NET ZERO

To create a harbor city of "Technology, Livability, Happiness, and Charm".

KAOHSIUNG CITY

VOLUNTARY LOCAL REVIEW

2024

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1

Message from the Mayor

The City of Kaohsiung, formerly known as "Takao (Da Gou)" until its renaming in 1920, has undergone more than a century of transformation. Initially focused on harbor hardware sectors, petrochemical industries, and manufacturing, the city's industrial landscape has now shifted toward 5G technology and AIoT, all while pursuing a "sustainable net-zero" goal to ensure environmental well-being. As an industrial city, Kaohsiung's carbon emissions account for approximately one-fifth of the national total. While achieving the net-zero goal poses significant challenges for the city, it also presents an opportunity for industrial transformation and carbon reduction.

Since 2018, the city has implemented two consecutive phases of the "Greenhouse Gas Reduction Implementation Plan," and by 2022, the city's net greenhouse gas (GHG) emissions had decreased to 52.348 million tons, marking a 13.8 million-ton reduction from the baseline year of 2005, equivalent to a 20.8% cut. Such results demonstrate the city's steady progress toward the carbon reduction targets outlined in the "Kaohsiung City Self-Government Ordinance for the Development of a Net-Zero City," which aims for a 30% reduction by 2030 and achieving net-zero emissions by 2050.

In 2023, the city established the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government" as a pivotal platform for overseeing net-zero policies and facilitating coordination and communication across different departments. The Committee spearheaded various innovative net-zero initiatives, including drafting the four-year "Kaohsiung City Net-Zero Policy White Paper" to outline the net-zero framework, establishing a biannual "carbon budget" mechanism, and assisting heads of municipal departments in preparing "Net-Zero Sustainability Reports" to identify stakeholders and major issues, thereby integrating carbon reduction measures into departmental policies.

The city is making significant progress on its net-zero initiatives. It has established the "Industrial Net-Zero Alliance" to expedite the transition toward a low-carbon industrial chain, founded the pioneering "Net Zero Institute" to cultivate green talent, and created the "Kaohsiung Carbon Platform" to enhance the city's ability to address carbon reduction through business matchmaking and voluntary mitigation partnerships. Additionally, the city hosted the inaugural "CityCOP Sustainable City Forum" to draw on international expertise. Furthermore, it is implementing incentive programs that are closely connected to residents' daily lives, such as the MeNGO Transit Initiative and the "Kaohsiung House Design and Rewards Program," to encourage public involvement in the net-zero transition.

Kaohsiung has received notable recognition in various city-level competitions for its efforts in sustainability. The city has been honored with the Outstanding Award in the Livable & Sustainable City category at the "Asia-Pacific Sustainability Action Awards (APSAA)," organized by the Taiwan Institute for Sustainable Energy (TAISE), for two consecutive years. Additionally, the city ranked first and received an excellent award in "The Survey of Sustainable and Happiness Cities" and the "2023 Approval Ratings of Taiwan's Local Leaders" conducted by CommonWealth Magazine, respectively. Moreover, Kaohsiung was awarded the 2023 National Sustainable Development Awards for Government Agencies by the National Council for Sustainable Development for its project, "Photoelectric Energy Generation - Building a Net-Zero City." These accolades showcase the city's exemplary achievements in sustainability.

As the only city among Taiwan's Six Special Municipalities to have submitted the "Voluntary Local Review (VLR)" for four consecutive years, the City of Kaohsiung compiles with Article 5 of the "Kaohsiung City Self-Government Ordinance for the Development of a Net-Zero City" by reviewing its implementations in both "sustainability" and "net-zero" in the "2024 Kaohsiung City Net-Zero Voluntary Local Review". The city integrates various actions aligned with the United Nations Sustainable Development Goals (SDGs) while actively ensuring the full implementation of all related policies.

We consider net-zero sustainability to be our primary development goal. In pursuing economic growth and improving the quality of life for its citizens, Kaohsiung also strives to maintain a balanced development for the environment and society, and this requires actively seeking input from the community. By integrating sustainable policy development into people's everyday lives, the city aims to create a sustainability strategy that reflects its unique local characteristics. Together, we are committed to building a Kaohsiung that is "innovative, livable, happy, and vibrant."

Mayor

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2

Continuing the Past and Looking Ahead – Introduction

1. United Nations Sustainable Development Goals (SDGs)

In 2015, the 193 member states of the United Nations unanimously adopted the 2030 Agenda for Sustainable Development, aiming to achieve Sustainable Development Goals (SDGs) over the next 15 years, and fostering a more sustainable future for humanity. The 2030 Agenda for Sustainable Development, outlined in Transforming our World: the 2030 Agenda for Sustainable Development, consists of 17 SDGs, categorized into five major pillars: People, Prosperity, Planet, Peace, and Partnership. These goals emphasize the spirit of "Leave No One Behind" and aim to achieve sustainable co-prosperity for all.

As the 2030 deadline for achieving sustainability draws closer, the United Nations Sustainable Development Solutions Network (SDSN), through the Sustainable Development Report 2024, highlights the progress and challenges faced by member states in implementing the SDGs. On a global scale, there has been notable progress in SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), SDG 5 (Gender Equality), SDG 7 (Affordable and Clean Energy), and SDG 13 (Climate Action).

However, challenges such as climate change and environmental degradation, unequal access to education and healthcare resources, the digital divide and privacy concerns arising from AI development, the lack of inclusive governance structures, and ongoing public health threats requiring enhanced medical resilience remain. Countries must strengthen cooperation and take decisive, innovative actions to ensure the world continues its path toward a sustainable future.

Kaohsiung City's Governance Target and Control Measures for Sustainable Development

SDG 1 No Poverty
End poverty in all its forms everywhere

Eliminate all forms of poverty everywhere. Through education, counseling, and subsidies, assist disadvantaged and low- to middle-income households in gaining employment and escaping poverty, thereby eliminating various forms of poverty. For example: organizing child and youth future education development accounts, promoting mobile medical services in rural areas, prioritizing social housing and rental subsidy applications for disadvantaged households, among a total of 8 policy measures.

SDG 2 Zero Hunger
End hunger, achieve food security and improved nutrition and promote sustainable agriculture

End hunger, achieve food security, improve nutrition, and promote sustainable agriculture. Engage industry, government, and academia in public-private partnerships to facilitate the implementation of smart agriculture in Kaohsiung. Utilize the agricultural information-sharing platform for data integration and value addition, producing high-quality and safe fruits and vegetables, and establishing a secure agricultural city. For example: implementing a production and sales certification mechanism, promoting organic farming, and establishing practical aid service points, among a total of 7 policy measures.

SDG 3 Good Health and Well-being
Ensure healthy lives and promote well-being for all at all ages

Ensure healthy lives and promote well-being for all ages. Support family caregiving by expanding public childcare service centers, promoting diverse caregiving services, and enhancing the development of social welfare centers to ensure health and well-being across all age groups. For example: expanding public childcare service centers, providing childcare subsidies, establishing social welfare facilities, offering services for homeless care, encouraging the use of long-term care services, and promoting all-age fitness programs, among a total of 14 policy measures.

SDG 4 Quality Education
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Provide various learning resources and diverse learning channels, strengthen the promotion of native language education, and promote urban reading programs to implement lifelong learning. For example: expanding public kindergartens, offering care and tutoring programs for disadvantaged families and children of new residents, conducting pre-employment training for disadvantaged unemployed individuals, and promoting lifelong learning and environmental education, among a total of 13 policy measures.

SDG 5 Gender Equality
Achieve gender equality and empower all women and girls

Achieve gender equality and empower all women and girls. Eliminate gender stereotypes and violence, provide diverse learning opportunities for women, respect women's decision-making rights, and create a socially equal and harmonious environment. For example: offering counseling services for victims of domestic violence, promoting the prevention of domestic violence and sexual assault, among a total of 7 policy measures.

SDG 6 Clean Water and Sanitation
Ensure availability and sustainable management of water and sanitation for all

Ensure availability and sustainable management of water and sanitation for all. Actively develop diverse water sources, promote water recycling and the use of hyporheic water, implement leak detection in the water supply system, and improve sewage pipeline connection rates to ensure clean drinking water. For example: implementing public sewage pipeline and user connection projects, recycling treated wastewater for industrial use, forming water environment patrol teams, and promoting river volunteer services, among a total of 13 policy measures.

SDG 7 Affordable and Clean Energy
Ensure access to affordable, reliable, sustainable and modern energy for all

Ensure access to affordable, reliable, sustainable, and modern energy for all. Promote green energy projects and develop solar power as the foundation for a safe, stable, efficient, and clean energy supply system, reducing reliance on fossil fuels and decreasing air pollution. For example: establishing the "Kaohsiung City Task Force for Green Electricity Promotions" and the "Fishery and Electricity Symbiosis Project Oce," and promoting a six-year, 1.25 GW green energy solar power project, among a total of 2 policy measures.

SDG 8 Decent Work and Economic Growth
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. Cultivate diverse talents, provide support for entrepreneurship and business transformation, and create a favorable employment environment, implementing labor inspections and occupational safety measures. For example: offering entrepreneurship training courses and providing consultation services for startups, among a total of 2 policy measures.

SDG 9 Industry, Innovation, and Infrastructure
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation. Accelerate land planning, promote industrial park development and business district transformation, and support innovative industries to market Kaohsiung's unique features. For example: facilitating the investment of advanced manufacturing companies in the Renwu Industrial Park, promoting the "Asia New Bay Area 5G AIoT Innovation Hub Project," establishing the DAKUO Digital Art Kaohsiung United Office, the "Kaohsiung Intelligence Innovation (KO-IN) Park," and the "MEGABAY" to support local enterprises, among a total of 5 policy measures.

SDG 10 Reduced Inequalities
Reduce inequality within and among countries

Reduce inequality within and among countries. Balance the interests of diverse communities and industries, creating various employment opportunities. For example: providing employment services for persons with disabilities, disadvantaged groups, and middle-aged and senior citizens, among a total of 5 policy measures.

SDG 11 Sustainable Cities and Communities
Make cities and human settlements inclusive, safe, resilient and sustainable

Make cities and human settlements inclusive, safe, resilient, and sustainable. To ensure residents' well-being, Kaohsiung actively maintains and improves environmental quality while completing various infrastructure projects and expanding park areas to create a safe and prosperous living environment. For example: implementing urban renewal projects, national land planning and non-urban land development reviews, rural area comprehensive planning, air quality improvement measures, promoting the removal of motorcycles from sidewalks, and developing a public bicycle road network, among a total of 35 policy measures.

SDG 12 Responsible Consumption and Production
Ensure sustainable consumption and production patterns

Ensure sustainable consumption and production patterns. Implement a circular economy, promote resource recycling and reuse, and encourage sustainable consumption and production practices. For example: promoting business food waste and waste reuse, implementing bottom ash recycling from incinerators, promoting green procurement by public institutions and private enterprises, issuing green bonds, and promoting green loans and financing, among a total of 17 policy measures.

SDG 13 Climate Action
Take urgent action to combat climate change and its impacts

Take urgent action to combat climate change and its impacts. Actively reduce greenhouse gas emissions, establish long-term carbon reduction pathways, and promote adaptation measures to mitigate climate change impacts and enhance urban resilience. For example: constructing detention basins, promoting smart flood monitoring and "Water Regime e-Portal" disaster prevention & warning service, providing education on landslide prevention and high-temperature adaptation, promoting Kaohsiung City GHG Reduction Implementation Plan and Kaohsiung City Net-Zero Policy White Paper, and implementing the Kaohsiung City Action Plans for Climate Change Adaptation, among a total of 13 policy measures.

SDG 14
Life Below Water
Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Conserve and sustainably use the oceans, seas, and marine resources for sustainable development. Through education and regular monitoring, ensure the conservation and sustainable use of marine resources. For example: conducting regular coastal and marine water quality monitoring, promoting marine conservation and environmental education courses, and regularly removing ghost nets from artificial reef areas, among a total of 6 policy measures.

SDG 15 Life on Land
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss. Foster forest resources, provide guidance on private afforestation, encourage public participation in afforestation through incentives, and establish an ecological afforestation environment to maintain the city's biodiversity. For example: implementing afforestation incentive programs, providing compensation for logging bans on Indigenous lands, managing nature reserves, animal sanctuaries, and important wetlands, among a total of 8 policy measures.

SDG 16 Peace, Justice, and Strong Institutions
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

To uphold social order and ensure the safety of citizens' lives and property, the city is committed to eliminating all forms of violence while implementing open government initiatives and encouraging public participation in civic affairs. This includes establishing a comprehensive citizen engagement mechanism. Key measures include providing multiple channels for the public to report incidents and seek assistance, conducting home visits and support for families of suspects violating the Narcotic Hazards Prevention Act, and promoting restorative justice seeds teacher training, among a total of 7 policy measures.

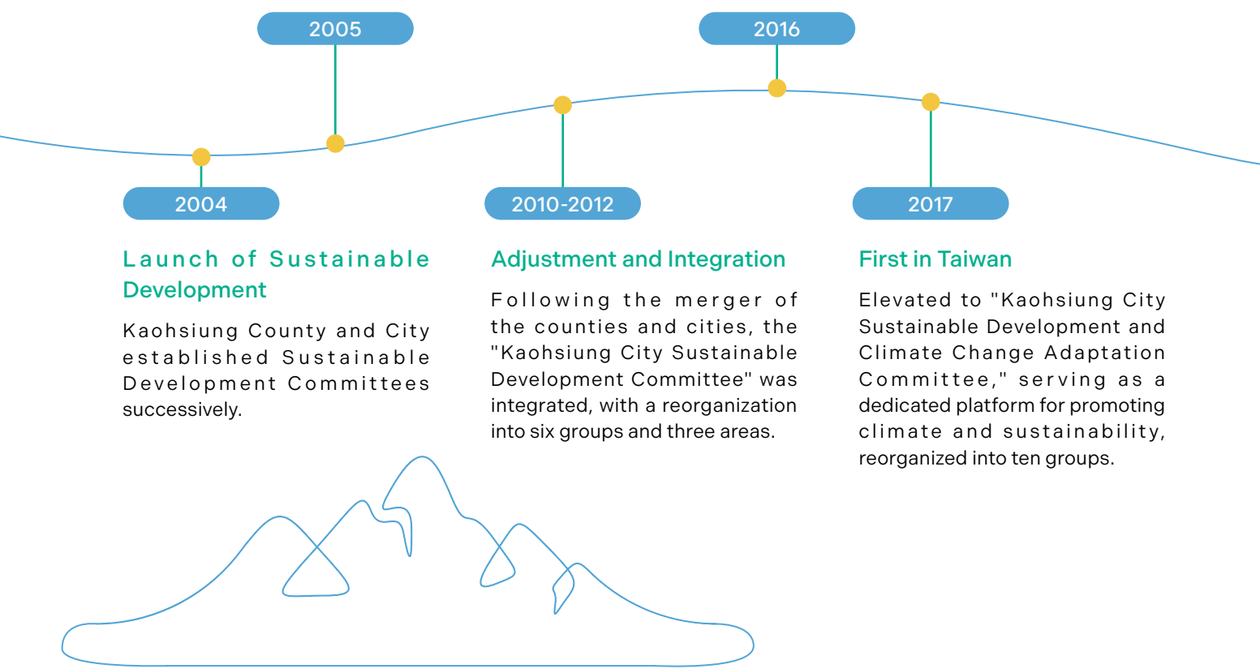
SDG 17 Partnerships for the Goals
Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development. Actively cultivate talent for international exchanges at all levels and strive to establish international training centers to facilitate exchanges and enhance the city's international visibility. For example: organizing education or awareness-raising activities on sustainable development topics, promoting international cooperation and technical exchanges on sustainability strategies, and conducting education and training for staff for international psychiatry under the New Southbound Policy, among a total of 6 policy measures.

2. Sustainable Footprint - Promotion Journey and Key Milestones

Kaohsiung City's commitment to urban sustainability began as early as 2004 with the establishment of the Sustainable Development Commission, even before the city-county consolidation. Over the past two decades, Kaohsiung's sustainability blueprint has evolved in response to generational shifts and global trends. In 2023, the city government reorganized this body into the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government" to enable more detailed division of labor and collaboration. This committee drives core tasks such as achieving net-zero emissions, climate adaptation, and sustainable development. Additionally, it conducts regular annual reviews and evaluations of sustainability indicators to ensure Kaohsiung progresses toward a livable and sustainable future.

1 History of Sustainable Development Promotions in Kaohsiung City



Establishment of Regional Cooperation Mechanism

Formation of the " Kaohsiung City-County and Pingtung County Sustainable Development Committee," which set up a sustainable evaluation system.

Launch of Sustainable Development

Kaohsiung County and City established Sustainable Development Committees successively.

Response to Climate Change

Development of adaptation strategies to achieve the vision of a resilient and green ecological city.

Adjustment and Integration

Following the merger of the counties and cities, the "Kaohsiung City Sustainable Development Committee" was integrated, with a reorganization into six groups and three areas.

First in Taiwan

Elevated to "Kaohsiung City Sustainable Development and Climate Change Adaptation Committee," serving as a dedicated platform for promoting climate and sustainability, reorganized into ten groups.

International Alignment and Self-Review

Mayor Chen Chi-Mai's 100-day policy report committed to initiating the compilation of the Voluntary Local Review for Sustainable Development of Kaohsiung City, demonstrating the city's determination and results in promoting sustainable development. The first Voluntary Local Review on Sustainable Development was completed in early 2021.

2021
Kaohsiung City
Voluntary Local Review

Organizational Restructuring

Reorganize the Sustainability Committee into the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government," enact the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City," establish a physical Net Zero Institute, and release Kaohsiung City's third Voluntary Local Review on Sustainable Development.

2023
Kaohsiung City
Voluntary Local Review

In alignment with the goals and spirit of national sustainable development, Kaohsiung City released its first Voluntary Local Review (VLR) in 2021, providing an overview of how various policy initiatives align with the 17 UN SDGs. In 2022, the city focused on themes such as green growth and carbon reduction, smart technology, resource recycling, green transportation, zero-carbon communities, and sustainability education. By integrating resources across departments, Kaohsiung identified key strategies and actions for its policies. In 2023, under the theme "Sustainable and Resilient City," the city highlighted its efforts in climate change adaptation and urban resilience through five main pillars: urban climate resilience, climate adaptation vision, sustainable natural ecosystems, resilient and sustainable economic industries, and embedding climate adaptation in cultural practices.

Organizational Restructuring

Reorganized into five groups, published the second Kaohsiung City's Voluntary Local Review on Sustainable Development, and announced the 2050 Net-Zero pathway along with the establishment of the Industrial Net-Zero Alliance.

2022
Kaohsiung City
Voluntary Local Review

Inclusion of Net-Zero and Adaptation Tasks

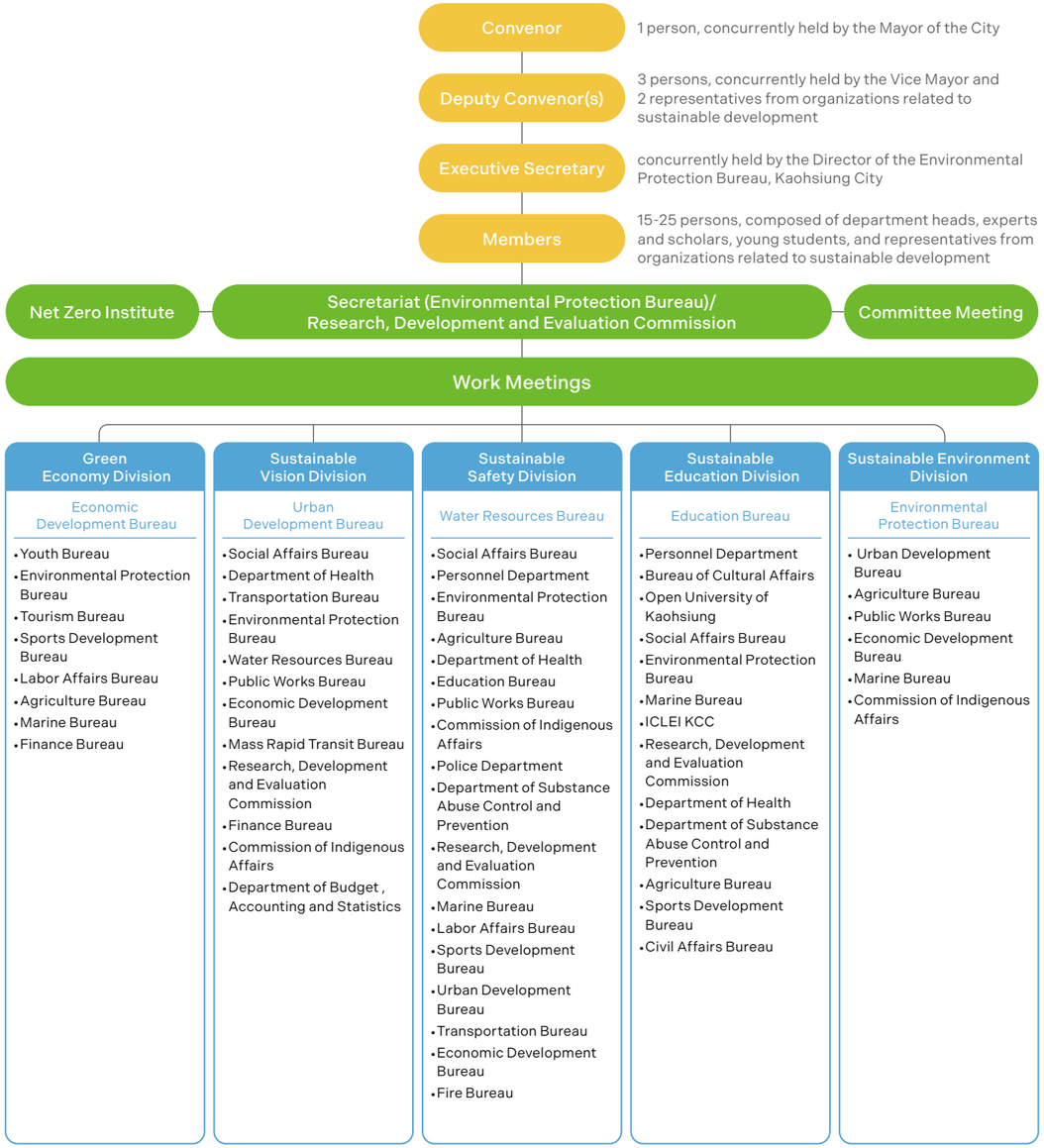
Reviewed three climate governance indicators for Kaohsiung City in response to the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City," integrating net zero and adaptation indicators into the council's oversight, fully constructing a livable city infrastructure. In the same year, Kaohsiung released its first voluntary local review that simultaneously assesses sustainability and net-zero progress.

2024
Kaohsiung City
Voluntary Local Review

2 Kaohsiung City Sustainable Development Promotion Unit

The city has established the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government" as the responsible authority for promoting sustainable development. This Promotion Committee convenes annually to review and manage Kaohsiung City's various sustainability indicators and respond to Article 14 of the Climate Change Response Act, while simultaneously incorporating climate change response initiatives. It strengthens environmental protection, promotes social equity and justice, and fosters economic development, aiming for the sustainable use of natural resources for generations to come, achieving the vision of a resilient and green ecological city.

Organizational Structure of the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government."



3 Kaohsiung City Sustainable Indicators and Corresponding Responsible Authorities

1 NO POVERTY

Responsible Bureau: Social Affairs Bureau; Commission of Indigenous Affairs; Fire Bureau; Urban Development Bureau; Labor Affairs Bureau; Department of Health;

Quantity: 7

2 ZERO HUNGER

Responsible Bureau: Social Affairs Bureau; Agriculture Bureau; Department of Health;

Quantity: 7

3 GOOD HEALTH AND WELL-BEING

Responsible Bureau: Transportation Bureau; Social Affairs Bureau; Department of Substance Abuse Control and Prevention; Fire Bureau; Sports Development Bureau; Department of Health; Environmental Protection Bureau;

Quantity: 14

4 QUALITY EDUCATION

Responsible Bureau: Personnel Department; Bureau of Cultural Affairs; Social Affairs Bureau; Open University of Kaohsiung; Education Bureau; Labor Affairs Bureau; Agriculture Bureau; Environmental Protection Bureau;

Quantity: 13

5 GENDER EQUALITY

Responsible Bureau: Personnel Department; Civil Affairs Bureau; Social Affairs Bureau;

Quantity: 7

6 CLEAN WATER AND SANITATION

Responsible Bureau: Public Works Bureau; Water Resources Bureau; Economic Development Bureau; Environmental Protection Bureau;

Quantity: 13

7 AFFORDABLE AND CLEAN ENERGY

Responsible Bureau: Public Works Bureau; Economic Development Bureau;

Quantity: 2

8 DECENT WORK AND ECONOMIC GROWTH

Responsible Bureau: Youth Bureau

Quantity: 2

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Responsible Bureau: Water Resources Bureau; Economic Development Bureau;

Quantity: 5

10 REDUCED INEQUALITIES

Responsible Bureau: Department of Budget , Accounting and Statistics; Labor Affairs Bureau;

Quantity: 5

11 SUSTAINABLE CITIES AND COMMUNITIES

Responsible Bureau: Public Works Bureau; Water Resources Bureau; Transportation Bureau; Social Affairs Bureau; Fire Bureau; Finance Bureau; Mass Rapid Transit Bureau; Urban Development Bureau; Environmental Protection Bureau;

Quantity: 29

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Responsible Bureau: Marine Bureau; Finance Bureau; Economic Development Bureau; Environmental Protection Bureau; Tourism Bureau;

Quantity: 17

13 CLIMATE ACTION

Responsible Bureau: Public Works Bureau; Water Resources Bureau; Social Affairs Bureau; Department of Substance Abuse Control and Prevention; Commission of Indigenous Affairs; Education Bureau; Urban Development Bureau; Labor Affairs Bureau; Agriculture Bureau; Sports Development Bureau; Department of Health; Environmental Protection Bureau; Police Department;

Quantity: 13

14 LIFE BELOW WATER

Responsible Bureau: Marine Bureau;

Quantity: 6

15 LIFE ON LAND

Responsible Bureau: Public Works Bureau; Commission of Indigenous Affairs; Agriculture Bureau;

Quantity: 8

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Responsible Bureau: Social Affairs Bureau; Department of Substance Abuse Control and Prevention; Research, Development and Evaluation Commission; Education Bureau; Police Department;

Quantity: 7

17 PARTNERSHIPS FOR THE GOALS

Responsible Bureau: ICLEI KCC; Research, Development and Evaluation Commission; Education Bureau; Department of Health; Environmental Protection Bureau;

Quantity: 6

4 Achievements in Sustainability and Net-Zero Highlights

Tang Prize laureate Gro Harlem Brundtland once profoundly stated, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This principle serves as the guiding motto for Kaohsiung City's sustainable development, embedding sustainability into the city's DNA. Over the past year, Kaohsiung has committed itself fully to advancing in economic, environmental, and social dimensions—from attracting investment and creating jobs to enhancing environmental quality and social care. In 2023, these efforts culminated in remarkable achievements and honors, serving not only as recognition of the city government's work but also as a promise to every citizen: Kaohsiung is steadily building a more sustainable future for the next generation.

2023 Sustainability and Net-Zero Awards

Asia-Pacific & Taiwan Sustainable Expo & Action Awards

Awarded "Outstanding City" (Gold Award) at the Livable & Sustainable City Awards

(for the second consecutive year).

The Ministry of Environment's "Year 2023 Environmental Performance Assessment Award Ceremony":

Kaohsiung City was awarded "Excellence"

for its performance in promoting environmental protection, marking the fifth consecutive year of recognition.

The 2023 National Sustainable Development Award for Government Agencies, presented by the

National Council for Sustainable Development (NCSD) under the Executive Yuan, recognized the project " Kaohsiung's Photoelectric Generation – Building a Net-Zero City"

The Ministry of Environment's Evaluation for Municipalities and Counties:

Kaohsiung City achieved "Excellence" in both the "Net-Zero Green Lifestyle Evaluation" and the "Climate Change Action Promotion Evaluation,"

marking the second consecutive year of receiving these honors.

The 3rd Taiwan Climate Action Expo

"Best Net Zero City Award"

Earned an "Outstanding" rating

in the 2023 Evaluation on Green Procurement by Government Agencies.

