTING COMMUNITIES

VARIETY OF TRANSPORTATION CHOICES

PREDICTABLE, FAIR & COST-EFFECTIVE DEVELOPMENT DECISIONS

ENCOURAGE COMMUNITY & STAKEHOLDER COLLABORATION IN DEVELOPMENT DECISIONS

Benefits of Smart Urban Growth

Environmental Benefit

Air Quality

Compact communities with mix land-use and transportation reduces travel by motor vehicles, reducing air pollution & emissions.

Water Quality

Compact development, open space preservation and green infrastructure allow natural lands to filter rainwater before it reaches water supplies.

Climate Change

Transportation system, compact land-use pattern & energy-efficient green buildings help to reduce GHG emissions that contributes to climate change.

Open Space Conservation

Preserving natural lands and waterways, encouraging growth to protect wildlife habitat and natural water filtration.

Source: United States Environmental Protection Agency (2025). *About Smart Growth*

Source: American Planning Association (2012). *APA Policy on Smart Growth*

Economic Benefit

Job Growth & Economic Vitality

Restoring and expanding vibrancy to nation's urban centers and downtowns serves as an engine for job growth and economic vitality.

Economic Growth Potential

Retrofitting existing suburban corridors, creating more efficient development patterns that allow for wider variety of economic opportunity, access and placemaking

Strengthening Towns & Rural Centers

Greater housing & transportation choices provided by strengthening small cities, towns & rural centers create economic opportunity while preserving agricultural-based economies & cultural and natural resources.

Rational & Efficient Use of Limited Public Resources

Maintaining, expanding and optimizing the use of existing or prior public infrastructure investments resulting in more efficient use of public resources, helping preserve the environment.

My Version of Smart City: SMARTOPOLIS

- Humanist
- People Friendly
- Digital Literacy
- Financial Literacy

My Experience in building a City: Nusantara

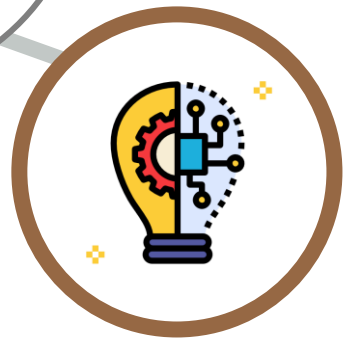
“Nusantara is designed with five principles in mind: Smart, Green, Inclusive, Resilient, and Sustainable.”

Smart

Sustainable

Inclusive

Green



Resilient

People, Nature, Culture in the Context of Nusantara

1 People

- Citizens as the Heart of the City
- Social Cohesion and Inclusivity
- Human-centered design

2 Nature

- Environmental Stewardship at the Core
- Resilient and Adaptive Urban Ecosystem
- Biodiversity and environmental harmony

