UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION
Progress by innovation

SUSTAINABLE DEVELOPMENT GOALS

UNIDO Presentation
China's Participation in the GEF-8 Sustainable Cities Program

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China's Urbanization and the BTH Region

China's Urbanization Scale:

- Over 910 million urban residents in 2023, accounting for 19.8% of the global urban population
- Urbanization rate soared from 26.2% (1990) to 66.2% (2023), with 211 cities over 500,000 people and 11 megacities
- While rapid urban growth has driven economic progress, it has also brought unprecedented environmental and social challenges

BTH Region Challenges:

- 110 million population, facing most pressing challenges:
- ▶ Air pollution: PM2.5 levels remain above 1990 baselines, urgent need for regional collaboration
- ▶ Traffic congestion: 278 million private vehicles (2023), severe commuting inefficiencies
- ▶ Resource scarcity: Overexploited groundwater, land shortages, energy constrains
- ▶ Escalating pressures on ecosystems: wetland loss, and coastal ecosystem degradation

Coordinated Sustainable Urban Development in the Beijing-Tianjin-Hebei Region: A Systemic Approach

Policy Alignment & Project Vision:

- In line with China's "Double Carbon" goals and BTH Coordinated Development Strategy
- Tackles challenges through an integrated and cross-sectoral approach

Project Framework:

- Core sub-project under GEF-8 Sustainable Cities Integrated Program
- Duration: 60 months (2025-2030), direct emissions reduction: 8.09M Tons CO2eq, improve management of 560 ha marine ecosystems

Four Focus Areas

01 Smart Transport

Vehicle-road-cloud integration, targeting 5%-15% energy savings via ICV pilots

02 Urban Renewable Energy

Upgrading aging PV stations and scaling PV charging infrastructure

03 Green Buildings

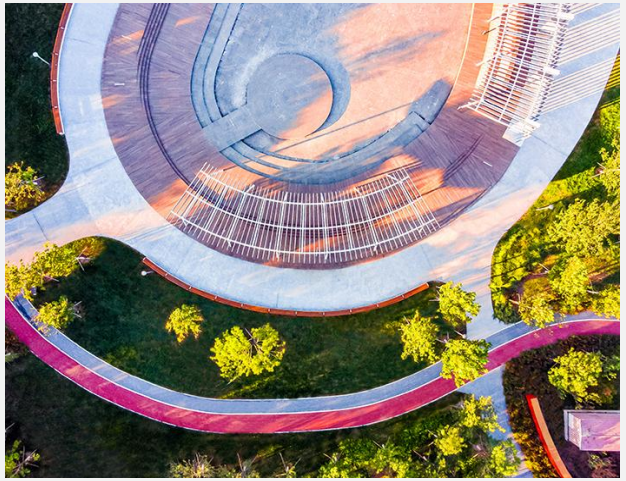
Near-Zero Energy Buildings (NZEBs) integrating PV and geothermal, achieving ≥45% renewable energy share

04 Protection of Ecosystems

Automating bird monitoring stations and enabling AI-powered water quality analysis

Participating Cities and Demonstration Highlights

Tianjin Eco-City (Sino-Singapore Collaboration)



Joint project with Singapore, model of sustainability

Beijing ETDA (Smart Mobility Hub)

Innovation hub for smart mobility and green tech

Shijiazhuang (Mid-Sized City Model)

Advancing clean transport and energy efficiency

✓ Data Sharing: B-T-H Sustainable City Data Platform covering 30+ environmental and transport indicators.

✓ Knowledge Transfer: Replicable models shared with Hebei cities and domestic/international partners .

Systemic Methodology

Multi-Sector Collaboration

- Transport
- Buildings
- Urban energy
- Urban ecosystems

Multi-functional Collaboration

- Planning; Policy; Standards
- Institutions
- Information
- Demos
- Capacity building
- Dissemination

Reducing carbon dioxide emissions through a comprehensive and systematic approach, contributing to the realization of the "dual carbon" objective

Coordinated development of the Beijing-Tianjin-Hebei region

- The project includes the **demonstration and promotion of green transportation** and mobility, green energy use, green and low-carbon buildings, and ecosystem protection, as well as the design and study of policies, regulations, and institutions related to sustainable cities, and the promotion of coordinated development and construction of related industries in Beijing, Tianjin, and Hebei.
- **The highlights of this project** are the linking of three cities, multiple industries, and stakeholders **through green transportation**, which is in line with China's major development strategies.
- Setting a benchmark for the coordinated development of urban agglomerations in China and the rest of the Asia-Pacific region.