The Ministry of Environment's " Year 2023 Environmental Protection Performance Evaluation":

Kaohsiung City received a total of 11 excellence awards.

Key Highlights of 2023

Overall unemployment rate

dropped to 3.4%, the lowest among the six special municipalities.

The annual average number of employed persons reached

1.357 million, the highest in history.

The number of quasi-public kindergartens in the 112th academic year

totaled 259, the highest in the nation.

Successfully attracted 9 investment projects,

with private investments totaling NT$36.728 billion, ranking first among the six special municipalities.

The annual average $PM_{2.5}$ concentration was

the lowest on record.

Air quality reached a "good" rating for

over 80% of the time for the fourth consecutive year.

Incidents of shootings, violent crimes, and major criminal cases were

the second-lowest among the six municipalities.

The number of occupational fatalities was

the lowest since the county and city merger, ranking third lowest among the six special municipalities.

Over 117 concerts attracted 1.39 million visitors to Kaohsiung, generating

NT$4.5 billion in tourism revenue.

The Kaohsiung Port Passenger Center was inaugurated, generating

NT$930 million in tourism benefits from the cruise industry.

Stable financial management achieved three consecutive years of zero new borrowing,

with a cumulative debt reduction of NT$13.1 billion from 2020 to the end of 2023.

Purchased 16 new vehicles, reducing the proportion of over-aged fire trucks from

25% in 2019 to below 4%.

3.Kaohsiung City's Net-Zero Context

Beyond the perspective of sustainability, Kaohsiung City also regards "net-zero" as a core mission of urban development. Since announcing its 2050 net-zero pathway in 2022, the city government has actively implemented a series of innovative measures, including establishing the "Industrial Net-Zero Alliance," formulating the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City," founding the " Net Zero Institute," drafting the " Kaohsiung City Net-Zero Policy White Paper(draft)," and setting phased carbon reduction targets. Amid the global surge toward net zero, the Kaohsiung City Government aspires to lead with a forward-looking vision and become a pioneer in global net-zero governance.

Significant Events in Kaohsiung's Net-Zero Development

2022

- 6 ▶ Kaohsiung City announced the 2050 Net-Zero Pathway and established the "Industrial Net-Zero Alliance."

2023

- 2 ▶ The Executive Yuan Announced the Implementation of the Climate Change Response Act .
- 6 ▶ Kaohsiung City Council passed the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City," establishing a 30% reduction target by 2030 and a net-Zero target by 2050.
- 11 ▶ The Net Zero Institute was established.
- 12 ▶ Completion of the "Kaohsiung City Net-Zero Policy White Paper(draft)."

2024

- 4 ▶ Initiation of the planning for Kaohsiung City Carbon Budget System.
- 5 ▶ The Executive Yuan approved the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City."
- 6 ▶ The "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City" officially came into effect.
- 8 ▶ The "Kaohsiung City Action Plans for Climate Change Adaptation," "Kaohsiung City 2050 Net-Zero Policy White Paper," and "Kaohsiung City Carbon Budget Report" were all passed for climate governance review.

2026

- ▶ The carbon budget target for Kaohsiung City is set at 50.93 million tons.

2030

- ▶ Kaohsiung City is expected to reduce carbon emissions by 30%.

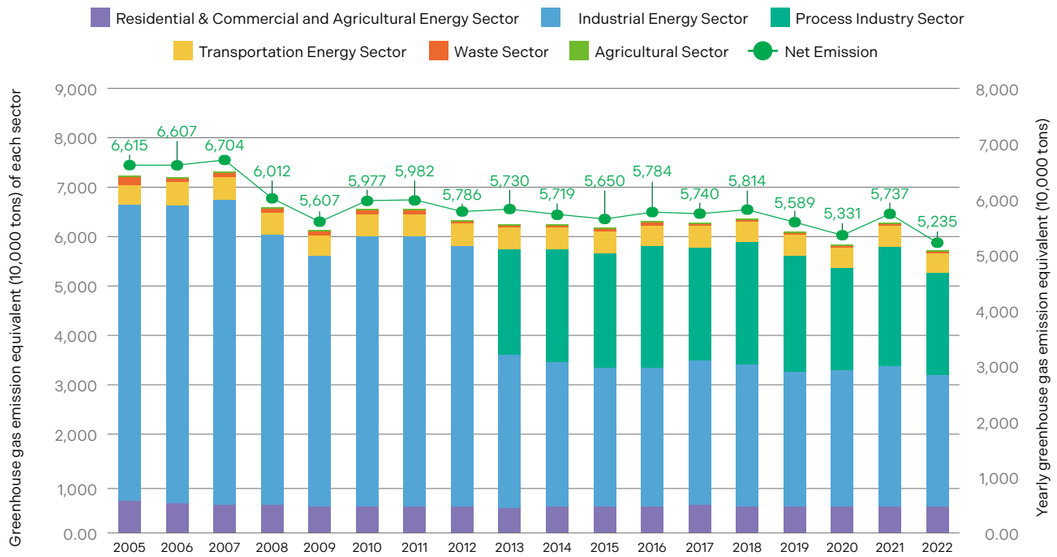
2050

- ▶ Kaohsiung City is expected to achieve Net-Zero target.

1 Current Greenhouse Gas Emissions in Kaohsiung

In 2022, Kaohsiung City's net greenhouse gas emissions were approximately 52.35 million metric tons, accounting for about one-fifth of the national total. The industrial sector was the primary source of emissions, contributing roughly 80%, followed by the residential and commercial sectors and the transportation sector. Notably, Kaohsiung City's per capita net greenhouse gas emissions in 2022 reached a historic low of 19.19 metric tons per person. This demonstrates significant progress in controlling and reducing greenhouse gas emissions, laying a solid foundation for the city's future development as a low-carbon urban.

Historical Trends of Greenhouse Gas Emissions in Kaohsiung City



The first phase of Kaohsiung's GHG Reduction Implementation Plan was from 2018 to 2020, detailing 44 specific measures that cumulatively reduced emissions by 3.4053 million metric tons, with significant achievements in the energy sector through the "Energy-Creating Economy-Photovoltaic Project." The residential and commercial sectors promoted the Green Roof and Kaohsiung House projects to reduce the urban heat islands effect and improve energy efficiency.

The second phase (2021–2025) emphasizes the establishment of the Self-Government Ordinance for the Development of a Net-Zero City, talent cultivation for net-Zero, and budget allocations, demonstrating the city's policy and financial commitment to carbon reduction targets. The city has implemented 58 measures across energy, manufacturing, residential, commercial, transportation, agriculture, and environmental sectors, achieving a cumulative reduction of 5.0822 million metric tons of carbon from 2021 to 2023, surpassing the original target of 2.35 million metric tons.

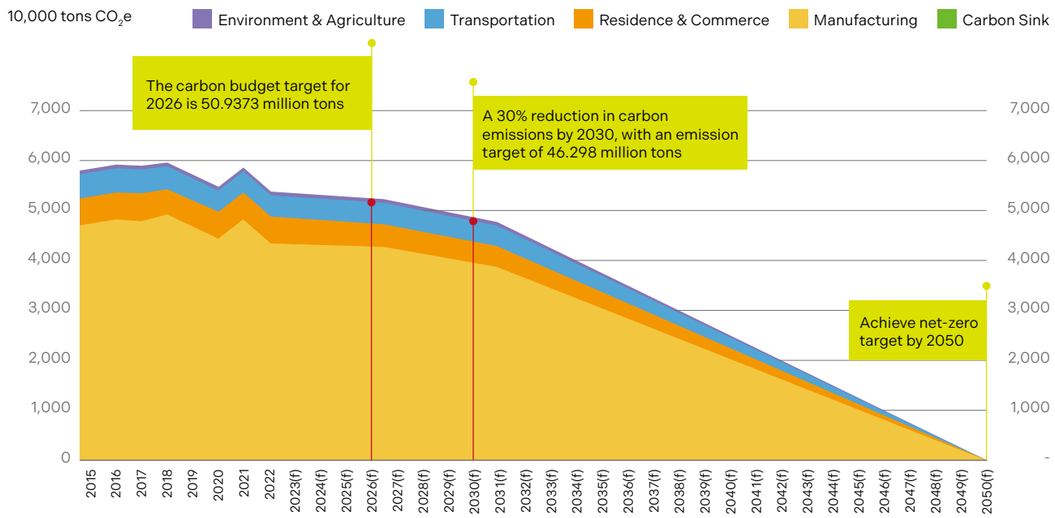
Key accomplishments include solar energy system filings totaling 916 MWp, power savings of 47.585 million kWh, a reduction of 1.44 million metric tons of coal use in cogeneration plants, installed renewable energy capacity of 668.4 MW in buildings, 256,758 square meters of green space, and 128,263 tree plantings. Qualitative outcomes include the establishment of the Industrial Net-Zero Alliance, promotion of the Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City, the launch of the Net Zero Institute, and the formation of the Kaohsiung City Energy-Saving and Carbon-Reduction Technical Advisory Group to assist businesses in implementing energy-saving and carbon reduction measures.

2 Kaohsiung City 2050 Net-Zero Strategy

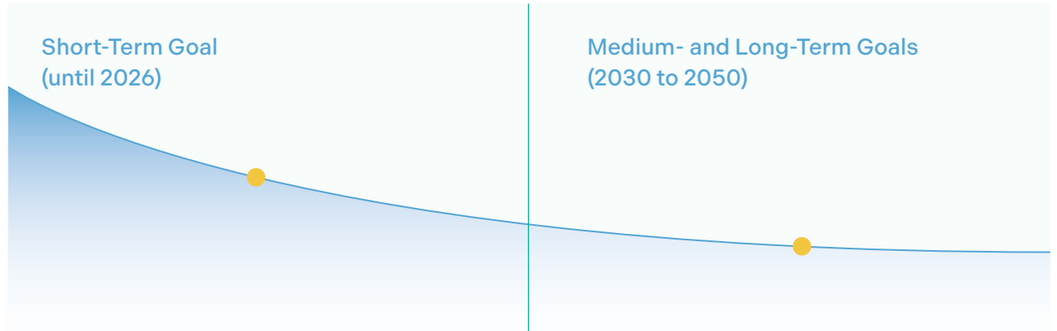
To steadily progress toward the net-zero target, Kaohsiung City actively promotes related initiatives and focuses on reducing carbon emissions across nine key areas: energy transition, industrial transformation, transportation transformation, residential and commercial transformation, agricultural transformation, environmental transformation, green lifestyle, carbon sink, and just transition. These efforts are aimed at addressing global climate change and achieving the goal of net-zero carbon emissions by 2050. The nine transformations are guided by short-term targets for 2026 and mid-term targets for 2030, serving as checkpoints for the plans. These efforts also refer to Taiwan's 2050 net-zero carbon pathway and strategies, as well as the implementation of the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City."

Additionally, Kaohsiung City passed the "Kaohsiung City Carbon Budget Report" in 2024, setting a carbon reduction target for 2026. The target is to reduce emissions by 30% by 2023, with the aim of achieving net-zero by 2050. This establishes the foundation for Kaohsiung City's future carbon reduction actions and further clarifies the direction of emission management. The key annual carbon reduction targets and pathway planning for Kaohsiung City are shown in the diagram below.

Net Zero Pathway - 2050 Reduction Target Analysis and Path Planning (10,000 tons)



Year	Emissions	Explanation
2005	66.14 million tons CO_2e	Baseline year
2022	52.35 million tons CO_2e	Actual net emissions inventory has achieved a reduction of 20.8%.
2024	Formulation of the "Kaohsiung City 2050 Net-Zero Policy White Paper" and the "Kaohsiung City Carbon Budget Report"	
2026	50.9373 million tons CO_2e Target reduction: 23%	Kaohsiung City's carbon budget planning targets.
2030	46.298 million tons CO_2e Target reduction: 30%	Reduction targets outlined in the "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City."



Achieving Low Carbon

In the short term (until 2026), Kaohsiung City aims to achieve low carbon by incorporating the concept of net zero into the budget, promoting carbon reduction projects, and reducing emissions in both energy and non-energy sectors. Through carbon budgeting and implementing emission caps, the city promotes nine major aspects of its net zero policy, focusing on reducing carbon emissions from energy and non-energy sources.

Specific actions include working with three power plants and 34 cogeneration plants within the city. Since joining the Powering Past Coal Alliance in 2020, Kaohsiung has launched a series of coal-reduction policies, such as the Hsinta Power Plant's '2-stop-2-reduce' policy during autumn and winter, aiming to reduce coal use by 7.25 million metric tons by 2025 and activate hydrogen-blended gas turbine power generation, with a target of 5% hydrogen fuel by 2025. The carbon budget system also requires development projects to implement carbon reduction, while the Industrial Net-Zero Alliance fosters upstream and downstream collaboration in carbon reduction. The city has also established the Net Zero Institute to cultivate talent and promote net zero education. Additionally, Kaohsiung's "Botanical Green City Policy" policy maintains 84 hectares of green space and builds 17.2 hectares of net-zero sustainable parks to enhance urban resilience and reduce the urban heat island effect.

Moving Towards Zero Carbon

Kaohsiung City's medium-term goal is to reduce emissions by 30% by 2030, while the long-term goal is to achieve net zero by 2050. The city is developing a voluntary carbon credit mechanism to encourage comprehensive public participation in carbon reduction while creating a net-zero smart city that balances economic growth and employment.

Key strategies include promoting zero-carbon energy and carbon negative technologies such as hydrogen energy applications and Carbon Capture, Utilization, and Storage (CCUS), aiming to solve the final steps of carbon reduction. Kaohsiung is also establishing natural carbon sink methodologies and developing high-quality carbon credits. As international pressure for net-zero increases, the city supports high-emission industries to collaborate on carbon reduction through ESG initiatives.

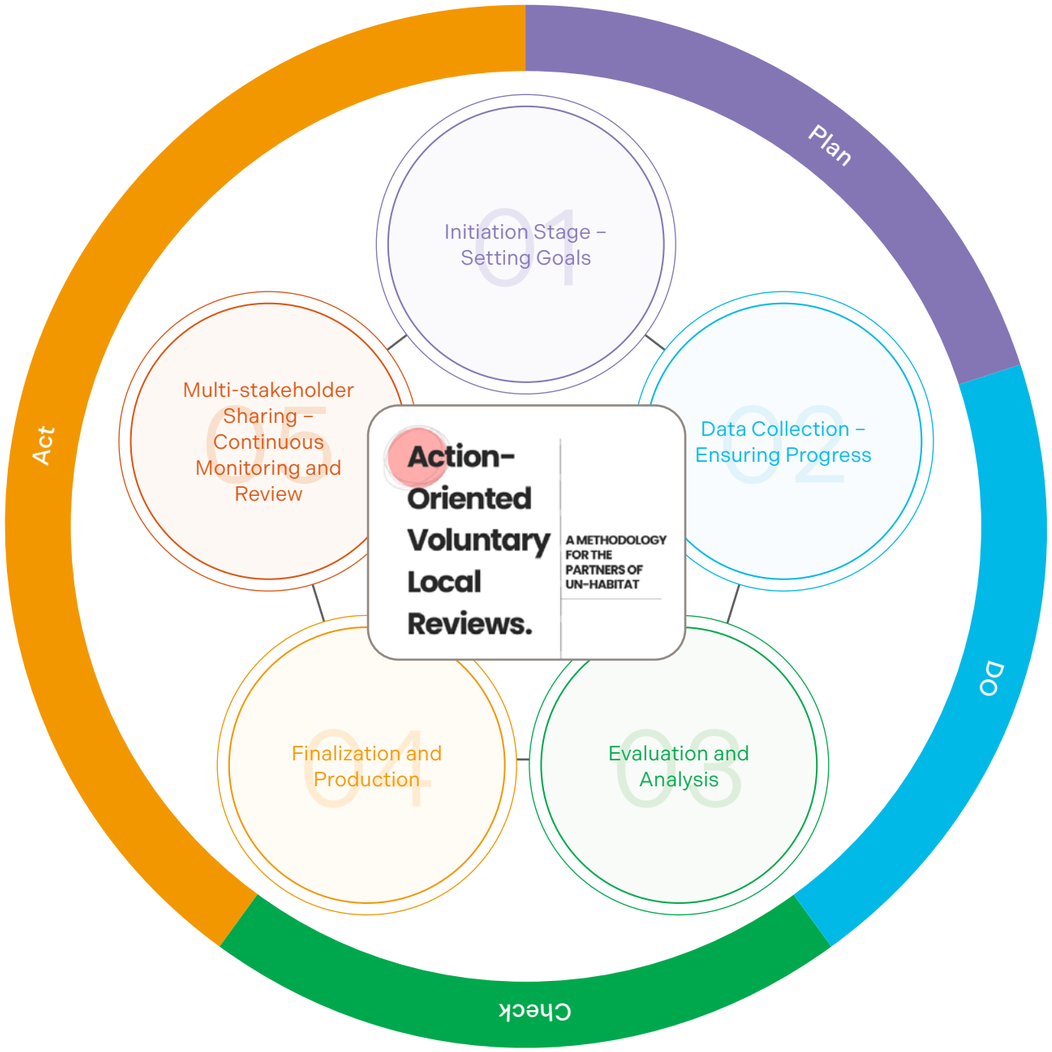
Kaohsiung has already developed a CCUS industry, with companies such as Formosa Plastics, CPC Corporation, and China Steel engaged in carbon capture and utilization. By 2040, commercial-scale CCUS production is expected to reach 2.9 million metric tons. By 2030, China Steel aims to reduce carbon emissions by 660,000 metric tons annually, and CPC Corporation plans to construct hydrogen refueling stations and increase hydrogen production, reducing approximately 360,000 metric tons of carbon emissions.

4.Methodology for Reviewing Voluntary Local Reviews (VLR)

In 2024, the United Nations Human Settlements Programme (UN-HABITAT) published the Action-Oriented Voluntary Local Reviews, which introduced a methodology for creating VLRs. This methodology consists of five phases, with three main tracks corresponding to each stage, and cross-cutting elements that influence all work steps. This framework is intended for cities planning to draft their own VLRs.

Kaohsiung City's 2024 VLR is based on this methodology, integrating the Plan-Do-Check-Act (PDCA) cycle, a continuous improvement management tool commonly used in ISO standards. The methodology has been adjusted to suit Kaohsiung's implementation status and local conditions, resulting in five cyclical stages corresponding to PDCA work procedures. This tailored approach is expected to ensure comprehensive and effective implementation of Kaohsiung's sustainability policies.

2024 Kaohsiung City Voluntary Local Review Methodology



Plan

Step 01

Initiation Stage – Setting Goals

The VLR drafting team will assist in arranging and conducting meetings for the five working groups under Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government (Promotion Committee). In response to the official implementation of the Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City, the Environmental Protection Bureau instructed that the 2024 VLR should focus on reviewing both sustainability and net-zero issues. The title of the report will be finalized as the "2024 Kaohsiung City Voluntary Local Review."

Do

Step 02

Data Collection – Ensuring Progress

Through the five working groups of the Promotion Committee, over 160 sustainability indicators of Kaohsiung City will be adjusted, and data for 2023 will be collected. Additionally, the projects listed in the Kaohsiung City Net-Zero Policy White Paper will be reviewed, and the 2023 implementation results will be collected from relevant departments to ensure that the work is progressing as planned.

Check

Step 03

Evaluation and Analysis

Upon completion of the initial draft of the Voluntary Local Review (VLR), Kaohsiung city not only made the information publicly available online but also organized cross-departmental and expert consultation meetings to gather feedback and insights from a broad range of stakeholders. Following this, the draft was carefully evaluated and analyzed, with revisions made to effectively address the concerns raised by stakeholders. The city hopes that residents will continue to monitor and engage with the municipal government's efforts, collaborating to shape the Kaohsiung they envision.

Act

Step 04

Finalization and Production

While the Chinese version of the VLR is being finalized, an English translation will be simultaneously prepared. The publication of the English VLR will create opportunities for international exchange on urban sustainability policies. The finalized Chinese and English VLRs will be produced as e-books, which will be available for online reading on the "Kaohsiung City Portal for Climate Change and Sustainable Actions" website. The files will also be proactively shared with the National Council For Sustainable Development and Japanese Think Tank VLR Lab Website , joining more than 80 cities worldwide in promoting local implementation of sustainable development.

Step 05

Multi-stakeholder Sharing – Continuous Monitoring and Review

Kaohsiung City will continue to implement internal monitoring and review of sustainability indicators through the Promotion Committee. Public sharing will ensure that the progress toward achieving these indicators is continuously reviewed and adjusted. Furthermore, Kaohsiung will share its experiences in drafting the VLR and implementing local sustainability indicators.

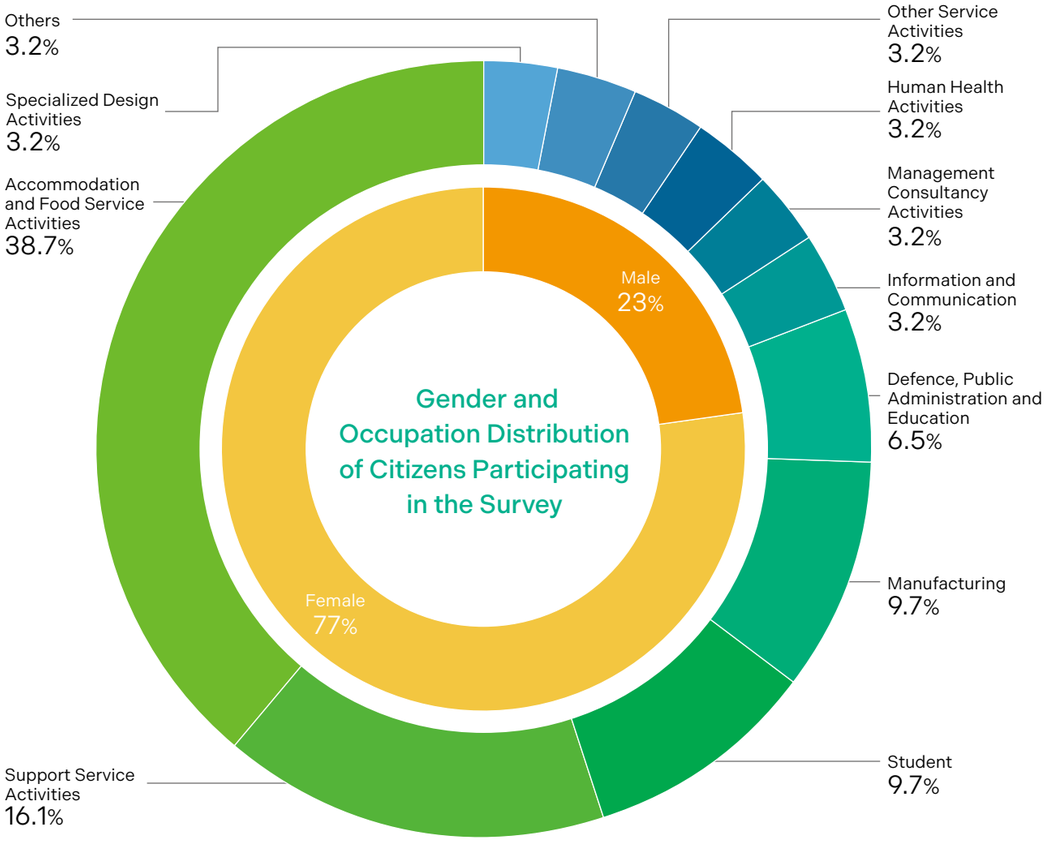
- VLR Lab Website：https://www.iges.or.jp/en/projects/vlr

5. Stakeholder Survey Results

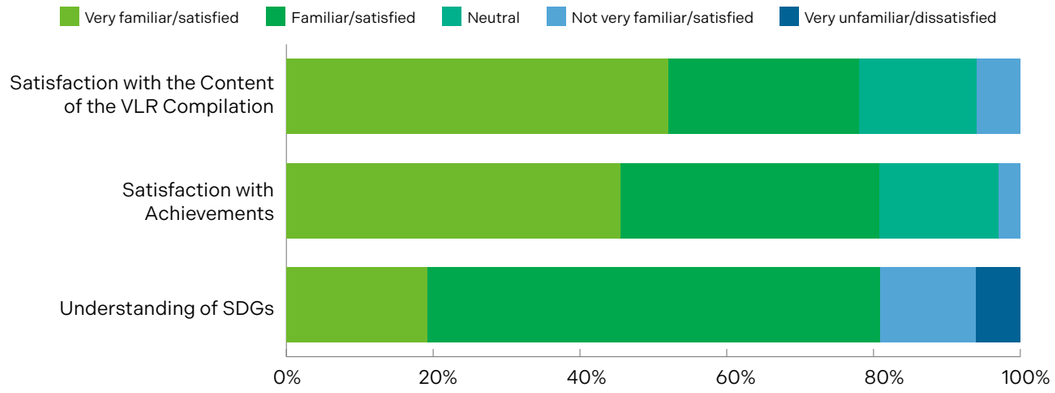
The Voluntary Local Review (VLR) relies on the active participation of a diverse range of stakeholders. This year, in addition to organizing cross-departmental and expert consultation meetings, Kaohsiung City also published the initial draft of the VLR on the "Kaohsiung City Portal for Climate Change and Sustainable Actions." Feedback and opinions from various stakeholders were collected through an online questionnaire conducted from September 30 to October 11, 2024. The gathered responses were then used to evaluate and analyze the content of the VLR.

The majority of respondents who provided feedback through the online questionnaire were women, accounting for 77%. Their occupations were primarily in the service industry, business, student, and industrial sectors. Nearly 80% of the participants indicated a certain level of familiarity with the UN SDGs. After reviewing the "2024 Kaohsiung City Voluntary Review Report (Draft)", they demonstrated a basic understanding of Kaohsiung's efforts to promote the net-zero transition and sustainable governance. Respondents expressed satisfaction with the city's progress in advancing the net-zero transition and SDGs, as well as with the organization and content of each chapter in the "2024 Kaohsiung City Voluntary Review Report (Draft)".

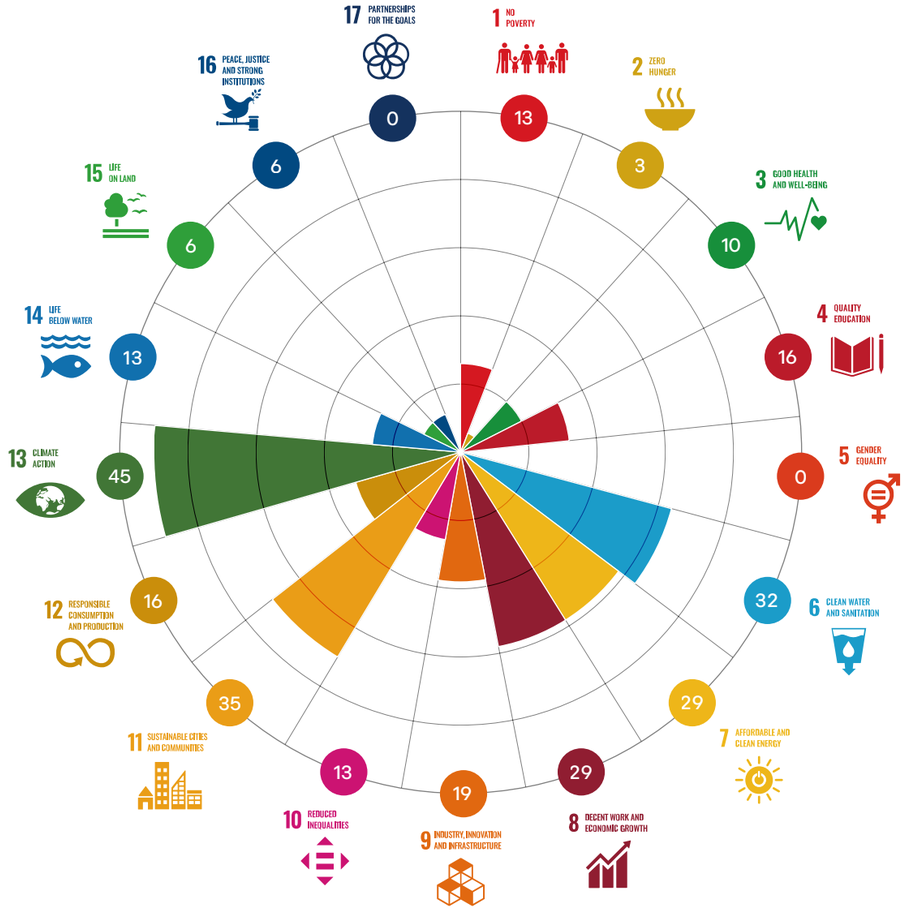
Among the 17 UN SDGs, stakeholders identified SDG 13 (Climate Action), SDG 11 (Sustainable Cities and Communities), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), and SDG 8 (Decent Work and Economic Growth) as the most critical priorities to focus on.