3 Culture

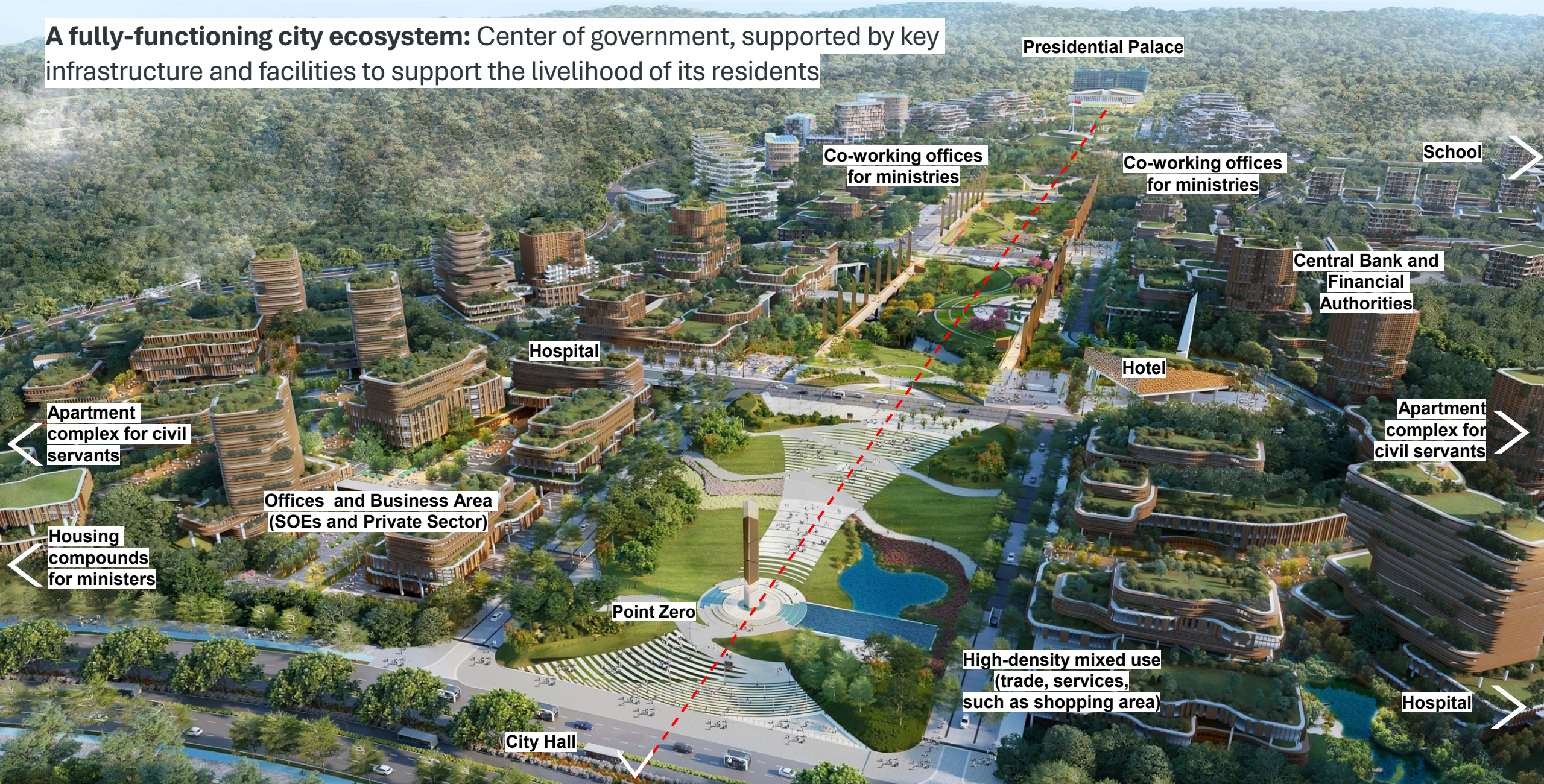
- Cultural Landscapes as Urban Identity
- Resilient and Adaptive Urban Ecosystem
- Cultural Economy and Community Empowerment

"The city is what it is because our citizens are what they are."

— Plato.

Nusantara by 2025 (supposed to be …)

A fully-functioning city ecosystem: Center of government, supported by key infrastructure and facilities to support the livelihood of its residents



Nusantara as Sustainable Forest City

65%

Tropical forest created through "reforestation"

- **Green frameworks**: Carbon-neutral city roadmap (launched at COP27), smart-city framework, and sustainable energy management framework, etc.
- **Green infrastructure**: Plant nurseries, immersive tunnel, animals' corridors and bridges, etc.
- **Collaboration** with communities and civil society on forest protection by combining local wisdom ("cultural forest") and international best practices.

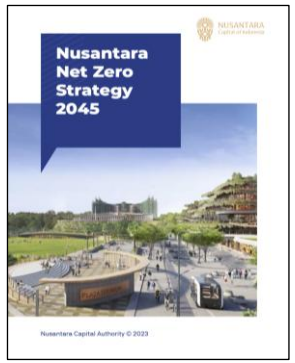
25%

Highly-controlled urban area to minimize carbon footprint and emission

- **Design:** "10-minute city"; "sponge city"; city ecosystem that supports pedestrians, cyclists, and public transport users; etc.
- **Smart city instruments:** IoT-enabled infrastructure, smart meters, smart water and waste management, advanced mobility, healthy building, etc.
- **Policies:** 100% renewable energy mix by 2045, green certification for buildings, electric vehicles, carbon trading, open data, etc.

