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Japan and Türkiye on the Road to Sustainable Urban Transformation

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CITIES: DRIVERS AND SOLUTIONS FOR CLIMATE CHANGE

- **CITIES: GROUND ZERO FOR THE CLIMATE CHALLENGE**
- Cities are at the center of the climate challenge, as they already house more than half of the world's people and this share will grow to nearly **70%** by 2050.
- They produce over **70%** of global greenhouse gas emissions through transport, buildings, energy use, and waste. This makes them both a major cause of climate change and a key place for solutions.
- Because they concentrate people, infrastructure, and economic activity, cities are vulnerable but also powerful drivers of change. Local governments and communities can act faster, involve citizens directly, and turn global climate goals into concrete local actions.

SMART CITIES AND CLIMATE ACTION

- **SMART CITIES: THE CONVERGENCE OF TECHNOLOGY AND SUSTAINABILITY**
- Smart cities use technology to make urban life more sustainable, efficient and responsive. They rely on tools like sensors, data analysis, artificial intelligence and mapping systems to improve energy use, traffic, waste and emergency services.
- These cities are not only efficient but also more open and participatory, as real-time systems let citizens give feedback and shape services.
- By saving resources, predicting risks, and managing systems dynamically, smart cities help cut emissions, adapt to climate change, and build resilience.
- In this way, digital transformation is also a climate strategy, not just a technological step.

CITIES IN TRANSITION

- **CLIMATE-NEUTRAL CITIES: BEYOND EFFICIENCY TO TRANSFORMATION**
- A climate-neutral city seeks to reach net-zero emissions by cutting or offsetting all greenhouse gases. This goal is more than just efficiency; it requires redesigning how cities are built, powered and managed.
- It involves electrifying transport, upgrading buildings, using renewable energy, protecting green areas, encouraging behavior change and planning cities with climate in mind.
- To succeed, cities also need new governance models, diverse funding and strong public participation. Climate neutrality is not a quick technological fix but a deep transformation and cities that take this path lead the way toward a sustainable, post-carbon future.

SOCIETY 5.0 AND JAPAN'S SMART URBAN FUTURE

- **SOCIETY 5.0: HUMAN-CENTRIC DIGITAL INNOVATION**
- Japan's ***Society 5.0*** framework represents a bold national vision that redefines how technology intersects with society.
- First articulated by the Japanese government and Keidanren (*Japan Business Federation*), this concept envisions a ***"super-smart society"*** where digital transformation not only drives economic growth but also directly addresses ***pressing societal challenges*** from an aging population and labor shortages to disaster resilience and environmental degradation.

SOCIETY 5.0 AND JAPAN'S SMART URBAN FUTURE

- **KEY PRINCIPLES: SOCIETY 5.0 IN URBAN DEVELOPMENT**
- Society 5.0 in urban development combines digital technologies such as AI, IoT, robotics and big data with physical infrastructure to create smarter, more inclusive, and sustainable cities.
- Services are personalized to meet citizens needs, especially for vulnerable groups like the elderly, while smart systems help save energy, cut emissions and prepare for disasters.
- In practice, this means cities can use AI to manage traffic and reduce congestion, integrate autonomous transport and apply robotics and telemedicine to support aging populations.
- It also includes automated disaster response through sensors, forecasting, drones, and real-time alert systems. Together, these applications aim to build cities that are efficient, resilient and centered on human well-being.

JAPAN'S SMART CITY AND DECARBONIZATION VISION

- **THE GREEN INNOVATION FUND: ¥2 TRILLION CATALYST FOR URBAN DECARBONIZATION**
- Japan launched the Green Innovation Fund in 2020 with a total budget of ¥2 trillion (about USD 18 billion) as part of its commitment to achieve net-zero greenhouse gas emissions by 2050.
- The fund is managed by the New Energy and Industrial Technology Development Organization (NEDO) and designed to operate over a 10-year period. Its core mission is to accelerate the development and commercialization of breakthrough decarbonization technologies by fostering strong public-private partnerships that share both risks and benefits.
- These projects aim to build complete hydrogen supply chains at the urban scale, including production, storage, and distribution infrastructure.

JAPAN'S SMART CITY AND DECARBONIZATION VISION

- **THE GREEN INNOVATION FUND: ¥2 TRILLION CATALYST FOR URBAN DECARBONIZATION**
- Another priority is the creation of energy-efficient and zero-emission buildings. The fund supports the development of advanced insulation materials, automated HVAC (Heating, Ventilation and Air Conditioning) systems, and intelligent lighting, while also financing the retrofitting of existing buildings to meet ZEB (Net Zero Energy Building) standards.
- In the field of sustainable urban mobility, the fund helps scale up electric vehicle (EV) charging networks, expand fleets of fuel cell vehicles (FCVs), and deploy Mobility-as-a-Service (MaaS) platforms that integrate different transport modes.
- Smart traffic management systems are introduced to reduce congestion and emissions, while logistics are being decarbonized through automated cargo handling, low-carbon shipping and urban consolidation hubs.