SDGs Awareness and Satisfaction with the 2024 VLR Survey Results

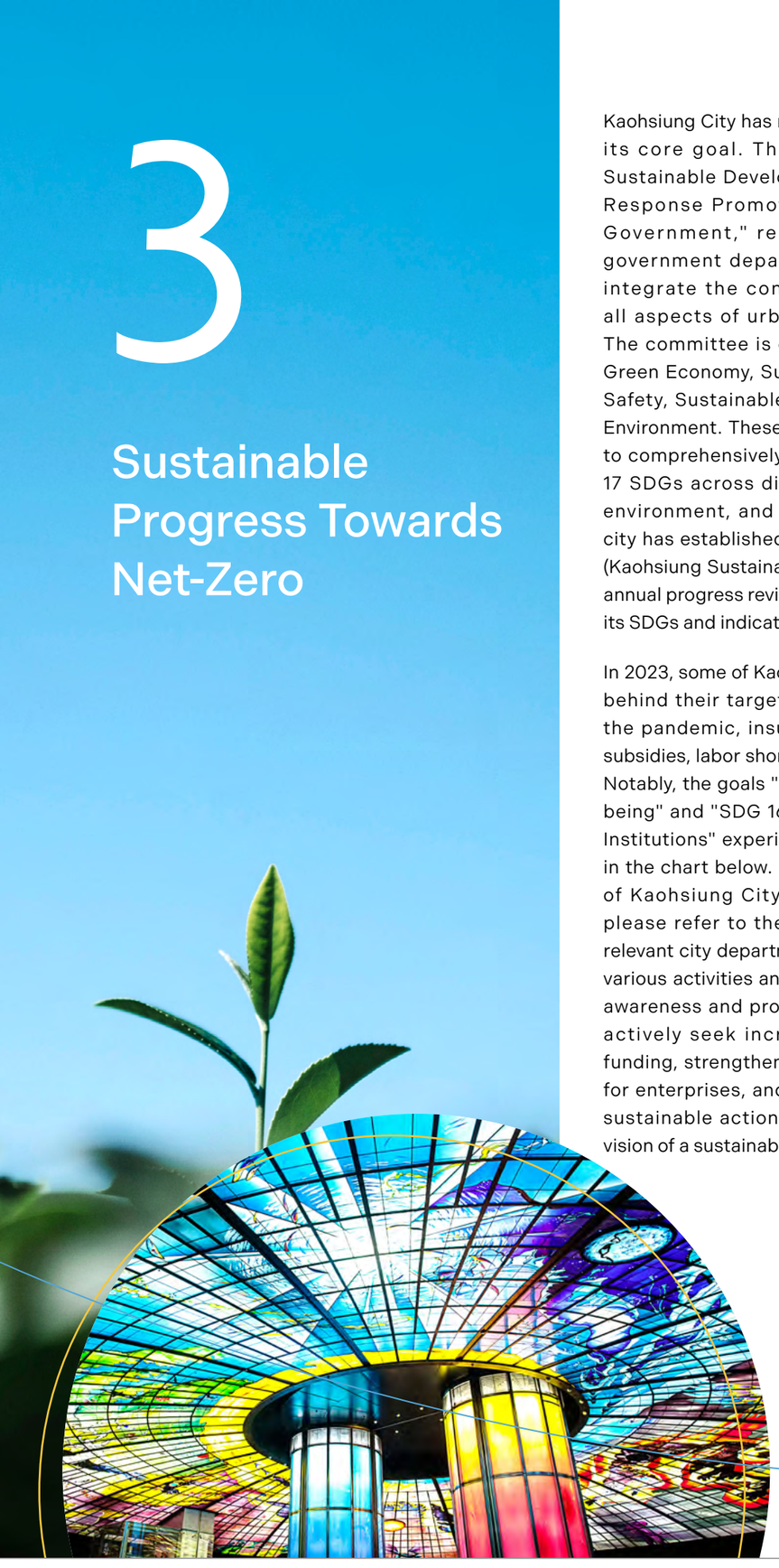


Proposed Priority SDGs by Stakeholders in Kaohsiung (%)



3

Sustainable Progress Towards Net-Zero



Kaohsiung City has made sustainable development its core goal. Through the "Committee for Sustainable Development and Climate Change Response Promotion of the Kaohsiung City Government," resources from various city government departments are coordinated to integrate the concept of sustainability into all aspects of urban transformation policies. The committee is organized into five divisions: Green Economy, Sustainable Vision, Sustainable Safety, Sustainable Education, and Sustainable Environment. These divisions work collaboratively to comprehensively advance the United Nations' 17 SDGs across dimensions such as economy, environment, and education. Additionally, the city has established 161 corresponding indicators (Kaohsiung Sustainability Indicators) and conducts annual progress reviews to ensure phased results of its SDGs and indicators.

In 2023, some of Kaohsiung City's SDGs fell slightly behind their targets due to challenges such as the pandemic, insufficient central government subsidies, labor shortages, and climatic conditions. Notably, the goals "SDG 3: Good Health and Well-being" and "SDG 16: Peace, Justice, and Strong Institutions" experienced delays, as summarized in the chart below. For detailed progress on each of Kaohsiung City's sustainability indicators, please refer to the appendix. Moving forward, relevant city departments will continue to combine various activities and diverse channels to enhance awareness and promotion efforts. They will also actively seek increased central government funding, strengthen pollution control inspections for enterprises, and redouble efforts to advance sustainable actions, progressively realizing the vision of a sustainable and livable Kaohsiung.

2023 Progress of Kaohsiung City's SDGs (%)

- Core Goal Indicator Achievement Rate = (Number of Indicators Meeting 2023 Expected Progress / Total Number of Core Goal Indicators) × 100%

1. Sustainable and Inclusive Takao

In Kaohsiung, a southern city where technology and culture intersect, the municipal government has prioritized "technology, livability, happiness, and charm" as its core governance values. The city envisions a livable homeland that harmonizes net-zero sustainability and economic growth. With steady strides, Kaohsiung is progressing toward the inspiring vision of an "Equitable City and Inclusive Society," crafting a brighter future for all its residents.

Grounded in the United Nations Sustainable Development Goals (SDGs), the city has developed 17 sustainable governance strategies, encompassing the social, environmental, and economic dimensions. On the social front, Kaohsiung emphasizes diverse livability, quality education, all-age care, and social inclusion, weaving a network of well-being that embraces all communities and age groups. The goal is to ensure that every individual can enjoy a secure and hopeful life, finding their unique space and dignity within the city.

From an environmental standpoint, Kaohsiung begins with carbon reduction, steadily advancing toward net-zero goals. This reflects its firm commitment to environmental resilience and sustainability. Efforts include promoting green transportation and improving air quality, with tangible actions enhancing the daily lives of residents. The adoption of renewable energy and innovative technologies ensures that sustainability evolves from a distant aspiration into a daily reality.

On the economic front, Kaohsiung is propelled by "economic growth," "technological transportation," and "job creation." By promoting both technological advancements in agriculture and fisheries and a vibrant tourism sector, the city showcases an economy that thrives against a cultural backdrop. Simultaneously, its urban transformation drives industrial upgrades, positioning Kaohsiung not only as the economic hub of southern Taiwan but also as a significant player on the global stage, attracting investments and partnerships worldwide.

From universal education access to cultural vibrancy, from the shift to a green city to the embrace of innovative technologies, Kaohsiung exemplifies the ideals of a "sustainable and inclusive" city through determined action.

The Sustainable Governance Strategy Framework of Kaohsiung City

Equitable City · Inclusive Society

Technology · Livability · Happiness· charm

Social

- Digital Living
- Diverse Livability
- Diverse Inclusion
- Quality Education
- Active Lifestyle for All
- All-Age Care
- Fertility-Friendly Environment

Environment

- Net-Zero Sustainability
- Green Transportation
- Healthy Air Quality
- Resilient Adaptation

Economic

- Economic Growth
- Job Creation
- Technological Transportation
- Technological Agriculture and Fisheries
- Charming Tourism
- Arts and Cultural Development

2. Sustainable Development Highlights

This year's stakeholder survey found that over one-third of the public is focused on "SDG 13: Climate Action" and "SDG 11: Sustainable Cities and Communities," the city of Kaohsiung has made significant progress in these two areas. In addition, the city has also achieved notable sustainability milestones in "SDG 4: Quality Education," "SDG 9: Industry, Innovation, and Infrastructure," and "SDG 16: Peace, Justice, and Strong Institutions" this year. These accomplishments not only contribute to environmental protection but also align with the expectations of businesses and the public.

SDG 4
Quality Education

1 Cultivating Carbon Reduction Talent and Supporting Sustainable Environmental Development

Kaohsiung City collaborated with seven southern counties and cities to establish the Net Zero Institute by the end of 2023. Through cooperation with international verification agencies, certification courses were offered in collaboration with 18 universities, including campus net-zero programs, specialized classes for industries such as media, CPC Corporation, China Steel Corporation (CSC), CSBC Corporation, and iPASS Corporation, assisting enterprises in cultivating talent for carbon inventory, carbon footprint, carbon reduction, and carbon neutrality through international certification courses. As of August 2024, the Net Zero Institute has conducted 72 classes in general knowledge, certification, and technical courses, with a total of 2,700 participants and 800 certificates issued. Among these efforts, 1,807 city employees have undergone training, resulting in 614 certificates earned. Additionally, the Mayor and all 41 department heads have obtained at least one ISO certification. Notably, the heads of key departments responsible for net-zero initiatives—such as Environmental Protection, Public Works, Transportation, and Water Resources—have each acquired more than three certifications.

Estimated annual cultivation of **1,600** standard certificate professionals and **2,000** industry specialists.

The Net Zero Institute provides general, certification, and technical courses, building the city's carbon reduction capabilities.

2 Place-Based Promotion of Hakka Language to Sustain Hakka Culture

In 2023, Kaohsiung City established the first Hakka immersion non-profit kindergarten in Taiwan at the Kaohsiung City Hakka Cultural Park, which opened in July. The city promotes diverse Hakka language teaching covering urban and Hakka community areas, organizing 20 Hakka parent-child activities. Additionally, the city implements Hakka language certification rewards, with 227 people receiving awards in 2023. Various preservation and revitalization projects for Hakka cultural heritage were also completed in the city, such as the renovation of the Meinong Word-worshipping Paper Incinerator.

The first Hakka immersion non-profit kindergarten opened in **July**

227 people awarded for Hakka language certification

Hakka cultural experience.

SDG 9
Industry, Innovation, and Infrastructure

1 Bank of Kaohsiung's Initiatives in Sustainable Development

Bank of Kaohsiung, in alignment with the Financial Supervisory Commission R.O.C.(Taiwan)'s "Green Finance Action Plans 3.0" and the government's 2050 Net-Zero Carbon Emission Policies, actively supports the Kaohsiung City Government's "Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City." The bank is committed to promoting low-carbon transition financing and financial services, thereby advancing the principles of ESG (Environmental, Social, and Governance) for sustainable management. As of the end of 2023, the bank has invested NT$7.7 billion in green-related bonds and approved NT$21 billion in green credit. Additionally, a memorandum of cooperation was signed with Green Power Trading Platform operators on December 29, 2023, further strengthening photovoltaic credit and trust services for Green Power Trading Platform operators.

Green-related bonds: NT$ **7.7** billion

Approved green credit: NT$ **21** billion

Signing ceremony for cooperation between Bank of Kaohsiung and the Green Power Trading Platform Trust.

2 The Semiconductor S Corridor of Kaohsiung City

Kaohsiung City is actively driving industrial upgrades in collaboration with the central government, positioning Nanzih Technology Industrial Park as a core hub for semiconductor materials research and development. The plan connects northward to Ciaotou and Lujhu Science Parks, extending further to the Southern Taiwan Science Park, thereby forming an emerging semiconductor manufacturing cluster. To the south, it links Renwu, Daliao HOFA, and Linyuan, which specialize in semiconductor materials and petrochemical industries, and further extends to the Startup Terrace Kaohsiung. This creates a comprehensive and integrated semiconductor industry corridor that spans design, manufacturing, packaging and testing, materials, and equipment. This Southern Taiwan Semiconductor "S Corridor" has successfully attracted investments from international giants such as TSMC, Merck Group, and Entegris, significantly enhancing the local industrial ecosystem and capacity.

By the end of December 2023, approximately 758 hectares of industrial park land have been approved or planned, with an estimated annual output value of NT$733.1 billion. Additionally, a "Ciaotou Science Park Project Promotion Task Force" has been established to expedite the opening of external roads, environmental impact assessments , and Zone Expropriation Project. The city is also seeking approval for the "Comprehensive Access Transportation Plan for Ciaotou Science Park" road network construction, with completion anticipated between 2026 and 2028. Furthermore, to enhance high-level talent cultivation, the city has partnered with businesses and 15 colleges to establish the "Semiconductor S Corridor Industry-Academia Alliance," promoting industry-academia collaboration and actively seeking the establishment of branch campuses of National Tsing Hua University and National Yang Ming Chiao Tung University to cultivate more AI, semiconductor, and ESG talents.

Approved or planned approximately **758** hectares of industrial park land

Estimated annual output value: NT$**733.1** billion

The Semiconductor S Corridor of Kaohsiung City.

Overview of Kaohsiung's industrial clusters and park development

Leading semiconductor companies are stationed in Nanzih

Subsequently, it will effectively drive the transformation of local industries in Kaohsiung towards **intelligence and higher value-added** development

758-hectare industrial park approved /under review

Ciaotou Science Park, Nanzih Industrial Park, Renwu Industrial Park, Baipu Industrial Park, New Materials Recycling Industrial Park, Phase 2 of Kaohsiung Software Park

Expected to create an annual output value of NT$**733.1** billion

Downstream application cluster
- Electric vehicles
- biomedicine etc.
- Semiconductor applications

Midstream IC manufacturing
- Wafer manufacturing
- Testing and packaging

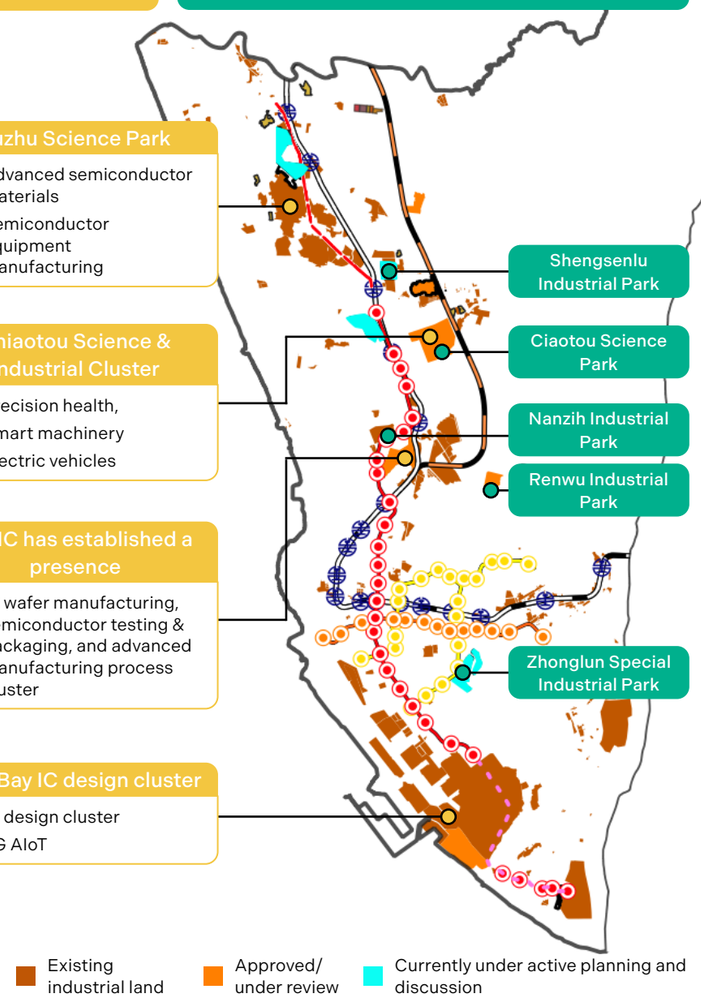
Upstream IC research & development
- Taiwan Wafer Innovation Plan
- IC design cluster

Luzhu Science Park
- Advanced semiconductor materials
- Semiconductor equipment manufacturing

Chiaotou Science & Industrial Cluster
- Precision health,
- Smart machinery
- Electric vehicles

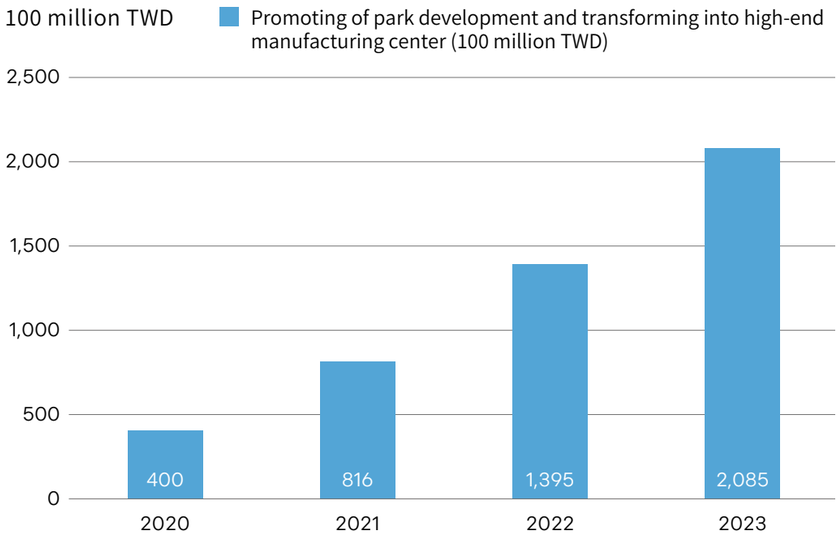
TSMC has established a presence
- IC wafer manufacturing, semiconductor testing & packaging, and advanced manufacturing process cluster

Asia Bay IC design cluster
- IC design cluster
- 5G AIoT



Since 2020, Kaohsiung has been fully committed to the development of science parks, with the goal of establishing a pioneering manufacturing hub. The city has seen significant results year by year. According to the statistics, the city's industrial upgrading program has spurred a substantial increase in investment from companies within the science parks, with total investment rising sharply from NT$40 billion in 2020 to NT$208.47 billion in 2023. This growth underscores Kaohsiung's impressive achievements and potential for industrial transformation. Looking ahead, with the completion of projects such as the Ciaotou Science Park, the city will further strengthen its leading position in the semiconductor and high-tech manufacturing sectors, becoming a key driver of southern Taiwan's economy.

SDG 9 Sustainable Highlight Indicator—Investment Promotion



SDG 11
Sustainable Cities and Communities

1 Joint Development of MRT Stations and Increased Floor Area Ratio to Promote TOD Sustainable Urban Development Plan

Through urban planning amendments, the city approved 70 cases between 2018 and December 31, 2023, increasing the floor area ratios around the Circular Light Rail and MRT stations. This successfully facilitated the development of 172,752.07 square meters of land, promoting high-density land use, enhancing citizens' quality of life, and driving urban development.

Additionally, the city has been proactively advancing land development around MRT stations, including the " MRT Orange Line O4 Station land development project " and the inventory of other potential development sites. Looking ahead, efforts will focus on joint development opportunities along the Red and Orange Lines, Yellow Line, and the Gangshan-Luzhu Extension Line. Measures such as reducing mandatory parking spaces near development sites, expanding pedestrian areas, and adding public bicycle facilities will be implemented to increase the use of public transportation systems and promote sustainable urban development.

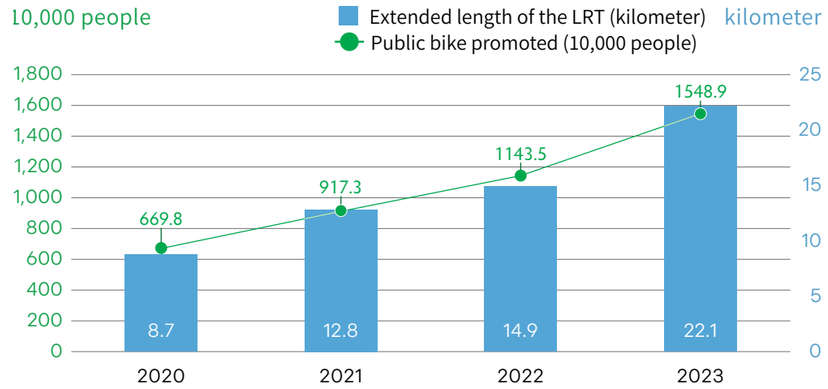
70 cases issued

Development of over **170,000** square meters of land

Simulation Diagram of the Development Project for the O10 Station Investment Base.

The city of Kaohsiung is actively advancing its TOD (Transit-Oriented Development) sustainable urban development plan while also enhancing public transportation services to build a convenient, user-friendly, and low-carbon transportation network. With the completion of the extended circular light rail and the expanded public bicycle-sharing system, the adoption of green transportation among residents has steadily risen, reflecting the effectiveness of related policies and a significant increase in public participation. Statistics show that the number of public bicycle users grew from 6.698 million in 2020 to 15.489 million in 2023. Meanwhile, the length of the light rail network expanded from 8.7 kilometers in 2020 to 22.1 kilometers in 2023, marking an impressive 154% increase. These achievements highlight Kaohsiung's proactive efforts to enhance public transportation coverage and promote green travel. Moving forward, the city will continue to optimize its transportation infrastructure to create a sustainable and convenient transportation environment for its residents.

SDG 11 Sustainable Highlight Indicator—Public Transportation



2 Cultural Asset Restoration and Revitalization for Reuse

In 2023, Kaohsiung City announced three cultural assets. The Former Main Office of the Imperial Japanese Navy's Sixth Fuel Depot was designated as a city monument. The Former Navy's Sixth Fuel Depot and the Aviation Team Officers' Residences were classified as historical buildings and settlement buildings. The city government completed multiple restoration projects, including the Remains of Fongshan City Walls and the Wooden Bridge over the East Gate Moat. In terms of cultural asset revitalization, the "Historical Building-Siaoyao Villa" received the National Cultural Heritage Preservation Award, and "Former Cishan Railway Station" and "Jhan-2 Warehouse" achieved good results in evaluations. For military dependents' village preservation, the "Live to Protect" plan matched 27 households, and the "2023 Kaohsiung Military Dependents' Villages Carnival" promoted cultural awareness.

3 additional cultural heritage sites have been added in Kaohsiung City

27 households have been matched for the "Living Preservation" program to safeguard military dependents' villages

Restoration and revitalization of cultural assets at "Historical Building-Siaoyao Villa.

3 Diverse Housing Policies to Improve Living Quality and Alleviate Housing Burden

The bureau, in cooperation with the Ministry of the Interior's NT$30 billion rental subsidy program and the city's non-self-use house tax, assists in the review of applications and has also introduced additional rental subsidies, child-rearing rental subsidies, reduced social housing rents, and first-time homebuyer mortgage interest subsidies to ensure housing justice. By the end of December 2023, a total of 48,937 households have been approved under the Ministry of the Interior's NT$30 billion rental subsidy program and the city's additional rental subsidy; 5,207 households received child-rearing rental subsidies; 245 households benefited from reduced social housing rents; and 40 households received mortgage interest subsidies for first-time homebuyers.

Total number of subsidized households reached **48,937**.

2023 diverse housing policy subsidies alleviate housing burdens, benefiting nearly 50,000 households

Diverse housing subsidies to reduce housing burdens

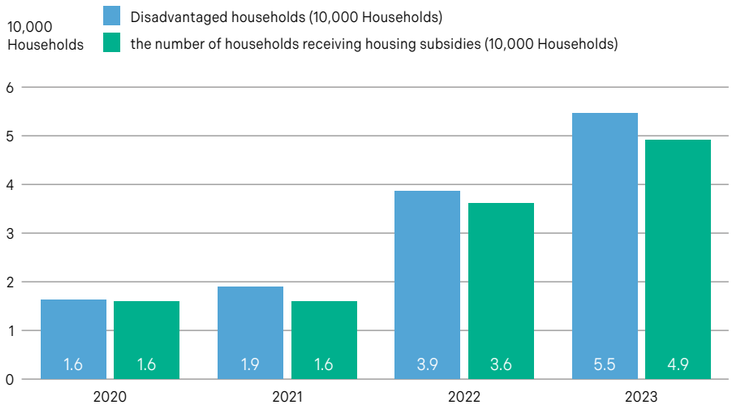
Various Housing Assistance Programs

- NT$30 billion rental subsidies
- Additional rental subsidies from Kaohsiung City
- Rental subsidies for families with children
- Reduced rent for social housing
- Interest subsidies for first-time homebuyers' mortgages

As of the end of December 2023, approvals have benefited 50,000 households

Kaohsiung has made significant strides in advancing housing justice and improving the quality of life for its residents through the implementation of diverse housing policies. These policies have not only eased the housing burden on residents but also strengthened the housing safety net for vulnerable groups. Data indicates that the number of social housing contracts and rental subsidy approvals for households classified as disadvantaged groups under the Housing Act surged from 16,282 households in 2020 to 54,532 households in 2023, a 235% increase. Meanwhile, the number of households receiving housing subsidies also rose from 67,000 in 2020 to 155,000 in 2023, an increase of 131%. These achievements highlight the city's concrete efforts to promote housing equity and sustainable development. In the future, Kaohsiung will continue to support families through a variety of policies, fostering a more livable and inclusive urban environment.

SDG 11 Sustainable Highlight Indicator—Housing Justice



4 Improving Environmental Quality with Annual Improvements in Air Quality

Kaohsiung is committed to improving its air quality in three key areas: reducing air pollution, promoting green transportation, and minimizing household odors. The city has implemented several initiatives, including expanding coal reduction efforts, inspecting major industries, establishing air quality maintenance zones, providing subsidies for replacing high-pollution vehicles, and regulating cooking fumes from restaurants. According to data from the Ministry of the Environment, Kaohsiung's air quality index in 2023 reached 88.9%, the best in the city's history. The annual average particulate pollution (PM2.5) concentration dropped to a record low of 16.8 μg/m³. Additionally, the 8-hour average ozone concentration decreased from 75.3 ppb in 2020 to 69.9 ppb in 2023, showcasing the effectiveness of the city's air pollution control efforts. These measures encompass regulations for stationary sources (such as expanding coal reduction efforts, promoting industry inspections, and tightening emission standards), mobile pollution sources (including replacing high-pollution vehicles and regulating diesel vehicles), and fugitive source pollution (such as smart monitoring of construction sites, subsidizing cooking fumes control equipment, and promoting centralized joss paper incineration).

Air quality reached an excellent rate of **88.9%**, the best in history

Average annual $PM_{2.5}$ concentration: **16.8** μg/m³, the lowest in history

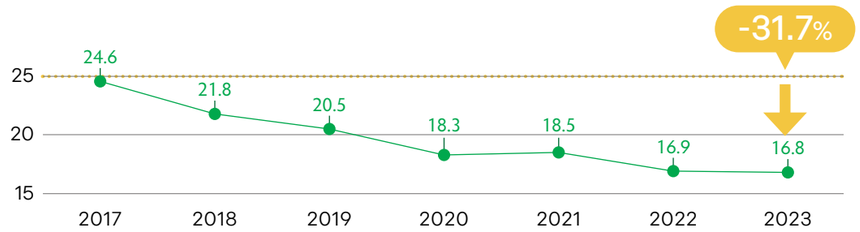
Annual improvement of air quality.

Air quality has improved year by year

Enhancing environmental quality

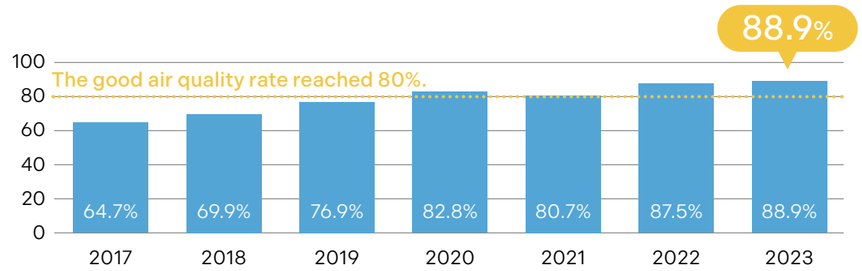
Manually monitored annual average concentration of $PM_{2.5}$ (μg/m³)

The concentration of fine particulate matter ($PM_{2.5}$) was 16.8μg/m³, showing a 31.7% improvement.