Carbon-neutral city by 2045

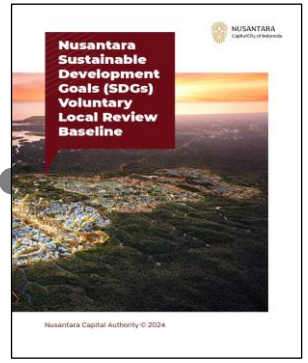
Nusantara's Long-Term Strategies for Sustainability



CLIMATE CHANGE

"Nusantara Net Zero Strategy 2045" was launched in COP-28 in Dubai.

→ *Indonesia's first city with locally-and regionally-determined contribution (LRDC)*

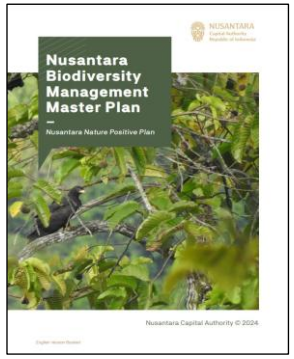


SUSTAINABLE DEVELOPMENT GOALS

Nusantara's baseline Voluntary Local Review (VLR) was launched at an event hosted by UN-ESCAP in February 2024.

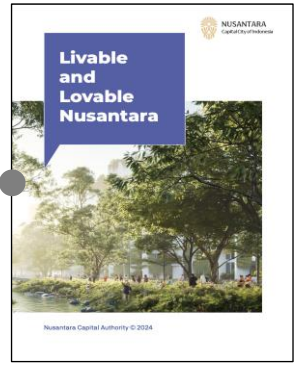
→ *Indonesia's first VLR that is fully aligned with net-zero goal*

NUSANTARA



BIODIVERSITY

"Nusantara Biodiversity Management Master Plan" is the city's commitment to ensure wildlife habitat's existence and security. The document, published in March 2024, aligns with Kunming-Montreal Global Biodiversity Framework.



LIVABLE AND LOVABLE CITY

Nusantara is envisioned to be both a livable and lovable city. The study of Livable and Lovable Nusantara was launched on the International Day of Happiness, March 20, 2024.