CITIES AS INNOVATION PLATFORMS

- **IMPLEMENTATION MODEL: CITIES AS INNOVATION PLATFORMS**
- The Green Innovation Fund advances a collaborative and mission-oriented approach to urban decarbonization by inviting local governments, research institutes, startups and industrial partners to form consortia and compete for funding under defined priority themes. This structure positions cities as living laboratories where new low-carbon technologies can be piloted, refined and scaled for broader application.
- The model also provides incentives for private companies to co-invest alongside public funds, accelerating the commercialization of climate innovations with strong global market potential. At the same time, the fund addresses regional disparities by nurturing place-based innovation ecosystems, ensuring that areas undergoing industrial restructuring are supported in building new green industries, attracting investment, and creating future-ready jobs.

MLIT: STEERING URBAN TRANSFORMATION THROUGH SMART AND RESILIENT CITIES

- The Ministry of Land, Infrastructure, Transport and Tourism (**MLIT**) leads Japan's urban development as it faces climate change, demographic shifts and new technologies. Beyond planning and regulation, MLIT builds partnerships among government, business and academia to create smart, resilient and inclusive cities.
- Its policies support mixed-use zoning, compact city models and revitalization of declining areas. Transit-Oriented Development reduces car use by focusing housing, services and jobs around public transport.
- Because Japan is prone to earthquakes and floods, MLIT also strengthens disaster resilience through strict building codes, flood control systems, and secure lifeline infrastructure. It encourages collaboration across sectors and supports smart city projects through platforms, funding and international cooperation.

100 SMART CITIES IN JAPAN

- The "***100 Smart Cities in Japan***" initiative, launched in 2020 by the Cabinet Office with the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), the Ministry of Economy, Trade and Industry (METI), and the Ministry of Internal Affairs and Communications (MIC), aims to speed up Japan's move toward digital, sustainable, and citizen-focused cities.
- It shows that innovation is not only in big cities but also in regional and rural areas. The program introduces a new model of decentralized innovation, combining national guidance with local flexibility.
- By placing digital governance, sustainability and resilience at the center of city development, it creates a model that other countries can use as they face digitalization and decarbonization.

100 SMART CITIES IN JAPAN

- **FUJISAWA: SUSTAINABLE SMART TOWN (FUJISAWA SST): A LIVING LAB FOR HUMAN-CENTRIC DECARBONIZED URBANISM**
- Fujisawa Sustainable Smart Town (Fujisawa SST), located in Kanagawa Prefecture, Japan, is one of the country's most prominent smart city projects and a pioneering example of people-centered urban innovation.
- Initiated in 2010 on the site of a former Panasonic factory and welcoming its first residents in 2014, the project is led by Panasonic in collaboration with partners including Accenture, Mitsui Fudosan, Tokyo Gas, and Nihon Sekkei.
- Envisioned as a practical demonstration of Society 5.0 principles, Fujisawa SST emphasizes not only cutting-edge technologies but also quality of life, social cohesion, environmental sustainability and long-term resilience.

100 SMART CITIES IN JAPAN

- **FUJISAWA: SUSTAINABLE SMART TOWN (FUJISAWA SST): A LIVING LAB FOR HUMAN-CENTRIC DECARBONIZED URBANISM**
- The 19-hectare site integrates renewable and locally managed clean energy systems, electric and shared mobility services, disaster-resilient infrastructure, and digital platforms for daily living.
- Net-zero-ready homes are designed with smart appliances and efficient energy management, while transportation relies on bicycles, electric vehicles and community-sharing models.
- Governance is built on co-creation, with companies, local authorities, and residents jointly shaping decision-making and ensuring that technological innovation directly supports human well-being and ecological balance.
- Fujisawa SST has become an internationally recognized model of how smart cities can blend innovation with inclusivity, sustainability and resilience.