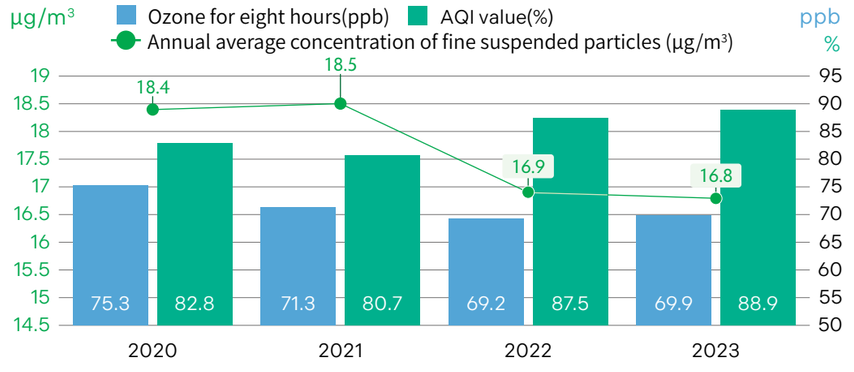


Manually monitored annual average concentration of $PM_{2.5}$ (μg/m³)

The target for good air quality rate (AQI ≦ 100) is 90%, and last year it reached 88.9%.



SDG 11 Sustainable Highlight Indicator—Air Quality



SDG 13
Climate Action

1 Detention Basin Construction Results

To mitigate flooding issues arising from land development, the city has implemented stringent runoff control review and supervision measures, requiring the construction of 36 detention basins in large-scale development projects, with a total detention capacity of approximately 660,000 tons. Combined with the 25 public detention basins constructed by the city, which provide an additional capacity of about 4.98 million tons, the total citywide flood detention capacity will reach 5.64 million tons. This approach balances economic growth with multifunctional objectives such as flood detention and disaster mitigation. Among them, the "Beiwu Drainage and Caotanpi Detention Basin Remediation Project," completed in October 2023, added a flood retention capacity of 75,000 tons through the new detention basins, utilizing the land from the 100th phase of reconstruction to establish flood channels, restoring water to the land and achieving a ten-year return period, completing the final stretch of the Love River remediation project. The city will continue to build Detention Basins in various districts to enhance flood prevention capabilities, creating a resilient and livable city.

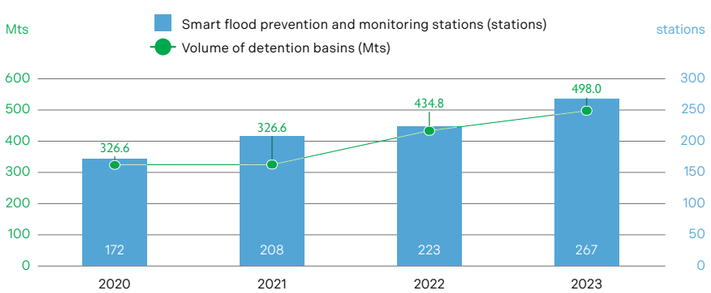
36 detention basins established at development sites

25 public detention basins constructed

Total flood retention capacity reached **5.64** million tons

Since 2020, the detention capacity of detention basins across the city has steadily increased. The capacity of public-sector-constructed detention basins grew from 3.266 million tons in 2020 to 4.98 million tons in 2023, representing a 52% increase and significantly enhancing the city's flood prevention capacity. Simultaneously, the number of smart flood prevention and monitoring stations increased from 172 in 2020 to 267 in 2023, marking a 55% growth and further strengthening the city's ability to monitor and respond to extreme weather events. With the comprehensive promotion of detention basin construction and smart flood prevention systems, Kaohsiung City has progressively demonstrated improved flood resilience, providing greater protection for the safety of residents' lives and property.

SDG13 Sustainable Highlight Indicator—Sponge City



2 Promotion of Restrictions on Single-Use Plastics and Travel Amenities

Kaohsiung City has implemented multiple reduction measures to promote environmental protection and reduce waste. It launched the "Drink Shop Plastic Reduction Alliance" at beverage shops, where 11 brands and 400 stores offered discounts for customers bringing Kaohsiung's Bring Your Own Cup Discount from July to September 2023, resulting in a reduction of 160,912 single-use beverage cups within three months, equivalent to reducing 1,931 kg of waste and 3,977.86 kg of carbon emissions, with an increase of approximately 19.14% in reusable cup usage. Additionally, to promote eco-friendly tourism, the city organized awareness and guidance activities encouraging accommodation providers to reduce single-use items and provide incentives for customers using their own items. In the market sector, awareness campaigns on reducing plastic shopping bags have been well received by vendors and consumers, with an expected reduction of 624,364 plastic bags during the promotional period at Wumiao Market, significantly lowering plastic bag usage.

Reduced **160,000** single-use beverage cups ; Equivalent to **3,977.86** kgCO_2e

Reduction (from Source) Policy banning plastic cups and bags, estimated to reduce 120 million cups and 620,000 bags.

Promoting source reduction efforts

Policy to limit single-use plastic cups

In this city, starting July 1, 2023, the supply of single-use plastic cups will be prohibited.It is estimated that approximately **120 million** beverage cups will be reduced annually.

After the policy is announced and implemented

▶ Continuously tracking and providing counseling

Distributing promotional materials

Plan to reduce plastic bags in traditional markets

From July to December 2023

A total of **221** vendors participated

Plastic bag usage reduced by approximately **620,000**

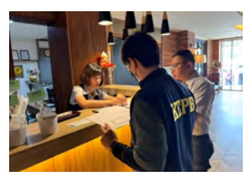
Encouraging people to use reusable shopping bags from circulation boxes

Promoting the reduction of shopping bag usage

Prohibited from actively displaying and promoting hospitality supplies

Providing counseling to **200** businesses to reduce the supply of hospitality supplies

7 international tourist hotels and **193** regular hotels



Promotional activities at the Far Eastern Department Store Kaohsiung

3 Agri-Data Kaohsiung

The city has made significant progress in the fields of smart agriculture and disaster prevention. This includes establishing a digital early warning system for 64 types of crops, utilizing AI for planting risk assessments, and releasing 11 APIs to support smart farming. Additionally, free smart disaster prevention services are provided through platforms like Line@ and a dedicated YouTube channel. Furthermore, in 2023, the city was awarded the "Smart City Special Award" by Seoul, South Korea, as well as the "City of Excellence" in the Social Progress Group, highlighting its outstanding achievements in smart city development and social progress.

Agri-Data Kaohsiung website page.

Digital early warning system for **64** crops

Awarded the **"Smart City Special Award"** by Seoul, South Korea

SDG 16
Peace, Justice and Strong Institutions

1 Strengthening Communication and Discussion in the Planning Stage to Realize Public Participation in Urban Planning

To align with the land development around the MRT Xiaogang-Linyuan Line, the city held two workshops that attracted approximately 320 participants, with 96% of landowners supporting the urban planning draft. The Change Case for Peripheral Farmlands of Luzhu Science Park had seven workshops, one forum, and three days of home visits, with 1,050 participants and 60% of landowners supporting the draft. In the Change Case for Zhonglun Agricultural Area in Fongshan Dist., four workshops and one forum were held, attracting approximately 500 participants, and currently has 40% landowner support, still in the consultation phase.


Strengthening communication and discussion in the planning stage to realize public participation in urban planning.

Over **1,800** citizens participated collectively.

2 Annual Decrease in Violent Crime Rate

From 2019 to 2023, violent crime cases in the city have significantly decreased from 88 cases in 2019 to 31 cases in 2023, a reduction of 57 cases. This improvement is primarily attributed to the police department's prevention measures, including technological investigation, the use of surveillance systems, and crackdowns on firearms, drugs, and gangs. The city government continues to sweep and crack down on violent cases while collaborating with other departments to cut off the financial flow of criminals. The future target is to control the number of violent crimes to 105 cases by 2026 and below 100 cases by 2030, enhancing urban safety.

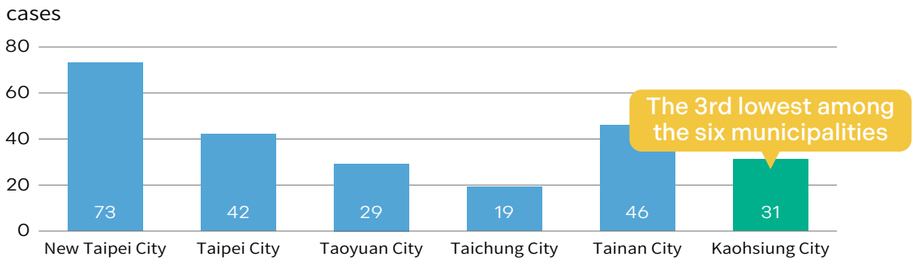
Violent crime cases: **31**, the **lowest** in history and **the third lowest** among six municipalities.

Number of violent crime incidents.

Public Security Maintenance Police Department

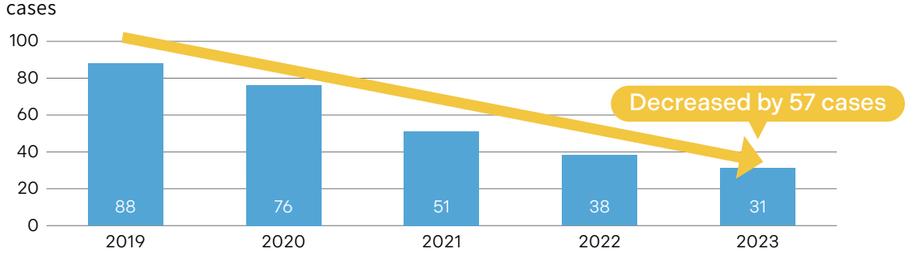
The number of violent crime cases in the six municipalities throughout 2023

31 violent crime cases were reported in 2023,
The 3rd lowest number of cases among the six municipalities



Number of violent crimes in Kaohsiung from 2019 to 2023

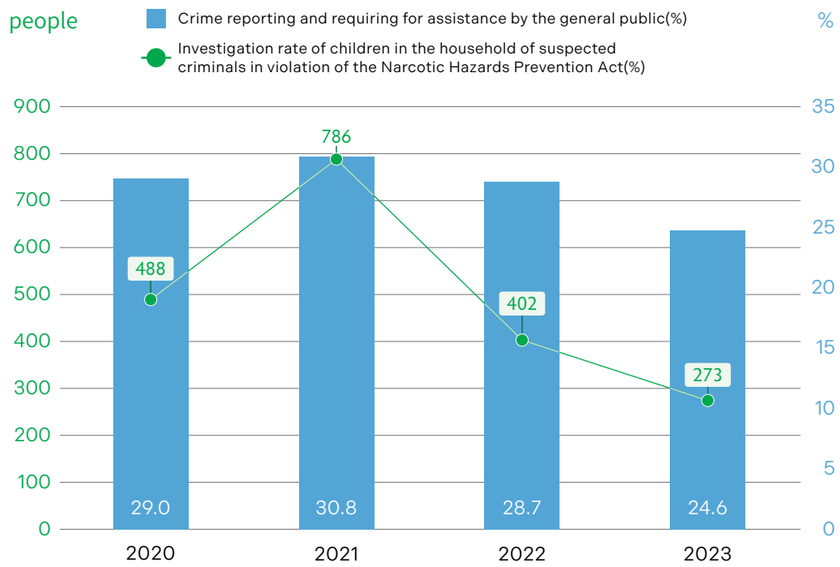
Compared to 2019, the number of violent crime cases in 2023 decreased by **57**, a reduction of **74.77%**



With a steady decline in violent crime cases, Kaohsiung City continues to demonstrate outstanding performance in maintaining public safety and combating crime. At the same time, the city government has made significant progress in drug prevention and enhancing public safety awareness. According to data, the investigation rate of children in the households of suspected criminals in violation of the Narcotic Hazards Prevention Act has steadily increased, peaking at 786 cases in 2021. Although the figure slightly decreased to 273 in 2023, efforts in drug case investigation and prevention have continued to deepen. Additionally, the percentage of the general public actively reporting or seeking help declined from 29% in 2020 to 24.6% in 2023.

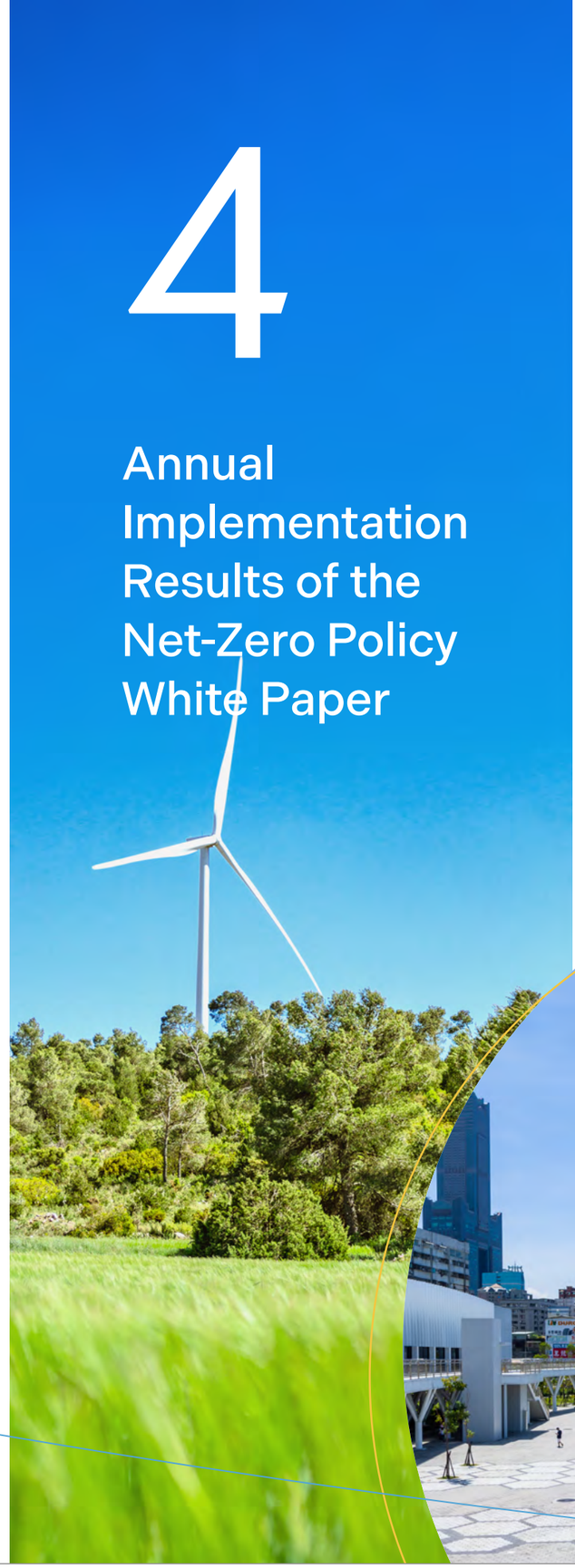
Looking ahead, Kaohsiung City will continue to advance technological investigations and social prevention measures, strengthen drug prevention efforts, enhance crime prevention networks, and improve public education and assistance mechanisms. These efforts aim to create a safer and more secure urban environment.

SDG16 Sustainable Highlight Indicator—Social Safety



4

Annual Implementation Results of the Net-Zero Policy White Paper



1. Review of the Net-Zero Policy White Paper Results

The Kaohsiung City Net-Zero Policy White Paper was initiated at the end of 2023 and announced as approved by Mayor Chen Chi-Mai during the 7th Annual Second Sustainable Development and Climate Change Response Promotion Conference held in August 2024. The white paper consolidates 67 net-zero projects to be executed by various government agencies. The 2024 Kaohsiung City Voluntary Local Review will compile the results of these projects implemented in 2023, and this chapter will present the outcomes, data, and photos. Through the transparent disclosure of information, we aim to assist stakeholders in gaining a comprehensive and complete understanding of Kaohsiung's 2023 net-zero efforts. In the Net-Zero Policy White Paper, we also align various net-zero measures with the corresponding SDGs, hoping to convey that net-zero is not only about carbon reduction but also brings co-benefits that can serve as the greatest asset in promoting the sustainability of the city.

Alignment of Nine Key Areas with the SDGs

1 Energy Transition

2 Industrial Transformation

3 Transportation Transformation

4 Residential and Commercial Transformation

5 Agricultural Transformation

6 Environmental Transformation

7 Green Lifestyle

8 Carbon Sinks

9 Just Transition

1 Energy Transition

Energy transition is a key strategy for achieving net-zero emissions. Kaohsiung City is actively promoting measures such as solar photovoltaics, increasing the proportion of renewable energy usage in new installed industrial parks, process improvements at the Hsinta Power Plant, and the implementation of cogeneration-friendly practices. The cumulative installed capacity of solar photovoltaics in Kaohsiung has reached 1.069 GW, with a target to achieve 2 GW by 2030. The city is also actively promoting Floating PV Technology to effectively utilize water and land resources. Newly established industrial parks are required to install photovoltaic systems in accordance with green building standards. The Hsinta Power Plant is gradually decommissioning coal-fired units and introducing hydrogen-blended power generation. In terms of cogeneration plants, the city government has set a coal phase-out target for 2025 and is expanding the use of renewable energy and biofuels.

A. Solar Photovoltaic Installation Cumulative Capacity

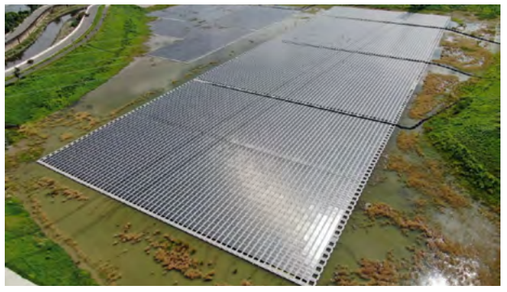
Core Goal

Secondary Goal: None

Results and Targets for Solar Photovoltaic Installation Cumulative Capacity

Plan	Result	Targets		
	2023	2026	2030	2050
Solar Photovoltaic Installation Capacity	1.069GW	1.437GW	2GW	4GW

Between 2021 and the end of 2023, Kaohsiung City increased its solar photovoltaic approved capacity by 936.041 MW, surpassing the original goal of 650 MW. It is estimated that this will generate 1.195 billion kWh annually, providing electricity for 328,876 households and reducing 2.41 million metric tons of carbon emissions each year. Additionally, Kaohsiung City ranked first in the nation with more than 4,700 solar photovoltaic projects approved in 2023.



Floating PV Technology at Wujiawei Water Detention Basin

The city's school electricity improvement projects, including air conditioning installations and the construction of Energy Management Systems (EMS), have been completed, ensuring that future photovoltaic systems can be installed in 100% of schools. 163 applications for fishery and electricity symbiosis projects were received, with a total application capacity of 239.426 MW. In sports venues, such as the National Stadium, Zhongzheng Sports Ground, and Zhongshan Tennis Court, a combined solar capacity of 1 GW has been installed.

Additionally, 18 public market rooftops have been equipped with solar photovoltaics, with an estimated annual power generation of 3.57 million kWh. Cultural venues such as Kaohsiung Cultural Center, Dadong Arts Center, and Gangshan Cultural Center have a total installation capacity of 3.21 MW. Furthermore, Cijin Columbarium became Taiwan's first funeral facility to integrate solar power, with 756.45 kW of solar capacity installed on its green building memorial tower.

Lastly, Kaohsiung introduced advanced Floating PV Technology in seven detention basins, with a total installed capacity of 20.3 MW, effectively utilizing existing land and water resources to achieve dual benefits of environmental protection and energy transition.

B. Proportion of Renewable Energy Usage in New Installed Industrial Parks

Core Goal: 7 AFFORDABLE AND CLEAN ENERGY

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Proportion of Renewable Energy Usage in New Installed Industrial Parks

Plan	Result	Targets		
	2023	2026	2030	2050
Proportion of Renewable Energy Usage in New Installed Industrial Parks	One company in Renwu Industrial Park completed solar installation with a capacity of 499.875 kW	-	25%	80%

Renwu Industrial Park has required companies moving into the park to install photovoltaic systems in accordance with the Kaohsiung City Self-Government Ordinance for Green Building. As of the end of 2023, one company has completed the installation, with a capacity of 499.875 kW.

Installed Capacity: **499.875** kW

Installation of Solar Energy Equipment on Industrial Park Factory Roofs in Kaohsiung City

C. Hsinta Power Plant Process Improvement

Core Goal: 7 AFFORDABLE AND CLEAN ENERGY

Secondary Goal: None

Results and Targets for Hsinta Power Plant Process Improvement

Plan	Result	Targets		
	2023	2026	2030	2050
Hsinta Power Plant Process Improvement	Units 1 and 2 decommissioned	Trial for 5% Hydrogen-Blended Power Generation in Coal-Fired Plants Decommissioned by 2025		Introduction of Specialized Co-firing Units at Power Plants

By September 30, 2023, two of Hsinta Power Plant's four coal-fired units were decommissioned, resulting in a coal reduction of 1.85 million metric tons. Units 3 and 4 are scheduled for decommissioning by September 30, 2024, transitioning to standby status and ceasing operations during the autumn and winter. From April to September, if the backup capacity rate falls below 8%, the units may be activated for a maximum of 720 hours. To accelerate carbon reduction, Unit 4, originally planned for decommissioning in 2026, will be decommissioned by the end of 2025, resulting in an additional coal reduction of 2 million metric tons.

Coal Reduction: **1.85** Million Metric Tons

Panoramic View of Hsinta Power Plant

D. Cogeneration-Friendly Load Reduction in Power Plants

Core Goal: 7 AFFORDABLE AND CLEAN ENERGY

Secondary Goal: None

Results and Targets for Cogeneration-Friendly Load Reduction in Power Plants

Plan	Result	Targets		
	2023	2026	2030	2050
Cogeneration-Friendly Load Reduction in Power Plants	Held three consultation meetings on coal control for cogeneration boilers in Kaohsiung City	Full coal phase-out in cogeneration plants		Expand the use of renewable energy and biomass fuels

From 2021 to the end of 2023, six regular meetings were held, including technical exchanges to provide industries with the latest knowledge to improve processes, such as the application of digital AI in processes and practical use of alternative fuels. Additionally, cogeneration industry representatives set annual coal reduction targets and tracked coal phase-out measures, aiming to achieve a 3.4 million metric ton coal reduction by 2025 through the use of alternative fuels and boiler retrofits for cogeneration plants.

2 Industrial Transformation

Industrial transformation is a crucial key to achieving sustainable development, and Kaohsiung City has implemented several strategies in this regard. The city government actively promotes the use of solid recovered fuel (SRF) to replace traditional fuels and has established the "Industrial Net-Zero Alliance" to assist businesses in setting carbon reduction goals and using technologies such as artificial intelligence to support decarbonization. To support the net-zero transformation of businesses, Kaohsiung has created the "Net-Zero City Commercial Operation Service Action and One-Stop Platform" to provide consultation and resource connections. Additionally, through the Carbon Inventory Advisory Group, the city offers support for carbon inventory and carbon footprint management to small and medium-sized enterprises. These measures demonstrate Kaohsiung's determination and commitment to promoting industrial transformation and achieving net-zero emissions.

A. Solid Recovered Fuel (SRF)

Core Goal: 9 Industry, Innovation and Infrastructure

Secondary Goal: None

Results and Targets for Solid Recovered Fuel (SRF)

Plan	Result	Targets		
	2023	2026	2030	2050
Solid Recovered Fuel (SRF)	6,186.26 metric tons/year	22,500 metric tons/year	30,000 metric tons/year	60,000 metric tons/year

Kaohsiung City is actively cooperating with the central government's Waste Management Policy. In 2023, the city drafted the Kaohsiung City CIRCULAR ECONOMY Waste plastic energy recovery. During the same year, the city organized two solid recovered fuel verification, quality control, and promotion seminars, as well as two expert consultation meetings on the CIRCULAR ECONOMY. Other efforts included 48 SRF quality verifications, 14 SRF product sampling tests, 40 inspections on SRF production, usage audits, flow-tracking inspections, and three advisory meetings with experts.

Kaohsiung City is committed to supporting the central government's waste management policies, aiming for 92% waste reutilization by 2030 and 95% by 2050, with the ultimate goal of achieving zero waste and zero carbon development.

Chung Hwa Pulp's Cogeneration Plant – Largest SRF User in Kaohsiung City

B. Industrial Net-Zero Alliance Voluntary Reduction Targets

Core Goal: 9 Industry, Innovation and Infrastructure

Secondary Goal: 17 Partnerships for the Goals

Results and Targets for Industrial Net-Zero Alliance Voluntary Reduction

Plan	Result	Targets		
	2023	2026	2030	2050
Industrial Net-Zero Alliance Voluntary Reduction Targets	Reduced emissions by 4.93 million metric tons compared to 2022, representing a 7.4% reduction compared to the 2005 baseline (66.147 million metric tons)[1]	Provide Kaohsiung with a reduction of 6.17 million metric tons (9% reduction from baseline year by 2025)		Provide Kaohsiung with a reduction of 37.47 million metric tons, a 56.7% reduction from baseline year

- As of the end of August, six business entities had yet to complete their emissions verification, and estimated figures were used for compilation.

In 2023, with the theme of "Introduction and Application of Artificial Intelligence," three strategy workshops on net-zero pathways were held for the petrochemical, chemical, paper, steel, and electronics industries under the Industrial Net-Zero Alliance. The "Industrial Net-Zero Alliance" promotes progress by leveraging industry leaders to support smaller players and by setting examples through state-owned enterprises.

Among the participants, 54 companies have set carbon reduction targets for 2030, collectively contributing a reduction of 4.5 million tons for Kaohsiung by 2030. Another 24 companies have established targets for 2040, projected to reduce 430,000 tons by 2040. Additionally, 46 companies aim for 2050 targets, expected to achieve a reduction of 37.47 million tons, representing a 56.7% decrease compared to the baseline year.

These carbon reduction targets will be subject to annual adjustments based on the number of regulated entities, the development of technologies, and process improvements within each company.

54 Companies Set Carbon Reduction Targets for 2030

Sharing Kaohsiung's Carbon Budget Planning and SBTi Support for Alliance Members in Setting Reduction Targets

C. Net-Zero City Commercial Operation Service Action and One-Stop Platform

Core Goal: 17 PARTNERSHIPS FOR THE GOALS

Secondary Goals: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 11 SUSTAINABLE CITIES AND COMMUNITIES

The Commercial Operation Platform considers the commercial services required by Kaohsiung's established industries, startups, and investment attraction efforts. It is structured around three key aspects related to achieving net-zero carbon emissions: "Guidance and Cultivation," "Matchmaking and Consulting," and "Resource Linkage." The platform integrates resources from central government agencies, legal entities, and the Kaohsiung City Government to serve as a support system for businesses undergoing net-zero transformation. Related platform operations are scheduled to commence in 2024.

In 2023, nine events were organized, including a briefing on the compilation of the Kaohsiung City Manufacturing Industry Carbon Management Manual, a seminar on the carbon rights system, and a key points explanation session on CBAM (EU Carbon Border Adjustment Mechanism) reporting. Additionally, 27 on-site guidance sessions were conducted to provide in-depth support for businesses in areas such as carbon inventory, carbon reduction, and EU CBAM compliance.

Corporate executives were provided with net-zero-related information through the Carbon Management for Executives course, the carbon inventory certification course, and the carbon footprint workshop, with a total of four sessions conducted.

A Total of **40** Events Held
Including Briefings, Guidance Sessions, Courses, and Workshops

Conducting ISO 14067 Carbon Footprint Workshops

D. Carbon Inventory Advisory Group

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: 17 PARTNERSHIPS FOR THE GOALS

In 2023, the Carbon Inventory Advisory Group provided guidance to 52 businesses, including 20 small and medium enterprises (SMEs), 11 of which were affected by CBAM, and 32 entities that are required to register their greenhouse gas emissions as part of the second phase of inventory reporting. Additionally, for non-regulated SMEs, such as over 700 screw and fastener companies in Kaohsiung, the group offered information on EU carbon tariff regulations to help these businesses meet supply chain inventory requirements. These companies are encouraged to establish internal inventory promotion teams and cultivate green-collar talent to facilitate their transition to net-zero.