Nusantara's Scope of Development

Total Area
Land & Water IKN
322,429 Ha

Land Area
252,660 ha

KIKN
Urban Area
56,159 ha

+

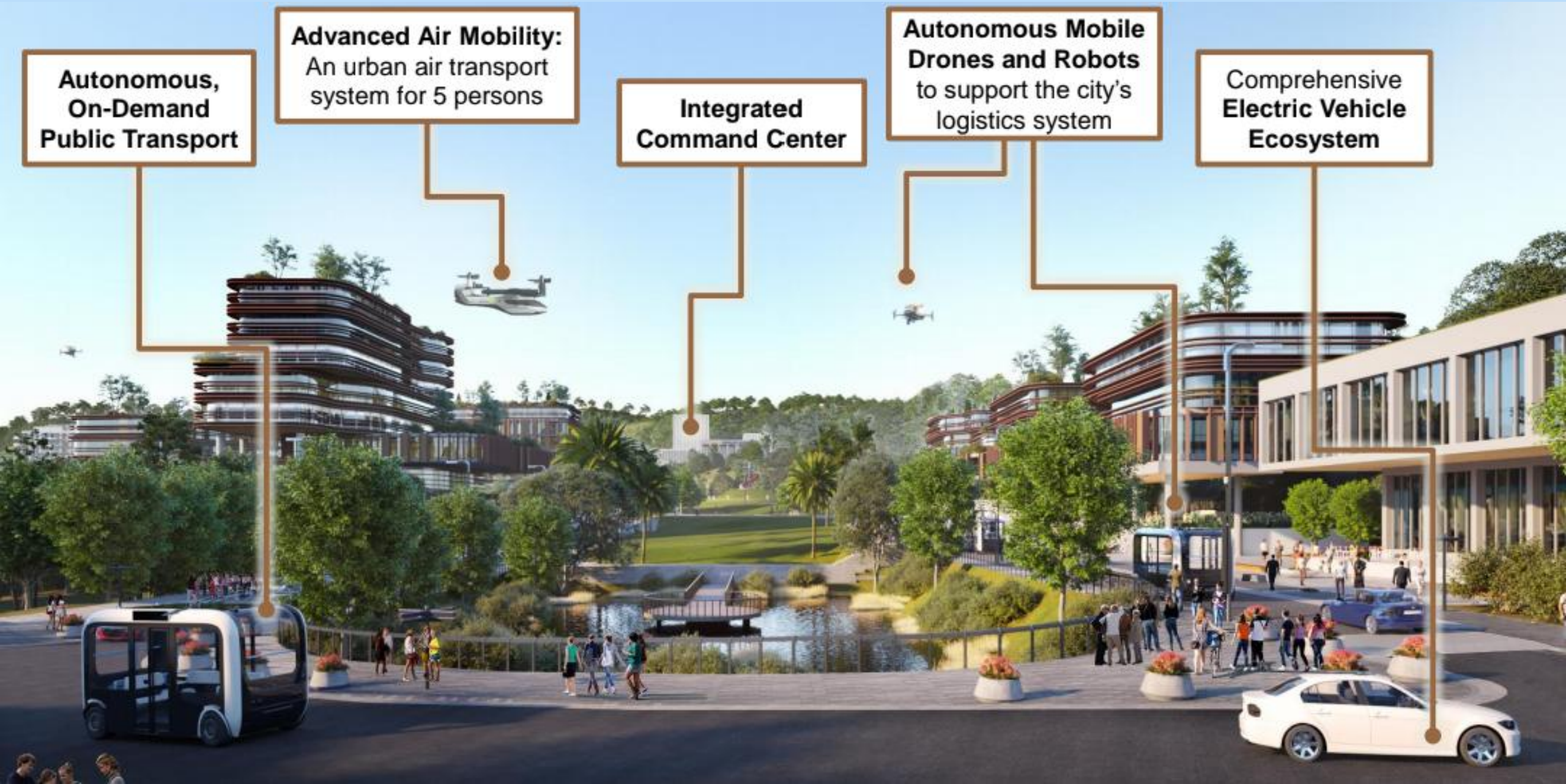
KP-IKN
Development Area
196.501 ha

KIPP
Government Core Area
6,671 ha

Water Area
69,769 ha

Source: Nusantara National Capital Authority (2024).

Imagining Nusantara in 2045



Smart City Program
Nusantara Green and Digital Transformation (*selected*)

Urban Air Mobility or Sky Taxi

Autonomous-rail Rapid Transit

EV Charger

Smart Display

Smart Building

Early Warning System

Smart Pole

Proof of Concepts to evaluate latest technology development. Joint collaboration in Nusantara as a global Living Lab.

Evaluation aspects

- Quality
- Interoperability
- Value for Money
- Technology Transfer

Source: Nusantara National Capital Authority (2024).

Artificial Intelligence Limited Uses Cases (*Selected*)

Ensuring Accountable and Safe Implementation of AI

Advanced Traffic Management System (ATMS)

- **Real Time Data** on Traffic Volume, Traffic Density and Traffic Speed including Travel Time
- **Multimodal** Traffic Count
- Calculate Vehicle **Travel Time**
- **Origin-Destination** Matrix
- **Detect** Various Traffic **Offenses** including Speeding
- **Statistics** on **Repeated Offenses** and High Occurrence Areas (Virtual Traffic Offense Count and Pattern)
- Provide **Report** and **Evidence** for Law Enforcement Agencies (**ETLE**)
- Traffic Simulation Data - Incident / Rerouting
- **Unified Ticketing** for the Virtual Violation/Demo
- **Illegal Stopping/Parking** Identification

Object Detection using Drone for Building Control

Building development control using drone and satellite imagery to identify mismatched land usage.