100 SMART CITIES IN JAPAN

- **Fujisawa Sustainable Smart Town (Fujisawa SST)**

100 SMART CITIES IN JAPAN

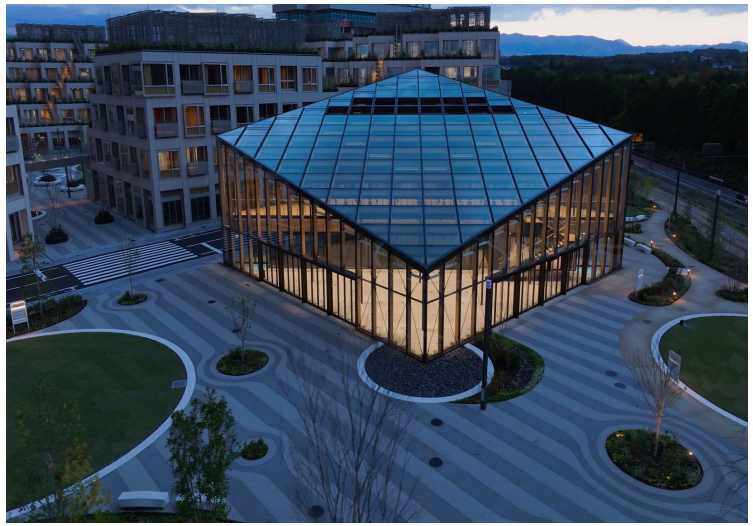
- **TOYOTA WOVEN CITY: A PROTOTYPE CITY OF THE FUTURE**
- Toyota Woven City, currently under construction at the base of Mt. Fuji on the former site of the Higashi-Fuji Toyota plant, is envisioned as a fully connected, net-zero emission prototype city that blends advanced technologies with sustainable and human-centered living.
- Covering approximately 70 hectares, the project was launched in 2021 and is expected to see its first phase operational by 2026. Designed by Danish architect Bjarke Ingels and led by Toyota, Woven City is described as a "***living laboratory***" where digital technology, mobility systems and community life are seamlessly integrated.
- The city's infrastructure is built around a hydrogen-powered, carbon-neutral energy system that enables off-grid resilience, while autonomous, AI-managed e-Palette vehicles provide clean and efficient transport.

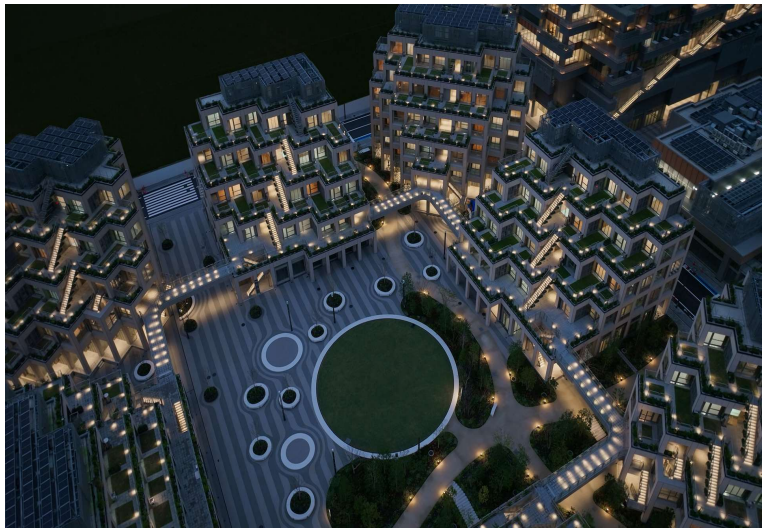
100 SMART CITIES IN JAPAN

- **TOYOTA WOVEN CITY: A PROTOTYPE CITY OF THE FUTURE**
- Residential areas feature smart wooden homes equipped with sensors, robotics and energy-efficient systems designed to support health, well-being, and environmental goals.
- Streets are organized into three interwoven layers: fast lanes for self-driving, hydrogen-powered vehicles; active lanes for bicycles, pedestrians, and small mobility devices; and passive lanes dedicated to green spaces, leisure, and community interaction.
- Complementing this design, Woven City incorporates digital twin technology for real-time monitoring, participatory governance models, and continuous data feedback loops.
- Beyond its physical design, Woven City reflects Toyota's strategic shift from being primarily an automobile manufacturer to becoming a leader in mobility, data-driven infrastructure, and Society 5.0 implementation.

100 SMART CITIES IN JAPAN

- Toyota Woven City





TÜRKİYE'S VISION FOR SMART AND CLIMATE NEUTRAL CITIES

- **NATIONAL SMART CITIES STRATEGY (2020–2023)**
- Türkiye's National Smart Cities Strategy (2020–2023), adopted by the Ministry of Environment, Urbanization and Climate Change, provides a roadmap for building smart, efficient, and sustainable cities.
- The strategy is built on six pillars: Smart Governance, Smart Economy, Smart Mobility, Smart Environment, Smart People, and Smart Living. Its main principles are interoperability, data standardization and citizen focus.
- Funding comes from different actors: İLBANK supports smart infrastructure and digitalization in municipalities, he Ministry gives strategic and regulatory guidance including climate action plans, and TÜBİTAK funds research, innovation and pilot technologies.