3 Transportation Transformation

To achieve the 2050 net-zero emissions target, Kaohsiung City is actively promoting a low-carbon transportation system, optimizing public transportation, and developing light rail to increase the use of public transit. The city government is actively promoting the TPASS public transportation monthly pass and implementing transit-oriented development (TOD) to encourage citizens to reduce their reliance on private cars. The city is also accelerating the electrification of transportation, including electric scooters, cars, public vehicles, and ferries, while expanding charging stations and infrastructure. Additionally, the city encourages cycling and walking to reduce carbon emissions. At the same time, Kaohsiung is promoting green logistics and smart freight systems to reduce the carbon footprint of logistics, as well as advancing the low-carbon transformation of the port area.

A. Light Rail and MRT Construction

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Results and Targets for Light Rail and MRT Construction

Plan	Result	Targets		
	2023	2026	2030	2050
Light Rail and MRT Construction	64.8 km, 76 stations	70.14 km, 80 stations	112.38 km, 114 stations	Complete a comprehensive light rail and MRT network

Kaohsiung City has accelerated the development of the Xiaogang-Linyuan Line and the Yellow Line of the MRT system. Through the continuous and proactive efforts of the Kaohsiung City Government's Mass Rapid Transit Bureau, the tendering process and related tasks have been successfully completed. On December 26, 2023, the Ministry of Transportation issued the operating permit for the C24-C32 section of the Kaohsiung Circular Light Rail.

The Circular Light Rail, with a total of 38 stations, will span an operating route of 22.1 kilometers. Alongside the Red and Orange MRT Lines, which cover 42.7 kilometers and 38 stations, the integrated system will greatly enhance urban mobility. By 2030, MRT and light rail expansion plans, including the Gangshan-Luzhu Extension Line, the Yellow Line, and the Xiaogang-Linyuan Line, are expected to increase the total rail length to approximately 112.38 kilometers, with a total of 114 stations. Beyond 2050, further development will include the Purple Line and subsequent routes.

Circular Light Rail
38 Stations, **22.1** Kilometers

Red and Orange MRT Lines
38 Stations, **42.7** Kilometers

Initial Driving Test of the Gangshan-Luzhu Extension Line (1A Section)

B. Promotion of Sharing transporation

Core Goal

Secondary Goals

As of 2023, six shared mobility providers (Gokube Inc., WeMo Corp., Hi-MS Co., Ltd., GoShare Taiwan Limited, Ahamani Ev Technology Co., Ltd., and Ionex Taiwan Co., Ltd.) have been approved to operate in Kaohsiung. A total of 4,215 shared vehicles are available across 22 administrative districts, making Kaohsiung the city with the most shared mobility providers in the country. As of December 2023, the total number of rental transactions has reached approximately 7.57 million, with each vehicle being rented an average of 1.5 times per day.

By December 2023, the Total Number of Rental Transactions Reached Approximately **7.57** Million

Average Daily Turnover Per Vehicle: Approximately **1.5** Times

Kaohsiung City Leads the Nation with the Most Shared Mobility Providers

C. Promotion of Public Transportation

Core Goal

Secondary Goal

Results and Targets for Public Transportation Promotion

Plan	Result	Targets		
	2023	2026	2030	2050
Public Transportation Promotion	11.40% increase in actual volume compared to 2022	0.35% increase in actual volume compared to 2022	0.5% increase in actual volume compared to 2025	1% increase in actual volume compared to 2040

To promote the use of public transportation, Kaohsiung City has collaborated with the Institute of Transportation, MOTC, to implement the MeN Go Public Transportation Monthly Pass service. On April 27, 2023, Kaohsiung became the first city in the country to launch the TPASS monthly pass for unlimited travel within Kaohsiung at NT$399 (including MRT, buses, light rail, ferries, and public bicycles). Starting on July 1, a cross-region monthly pass priced at NT$999 was implemented, covering Taiwan Railways and highway bus services. In 2023, public transportation usage reached approximately 32.58 million passengers, reflecting over a 10% growth. By May 2024, the number of passengers had reached 14.08 million, an increase of about 4.5% compared to the same period in 2023. From 2017 to 2023, the total sales of Public Transport Commuter's Pass Plan reached 890,000, with a target of 700,000 in sales for the year 2026. To effectively enhance the implementation of the monthly pass and increase public transportation usage rates, the city is actively seeking collaborations with various industries. By closely cooperating with government entities, corporations, and ticketing companies, the city aims to implement an ESG Enterprise Green Card to subsidize employees' purchase of commuter monthly passes, fulfilling corporate social responsibilities and jointly achieving sustainable net-zero goals.

In 2023, Public Transportation Usage Reached Approximately **32.58** Million Passengers

From 2017 to 2023, a Total of **890,000** Public Transport Commuter's Passes Were Sold

TPASS Monthly Pass Available for Various User Groups to Enhance Public Transportation Service Efficiency

D. Transit-Oriented Development (TOD)

Core Goal | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal | None

In 2024, the draft content for the " Detailed Plan for Kaohsiung MRT Yellow Line Station Areas (Cooperation with Kaohsiung MRT Yellow Line construction Design of implement increased volume project)" was initiated. The urban planning procedures are expected to be completed by 2025. Future site applications must meet the following criteria to achieve the goal of developing a net-zero city: 1.The site must achieve a green coverage ratio of 100% or higher. 2.The site must adopt green building designs and obtain a Green Building Candidate Certificate as well as a Green Building Label of bronze level or higher. 3.To enhance carbon sequestration capacity, the site should increase carbon reduction efficiency.

Transit-Oriented Development (TOD) - Five Major Planning Goals

Develop an economic and trade metropolitan core

+

Facilitate urban regeneration through TOD

+

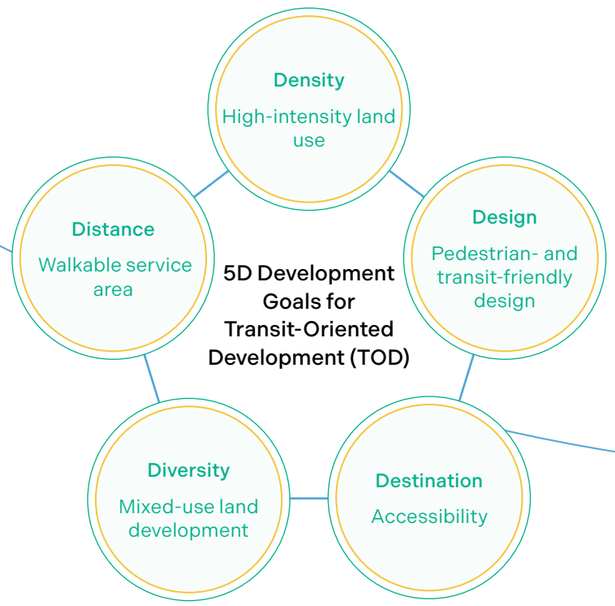
Enhance the functions and capabilities of public facilities

+

Improve the quality of public environments

+

Enhance the overall effectiveness of public transportation



E. Air Quality Maintenance Zones

Core Goal | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal | 3 GOOD HEALTH AND WELL-BEING

Results and Targets for Air Quality Maintenance Zones

Targets	Result	Targets		
	2023	2026	2030	2050
Air Quality Maintenance Zones	4 zones	15 zones	16 zones	20 zones

As of 2023, the city has completed the designation of the First Phase Air Quality Maintenance Zone and the Second Phase Air Quality Maintenance Zone. These designated areas include the Chengching Lake Scenic Area, Pier-2 Art Center, and the Shoushan Zoo parking lot as well as the Kaohsiung Harbor Area (Container Centers from 1st to 6th), totaling four air quality maintenance zones. Future plans for additional maintenance zones include tourist areas such as Siaogangshan Skywalk Park, Cijin Seaside Park, Hongmaogang Cultural Park, and the National Kaohsiung Center for the Arts (Weiwuying), along with four incineration plants, clean team parking lots, Kaohsiung International Airport, and Linhai Industrial Park. By designating air quality maintenance zones, the city has implemented controls on mobile pollution source control, leading to over 90% of vehicle owners adopting regular vehicle inspection habits, effectively controlling high-pollution older vehicles, and ensuring that vehicles entering the air quality maintenance zones meet emission standards. Additionally, there is encouragement for replacing older vehicles with newer models.

A Total of **4** Air Quality Maintenance Zones

Utilizing Technology for Enforcement Against Violating Vehicles

F. Electric Vehicle Friendly Environment

Core Goal

Secondary Goal

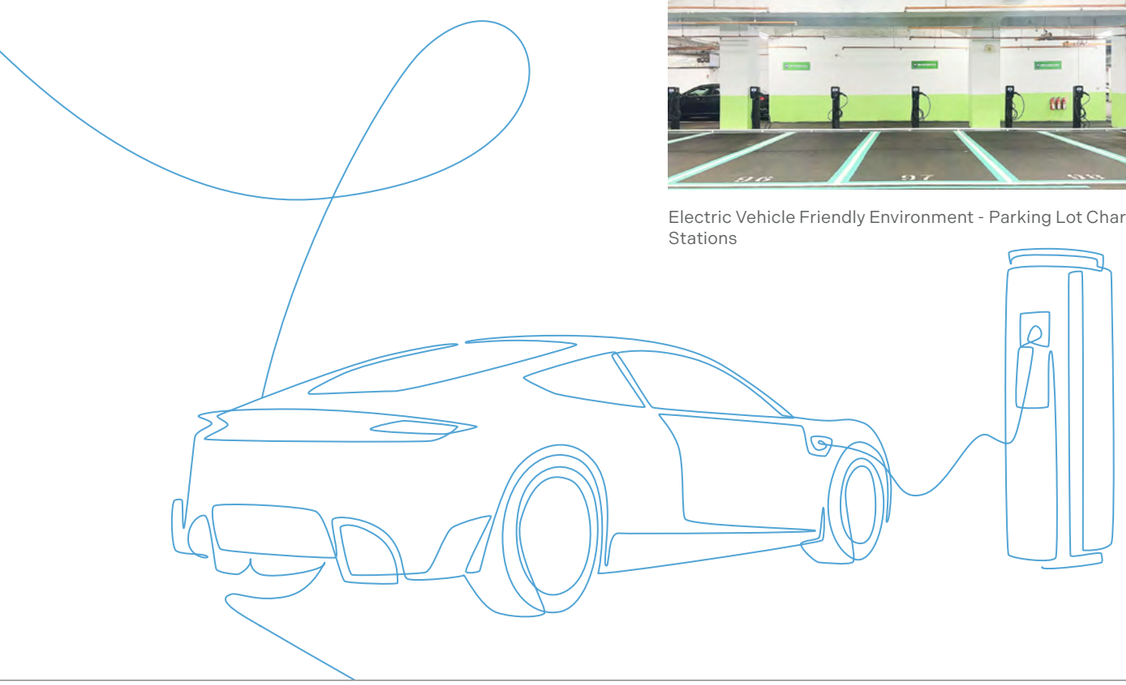
Results and Targets for Electric Vehicle Friendly Environment

Plan	Result	Targets		
	2023	2026	2030	2050
Electric Vehicle Friendly Environment	Completed 300 electric vehicle charging stations, 1,171 residential charging stations	950 public parking lot charging stations	2,000 public parking lot charging stations	8,000 public parking lot charging stations, 9,200 residential charging stations

As of 2023, the city has completed the installation of 300 electric vehicle charging stations. By the end of 2024, the number is expected to increase to 700, with continuous growth of at least 5% in each parking lot to achieve the goal of 2,000 charging stations in public parking lots by 2030. The total number of newly completed social housing units as of the end of 2023 is one building (245 units), including four charging spots for electric vehicles, with a total of 138 general parking spots, making the proportion of electric vehicle spots in social housing 2.9%.

300 Electric Vehicle Charging Stations Installed by 2023

Electric Vehicle Friendly Environment - Parking Lot Charging Stations



G. Smart Transportation

Core Goal

Secondary Goal

Results and Targets for Smart Transportation

Plan	Result	Targets		
	2023	2026	2030	2050
Smart Transportation (proportion of intelligent signals at major intersections)	3.2% of intersections equipped with smart signals	6.3% of intersections equipped with smart signals	10% of intersections equipped with smart signals	30% of intersections equipped with smart signals

Since 2019, Kaohsiung has been planning the New Generation Intelligent Transportation System. In response to large events such as concerts, smart dashboards have been installed to monitor pedestrian and vehicle flows within the event areas and provide real-time traffic control strategies to facilitate the rapid evacuation of large crowds. Additionally, an Immediate Time Traffic Monitoring System will be established to monitor real-time road traffic conditions. By applying AI analysis technology, an Immediate Signal Control System will be introduced. Traffic data collected through detection will be continuously analyzed and adjusted in real time to optimize signal timing. This approach aims to reduce intersection delays, improve arterial road progression efficiency, and enhance the overall service level of the road network. For example, during concert events in 2023, the travel time was reduced by 4.9 million person-minutes, with an overall reduction in travel time of 39.2 million person-minutes and a reduction of 3,280 metric tons in greenhouse gas emissions. The implementation of intelligent signals in 2022-2023 has reduced waiting delays at intersections by 60,577 vehicles/hour, equivalent to a time value saving of NT$14,708,093, with fuel savings of 93,289 liters (equivalent to NT$2,891,945) and a reduction of 211.1 metric tons of carbon dioxide. In the future, the goal is to increase the number of smart signal-controlled intersections by 30 each year to fully implement smart transportation.

2022-2023 Smart Signal Implementation Results

Reduced Intersection Waiting Delays by **60,577** Vehicles/Hour

Saved **93,289** Liters of Fuel

Reduced Carbon Dioxide Emissions by **211.1** Metric Tons

Smart Transportation Applications Utilizing AI to Enhance Overall Road Service Levels

H. Electrification/Hydrogen-Powered/Autonomous Buses

Core Goal

Secondary Goal

Results and Targets for Bus Electrification

Plan	Result	Targets		
	2023	2026	2030	2050
Electrification/Hydrogen-Powered/Autonomous Buses	32.71%	70.03%	100%	-

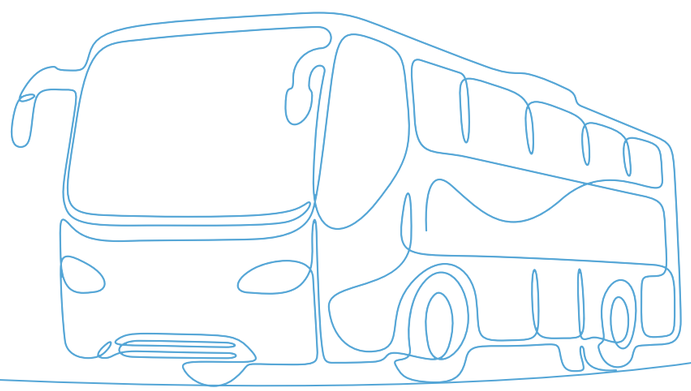
The number of electric buses in Kaohsiung increased from 111 in 2020 to 272 in 2023, replacing 161 diesel buses. The total driving distance also increased from 10.875 million kilometers to 23.25 million kilometers, a growth of 113.89%. Currently, four bus companies, including Great City Life Bus, Han-Cheng Bus Traffic Company Limited, South Taiwan Bus, and Kaohsiung Bus, are operating electric buses, with a total of 26 lines running exclusively on electric buses. To build a "Electric Vehicle Ecosystem", Kaohsiung Bus has introduced the first Model T electric bus developed by Foxtron Vehicle Technologies Co. Ltd., with 34 Model T electric buses currently operating on routes 60, 87, 224, 8010, 8041C, 8043, Orange 11, and Orange 12. The city will continue to cooperate with the Ministry of Transportation's goal of achieving full electrification of urban buses by 2030 and assist operators in applying for central government subsidies.

Total Electric Bus Driving Distance in Kaohsiung:

23.25 Million Kilometers

Growth: **113.89**%

Electrification of Buses



I. Electrification Government Vehicles and Motorcycles

Core Goal

Secondary Goal

Results and Targets for Electrification Government Vehicles and Motorcycles

Plan	Result	Targets		
	2023	2026	2030	2040
Electrification Government Vehicles and Motorcycles	27.5% electrification of government motorcycles, 0.6% electrification of government vehicles	37% electrification of government motorcycles, 6.5% electrification of government vehicles	100% electrification of government motorcycles	100% electrification of government vehicles

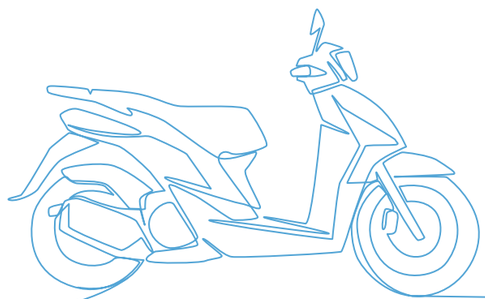
In 2023, Kaohsiung City procured 460 electric government motorcycles, scrapped 15 fuel-powered motorcycles, and brought the total number of electric motorcycles to 820. Additionally, four hybrid low-pollution vehicles were replaced, and the total number of electric vehicles reached four, contributing to a total carbon reduction of 153.98 tons.

With only six years remaining until the target of full electrification of government motorcycles by 2030, starting in 2025, a preliminary review of vehicle usage by government agencies will be conducted to assess actual operational needs. Low-utilization motorcycles will be scrapped progressively, while budgets will be allocated annually for replacing outdated fuel-powered motorcycles with electric models. Any fuel motorcycles not replaced by the end of 2030 will be scrapped to achieve the goal of complete electrification of government motorcycles.

In 2024, the plan includes procuring four electric government vehicles. Considering the high cost of replacing fuel vehicles with electric ones, budgets will be allocated on a phased basis, with adjustments to replacement quantities based on vehicle price reviews. These efforts aim to achieve full electrification of government vehicles by 2040.

Total Number of Electric Motorcycles in 2023: **820**

Total Carbon Reduction: **153.98** Tons



Electric Government Motorcycles in Each Village of Cijin District

J. Replacement of Fuel Police Motorcycles

Core Goal: 3 GOOD HEALTH AND WELL-BEING

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

On July 18, 2023, a report on the Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City highlighted that relevant city departments have included the key strategy of "Electrification of Vehicles" in the net-zero sustainability report, prioritizing it for implementation. Starting in 2024, the police department plans to procure 50 electric motorcycles annually to replace fuel police motorcycles. Additionally, efforts will be made to explain the city's net zero sustainability philosophy to donors of police vehicles, prioritizing the donation of electric vehicles. A budget of NT$4.329 million has been allocated in 2024 for the purchase of 50 electric police motorcycles, with a similar budget of NT$4.35 million planned for 2025.

50 Electric Police Motorcycles to Be Procured in 2024

K. Electrification of Private Transportation Vehicles / Low-Carbonization

Core Goal: 3 GOOD HEALTH AND WELL-BEING

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Electrification of Private Transportation Vehicles

Plan	Result	Targets		
	2023	2026	2030	2050
Electrification of Electric Motorcycles	4.6% electrification of motorcycles	9% electrification of motorcycles	15% electrification of motorcycles	95% of electric vehicles (motorcycles and cars)
Electrification of Large Diesel Vehicles	32.7% of large diesel vehicles (phases 1-3)	29.3% of large diesel vehicles (phases 1-3)	25.5% of large diesel vehicles (phases 1-3)	15.5% of large diesel vehicles (phases 1-3)

In line with the Ministry of the Environment's Control Policy over the Replacement of Old Motorcycles (Phases 1-4), the city continues to implement additional subsidies for the replacement of old motorcycles. In 2023, a total of 68 sessions, including university outreach and home visits, were conducted to promote the acceleration of the elimination of high-pollution motorcycles and encourage applications for subsidies. A total of 64,399 old motorcycles from Phases 1-4 were scrapped, ranking second in the nation. Among these, 9,901 scrapped motorcycles applied for subsidies, and 11,014 electric motorcycles were added, bringing the total number of registered motorcycles to 97,012, ranking third nationwide.

According to vehicle registration data provided by the Ministry of the Environment, the city has approximately 31,855 large diesel vehicles, with 10,429 of them belonging to Phases 1-3, accounting for about 32.7%. This is a significant decrease from 63.4% in 2017, reflecting a 30.7% reduction. In contrast, the proportion of vehicles from Phase 4 and beyond has increased from 36.6% to 69.3%.

L. Electrification of Vehicles in Industrial and Business Parks

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: None

Results and Targets for Electrification of Vehicles in Industrial and Business Parks

Plan	Result	Targets		
	2023	2026	2030	2050
Electrification of Vehicles in Industrial and Business Parks	Established 2 YouBike stations in Gangshan Industrial Park, totaling 25 bike racks	-	Electric parking spaces and charging stations added in public parking lots	All vehicles in the parks meet the national net zero pathways by 2050

To assist businesses in the parks with sustainable operations, the city is integrating low-carbon vehicles and encouraging employees to use green transportation, promoting low-carbon living and creating a green sustainable park. As of December 2023, two YouBike stations have been established in Gangshan Industrial Park, with 25 bike racks. By promoting vehicle electrification and carbon-free infrastructure, the city aims to increase the use of electric and shared vehicles in the parks, reducing carbon emissions from employees' commuting.

Shared Bicycles in the Industrial Park

M. Electrification/Decarbonization of Vessels

Core Goal: 7 AFFORDABLE AND CLEAN ENERGY

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Vessel Electrification

Plan	Result	Targets		
	2023	2026	2030	2050
Electrification of Ferries	27.3% electrification of ferries	31.3% electrification of ferries	50% electrification of ferries	Full electrification of ferries

As of the end of 2023, among the 11 vessels operated in the city, the percentage of electric-powered vessels (including Chih-Fu No. 1, Chih-Fu No. 2, and Happy Wheel) is 27.3%. The city is actively seeking and has received a total of NT$160 million in funding from the Executive Yuan's Environmental Protection Administration (now the Ministry of Environment) along with self-raised funds to construct three electric ferries between 2022 and 2024. These ferries are planned to replace traditional diesel engines with electric propulsion systems. The contract for the construction of the new ferries was signed on December 21, 2022, and construction began on March 27, 2023. The first electric ferry (Xiong Zhan No. 1) was completed and delivered on January 16, 2024. The use of electric propulsion systems will reduce air pollution caused by diesel combustion, improve service quality and revenue, and meet local transportation needs while ensuring environmental sustainability.

Key initiatives to promote net zero emissions in the shipping and shipbuilding industries include:

1. Enhancing outreach and promotion to raise industry awareness of electric and low-carbon vessels.
2. Establishing partnerships with shipyards.
3. Facilitating collaboration and exchanges between shipyards.
4. Assisting shipyards in collaborating with local universities and research institutions to jointly study ship technology, aiming to enhance industrial technology levels and facilitate industry transformation and upgrading.

Securing Funding from the Ministry of the Environment for Electric Ferries (Xiong Zhan No. 1)

N. Human-Centered Transportation

a. Public Bicycles

Core Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goals: 13 CLIMATE ACTION; 17 PARTNERSHIPS FOR THE GOALS

Results and Targets for Public Bicycles

Plan	Result	Targets		
	2023	2026	2030	2050
Public Bicycle Stations Installed and number of renters	1,286 stations, 15.49 million rentals	1,450 stations, 12.25 million rentals	1,800 stations, 13 million rentals	3,000 stations, 19 million rentals

As of December 2023, the Kaohsiung YouBike 2.0 public bicycle system has launched 1,286 rental stations, providing 10,700 public bicycles and achieving over 40 million total users. In 2023, the number of rentals reached 15.49 million, reflecting a 35.5% growth compared to 2022. From 2020 to 2023, the Kaohsiung YouBike 2.0 public bicycle system is estimated to have reduced carbon emissions by 6,385 metric tons, equivalent to the carbon reduction of 6.8 Kaohsiung Metropolitan Parks. The YouBike 2.0E electric-assisted bicycles have recorded an average daily turnover rate of 9, making it the highest in the nation. According to a public satisfaction survey, 97.6% of respondents expressed satisfaction, with 51.3% indicating they would use public bicycles to replace motorcycles and cars, and 72.8% stating they would use public bicycles to transfer to other public transportation options. In Kaohsiung City, public bicycle rental stations have been established in 31 of the 38 administrative districts, excluding areas with challenging riding conditions.

In 2023, the Number of Rentals Reached **15.49** Million Users

From 2020 to 2023, the Kaohsiung YouBike 2.0 Public Bicycle System Is Estimated to Have Reduced Carbon Emissions by **6,385** Metric Tons

Public Bicycles Enhancing Public Transportation

b. Optimization and Expansion of Bicycle Paths

Core Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goals: 3 GOOD HEALTH AND WELL-BEING; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Bicycle Path Optimization and Expansion

Plan	Result	Targets		
	2023	2026	2030	2050
Optimization and Expansion of Bicycle Paths	1,070.036 kilometers	1,063 kilometers	1,100 kilometers	1,170 kilometers

Kaohsiung City has established a relatively complete bicycle path system that covers the main urban areas and surrounding regions. Key actions are currently underway, including the ongoing expansion of the bicycle path network, especially sections connecting major residential areas, commercial districts, and public transport stations. Additionally, management of bicycle path facilities is being strengthened through regular maintenance, cleaning, and updating of relevant signage and facilities. The goal is to improve the convenience and safety of bicycle commuting for citizens and further promote low-carbon travel. In 2023, the length of bicycle paths reached 1,070.036 kilometers, reflecting a growth of 22.181 kilometers (2.12%) compared to 2022. This not only enhances the commuting experience for citizens but also significantly contributes to reducing urban carbon emissions.

Cycling Route No.1 - Gushan District Hesi Rd.

c. Optimization and Expansion of Sidewalks

Core Goal

Secondary Goal

Results and Targets for Sidewalk Optimization and Expansion

Plan	Result	Targets		
	2023	2026	2030	2050
Optimization and Expansion of Sidewalks	19.4 kilometers	25.4 kilometers	32.9 kilometers	72.9 kilometers

Kaohsiung City continues to implement sidewalk and school path improvement projects, as well as repairs of sidewalks in various districts. In 2023, the total length of improvements reached 19.4 kilometers. The improvement projects for the pedestrian environment in Nanjing Rd., Fongshan Dist. (Weiwuying Mark) and Zhengyi Rd., Sanmin Dist., (1st Mark) both received recognition from the Ministry of the Interior's National Land Management Agency, achieving excellence and merit in the 2023 Road Walkability Evaluation.

Improvement of the Pedestrian Environment on Nanjing Rd., Fongshan Dist. (Weiwuying Mark) - Completed

4 Residential and Commercial Transformation

Residential and commercial transformation is one of Kaohsiung City's key strategies for achieving net-zero carbon emissions. This includes enhancing energy efficiency in both new and existing buildings, as well as incorporating low-carbon design and smart applications in various public facilities. Through the "Kaohsiung House Project," the city improves the energy efficiency of new buildings and gradually promotes social housing and healthcare facilities that meet green building and low-carbon design standards. In addition, the city government has introduced carbon inventory indicators for municipal hospitals and cultural facilities to ensure a year-on-year reduction in carbon emissions. In terms of energy savings in parks, green spaces, and lighting systems, further improvements are being made to reduce energy consumption and enhance the quality of the urban environment. Moreover, Kaohsiung is actively incorporating low-carbon design in schools and the metro system, while enhancing residential quality through smart buildings and green construction.

A. Improving Energy Efficiency of New Buildings

Core Goal

Secondary Goal

None

Results and Targets for Improving Energy Efficiency of New Buildings

Plan	Result	Targets		
	2023	2026	2030	2050
Improving Energy Efficiency of New Buildings	Continued promotion of the Kaohsiung House Design and incentive programs	-	50% of new buildings meet specific energy efficiency standards	100% of new buildings meet specific energy efficiency standards

Since 2012, the Kaohsiung City Government has been promoting the Kaohsiung House Project, which addresses environmental, social, regulatory, and economic aspects. It includes three core principles, four indicators, and twelve policy tools designed to mitigate or improve the negative impacts of environmental issues on living conditions. This includes landscape balconies with a depth of 3 meters combined with multi-layer greening, legal transformation of existing buildings into green energy facilities, universally designed spaces suitable for all ages, and the creation of energy through solar photovoltaic systems. In 2023, the Kaohsiung House 4.0 Project was launched, emphasizing healthy buildings for epidemic prevention, improving natural ventilation in universal bathrooms, revising green facade forms, and removing restrictions on the placement of balconies in northern orientations. The city will continue to revise local regulations related to building management, green building standards, and Kaohsiung House. A phased approach will be adopted to regulate newly constructed public office buildings, service facilities, commercial, recreational, cultural, and educational buildings, as well as other types of buildings, ensuring compliance with Specifications for Building Energy Efficiency.