AI technology is used to assist identify unlawful development. However, on the field validation is still required.

Autonomous Driving System: Autonomous Tram

Autonomous Tram is a mass public transportation mode with a carrying capacity like a train with flexibility like a BRT bus.

ART does not use a driver but uses sensors to direct the road. Sensors are read, analyzed and recognized with AI

ART runs on a special lane using road marking sensors

Cybersecurity for Anomaly Detection and Surveillance (collaboration with *National Cyber & Crypto Agency* and *POLRI*)

Source: Nusantara
National Capital Authority (2024).

Smart City Program
Technology Proof of Concept and Showcase (*selected*)

Urban Air Mobility or Sky Taxi

Autonomous-rail Rapid Transit

EV Charger

Smart Display

Smart Building

Early Warning System

Smart Pole

Proof of Concepts to evaluate latest technology development. Joint collaboration in Nusantara as a global Living Lab.

Evaluation aspects

- Quality
- Interoperability
- Value for Money
- Technology Transfer

Source: Nusantara National Capital Authority (2024).

Nusantara as Indonesia's Active Contribution In Global Sustainability Campaigns

CLIMATE CHANGE

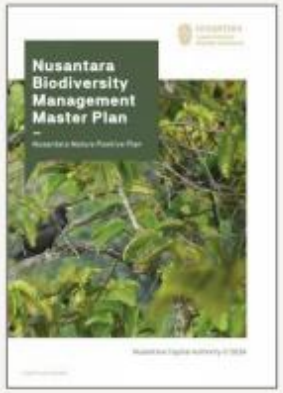
"Nusantara Net Zero Strategy 2045" was launched in COP-28 in Dubai.

➔ *Indonesia's first city with locally-and regionally-determined contribution (LRDC)*

SUSTAINABLE DEVELOPMENT GOALS

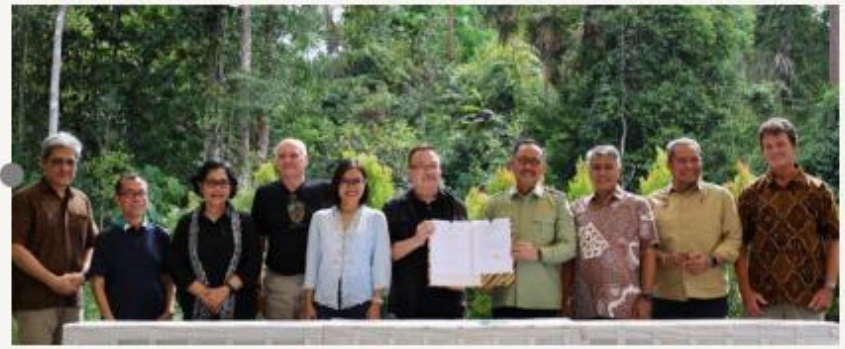
Nusantara's baseline Voluntary Local Review (VLR) was launched at UN-ESCAP, Bangkok, in February 2024.

➔ *Indonesia's first VLR that is fully aligned with net-zero goal*



BIODIVERSITY

"Nusantara Nature Positive Plan", the city's commitment to ensure wildlife habitat's existence and security, was launched in March 2024. It aligns with Kunming-Montreal Global Biodiversity Framework.