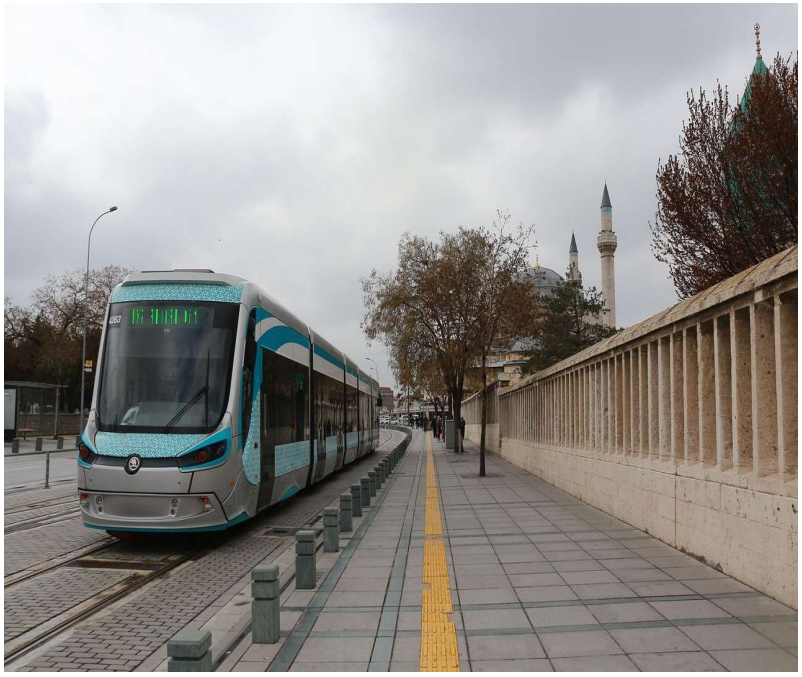
TÜRKİYE'S VISION FOR SMART AND CLIMATE NEUTRAL CITIES

- **KONYA – A MODEL FOR SMART MOBILITY AND ENERGY EFFICIENCY**
- Konya has emerged as one of Türkiye's most advanced cities in the fields of smart mobility, energy efficiency and open governance, combining technological innovation with sustainability.
- Through its Intelligent Transportation Systems (ITS), the city monitors and manages traffic in real time, reducing congestion, optimizing bus routes and improving travel reliability for commuters.
- Its transport strategy emphasizes environmentally friendly solutions, such as electric bus fleets, modern tram lines and an extensive network of bicycle lanes, while also piloting smart traffic signals, mobile journey-planning apps and multimodal transport integration to ensure seamless mobility.

TÜRKİYE'S VISION FOR SMART AND CLIMATE NEUTRAL CITIES

- **KONYA – A MODEL FOR SMART MOBILITY AND ENERGY EFFICIENCY**
- In terms of energy, Konya has invested in efficiency by replacing conventional streetlights with LEDs, powering traffic systems and other infrastructure with solar panels and renovating public buildings to meet green construction standards.
- These measures lower energy costs, reduce the city's carbon footprint and improve resilience against climate challenges.
- At the same time, the "Open Konya" digital governance platform makes real-time data on air quality, transport, and public services accessible to citizens, enabling them to provide feedback, participate in policy design and track municipal performance.
- This combination of advanced mobility, clean energy and citizen-centered governance positions Konya as a national benchmark for sustainable, inclusive, and transparent urban development.

TÜRKİYE'S VISION FOR SMART AND CLIMATE NEUTRAL CITIES



TOWARD A SHARED FUTURE OF URBAN INNOVATION

- Urban innovation is no longer a luxury, has become a necessity. In an era where the impacts of climate change are intensifying, urban populations are expanding and technology is reshaping every dimension of daily life, cities are no longer passive backdrops to national development; they are the very engines of transformation. For
- Türkiye and Japan, the urgency of this shift has become more evident in the face of mounting environmental risks, demographic pressures, economic transitions and the rising expectations of urban citizens.
- The next generation of cities must therefore be built upon four foundational pillars: human-centered design, digital transformation and smart infrastructures, climate-resilient and environmentally friendly urban systems, and broad-based social and economic transformation. When these pillars are integrated, cities can advance toward a future that is both sustainable and inclusive.

TOWARD A SHARED FUTURE OF URBAN INNOVATION

- The transformation of cities is no longer a sectoral issue; it is a societal imperative. To sustain and accelerate this process, targeted policy instruments, such as smart city funds, innovation zones and regulatory sandboxes, must be mobilized, alongside the establishment of durable bilateral cooperation mechanisms.
- By drawing on Japan's long-standing expertise in precision engineering, disaster resilience, and the management of aging societies, together with Türkiye's dynamic urbanization, youth-driven innovation, and rapidly evolving sustainability agenda, the two countries are uniquely positioned to create a model of transnational urban partnership.
- Such collaboration has the potential not only to redefine the trajectory of their own cities but also to inspire the global future of urban development.

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