Kaohsiung House Landscape Balcony

B. Improving Energy Efficiency of Existing Buildings

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: 13 CLIMATE ACTION

Results and Targets for Improving Energy Efficiency of Existing Buildings

Plan	Result	Targets		
	2023	2026	2030	2050
Improving Energy Efficiency of Existing Buildings	Planning for Low-Embodied Carbon Building Label Promotions	-	50% of public buildings will achieve Energy Efficiency Level 3 The promotion of Energy Saving Performance Project (ESCO)	85% of private buildings will achieve Energy Efficiency Level 1

To achieve the 2050 net-zero carbon emission target, the Ministry of the Interior has established a low-carbon (low-embodied carbon) building labeling system. In the future, buildings will be required to obtain the low-embodied carbon label annually. In the past, the main focus of Kaohsiung House was on managing carbon emissions from usage (envelope energy efficiency, air conditioning energy efficiency, and lighting energy efficiency). Moving forward, the evaluation of embodied carbon emissions in the construction industry will be included, covering the entire lifecycle of buildings for comprehensive carbon management. This will implement the concept of "Kaohsiung Net-Zero Housing."

In the future, the city plans to hold multiple promotional sessions for the low-embodied carbon building label to help the public and building industry professionals understand the concept of embodied carbon emissions. Additionally, the city will continue to develop related policies to promote "Low-Embodied Carbon Buildings," ensuring carbon reduction throughout the full lifecycle of buildings to achieve net-zero buildings.

Furthermore, the city will align with the building energy labeling system, where Level 1 and Level 2 agencies will gradually be required to plan for improvements in building energy efficiency and complete applications for energy efficiency labels.

C. Promote Carbon Inventory Indicator Buildings

Core Goal: 13 CLIMATE ACTION

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

On June 28, 2023, the Kaohsiung City Council passed the Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City after its third reading, making it the first local net-zero regulation enacted following the promulgation of the Climate Change Response Act. As an industrial city, Kaohsiung accounts for approximately one-fifth of Taiwan's carbon emissions.

To contribute to accelerating carbon reduction efforts and achieve the 2050 net-zero emission target, the Kaohsiung City Government's Bureau of Cultural Affairs convened the "2050 Net-Zero Carbon Emissions Target – Kaohsiung Cultural Facilities Action Plan" meeting on January 17, 2024. The meeting resolved to use the Kaohsiung Cultural Center as a flagship venue for voluntary carbon inventory and international certification. The baseline year for carbon inventory was set as 2023. The carbon inventory process will commence in March 2024, followed by SGS verification in July 2024, and ISO 14064-1:2018 certification in October 2024, marking the first step toward achieving net-zero carbon emissions by 2050.

Carbon Inventory to Begin in March 2024

SGS Verification to Be Conducted in July 2024

ISO 14064-1:2018 Certification to Be Obtained in October 2024

Kaohsiung Cultural Center

D. Kaohsiung House and Smart Buildings

Core Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goal: None

The Kaohsiung House Project, initiated in 2012, has entered its 11th year by 2023, during which a total of 416,452 square meters of roof greening and 586,103 square meters of landscape balconies have been created. The 3-meter-deep landscape balconies create an urban green environment, combined with one-third of afforested trees to adjust the micro-environment and create healthy recreational spaces. The flat greening has been advanced to a vertical forest, totaling 1,002,555 square meters of greening, equivalent to the area of 140 international standard football fields. The Kaohsiung House Project will focus on the 2050 net-zero transformation, making near-zero emissions and resilient buildings the new norm. Future strategies will focus on building production credentials, enhancing age-friendly facilities, improving vertical greening, and integrating smart living technologies.

Kaohsiung House Landscape Balcony

E. Introduction of Low-Carbon Design in Social Housing

Core Goal | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal | None

Results and Targets for Introducing Low-Carbon Design in Social Housing

Plan	Result	Targets		
	2023	2026	2030	2050
Introduction of Low-Carbon Design in Social Housing	Completion of 1 social housing project with 245 smart meters installed, obtaining green building and smart building labels	Accumulation of 1 social housing project with green building label and smart meters	Accumulation of 4 social housing projects with green building label and smart meters	-

To realize housing justice and meet the residential needs of youth, working employees, and disadvantaged groups, the city is fully promoting social housing. As of 2023, including the central housing center, 40 social housing projects are planned, totaling 17,588 units, with an assessment to expand by an additional 2,294 units from 2023 to 2026. To enhance the incorporation of low-carbon designs in social housing, all new social housing constructions will implement low-carbon design techniques such as smart buildings and green buildings. By December 31, 2023, the city has completed 1 social housing project with 245 smart meters installed, as well as obtaining both green building and smart building labels.

As of 2023, 40 Social Housing Projects Have Been Planned, Totaling **17,588** Units, Including the Central Housing Center

New Social Housing with Smart and Green Building Designs Expected to Add 2,294 Units by 2026

F. Net-Zero Medical Institutions - Promoting the Kaohsiung City Hospital Net-Zero Plan

Core Goal | 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goal | None

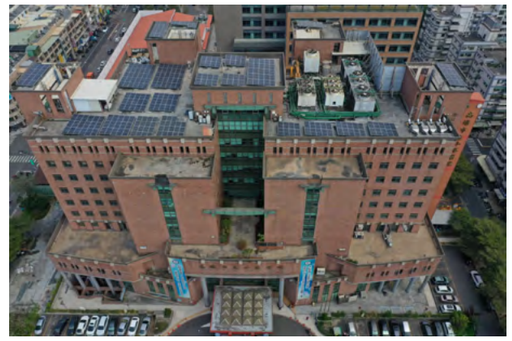
Medical institutions have long been one of the high energy-consuming and high carbon emission industries. With global warming leading to climate change, net-zero transformation has become an important goal worldwide. Implementing Net-Zero Action for Environmental and Medical Sustainability has become the development direction for medical institutions. Therefore, the city prioritizes the implementation of carbon reduction measures in municipal hospitals, including "using low-carbon energy," "promoting green buildings," "facilitating low-carbon transformation," "conducting carbon inventories," and "waste management."

The five hospitals in the city (Kaohsiung Municipal Kai-Syuan Psychiatric Hospital, Kaohsiung Municipal Chinese Medical Hospital, Kaohsiung Municipal Siaogang Hospital, Kaohsiung Municipal Cijin Hospital, and Kaohsiung Municipal Gangshan Hospital) have completed the installation of solar photovoltaic facilities and other measures to adopt low-carbon energy. Three hospitals (Kaohsiung Municipal Chinese Medical Hospital, Kaohsiung Municipal Ta-Tung Hospital, and Kaohsiung Municipal Cijin Hospital) have obtained green building labels for their new buildings. The implementation of electronic medical records has reached an average of 68.31%. The execution rate for designated procurements under green procurement projects is 82.08% on average. Two hospitals (Kaohsiung Municipal Kai-Syuan Psychiatric Hospital and Kaohsiung Municipal Siaogang Hospital) have completely replaced old light bulbs with energy-saving options. Two hospitals (Kaohsiung Municipal Ta-Tung Hospital and Kaohsiung Municipal Siaogang Hospital) have completed carbon inventories. Kaohsiung Municipal Siaogang Hospital has sorted and collected legally reusable medical waste with the assistance of vendor technology.

Three Hospitals Have Obtained **Green Building Labels** for Their New Buildings

The Implementation of Electronic Medical Records Has Reached an Average of **68.31**%

The Execution Rate for Designated Procurements Under Green Procurement Projects Is **82.08**% on Average



Solar Photovoltaic Installation on Kaohsiung Municipal Siaogang Hospital Rooftop Promoting Energy Diversification

G. Introduction of Low-Carbon Design in Campuses

Core Goal

Secondary Goal: None

Results and Targets for Introducing Low-Carbon Design in Campuses

Plan	Result	Targets		
	2023	2026	2030	2050
Number of Sustainable Campus Projects	244	274	314	-

As of 2023, schools in the city have implemented 244 campus projects introducing low-carbon designs. Notably, Jia-Sing Junior High School, Longhua Junior High School, and Renwu Elementary School received funding from the Ministry of Education for the " Year 2021 Demonstrative Project for Sustainable Circular Campus," accounting for three out of four funded schools nationwide. In 2023, a total of 12 schools executed this plan, with six schools, including Zuoying Elementary School, Wun-Fu Elementary School, Zhongyi Elementary School, ShinShing Elementary School, Tianliao District, Dashu Elementary School, and Hsin Chuang Senior High School, receiving funding from the Ministry of Education for the " Year 2023 Pilot Project for Building Smart Climate-Friendly Campuses." Additionally, Linyuan Senior High School, Qixian Junior High School, Ciao Tou Junior High School, Lingya District Cheng-Kung Primary School, Alian Elementary School, and Guan-in Elementary School are funded under the city's "Implementation Plan for Sustainable Circular Campus Environmental Improvement."

The first low-carbon campus building in the nation, Lantian Elementary School, which employs a seismic-resistant steel structure, began construction in May 2024. The new school building will include 83 classrooms, covering an area of nearly 3 hectares, with 238 trees planted. The new building will obtain green building certification and will incorporate a solar photovoltaic system combined with a smart grid and energy storage systems to create a highly efficient and resilient energy system. This ensures uninterrupted power supply during teaching periods while reducing carbon emissions. The building design will utilize sunlight simulation and wind field simulation analysis to ensure a comfortable environment. Additional measures will include designing an air conditioning system, mechanical ventilation, and lighting, culminating in an ultra-low energy consumption building through the integration of smart grids, energy storage systems, and solar photovoltaics. The new building at Lantian Elementary School is scheduled to be completed and operational by 2026, aiming for bronze-level green building certification, bronze-level smart building certification, and bronze-level low-carbon building certification, while using solar energy, energy storage systems, structural materials, and a rich campus environment to promote low-carbon campus education and instill core values of sustainable development in students.

The First Low-Carbon Campus Building in Taiwan

New Building Project Area at Lantian Elementary School

H. Park Green Spaces

Core Goal

Secondary Goal

Results and Targets for Park Green Spaces

Plan	Result	Targets		
	2023	2026	2030	2050
Area of Park Green Spaces	2,536 hectares	2,550.3 hectares	2,569 hectares	2,669 hectares

To beautify the city's appearance and enhance park green spaces according to urban planning, theme parks are being developed. As of 2023, the total area of parks, green spaces, and children's playgrounds in urban planning areas has reached 2,536 hectares. To assist communities in improving public space environments, the city encourages citizen participation in community building, enhancing community vitality, and guiding communities in planting trees and greening efforts. It promotes net zero carbon initiatives, creating local characteristics, and enhancing community self-identification, ultimately building a livable community environment, progressing toward low-carbon and sustainable community development. The Urban Development Bureau of the city is facilitating community environmental building through subsidy programs and the guidance of community planners, enabling residents to take the initiative in caring for their living environment and sustainable development, guiding communities to develop concrete action plans that align with low-carbon sustainability and public interest. In 2023, communities such as Longdu Community, Meinong Dist., Huzhuang Community, Hunei Dist., Dongyan Community, Yancao Dist., Sunlight Xiaolin Community, Shanlin Dist., True Love Ziguan Volunteer Association, Ziguan Dist., Kaohsiung City, Muzha Community, Neimen Dist., and Shian Community, Alian Dist. continued to improve and maintain at least 1.6 hectares of community development areas, transforming idle and dirty spaces into resilient low-carbon community environments and practical areas for diverse development.

The Total Area of Parks and Green Spaces Reached
2,536 Hectares by 2023

Achievements in the Opening of Liansing Park

I. Energy-Saving of Lighting Fixture/Signals

Core Goal

Secondary Goal

Results and Targets for Energy-Saving of Lighting Fixture/Signals

Plan	Result	Targets		
	2023 年	2026	2030	2050
Installation Percentage of Energy-Saving Street Lights (%)	Over 120,000 streetlights fully converted to LED (100%)	By 2020, all city streetlights were LED (100%)		All park lighting also converted to LED (100%)

By the end of December 2023, the city has completed the replacement of over 120,000 traditional street lights with LED lights, resulting in an annual savings of approximately NT$120 million in electricity costs, reducing electricity consumption by about 85.97 million kilowatt-hours annually, and cutting carbon emissions by 43,200 metric tons per year, equivalent to planting about 35 million trees. From 2012 to the end of 2023, over 1,500 energy-efficient LED lights have been installed or replaced in parks. The city's park development projects will continue to install LED park lights and gradually replace unusable high-pressure sodium gas lights and composite metal park lights with LED lights to further achieve the national goal of promoting net-zero emissions.

J. Energy Saving at Residential-Commercial Area

a. Directly-Governed Municipality and County/City Energy-Saving Partner Subsidy Program

Core Goal

Secondary Goals

Results and Targets for the Energy-Saving Partner Subsidy Program in Directly-Governed Municipalities and Counties/Cities

Targets	Result	Targets		
	2023	2026	2030	2050
Promotion of Energy Saving Performance Project (ESCO)	Accumulated guidance for 6 projects	Accumulated guidance for 12 projects	Accumulated guidance for 18 projects	Accumulated guidance for 34 projects
Designated energy users meeting three energy-saving regulations (households)	Accumulated guidance for 354 households	Accumulated guidance for 601 households	Accumulated guidance for 900 households	Accumulated guidance for 1,700 households

Since 2021, the inaugural year of promoting ESCO (Energy Service Company) in Kaohsiung, the city has actively organized ESCO information sessions and demonstration tours to encourage applications from the service sector. In 2023, the Bureau held one information session and one demonstration tour, attracting participation from local institutions, schools, banks, department stores, hotels, and other businesses to learn about the Ministry of Economic Affairs' ESCO subsidy program. The Economic Development Bureau successfully assisted in six ESCO application cases, with an estimated energy-saving potential exceeding 5 million kWh per year, equivalent to a reduction of over 3,000 metric tons of CO_2e greenhouse gas emissions annually.

Regarding designated energy users' compliance with three energy-saving requirements, the city conducted 354 inspections in 2023, achieving a compliance rate of over 99%. This indicates a significant level of understanding of energy-saving measures among businesses.

In terms of educational promotion and outreach, including energy-saving volunteer initiatives, the city has trained over 200 energy-saving volunteers since 2017. Additionally, 14 energy-saving promotion and outreach events were conducted in 2023.

The Economic Development Bureau Assisted in Completing 6 ESCO Application Cases

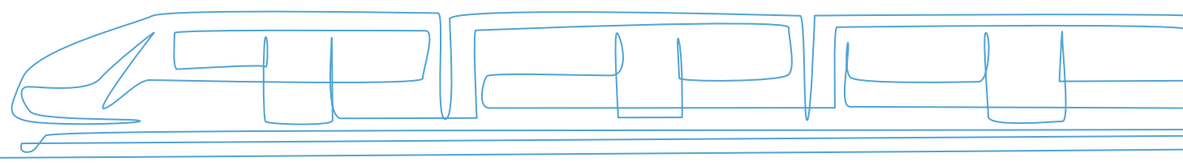
Grand Hotel Yuanshan Promotes ESCO, Achieving an Annual Carbon Reduction of Approximately 390 Metric Tons

b. MRT (including light rail) Station Energy Management

Core Goal

Secondary Goal

In 2023, Kaohsiung Rapid Transit Corporation completed carbon footprint assessments and obtained product carbon footprint labels for MRT Passenger Transport Services, becoming the first in the nation to calculate emissions from operations, stations, and maintenance. The carbon footprint per person per kilometer is 220 grams. The city has replaced old air conditioning units and adopted energy-efficient LED lighting, saving approximately 1.89 million kilowatt-hours annually. In 2023, the city received energy-saving subsidies from the Ministry of Economic Affairs for the rail industry, completing the replacement of energy-saving equipment such as air conditioning (six main chillers, three station heat dissipation materials, and three cooling water pumps) and lighting (six stations converted to energy-efficient LED lighting).



5 Agricultural Transformation

Agricultural transformation is an important strategy for enhancing environmental sustainability and resource recycling, covering a wide range of developments, from agricultural waste recycling to low-carbon agriculture and fisheries. Firstly, measures such as agricultural waste recycling, livestock manure resource utilization, and livestock wastewater resource utilization aim to maximize resource use by increasing the recycling rate, thus reducing pollutant emissions. In addition, the promotion of low-carbon agriculture and fisheries, from carbon reduction in agricultural machinery to carbon reduction in fisheries, further reduces greenhouse gas emissions. The city also advocates a healthier and more environmentally friendly dietary culture by promoting local ingredients and plant-based meals in schools. Greening of Detention Basin is another key initiative, increasing green space, improving water quality, and reducing flood risks.

A. Recycled Agricultural Waste

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goal: None

Results and Targets for Recycled Agricultural Waste

Plan	Result	Targets		
	2023	2026	2030	2050
Recycle rate of agricultural waste	85%	85.33%	85.7%	90%

Currently, the city manages agricultural waste from 47 businesses, generating approximately 31,349.2 tons of agricultural waste annually, primarily consisting of livestock manure, fruit and vegetable residues, agricultural sludge, dead livestock, and plant waste. These materials are processed into fertilizers by recycling organizations or approved products by agricultural authorities. In the future, the city will continue to strengthen agricultural waste management, aiming to enhance the feasibility of agricultural waste recycling through horizontal communication between the Ministry of the Environment and the Ministry of Agriculture, as well as legislative amendments to ensure effective recycling and increase reuse capabilities.

B. Livestock Manure Resource Recovery - Livestock Manure Reuse / Livestock Farm Energy Saving

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Livestock Manure Resource Recovery - Livestock Manure Reuse / Livestock Farm Energy Saving

Plan	Result	Targets		
	2023	2026	2030	2050
Livestock Manure Resource Recovery Rate	33.5%	38.34%	45%	85%

As of now, 187 livestock farms have been approved for the reutilization of livestock manure, achieving an annual application amount of 300,000 tons over an area of 247 hectares. The city has assisted 12 farms in implementing internal wastewater recycling; annually, 450 tons of poultry manure fertilizers are promoted for use in orchards. Furthermore, 66 farms have updated their red clay marsh gas bags, and 47 farms have installed biogas reutilization equipment. In 2023, the actual amount of wastewater treated was 48,037.5 tons (131.6 CMD), with a total biogas volume of approximately 120,000 cubic meters (328 cubic meters/day), generating around 200,700 kilowatt-hours, enough to supply electricity to about 50 households.

Agricultural Bureau Promotes Reutilization of Livestock Manure for Irrigation in Agriculture

C. Livestock Wastewater Resource Recovery

Core Goal

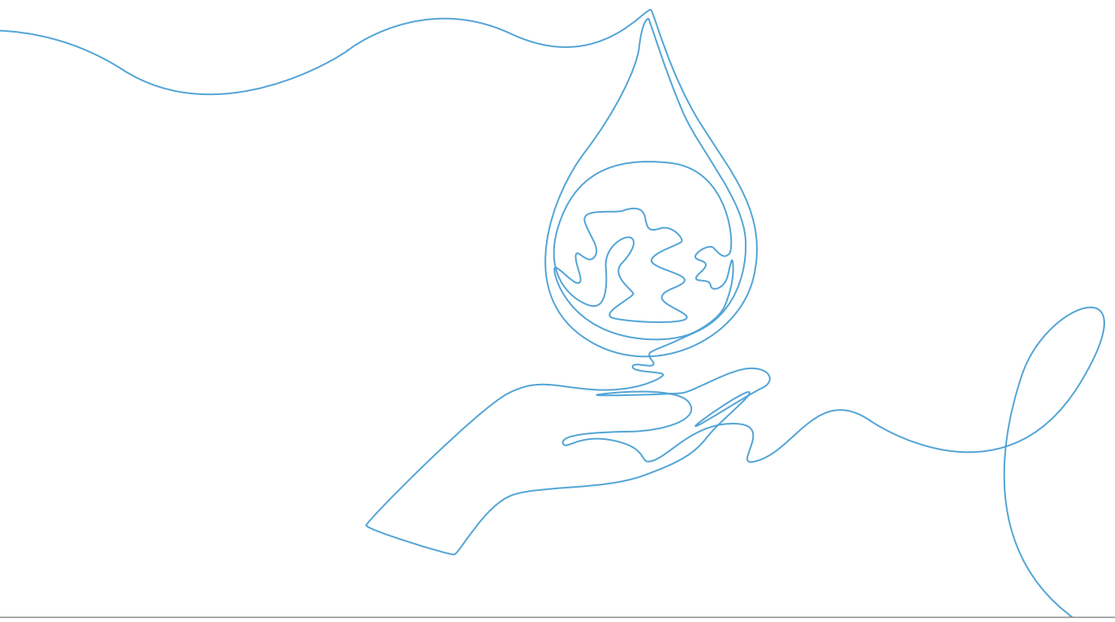
Secondary Goal: None

Results and Targets for Livestock Wastewater Resource Recovery

Plan	Result	Targets		
	2023	2026	2030	2050
Citywide Livestock Wastewater Resource Recovery Rate	3.99%	6.3%	10%	20%

There are 425 livestock farms regulated under the Water Pollution Control Act in the city, with 160 approved farms (152 pig farms and 8 cattle farms) utilizing biogas slurry and residue as fertilizer for farmland, primarily located in the Neimen, Alian, and Luzhu districts. From January 1, 2016 to December 31, 2023, the approved irrigation area has reached 182.06 hectares, with a total irrigation volume of 246,600 tons projected to reduce biochemical oxygen demand by 441.48 tons and suspended solids by 849.50 tons annually.

Effective Application of Treated Livestock Wastewater for Irrigation on Agricultural Land



D. Low-Carbon Agricultural and Fishery – Agricultural Machinery Carbon Reduction

Core Goal

Secondary Goal: None

Results and Targets for Agricultural Machinery Carbon Reduction

Plan	Result	Targets		
	2023	2026	2030	2050
Agricultural Machinery Carbon Reduction	630 units replaced	-	1,000 units replaced	3,000 units replaced

In response to the Agricultural Net-Zero Emissions Policy, farmers are guided to adopt farming machinery with the benefits of "increased yield" and "carbon reduction," thus increasing soil carbon content. Farmers are encouraged to phase out old diesel agricultural machines in favor of low-carbon electric farming machinery, including power sprayers, lawn mowers, branch shredders, electric shears, and chainsaws. The city will continue to encourage farmers to replace about 200 old diesel machines annually to meet the future targets for the three major review points.

E. Low-Carbon Agricultural and Fishery - Fishery Carbon Reduction

Core Goal

Secondary Goal: None

This plan will depend on whether the Fisheries Agency of the Ministry of Agriculture delegates the city to carry out this plan. The aim is to reduce the fishing effort of Taiwan's fishing vessels to achieve environmentally friendly and sustainable ecological goals, with approximately 950 fishing vessels applying for reward subsidies for fishing moratoriums each year. In 2023, the Fisheries Agency issued reward payments to 1,101 fishing vessels, with a total tonnage of 47,996.53 tons and a total amount of NT$44,062,500, fostering a green environment that reduces carbon emissions.

In 2023, the Fisheries Agency Issued Reward Payments to **1,101** Fishing Vessels

Year 2023 Fishing Off Season Promotion Cards

F. Low-Carbon Agricultural and Fishery - Local Ingredients Promotion

Core Goal: 4 QUALITY EDUCATION

Secondary Goals: 2 ZERO HUNGER; 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Since 2018, the community nutrition promotion center has been conducting group nutrition education, adhering to the principle of selecting local and seasonal ingredients in line with food and agriculture education. Course planning focuses on balanced diets using the " My Plate Initiative" visual mnemonic and the "Three Good and One Wise Ingredient Choices" dietary principles for the elderly, along with various lesson plans addressing "Three Portions of Vegetables and Two Portions of Fruits," "Whole Grain and Unrefined Cereals," "Preventing Sarcopenia," and "dairy products." The goal is to change dietary habits. In 2023, 96 group nutrition education sessions were conducted, serving 92 communities. By the end of 2023, a total of 45 restaurants had passed the green-friendly restaurant evaluation. In 2023, one local ingredients banquet for 40 people, one parent-child cooking camp for 40 people, two food treasure hunters ranch event for 80 people, and ten ranch feast series event for 300 people were organized. By the end of 2023, the promotion of "Deep Cultivation of Food and Agriculture Education on Campus" involved 47 junior high, elementary, and preschool institutions.

96 Group Nutrition Education Sessions Conducted in 2023

Food and Agriculture Experience × Life Education × Local Ingredients

G. Low-Carbon Agricultural and Fishery - School Vegetarian Promotion

Core Goal: 3 GOOD HEALTH AND WELL-BEING

Secondary Goal: 4 QUALITY EDUCATION

Since the 108th academic year, public junior high and elementary schools have been encouraged to implement a vegetarian meal day each week, and from the 111th academic year, all schools have adopted a vegetarian meal day for school lunches. Since the implementation of the vegetarian meal day for school lunches, the target is to increase carbon reduction by 25% annually. The city promotes the "Ministry of education Campus Food Ingredients Registration Platform 2.0," with 331 schools using this platform; the "Campus Fruits and Vegetables 579" initiative involved 30 schools and approximately 4,200 students; and the "Little Lohas" program included 143 schools with about 24,115 students participating. The total carbon reduction for the year 2023 reached 6,088,755 kilograms, with a continuous target of increasing carbon reduction by 25% each year.

Total Carbon Reduction Reached **6,088,755** Kilograms in 2023

H. Greening of Detention Basin

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: 13 CLIMATE ACTION

Results and Targets for Greening of Detention Basin

Plan	Result	Targets		
	2023	2026	2030	2050
Area of Green Spaces surrounding the Detention Basins	200 hectares	201 hectares	204 hectares	214 hectares

The city is densely covered by a water network, comprising 397 kilometers of drainage systems in 119 areas. Water disaster prevention has always been a key policy. In addition to traditional methods like building levees and improving drainage banks, critical points are equipped with retention basins to absorb peak water volumes during heavy rainfall, effectively reducing river water levels and minimizing flooding risks. Since 2005, when the nation's first ecological retention basin was established, 25 retention basins have been constructed across the city by December 31, 2023, with a total retention capacity of 4.98 million tons and a total area of nearly 200 hectares, including approximately 7,900 trees planted and about 78 hectares of grassland.

Baoye Flood Prevention Park

6 Environmental Transformation

Environmental transformation is one of the core strategies for promoting sustainable development. The city is actively implementing circular economy practices and resource reuse to achieve several environmental goals, including the disposal of incinerator bottom ash through recycling granules, the reuse of industrial waste, and the recycling of food waste from businesses. Through the diversified reuse of food waste and wastewater treatment, as well as the increase in resource recycling, we not only reduce the amount of waste but also effectively lower carbon emissions, moving towards a green, low-carbon city. Additionally, through the promotion of recycled water, landfill revitalization, biogas power generation, and the improvement of wastewater treatment and sewer coverage rates, we continue to enhance water resource management for more efficient resource utilization.

During the transformation process, the renovation and upgrading of incineration plants and the segmentation of waste selection are also key initiatives. Through equipment upgrades and the planning of new plants, we aim to further improve waste treatment efficiency and reduce pollution. In terms of source reduction, the city is also actively promoting waste reduction and the recycling and reuse of materials, strengthening public awareness and participation in environmental protection, and collectively advancing the long-term goals of waste recycling and resource recovery.

A. Recovery of Incineration Ash for Reuse

Core Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Results and Targets for Recovery of Incineration Ash

Plan	Result	Targets		
	2023	2026	2030	2050
Combustion Bottom Ash Reuse Rate	100%	83.3%	84%	93%

To implement a circular economy, the city has pioneered a stable supply mechanism for combustion bottom ash, repurposing it as recycled aggregates for public works to replace natural sand and gravel. In 2023, the reused amount reached 162,000 tons, leading the country, and received the Ministry of Environment's 2023 Outstanding Award for incineration ash evaluation.