ENVIRONMENT, SOCIAL, AND GOVERNANCE (ESG)

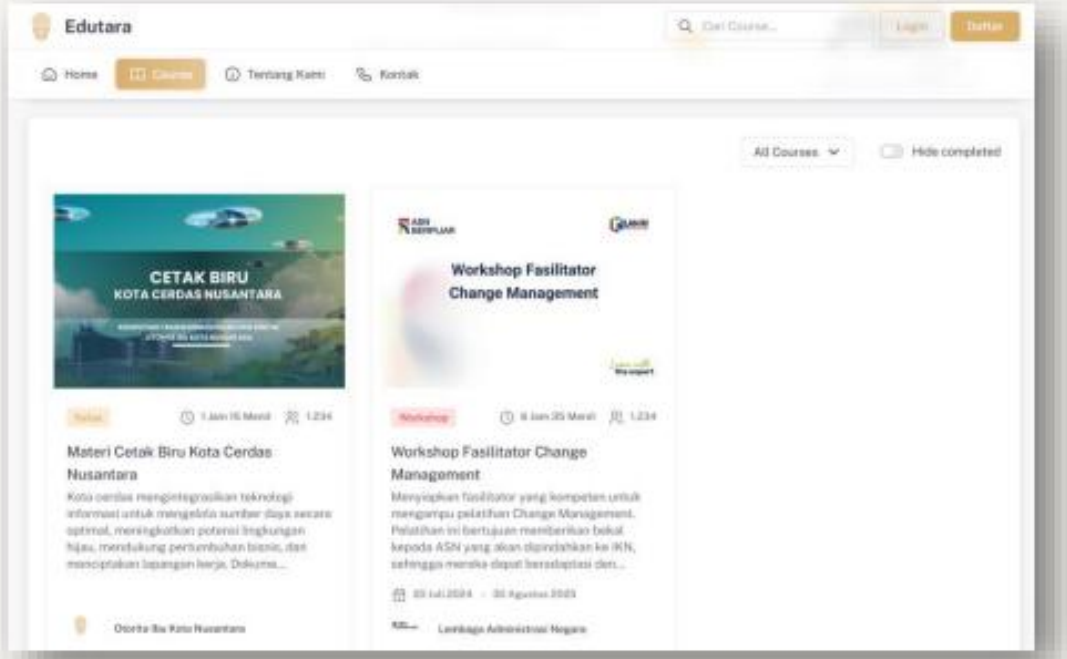
An ESG committee is established to help align Nusantara's planning and decision-making with ESG principles, enhancing the city's sustainability and credibility.

➔ *Indonesia's first city with an ESG committee*

Smart City Program
EDUTARA: Integrated Learning Platform for Nusantara

Learning Management System Platform
A Modern and Integrated platform to facilitate learning and dissemination of knowledge for Nusantara citizens, including certification, socialization, and various programs.

Increasing digital competency and understanding of Nusantara vision with collaborative, inclusive and holistic approach.



Digital Library and Public Resources
Provision of equitable access of knowledge and resources for a better open education ecosystem and fostering innovation in Nusantara.

Being a part of larger knowledge initiatives in Nusantara, this facility contributes to the creation of a collaborative innovation and knowledge ecosystem to realize the city vision.

Source: Nusantara National Capital Authority (2024).

Nusantara Community Development
Reskilling and Upskilling Program

Digital Skill Training

Computer skills training in Desa Bukit Raya, kab. Penajam Paser Utara

"Coding Mom" Program

Training Program for digital literacy, website design & development, and digital marketing

Digital Literacy and Information Technology Training

Developing the Capital of the Nusantara as a **Smart City** with the active role of **local communities** in the **digital ecosystem**

Solar Mom Workshop

Empowering program for housewives in **making and utilizing** solar-powered lamp for SMEs

Podcast Training

Publication and communication training in Desa Bukit Raya

“Knowledge is power.
Knowledge shared is power multiplied.”

— Robert Noyce

“Coming together is a beginning.
Keeping together is progress.
Working together is success.”

— Henry Ford

IN ANY SERIOUS PURSUIT OF SUSTAINABLE DEVELOPMENT, **decentralized cooperation** through solidarity, reciprocity, **mutual understanding**, **exchange of knowledge**, and long-term collaboration **mobilized by local and regional government** is essential:
engaging practitioners, citizens, local civil society, private sectors are all to discuss common problems and arrive at concrete results while keeping countries and societies **connected, integrated** and **communicating.**

Source: United Cities and Local Governments (2022). *The Role of LRG in Development Cooperation: A New Call to Action Towards 2030 and Beyond*