

Energy transition toward a sustainable future

Region	Asia and the Pacific
Award Scheme	Others
Themes	Energy Environmental Resilience Housing Urban Governance and Legal Frameworks
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable

Summary

Incheon, Republic of Korea, has evolved into a model of integrated sustainable urban transformation through its 2045 Carbon-Neutral City Vision. By linking long-term climate goals with tangible economic and social policies, the city balances environmental resilience, economic competitiveness and inclusivity. Major initiatives include the One Dollar Housing programme for young families, the Intelligent Transport System (ITS) to enhance safety and efficiency, and the hydrogen economy transition driving industrial innovation and emissions reduction. Complementing these, the Incheon Stream Restoration Project demonstrates successful citizen-led ecological recovery. The city’s alignment of the 2040 Urban Master Plan with the SDGs has fostered transparent, participatory and adaptive governance. Its achievements reduced greenhouse gas emissions, safer mobility, restored waterways and strengthened housing affordability showcase Incheon’s ability to translate ambitious visions into measurable progress. As a coastal city vulnerable to climate change, Incheon’s forward-looking approach demonstrates how innovation, community engagement and policy coherence can reinforce resilience while ensuring inclusive, sustainable growth.

Background and Objective

Once devastated by war, Incheon has transformed into the Republic of Korea’s second-largest economic hub, anchored by its port and international airport. With rapid expansion and industrialization, the city now faces coastal vulnerability and inequality between new and old districts. Its 2045 Carbon-Neutral City Vision integrates environmental, economic and social priorities to achieve net-zero emissions while revitalizing urban areas. The core objectives include advancing low-carbon industries, strengthening disaster resilience, and promoting inclusive housing and mobility systems. Incheon’s 2040 Urban Master Plan institutionalizes these goals, ensuring that carbon neutrality, ecological restoration and equitable development drive the city’s sustainable transformation.

Actions and Implementation

Incheon advances its sustainability vision through strategic, results-oriented initiatives. The One Dollar Housing project provides ultra-affordable rental homes for newlyweds and young families, easing demographic pressures and improving social equity. The Intelligent Transport System integrates AI and real-time monitoring to improve safety, reducing traffic fatalities and emergency response times. The city's hydrogen economy strategy featuring over 2,300 hydrogen vehicles and the world's largest liquefied hydrogen plant anchors its industrial transition toward clean energy. Meanwhile, the Stream Restoration Project engages citizens and businesses in rehabilitating five major waterways, institutionalizing ecological stewardship through legislation and participatory partnerships that reinforce long-term environmental recovery.

Outcomes and Impacts

Incheon's integrated approach has yielded tangible improvements across social, environmental and economic dimensions. The One Dollar Housing initiative reduced housing costs by 96 per cent for participants, supporting family formation and stabilizing population trends. ITS deployment cut traffic deaths by 27.6 per cent and boosted emergency response reliability to 94 per cent. Stream restoration improved water quality and generated USD 42 million in annual ecological value. The hydrogen cluster has driven clean industrial growth and created new jobs, while emissions show a steady decline. Collectively, these results reflect Incheon's success in translating sustainability principles into equitable, measurable urban transformation.

Sustainability and Scalability

Through its 2040 Urban Master Plan and 2045 Carbon-Neutral Vision, Incheon embeds sustainability into long-term governance and cross-sector planning. The city aligns its development with all 17 SDGs, prioritizing ecological restoration, balanced regional growth and climate resilience. Its policies integrate smart transport, renewable energy and inclusive housing into one cohesive framework. Public-private partnerships, citizen participation, and continuous monitoring ensure accountability and adaptability. The model's scalability lies in its legislative integration, enabling replication in other cities facing industrial transition or climate risk. By combining fiscal innovation, stakeholder engagement and data-driven management, Incheon demonstrates a replicable pathway to sustainable urban evolution.

Gender and Social Inclusivity

Incheon's policies promote inclusivity through equitable housing, safe mobility and participatory governance. The One Dollar Housing project directly supports young couples and families, reducing financial barriers to marriage and childrearing. Transport upgrades prioritize vulnerable users children, seniors and people with disabilities through smart crossings and pedestrian-friendly design. The Stream

Restoration Project mobilizes 10,000 citizens annually, empowering communities to co-manage environmental assets. Broader social programmes encourage youth participation and intergenerational collaboration in climate action. By integrating gender-sensitive planning, social welfare and participatory frameworks, Incheon ensures that sustainability benefits are widely shared, reinforcing equity as a cornerstone of its urban transformation.

Innovative Initiative

Incheon's innovation lies in its integration of legislative, technological and participatory tools for sustainable governance. It pioneered Asia's first local Stream Restoration Ordinance and established multi-stakeholder governance through citizen councils. Technologically, its ITS leverages AI-driven analytics to enhance safety and traffic efficiency, while hydrogen economy initiatives advance energy transition. Institutional innovation includes embedding carbon neutrality in law and aligning financial instruments with sustainability targets. Partnerships with the Green Climate Fund and UNESCAP strengthen international cooperation. This synergy between technology, policy and civic engagement defines Incheon's leadership as a forward-thinking, adaptive city driving climate action and equitable development.

Resources devoted to delivery

Incheon's sustainable transformation is supported by robust institutional, financial and human resources. The 2045 Carbon-Neutral City Vision mobilizes multi-level investments through public-private partnerships, national programmes and international cooperation with the Green Climate Fund. The hydrogen industry and ITS projects attract private capital and technology partners, while municipal budgets fund housing and restoration initiatives. Dedicated technical teams, local universities and citizen organizations provide continuous capacity building. Legal mechanisms such as the Stream Restoration Ordinance and Housing Ordinance ensure consistent implementation. This blended resource model strengthens fiscal sustainability, enabling Incheon to deliver measurable, inclusive results aligned with its long-term climate goals.

Conclusion

Incheon exemplifies how a city can transition from industrial expansion to sustainable resilience through integrated governance and innovation. Its combined focus on carbon neutrality, clean energy, inclusive housing and ecological restoration demonstrates a holistic model for urban transformation. The city's measurable achievements in emissions reduction, safety improvement and social welfare highlight its leadership in climate adaptation and equitable growth. By linking policy coherence with citizen participation and technological progress, Incheon sets a global benchmark for achieving sustainability at scale. Its experience offers a practical, adaptable framework for coastal and industrial cities navigating the

challenges of a changing climate.