Project design

Outcome 1 Top-level design

Relevant standards, guidelines, policies, action plans, mechanisms, information products, and replication and upscaling

Promote sustainable urban development

Achieve the long-term goal of peaking carbon emissions

Outcome 2 Technology demonstration

2.1 Green transportation

System design — Engineering construction (vehicle, energy, road and cloud integration) — Test and evaluation

Technical architecture — new energy vehicles — infrastructure — cloud control platform —evaluation

2.2 Clean energy

New energy charging pile, photovoltaic, ground source heat pump

2.3 Green building

Three-star green building

Low carbon laboratory

2.4 Marine ecology

Bird observation stations, ecological restoration monitoring and stock enhancement

Outcome 3 Training, knowledge dissemination

Training, knowledge dissemination/information sharing and international exchanges

Outcome 4 Monitoring and evaluation

Establish a strong monitoring and evaluation mechanism

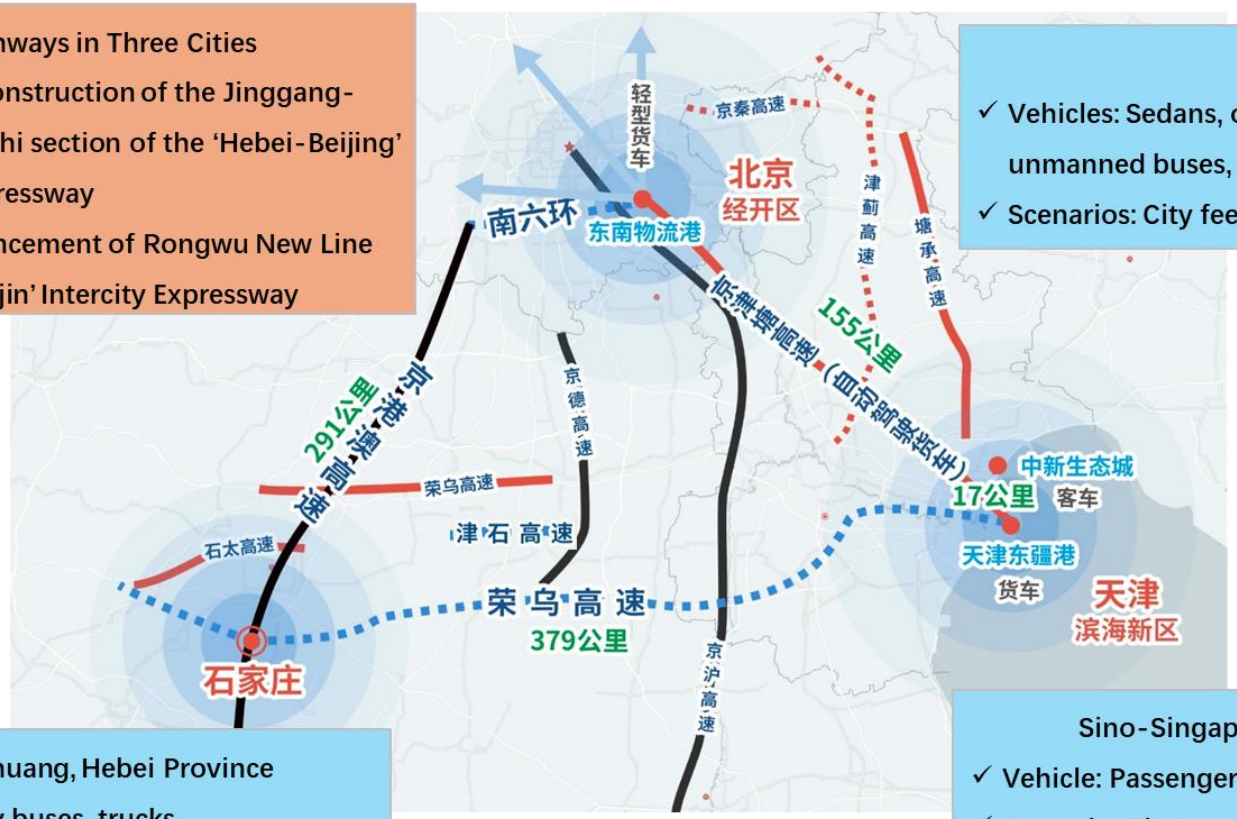
Smart Transportation（Beijing-Tianjin-Hebei）

Promote the collaborative development of intelligent networked new energy vehicles in Beijing, Tianjin and Hebei

Compared with single-vehicle intelligence, vehicle-road-cloud integration has obvious advantages in terms of completeness of data collection, breadth of algorithm processing, and flexibility of network structure. Vehicle-Road-Cloud integration provides a more solid foundation for future autonomous driving through public data sharing and modularized design

Highways in Three Cities

- ✓ Intelligent construction of the Jinggang-Macao-Jingshi section of the 'Hebei-Beijing' Intercity Expressway
- ✓ Digital enhancement of Rongwu New Line of 'Jijin-Tianjin' Intercity Expressway



Beijing

- ✓ Vehicles: Sedans, operating taxis, 6-metre unmanned buses, heavy goods vehicles
- ✓ Scenarios: City feeder, express transport, etc.