The Reused Amount Reached

162,000 Tons in 2023

Incineration Recycled Aggregates Produced by Recycling Organizations

B. Reuse of industrial waste

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goal: None

Results and Targets for Reuse of industrial waste

Plan	Result	Targets		
	2023	2026	2030	2050
Reuse rate of industrial waste	87.81%	91.13%	91.5%	95%

To enhance the Reuse rate of industrial waste, the city fully cooperates with the Ministry of the Environment to promote resource recycling and reduction of waste, focusing on source control of waste and guidance for improving odors and air pollution from businesses and construction projects. In 2023, 140 inspections were conducted on business sites that could produce odors and volatile air pollutants; 48 inspections were conducted for construction and demolition sites. Additionally, 180 inspections were conducted for odor control at livestock farms, 120 inspections for recycling organizations, and 48 inspections for kitchen waste reuse.

C. Reuse of industrial food waste

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goal: None

Results and Targets for Reuse of industrial food waste

Plan	Result	Targets		
	2023	2026	2030	2050
Reuse rate of industrial food waste	92.57%	94.38%	95.5%	98%

The primary recycling and reuse system for kitchen waste in the city comes from livestock farms. To effectively manage kitchen waste through proper treatment facilities, in addition to adhering to domestic regulations to prevent African Swine Fever Epidemic, it is essential to collaborate with agricultural agencies to assess the feasibility of producing compost products to enhance kitchen waste reuse rates. In 2023, businesses produced approximately 10,403 tons of kitchen waste, achieving a reuse rate of 92.57%. The Environmental Protection Bureau audits at least 48 livestock farms that receive kitchen waste for reuse annually, encouraging businesses to implement source reduction measures to maximize kitchen waste recovery and reuse.

D. Promotion of Reclaimed Water

Core Goal: 6 CLEAN WATER AND SANITATION

Secondary Goal: None

Results and Targets for Promotion of Reclaimed Water

Plan	Result	Targets		
	2023	2026	2030	2050
Reclaimed Water Production	89,000CMD	100,500CMD	188,800CMD	215,000CMD

The city operates two reclaimed water plants and two water resource centers. By the end of 2023, the sewage treatment plants in Fengshan Dist. and Linhai Industrial Park supplied a total of 78,000 tons daily. The Qiaotou Reclaimed Water Plant is currently under construction after completing its bidding in October 2022, while the Nanzi Reclaimed Water Plant finished its feasibility assessment and preliminary planning in 2023 and completed its bidding by the end of 2023. The total project budget is approximately NT$9 billion. It is expected to supply 20,000 tons daily by December 2028, increase to 35,000 tons daily by December 2029, and expand to 70,000 tons daily by December 2030 for the Nantzu Industrial Park.

Vision for Nanzi Reclaimed Water Plant

E. Landfill Revitalization and Biogas Power Generation

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Results and Targets for Landfill Revitalization and Biogas Power Generation

Plan	Result	Targets		
	2023	2026	2030	2050
Landfill Revitalization and Biogas Power Generation	Increased landfill space by 59,000 cubic meters	-	Increased landfill space by 330,000 cubic meters	Transform landfill into diversified temporary storage sites

By the end of 2023, the city has conducted revitalization projects and environmental impact analysis for both the regional sanitary landfill for Luchu and Alian districts and the regional landfill for Yanchao Dist., enhancing landfill space volume to 5,332.45 cubic meters and 53,867.53 cubic meters respectively, for a total increase of 59,000 cubic meters. The regional sanitary landfill for Luchu and Alian districts is expected to reach saturation by 2027, at which time a landfill revitalization project will be planned. The activated landfill will adopt a monolithic landfill approach, applying soil cover as needed, along with effective leachate treatment facilities to minimize secondary pollution issues. The Environmental Impact Assessment on Yanchao General Sanitary Landfill Relocation Plan is expected to be usable by early 2028, providing approximately 1.112 million cubic meters of landfill space with a usable lifespan of about 14 years. The West Qingpu sanitary landfill is undergoing biogas power generation, with 2.46 million cubic meters of biogas processed in 2023, generating approximately 3.93 million kilowatt-hours, contributing about NT$400,000 in revenue to the city treasury and achieving effective pollution prevention and biogas reuse goals, transforming past landfills into environmental metropolitan parks.

In 2023, the Biogas Treatment Volume Reached **2.46** Million Cubic Meters

The Power Generation Reached **3.93** Million Kilowatt-Hours

Activation and Reuse Project for the Regional Sanitary Landfill for Luchu and Alian Districts

F. Improvement of Sewage Treatment Rate and Sewer Coverage Rate

Core Goal: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Secondary Goals: 6 CLEAN WATER AND SANITATION; 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Results and Targets for Improving Sewage Treatment Rate and Sewer Coverage Rate

Plan	Result	Targets		
	2023	2026	2030	2050
Sewage Treatment Rate	74.45%	76.57%	82.57%	100%
Sewer Coverage Rate	50.22%	53%	57%	77%

In terms of public sewer systems, the city currently operates sewage zones including Kaohsiung, Linhai, Nanzih, Fengshan River, Dashi, Chimei, and Gangciao, and actively manages user take-over projects. In the event of obstacles behind houses, alleyway public info-meetings are continuously held to encourage residents to remove obstacles to complete the take-over operations, aiming to improve home environment quality and purify river water quality. In the future, efforts will continue to secure funding from the National Land Management Agency, Ministry of the Interior, to carry out sewer connection projects and other related works.

G. Diversified Food Waste Reuse - Food Waste, Sewage Treatment, Co-Digestion

Core Goal: 6 CLEAN WATER AND SANITATION

Secondary Goals: 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

In 2023, the city's cleaning team collected an average of 43 tons of kitchen waste daily (27 tons for pig farming and 16 tons for composting), resulting in a total collection of 15,655 tons for the year. The annual treatment volume for kitchen waste is approximately 2,400 tons, with about 73,000 packages (365 tons) of reused kitchen waste products provided to 27,050 citizens, enabling them to create their own small gardens and enhancing urban greenery, resulting in an annual carbon reduction of 10,433.9 tons.

An Annual Carbon Reduction of **10,433.9** Tons

Garbage Trucks Equipped with Composting and Pig Farming Labels to Guide Proper Sorting of Kitchen Waste

H. Waste Reduction

Core Goal: 11 SUSTAINABLE CITIES AND COMMUNITIES

Secondary Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Starting from July 1, 2023, the city has restricted the use of disposable plastic cups, estimating an annual reduction of approximately 124,281,332 disposable plastic beverage cups, which would decrease waste volume by about 1,500 tons and reduce carbon emissions by an estimated 3,072 tons. From July to September 2023, the extra offer for " Kaohsiung's Bring Your Own Cup Discount" led to a 19.14% increase in the use of eco-cups by the public, resulting in approximately 150,000 fewer disposable plastic cups being used.

From July to September 2023, the "Kaohsiung's Bring Your Own Cup Discount" Campaign Reduced the Use of Approximately **150,000** Disposable Plastic Cups

Mayor Chen Chi-Mai Actively Promotes Reduction of Disposable Plastic Cups

I. Volume of Resource Recycling

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goals: 6 CLEAN WATER AND SANITATION; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

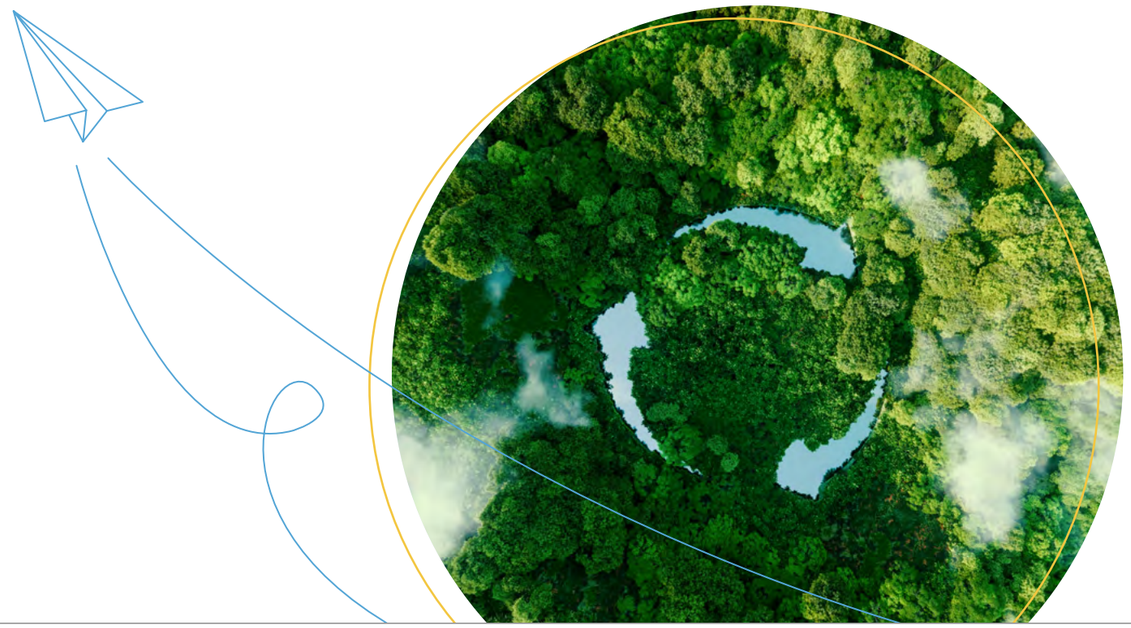
Results and Targets for Volume of Resource Recycling

Plan	Result	Targets		
	2023	2026	2030	2050
Volume of Resource Recycling	925,600 tons	893,000 tons	920,000 tons	940,000 tons

In recent years, the volume of resource recycling has shown steady growth. From 2019 to 2023, the city's recycling volume increased from 707,727 tons to 925,600 tons; in 2023, the recycling volume grew by 41,742 tons compared to 2022, with 4.68 million waste containers recycled by the Automatic Recycling Machine (ARM) in 2023.

In 2023, the Recycling Volume Increased by **41,742** Tons Compared to 2022

Public Utilizing the Automatic Recycling Machine (ARM) to Recycle PET Bottles



J. Reuse of Recyclable Materials

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Secondary Goals: 8 DECENT WORK AND ECONOMIC GROWTH; 17 PARTNERSHIPS FOR THE GOALS

To achieve the recycling of discarded furniture, two woodworking factories have been established in Zuoying and Ziguan, and in 2023, a laser engraving machine was purchased. With the expert skills of the woodworking factory, discarded furniture is repaired or restructured, giving it new life. While selling the recycled furniture, the public is also educated about the concept of recycling and reuse. On average, 800 items are repaired each year, generating approximately NT$1.1 million in sales. The Papa Su's Toy Hospital and Small electrical Appliance Clinic Team conduct free consultations at the Southern Fengshan Cleaning Team and the National Science And Technology Museum, educating the public on the basic maintenance of small appliances to extend the lifespan of toys and small appliances, conveying that maintenance is an option before disposal.

On Average, **800** Items Are Repaired Each Year

Small electrical Appliance Clinic Team at Qishan Sugar Factory for Public Appliance Repair

K. Incinerator Reconstruction and Improvement Project - Incinerator Transformation

Core Goal: 6 CLEAN WATER AND SANITATION

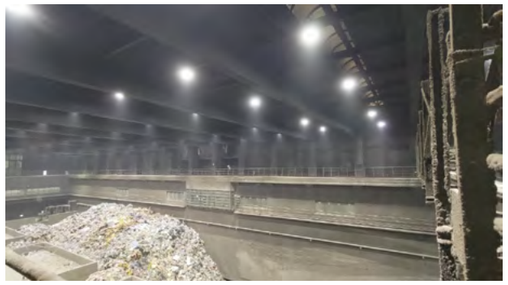
Secondary Goals: 7 AFFORDABLE AND CLEAN ENERGY; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 13 CLIMATE ACTION

Results and Targets for Incinerator Reconstruction and Improvement Project

Plan	Result	Targets		
	2023	2026	203	2050
Incinerator Reconstruction and Improvement Project	System and equipment updates increase overall operational rate and equipment efficiency	Renovation of existing incinerators	Planning for operation of renewable energy power plants	Introduction of carbon capture in incinerators

The city has four incinerators. The Southern Plant previously planned to be renovated using a ROT-Based Renovation. On February 19, 2024, a public hearing for the Southern ROT Project was held, with many opinions favoring the direct construction of a new plant. Therefore, it will be promoted as the "Kaohsiung AI Intelligent Efficient Incinerator BOT Project." The Central Plant in 2023 continues efforts to improve overall operational rates and equipment availability rates to ensure smooth waste disposal. The Gangshan Plant is replacing old lighting fixtures with high-efficiency LED fixtures, reducing electricity consumption by 529,438 kilowatt-hours annually, which is projected to reduce carbon emissions by about 262 tons. The ROT project at the Renwu Plant, starting in 2023, aims to stabilize waste handling capacity through system and equipment upgrades, contributing to the city's net-zero carbon emissions goals.

Annual Electricity Consumption Reduced by **529,438** kWh



Replacement of Old Lighting Fixtures with High-Efficiency LED Fixtures at Gangshan Incinerator Bunker Area

L. Fine Sorting Sites

Core Goal: 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Core Goal: 6 CLEAN WATER AND SANITATION; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

On March 15, 2023, the city signed a Surface Rights Agreement with Taiwan Sugar Corporation. Since the planned land use involves Arable & Pastoral Lands for Exclusive Use for Other Purposes under the Non-Urban Planned Lands, compliance with the "Regulations on Non-urban Land Use Control" and the "Spatial Planning Act" is required. For future development areas classified as locations needed for development within five years, procedures such as business plan setup, land development permit applications, outflow control planning, and use change for farmlands must be completed before constructing resource recycling fine sorting sites.

The Resource Circulation Administration, Ministry of Environment, approved the city's subsidy application for the construction of resource recycling fine sorting sites on February 5, 2024, and the feasibility study and preliminary planning processes are underway.

7 Green Lifestyle

The Green Lifestyle initiative encompasses various aspects of daily living, including food, clothing, housing, transportation, education, recreation, and shopping. It promotes actions such as adopting low-carbon diets, supporting eco-friendly restaurants, and implementing clothing recycling programs, while encouraging sustainable consumption and environmentally friendly washing practices. In the housing sector, the initiative advocates for low-carbon building designs and the adoption of clean energy. For transportation, it prioritizes the advancement of electrification and green mobility solutions. By incorporating environmental education, low-carbon tourism, and the sharing economy, the initiative seeks to elevate public awareness of green living in a holistic manner, fostering collective efforts to establish a sustainable and net-zero lifestyle in Kaohsiung.

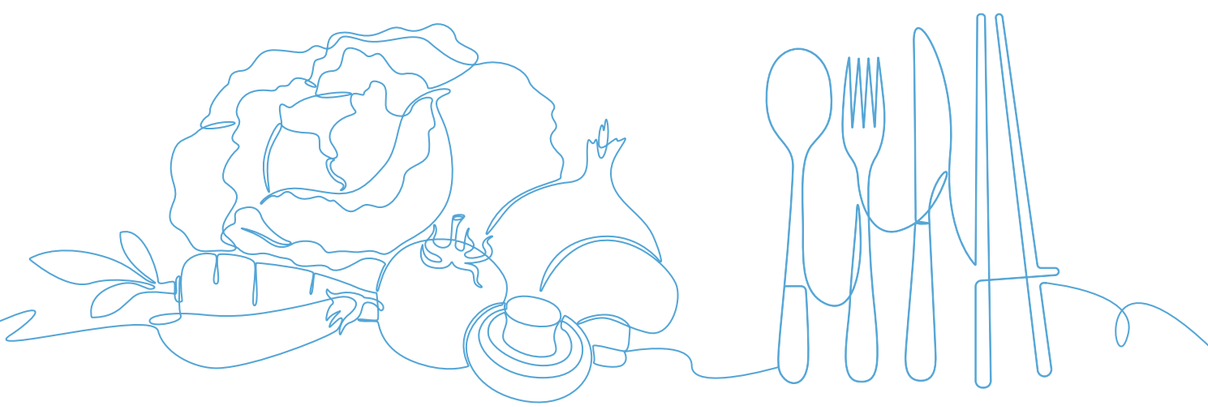
Strategies for the Green Lifestyle Plan

A. Food – Zero Waste and Low-carbon Diet

In the face of climate change and resource challenges, every individual choice can make a significant impact on the planet. The Kaohsiung City Government actively promotes low-carbon diets by mobilizing the collective efforts of government agencies, schools, and communities to advocate for plant-based diets as a sustainable alternative to high-carbon eating habits, prioritizing health and environmental sustainability in every meal. Furthermore, the City Government encourages local restaurants to join the ranks of eco-friendly restaurants, using targeted marketing campaigns to spread the message of environmental protection and inviting citizens to support these establishments dedicated to sustainability. Kaohsiung also highlights the importance of the "Cherishing Food" philosophy, urging residents to value every portion of food, minimize waste, and adopt reusable tableware, progressively transitioning away from single-use products.

Results and Targets for Food – Zero Waste and Low-carbon Diet

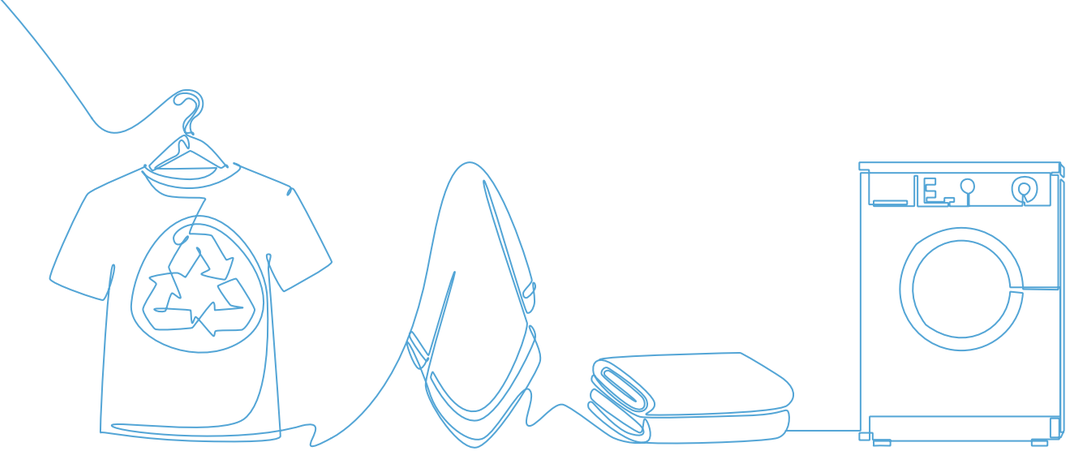
		Promote Low-Carbon Diet	
Result		Raise awareness among relevant organizations, schools, and the public to respond to low-carbon diets (vegetarian).	Implement Low-Carbon Diet in Government Agencies.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		2 ZERO HUNGER; 3 GOOD HEALTH AND WELL-BEING; 13 CLIMATE ACTION	2 ZERO HUNGER; 3 GOOD HEALTH AND WELL-BEING; 13 CLIMATE ACTION
Result	2023	8 sessions	97%
Targets	2026	10 sessions	95%
	2030	20 sessions	97%
	2050	• Establish product category rules (PCR) for consumers to calculate dietary carbon emissions. • Promote zero kitchen waste in the food service industry. • Encourage restaurants to use non-disposable utensils (including bowls, chopsticks, and food containers). • Promote sustainable markets, providing diverse low-carbon products and services.	



Plan		Environmental Restaurants	
		Encourage local restaurants to join the environmental restaurant initiative.	Conduct marketing campaigns to promote local environmental restaurants.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		2 ZERO HUNGER; 3 GOOD HEALTH AND WELL-BEING; 13 CLIMATE ACTION	2 ZERO HUNGER; 3 GOOD HEALTH AND WELL-BEING; 13 CLIMATE ACTION
Result	2023	315 restaurants	8 sessions
Targets	2026	160 restaurants	10 sessions
	2030	200 restaurants	20 sessions
	2050	• Establish product category rules (PCR) for consumers to calculate dietary carbon emissions. • Promote zero kitchen waste in the food service industry. • Encourage restaurants to use non-disposable utensils (including bowls, chopsticks, and food containers). • Promote sustainable markets, providing diverse low-carbon products and services.	

Plan		Promote the "Cherishing Food" philosophy
		Combine related events to promote the "Cherishing Food" philosophy.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		2 ZERO HUNGER; 3 GOOD HEALTH AND WELL-BEING; 13 CLIMATE ACTION
Result	2023	20 sessions
Targets	2026	25 sessions
	2030	30 sessions
	2050	• Establish product category rules (PCR) for consumers to calculate dietary carbon emissions. • Promote zero kitchen waste in the food service industry. • Encourage restaurants to use non-disposable utensils (including bowls, chopsticks, and food containers). • Promote sustainable markets, providing diverse low-carbon products and services.

Plan		Promote Circular Use of Utensils	
		Encourage the public to avoid single-use products.	Provide take-out and delivery services using reusable containers in the food industry.
Core Goal		11 SUSTAINABLE CITIES AND COMMUNITIES	11 SUSTAINABLE CITIES AND COMMUNITIES
Secondary Goals		12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Result	2023	215,880 units	179 businesses
Targets	2026	257,000 units	200 businesses
	2030	390,000 units	300 businesses
	2050	• Establish product category rules (PCR) for consumers to calculate dietary carbon emissions. • Promote zero kitchen waste in the food service industry. • Encourage restaurants to use non-disposable utensils (including bowls, chopsticks, and food containers). • Promote sustainable markets, providing diverse low-carbon products and services.	



B. Clothing – Environmentally Friendly Washing and Wearing

Amid growing resource limitations and the pressing need for environmental protection, the Kaohsiung City Government actively promotes the recycling and reuse of used clothing. By expanding collection channels and optimizing reuse systems, the City seeks to extend the lifecycle of clothing, reduce waste generation, and maximize the value of old garments. To further enhance public participation, the City Government raises awareness of recycling methods through extensive promotional campaigns, making it easier and more convenient for citizens to engage in clothing recycling initiatives. In addition, Kaohsiung encourages residents to choose green mark laundry detergents, supporting environmentally friendly cleaning products and fostering care for the environment through everyday practices.

Results and Targets for Clothing – Environmentally Friendly Washing and Wearing

Plan		Promote Old Clothing Recovery	
		Increase channels for old clothing recovery and facilitate reuse.	Strengthen Awareness of Old Clothing Recovery Methods.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		11 SUSTAINABLE CITIES AND COMMUNITIES	11 SUSTAINABLE CITIES AND COMMUNITIES
Result	2023	126 points	26 sessions
Targets	2026	80 points	20 sessions
	2030	100 points	40 sessions
	2050	• Set up an online platform for exchanging second-hand clothing to promote recycling. • Promote the use of green mark laundry detergents in laundromats. • Encourage clothing manufacturers to design environmentally friendly garments, such as using single materials, durable materials, and local or recycled materials for easier recycling.	

Plan		Implement Environmentally Friendly Cleaning Products
		Promote the purchase of green mark laundry detergents.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		11 SUSTAINABLE CITIES AND COMMUNITIES
Result	2023	4 sessions
Targets	2026	5 sessions
	2030	10 sessions
	2050	• Set up an online platform for exchanging second-hand clothing to promote recycling. • Promote the use of green mark laundry detergents in laundromats. • Encourage clothing manufacturers to design environmentally friendly garments, such as using single materials, durable materials, and local or recycled materials for easier recycling.

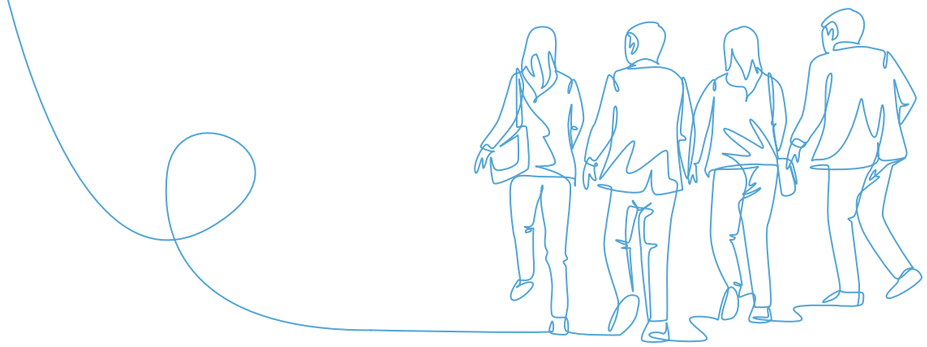
C. Housing – Household Resource Recycling, Improvement of Living Quality

On the path to sustainability, every household has the potential to become a catalyst for change. The Kaohsiung City Government actively promotes the concept of low-carbon sustainable homes, encouraging citizens to engage in resource recycling initiatives and adopt household recycling as a daily habit, collectively building zero-waste communities. By establishing air quality maintenance zones and implementing green walls for air purification, the City is dedicated to improving living environments, ensuring that fresh, clean air becomes an everyday reality for all residents. Moreover, Kaohsiung City strongly advocates for the use of green building labeling eco-friendly products, alongside energy-efficient, water-saving, and environmentally conscious building materials. By empowering citizens to make environmentally responsible choices when purchasing building materials and household goods, the City integrates sustainability seamlessly into daily life. These measures not only improve living quality but also position every household as a key partner in Kaohsiung's journey toward achieving net-zero emissions, fostering a greener and more sustainable future for the city.

Results and Targets for Housing – Household Resource Recycling, Improvement of Living Quality

Plan		Promote Zero-Carbon Homes		
		Advocate for low-carbon sustainable homes.	Establishing Air Quality Maintenance Zones	Promote Clean Air Green Walls
Core Goal		11 SUSTAINABLE CITIES AND COMMUNITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	11 SUSTAINABLE CITIES AND COMMUNITIES
Secondary Goals		3 GOOD HEALTH AND WELL-BEING, 13 CLIMATE ACTION	3 GOOD HEALTH AND WELL-BEING, 15 LIFE ON LAND	3 GOOD HEALTH AND WELL-BEING, 15 LIFE ON LAND
Result	2023	137 locations	430 locations	22 locations
Targets	2026	75 locations	456 locations	26 locations
	2030	85 locations	481 locations	41 locations
	2050	• Promote Net-Zero Buildings. • Promote Shared Furniture, Shared Appliances, and Shared Spaces. • Increase the recycling rate to 80%. • 85% of private buildings within Kaohsiung achieve Grade 1 energy efficiency. • 30% of major energy users in Kaohsiung use renewable energy. • Full adoption of high-efficiency lighting.		

Plan		Promote Green Mark, Environmentally Friendly Products, and Products with Energy-saving, Water-Saving, and Green Building Materials label products
		Promote Green Mark, Environmentally Friendly Products, and Products with Energy-saving, Water-Saving, and Green Building Materials label products
Core Goal		
Secondary Goals		
Result	2023	10 sessions
Targets	2026	10 sessions
	2030	20 sessions
	2050	• Promote Net-Zero Buildings. • Promote Shared Furniture, Shared Appliances, and Shared Spaces. • Increase the recycling rate to 80%. • 85% of private buildings within Kaohsiung achieve Grade 1 energy efficiency. • 30% of major energy users in Kaohsiung use renewable energy. • Full adoption of high-efficiency lighting.



D. Transportation – Low Carbon Transport Network

Amid the challenges posed by climate change and air pollution, every journey presents an opportunity to shape a better future for the planet. The Kaohsiung City Government is proactively advancing a low-carbon transport network by implementing initiatives such as the establishment of the Eco-Rider Team and the full transition of official cleaning team vehicles to electric models, injecting greener momentum into urban mobility. Furthermore, the government is expediting the phase-out of two-stroke scooters, supporting residents in replacing high-pollution, outdated vehicles with low-carbon and environmentally friendly alternatives. This effort not only reduces carbon emissions but also significantly enhances road safety and commuting comfort for citizens. Through comprehensive policies and concrete actions, the Kaohsiung City Government is committed not only to cutting carbon emissions but also to creating a safe, healthy, and sustainable urban transportation system.

Results and Targets for Transportation – Low Carbon Transport Network

Plan		Electrification of Transportation
		Promote the Eco-Riders team, replacing the cleaning team's vehicles with electric vehicles.
Core Goal		
Secondary Goals		
Result	2023	40 vehicles
Targets	2026	Fully replace with electric scooters
	2030	Fully replace with electric scooters
	2050	• Develop a comprehensive light rail network. • Fully electrify buses. • Ensure public parking lots have electric vehicle charging infrastructure. • Promote vehicle sharing models, transitioning from ownership to shared usage.