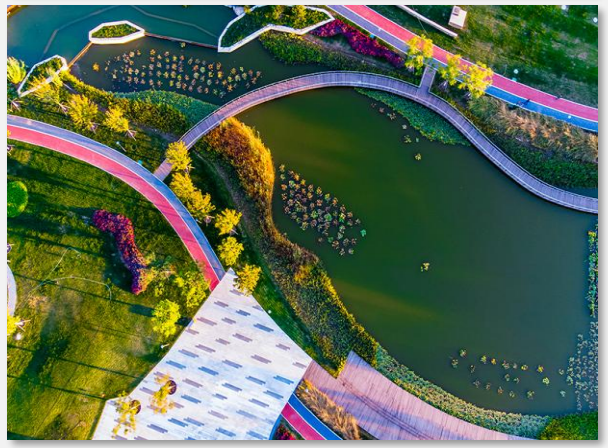
Shijiazhuang, Hebei Province

- ✓ Vehicles: City buses, trucks
- ✓ Scenario: Airport pickup and drop-off

Sino-Singapore (Tianjin) Eco-city

- ✓ Vehicle: Passenger car, 6-10 meter bus
- ✓ Scenario: City tourism

Core Strategies & Practices:Green Buildings



Core Technology

- **Net-Zero Energy Design:** 50% prefabrication for faster construction, ≥45% renewable energy
- **Circular Economy:** Rainwater recycling + heat pump condensate reuse, BIPV replacing conventional building materials

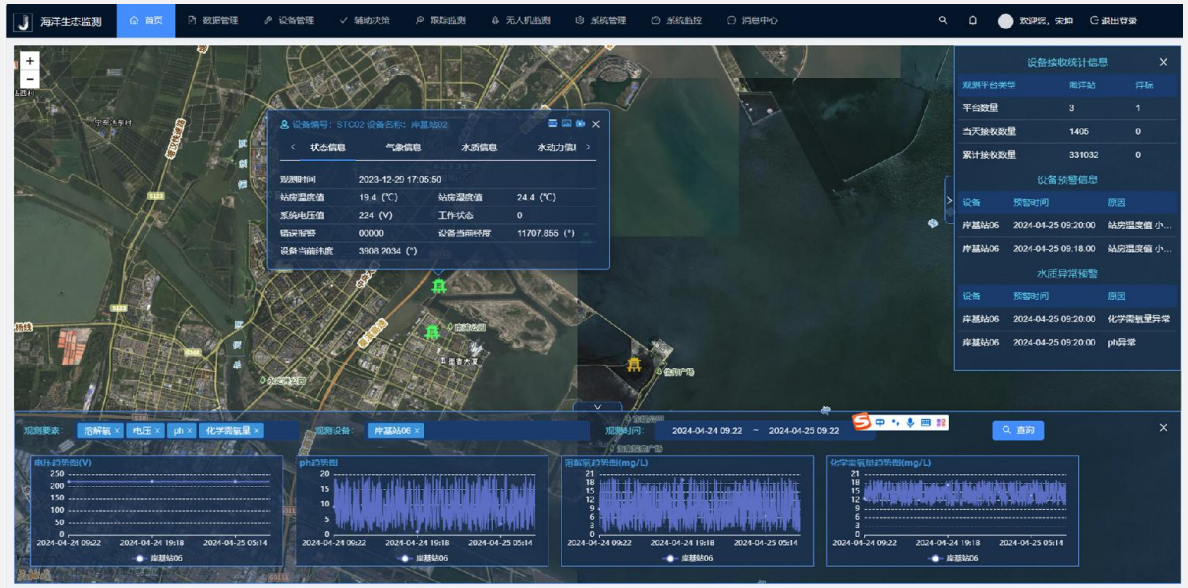
Key Benefits

- **Energy Saving:** 50% less for new buildings, 30% less for retrofitted ones, surpassing traditional standards
- **Sustainable Showcase:** 6 innovative technologies (prefabrication, multi-energy integration) as benchmark models
- **Replication:** Design standards & guidelines to drive 30% low-carbon adoption in new BTH buildings

Core Strategies & Practices:Biodiversity Conservation

Construction of a monitoring and management information system for ecological restoration -- monitoring the impact of wastewater discharges from factories, ships and overseas on regional marine water quality

- **Construction of shore-based monitoring stations:** 6 shore-based stations will be built for hydrodynamic and water quality environment monitoring;
- **Drone monitoring:** use drones to achieve full coverage of the restoration area monitoring, once a year;
- **Deployment of ecological water quality buoys:** two water quality buoys are deployed to monitor the seawater quality for a long time;
- **Construction of management information system:** develop system integration software to intuitively display real-time data, decision-making information and equipment operation status on a base map, and realize real-time monitoring of water quality environment in ecological restoration area;



THANKS

感谢聆听！