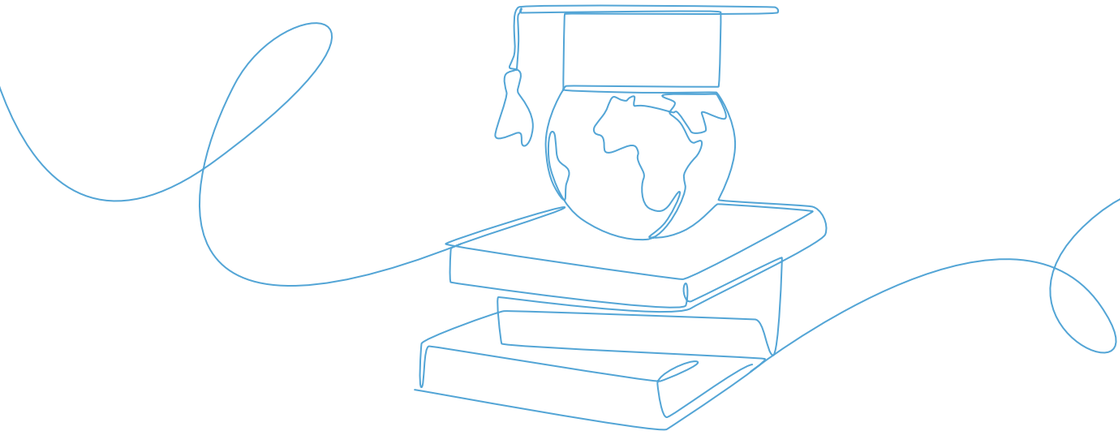
Plan		Strengthen Replacement of Old Vehicles
		Promote the replacement of two-stroke scooters.
Core Goal		
Secondary Goals		
Result	2023	8,663 vehicles
Targets	2026	27,694 vehicles
	2030	33,694 vehicles
	2050	• Develop a comprehensive light rail network. • Fully electrify buses. • Ensure public parking lots have electric vehicle charging infrastructure. • Promote vehicle sharing models, transitioning from ownership to shared usage.

E. Education – Public Dialogue

Achieving net-zero emissions by 2050 requires the active participation of everyone. The Kaohsiung City Government is enhancing environmental education by certifying more facilities and offering courses focused on net-zero topics to deepen citizens' understanding of low-carbon and sustainable living practices. Whether through in-person teaching or online learning, the City is dedicated to disseminating sustainability knowledge across all sectors, empowering individuals to become proactive contributors to environmental action. Furthermore, by leveraging social media platforms and organizing campaigns to promote green lifestyles aligned with net-zero objectives, Kaohsiung is establishing a robust channel of communication between the government and its citizens. This approach ensures that net-zero knowledge transcends expert discussions to become a shared dialogue accessible to all residents. From education to actionable initiatives, the Kaohsiung City Government strives to cultivate environmental consciousness, instill a collective sense of responsibility, and unite with its citizens to create a sustainable, net-zero future.

Results and Targets for Education – Public Dialogue

Plan		Public Education	
		Enhance the certification of environmental education facilities.	Launch Zero-Carbon or Green Lifestyle Courses (physical or online)
Core Goal			
Secondary Goals		-	-
Result	2023	19 locations	23,619 hours
Targets	2026	20 locations	22,500 hours
	2030	22 locations	24,000 hours
	2050	• Increase public awareness of green living. • Integrate "Green Lifestyle" curriculum into middle and elementary school courses. • Cultivate "Green Lifestyle" seed instructors to promote the concept.	



Plan		Shared Responsibility
		Organize Green Lifestyle promotional events.
Core Goal		
Secondary Goals		
Result	2023	24 sessions
Targets	2026	24 sessions
	2030	60 sessions
	2050	• Increase public awareness of green living. • Integrate "Green Lifestyle" curriculum into middle and elementary school courses. • Cultivate "Green Lifestyle" seed instructors to promote the concept.

Plan		Information Disclosure
		Publish zero-carbon-related knowledge or activity information on government public platforms.
Core Goal		
Secondary Goals		
Result	2023	30 entries
Targets	2026	40 entries
	2030	50 entries
	2050 年	• Increase public awareness of green living. • Integrate "Green Lifestyle" curriculum into middle and elementary school courses. • Cultivate "Green Lifestyle" seed instructors to promote the concept.

F. Recreation – Low-Carbon Tourism and Green Life

Kaohsiung, a vibrant harbor city where natural beauty meets urban dynamism, is embracing low-carbon tourism as a foundation for reimagining sustainable travel. The Kaohsiung City Government is expanding the number of eco-label-certified travel agencies and accommodations, empowering travelers to honor their commitment to the planet through environmentally responsible accommodation choices while enjoying the city's unique charm. Every journey in Kaohsiung is transformed into not just an appreciation of its scenic treasures but also a meaningful step toward a sustainable lifestyle, positioning the city as a benchmark destination for low-carbon tourism.

Results and Targets for Recreation – Low-Carbon Tourism and Green Life

Plan		Promote Low-Carbon Tourism	
		Increase the number of eco-label-certified travel agencies.	Increase the number of eco-label-certified travel accommodations.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		3 GOOD HEALTH AND WELL-BEING; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 13 CLIMATE ACTION	3 GOOD HEALTH AND WELL-BEING; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 13 CLIMATE ACTION
Result	2023	134 agencies	11 agencies
Targets	2026	121 agencies	12 agencies
	2030	145 agencies	15 agencies
	2050	• Promote low-carbon sports events and activities. • Develop a low-carbon tourism environment in Kaohsiung (eco-labeled hotels, green restaurants, public transportation, etc.).	

G. Shopping – Sharing Economy

Shopping is more than an act of consumption; it is an opportunity to make impactful choices for the planet's sustainability. The Kaohsiung City Government actively promotes the adoption of product-sharing economy services, fostering a new trend where "using instead of owning" becomes the norm. Simultaneously, the City advances green procurement by uniting efforts from businesses, government agencies, and retailers to increase the adoption of eco-friendly products. Through carbon labeling campaigns, Kaohsiung deepens citizens' understanding of green consumption and its importance. In addition, Kaohsiung prioritizes resource reuse by establishing second-hand stores and circular concept shops for used clothing and other goods. The City also provides furniture recycling and reuse services, organizes repair events for small appliances and toys, and hosts second-hand markets. These initiatives aim to extend product lifecycles and minimize waste. The Kaohsiung City Government calls on all citizens to support efforts ranging from the sharing economy to green consumption, transforming every decision into a meaningful step toward a sustainable future. Together, we can build a resilient, eco-friendly, and vibrant green city!

Results and Targets for Shopping – Sharing Economy

Plan		Replace Purchasing with Services
		Reward or encourage product-sharing economic services.
Core Goal		12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Secondary Goals		8 DECENT WORK AND ECONOMIC GROWTH; 17 PARTNERSHIPS FOR THE GOALS
Result	2023	18 agencies
Targets	2026	2 agencies
	2030	5 agencies
	2050	• Promote low-carbon products and establish individual carbon asset accounts. • Carbon footprint labeling for products and services, empowering people with low-carbon choices and promoting low-carbon production activities. • Promote low-carbon business models.

Plan		Promote Environmentally Friendly Products			
		Encourage local businesses to implement green procurement.	Encourage government agencies to implement green procurement.	Promote sales of eco-friendly products in green stores.	Organize carbon label promotional events.
Core Goal		12	12	12	12
Secondary Goals		16, 17	16, 17	16, 17	13, 14
Result	2023	NT$5.7 billion	662 agencies	NT$920 million	15 events
Targets	2026	NT$7 billion	510 agencies	NT$700 million	25 events
	2030	NT$7.5 billion	530 agencies	NT$1 billion	30 events
	2050	• Promote low-carbon products and establish individual carbon asset accounts. • Carbon footprint labeling for products and services, empowering people with low-carbon choices and promoting low-carbon production activities. • Promote low-carbon business models.			

Plan		Promote Resource Reuse and Extend Item Life			
		Establish second-hand goods and old clothing recycling concept stores.	Handle large furniture collection, processing, and reuse.	Organize small appliance and toy repair service events.	Promote recycling and organize second-hand markets.
Core Goal		11	12	12	11
Secondary Goals		12	-	8, 17	12
Result	2023	595 stores	21,000 tons	22 events, 213 items	6 events, 16,781 items
Targets	2026	450 stores	20,000 tons	15 events, 600 items	10 events, 10,000 items
	2030	550 stores	22,000 tons	30 events, 1,350 items	20 events, 200,000 items
	2050	• Promote low-carbon products and establish individual carbon asset accounts. • Carbon footprint labeling for products and services, empowering people with low-carbon choices and promoting low-carbon production activities. • Promote low-carbon business models.			

8 Carbon Sink

Carbon sink is an important tool for addressing climate change, covering various fields such as forests, soil, oceans, and wetlands. Forest carbon sinks are developed through tree planting programs and reward-based afforestation guidance, aimed at enhancing the city's carbon sink capacity. It also collaborates with indigenous land management plans to achieve both carbon reduction and ecological conservation goals. Soil carbon sinks focus on organic agriculture, reducing the use of chemical pesticides and fertilizers, enhancing soil organic matter, and increasing carbon storage, thereby reducing the carbon footprint in farming processes. In terms of ocean carbon sinks, while the concept of blue carbon is gaining attention, Taiwan still needs to improve methods for quantifying seagrass beds and mangrove carbon sequestration. Wetland carbon sinks focus on protecting key wetlands, planning and monitoring in accordance with the Wetland Conservation Act, and promoting integrated conservation measures. These efforts collectively enhance carbon sinks, laying the foundation for the city's environmental sustainability and carbon neutrality goals.

A. Forest Carbon Sink

Core Goal: 15

Secondary Goals: 10, 14

Results and Targets for Forest Carbon Sink

Plan	Result	Targets		
	2023	2026	2030	2050
Number of seedlings given out	42,416 plants	23,000 plants	24,000 plants	35,000 plants
Area Afforested under Incentive-Driven Afforestation	79.006 hectares	84 hectares	88 hectares	96 hectares

Achievements of Reforestation Incentive Program in Maolin District

Through afforestation incentive areas, issuance of seedlings, and protection of specific commemorative trees, the city aims to increase its forest carbon sink. As of December 31, 2023, the city has promoted two land management plans: the "Incentive-Driven Afforestation Project for Lands Reserved for Aboriginal People" and the "Logging Ban Compensation Project for Lands Reserved for Aboriginal Peoples." These programs subsidize the maintenance of approximately 4,000 hectares of forest area each year, providing stable contributions to carbon sinks and achieving goals related to land security, water resource conservation, environmental greening, ecological preservation, climate change response, and disaster risk reduction.

The total area of indigenous land in the city is over 12,000 hectares. In 2023, the city approved 70 individuals for afforestation, covering 105 land parcels and incentivizing the afforestation of 79.006 hectares, which is expected to reduce emissions by approximately 790.06 metric tons of CO_2 equivalent. Additionally, each of the city's 38 district offices distributed 600 seedlings during the tree-planting festival, and 737 specific commemorative trees are monitored (including 13 protected trees listed under the Forest Law) to maintain the city's forest carbon sink foundation.

B. Soil Carbon Sink

Core Goal: 15 LIFE ON LAND

Secondary Goals: 10 REDUCED INEQUALITIES, 14 LIFE BELOW WATER

Results and Targets for Soil Carbon Sink

Plan	Result	Targets		
	2023	2026	2030	2050
Area Subject to Organic and Friendly Cultivation	1,100 hectares	-	1,500 hectares	1,900 hectares

Organic farming prohibits the use of chemical pesticides and fertilizers during the production process, effectively reducing the carbon footprint associated with the manufacture of these chemicals. It also promotes reduced soil disturbance from machinery, encourages crop rotation and intercropping, and supports returning crop residues to the field or making compost. These practices enhance soil organic matter content and increase soil carbon sinks. As an integrated industry focusing on production, living, and ecology, the city will continue to promote verification systems, production techniques, and facility subsidies to encourage organic farming and friendly agricultural practices, thereby reducing carbon emissions during farming activities.

Organic Agriculture Production Reducing Fertilizer Carbon Footprint

C. Ocean Carbon Sink

Core Goal: 13 CLIMATE ACTION

Secondary Goals: 14 LIFE BELOW WATER, 15 LIFE ON LAND

The concept of blue carbon is gradually gaining international attention, but Taiwan has yet to establish methodologies for quantifying the carbon sink potential of seagrass beds and mangroves, and there are currently no actual contributions to carbon reduction.

D. Wetland Carbon Sink

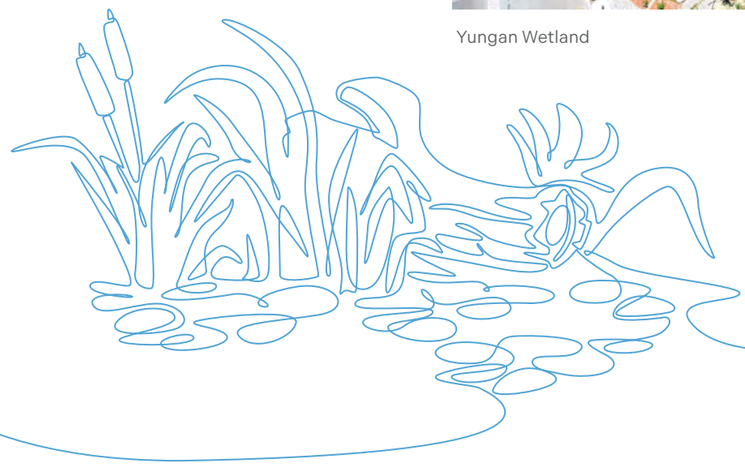
Core Goal: 15 LIFE ON LAND

Secondary Goal: None

The central government has identified important wetlands in the city, with a total designated area of 583.51 hectares as of December 31, 2023. In the future, the city will continue to regularly review the conservation and utilization plans for important wetlands, as well as long-term investigation and monitoring programs, in accordance with Wetland Conservation Act.

The Total Designated Area of Important Wetlands is
583.51 Hectares

Yungan Wetland



9 Just Transition

The core concept of just transition is "leaving no one behind." Since 2023, the city has actively promoted measures such as occupation functional training, support for disadvantaged groups, green finance, the Net Zero Institute, and citizen participation in policymaking. In terms of skills training, the city plans to complete training for 90 individuals by the end of 2024, with expectations to expand to 1,000 trainees in the future. By supporting sheltered workshops and employment programs, the city ensures job opportunities for disadvantaged groups. At the same time, the city has issued green bonds to fund low-carbon infrastructure and established the Net Zero Institute to promote the dissemination of knowledge related to carbon reduction. Additionally, the city has strengthened citizen participation mechanisms to ensure that all groups can collectively engage in net-zero actions, fostering a fair and transparent transition process that ensures no one or industry is left behind.

A. Occupation Functional Training

Core Goal: 8 DECENT WORK AND ECONOMIC GROWTH

Secondary Goals: 16 PEACE, JUSTICE AND STRONG INSTITUTIONS; 17 PARTNERSHIPS FOR THE GOALS

Since recognizing the importance of a just transition in 2023, the city government has begun planning relevant occupation functional training. It is expected to complete training for 90 individuals by December 2024, equipping training institutions for talent development with the basic knowledge required in net-zero job fields. By 2025, it is anticipated that more than 1,000 trainees will benefit from this initiative.

B. Disadvantaged Groups

Core Goal: 8 DECENT WORK AND ECONOMIC GROWTH

Secondary Goals: 16 PEACE, JUSTICE AND STRONG INSTITUTIONS; 17 PARTNERSHIPS FOR THE GOALS

The city, through evaluations conducted every two years, offers administrative cost incentives during the Sheltered Workshop Grant Review Committee. Starting in 2024, one sheltered workshop per year will be targeted for net-zero carbon reduction initiatives, with the goal of having five workshops participating in such activities by 2028.

In 2023, 11 project units were commissioned to implement the Supportive Employment Service Program for People with Disabilities, serving 689 individuals with disabilities and successfully securing employment for 437 cases, thereby protecting the labor rights of disadvantaged groups. The service volume and employment referrals for individuals with disabilities are projected to increase by 1% every two years compared to the baseline year, with a 1% growth anticipated by 2026 and a 3% growth by 2030.

Additionally, through local farmers' markets, collaborations were facilitated between small-scale farmers, local restaurants, and farmers' associations to reduce transportation-related carbon emissions. A total of 12 restaurants, including renowned establishments such as LA ONE and Pasadena, incorporated locally sourced ingredients into their menus, providing farm-to-table organic fruits and vegetables and successfully reducing the food carbon footprint.

C. Green Finance

Core Goal: 17 PARTNERSHIPS FOR THE GOALS

Secondary Goals: 8 DECENT WORK AND ECONOMIC GROWTH

In December 2023, the city secured the qualification to issue the nation's first Governmental Green Bonds, with a total amount of NT$2 billion, marking the "first case" among all governments nationwide. Without increasing debt, these bonds were used to refinance existing loans for the MRT Red and Orange Line projects, combining private sector investments to advance mass transit construction. This initiative not only created a low-carbon transportation environment but also significantly reduced interest expenses by 30%.

In June 2024, the city plans to further apply to the Taipei Exchange for an additional NT$13.5 billion issuance quota for Green Bonds, continuing to implement the city's net-zero sustainability policies while maximizing interest savings benefits.

Utilizing Governmental Green Bonds to Save Interest and Invest in Net-Zero Construction

Nation's First Government Green Bond: Net-Zero Sustainability

A NT$2 billion green bond issued
without increasing debt, saving 30% in interest.
(Replacing existing higher-interest bank loans for the Red and Orange Metro Lines.)

Save on interest to reinvest in sustainable environmental projects, accelerating the transition to net-zero.

Attract private capital to accelerate the green economic transition and achieve a triple win for finance, the environment, and enterprises.

D. Net Zero Institute

Core Goal: 13 CLIMATE ACTION

Secondary Goals: 4 QUALITY EDUCATION

The Net Zero Institute is set to officially open in November 2023. As of December 31, 17 courses have been completed, targeting city government leaders, supervisors at various levels, industries, and associations. A total of 610 participants have completed these courses, and 130 ISO certificates have been issued. The academy aims to not only cultivate talent but also to facilitate exchanges and cooperation on net-zero initiatives with industries, educational institutions, and the international community. In the future, in addition to continuing to offer certification courses, the academy will incorporate thematic practical exchanges and workshops on carbon capture, smart manufacturing, and natural carbon sinks, with specialized classes for key industries such as steel and petrochemicals.

Mayor Chen Chi-Mai Leading the First Course at The Net Zero Institute for Senior City Officials

E. Promoting Civic Engagement in Governance

Core Goal: 8 DECENT WORK AND ECONOMIC GROWTH

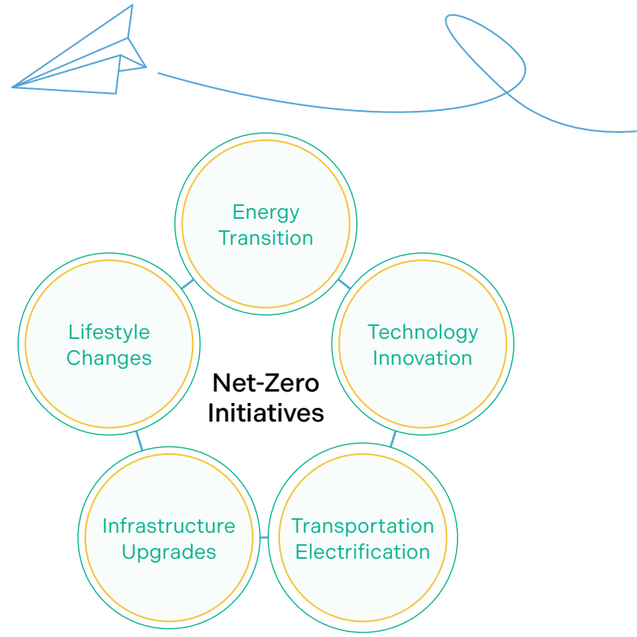
Secondary Goals: 16 PEACE, JUSTICE AND STRONG INSTITUTIONS; 17 PARTNERSHIPS FOR THE GOALS

Since 2016, the city has actively advanced civic engagement, including issue-based and community-based participatory budgeting. Under the Kaohsiung City Government Year 2024 Implementation Plans for Promoting Public Engagement - (6) Promotion of Public Engagement Proposals - (7) Promotion of Fair Net Zero Transition, city agencies implementing actions related to net-zero transition, in line with the Kaohsiung City Self-Government Ordinance for the Development of Net Zero City, must first identify potentially impacted industries and groups and introduce citizen participation mechanisms. Agencies are encouraged to integrate civic engagement into their net-zero transition initiatives, with proposals prioritized for funding approval.

Diamond Award of the Energy Governance Participatory Budgeting of Kaohsiung City

In 2023, Kaohsiung City Government agencies implemented 39 civic engagement projects. Among these, the Economic Development Bureau's initiatives—such as the Service Sector Energy Saving Participatory Budgeting, Community Energy Saving Participatory Budgeting, and Campus Energy-Saving Youth Ambassador Training Camps—were related to net-zero action plans. Moving forward, net-zero actions will remain a central focus of the city's governance, ensuring no individual, industry, or group is left behind. Agencies are encouraged to integrate public participation mechanisms in their net-zero initiatives by organizing public hearings, forums, and workshops, allowing all groups and citizens to voice their opinions and concerns.

2. Future Promotion



To achieve the net-zero target by 2050, the city will advance carbon reduction efforts across various sectors. Future energy transitions will focus on constructing microgrids and energy storage systems, along with energy management systems (EMS), to facilitate stable renewable energy supply. The city will prioritize encouraging private sector investments in energy storage research and development and promote the production and application of green hydrogen to foster hydrogen energy development in industry. Industrial transformation will enhance the quality of solid recovered fuels (SRF) and support the development of carbon capture, utilization, and storage (CCUS) technologies as well as direct air capture (DAC) technologies. Transportation transformation will focus on vehicle electrification, reducing road transport carbon emissions, and developing low-carbon fuels. Agricultural transformation will focus on low-carbon farming practices and the application of renewable energy to enhance carbon reduction effectiveness. Environmental transformation will strengthen waste recycling and promote methane recovery. Green Lifestyle emphasizes behavioral change and green procurement to encourage public participation in carbon reduction. In terms of natural carbon sinks, Kaohsiung City will actively manage artificial forests to increase the city's carbon sink capacity and explore quantitative methodologies for emerging carbon sink technologies, such as blue carbon.

The Kaohsiung Net-Zero Policy White Paper outlines a total of 76 net-zero initiatives, including several programs scheduled to officially launch in 2024, such as: Net-Zero City Commercial Operation Service Action and One-Stop Platform, Net-Zero Medical Institution – Promoting the Kaohsiung Municipal United Hospital Net-Zero Plan, Promoting Carbon Inventory over Indicator Buildings, Incorporation of Net-Zero Competence Plans in 2024 Functional Training Services, and Replacement of Internal-Combustion Police Motorcycles. These plans are gradually being implemented to support Kaohsiung's journey toward net-zero.

To achieve the net-zero target, Kaohsiung's net-zero initiatives encompass various measures including energy transition, technology innovation, transportation electrification, infrastructure upgrade, and change in lifestyle. These integrated strategies will work in synergy to promote SDGs, enhance the quality of life for citizens, and effectively address challenges posed by climate change, ultimately creating a more sustainable and livable vision for Kaohsiung City.

A Total of **76** Net-Zero Initiatives Listed in Kaohsiung City's Net-Zero Policy White Paper

5

Blueprint for the Future

As global climate change issues intensify, Kaohsiung City is committed to achieving its goal of net-zero carbon emissions by 2050. This objective embodies the definition of sustainable development from the 1987 «Brundtland Report», which emphasizes meeting present needs while ensuring future generations can meet theirs. To address this challenge, Kaohsiung City has fully launched its net-zero carbon emission plan; however, the effectiveness of setting these goals and the actual implementation will rely on continuous and effective evaluations.

In response to the requirements outlined in Article 5 of the Kaohsiung City Self-Government Ordinance for the Development of Net-Zero City, the 2024 Kaohsiung City Voluntary Local Review (VLR) report process has taken into account both sustainable actions and the review of net-zero measures. As the first review of the net-zero plan, it aids relevant departments in assessing the current implementation status, facilitating further adjustments and the reallocation of available resources to ensure the carbon reduction efforts get back on track. For plans where the carbon reduction results fall short of expectations, it also helps departments to seek additional collaborations and resources early on, aiming to achieve the important goal of reaching net-zero emissions.

The achievement of the net-zero goal relies on the collective participation of various stakeholders. Therefore, in 2024, the first draft was publicly released on the "Kaohsiung City Climate Change and Sustainable Action Network" to gather public feedback. Moving forward, Kaohsiung City will actively engage stakeholders, including government departments, businesses, academia, and community groups, to discuss and formulate strategies for net-zero emissions and sustainable development. Through multi-party collaboration, the city aims to ensure the comprehensiveness and feasibility of the plans.

Moreover, Kaohsiung City will continue to use action-oriented voluntary local review (VLR) to monitor the execution effectiveness of net-zero and sustainable plans. This approach will not only provide transparent progress reports but also allow for strategic adjustments to ensure compliance with the implementation requirements of the United Nations SDGs. Through regular updates and feedback, Kaohsiung City will achieve ongoing governance and improvement concerning net-zero and sustainability goals, demonstrating the city's proactive efforts in promoting climate governance and sustainable development. Moving towards a sustainable net-zero future, Kaohsiung City aims to establish urban resilience and pursue sustainability, crafting a unique net-zero sustainability blueprint for the city.

Net 0

Appendix

Kaohsiung City Sustainable Development Indicators

SDG 1
End poverty in all its forms everywhere

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Opening rate of children and Youth Future Education and Development Accounts (%)

2020	2021	2022	2023	2030
51.4	53.7	54.76	55.3	Observational indicator

- Number of appcants opening accounts / Number of eligible individuals

Continuing deposit rate of Children and Youth Future Education and Development Accounts (%)

2020	2021	2022	2023	2030
80	84.8	85.55	89.3	Observational indicator

- (Number of Children and Youth Future Education and Development Accounts deposited this year) ÷ (Number of Children and Youth Future Education and Development Accounts opened this year)

Mobile healthcare coverage (%)*

2020	2021	2022	2023	2030
85.7	100	100	100	90

- (Mobile healthcare area) ÷ (areas with insufficient healthcare resources announced by the Ministry of Health and Welfare)

Number of culture and health stations within sensitive indigenous communities (offices)*

2020	2021	2022	2023	2030
27	27	29	32	37

- Indigenous areas：
  1. Tribal villages within the jurisdiction of indigenous areas (towns, cities, districts) that have not yet established culture and health stations.
  2. Tribal villages where the number of populations over 55 years old reaches 150 or more without a culture and health station.
- City area: Area with a high proportion of indigenous population or gathering area without a culture and health station

Number of disadvantaged households under the Housing Act renting social housing or receiving rental subsidies (%)*

Social Housing

2020	2021	2022	2023	2030
63	58	53	51	50

Rent Subsidy

2020	2021	2022	2023	2030
56	53	Increased rent subsidy 33 The Central Government's Expanded NT$30 Billion Rent Subsidy Program 48	Increased rent subsidy 11 The Central Government's Expanded NT$30 Billion Rent Subsidy Program 50	50

- Number of disadvantaged households under the Housing Act renting social housing or receiving rental subsidies

Public property loss caused by re per year (unit: TWD $1M)*

2020	2021	2022	2023	2030
7.5	20.5	15	7.4	Observational indicator

- Fire Department Statistical Report

Rate of applicable workers being supported to work in low-income households or low-middle-income-households (%)

2020	2021	2022	2023	2030
61.1	66.7	62.92	67.6	64

- (Number of successfully employed individuals in low-income, low-middle-income households) ÷ (number of registered employment-seeking individuals in low-income, low-middle-income households) this year

SDG 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Production and sales history verification area (hectares)

2020	2021	2022	2023	2030
1,948	2,427	2,891.9	3,380.0	2,950

- Accumulated verified area over the years (hectares)

In-kind contribution service stations (offices)

2020	2021	2022	2023	2030
62	72	74	84	87

- In-kind contribution service stations

Food manufacturing industry inspections rate (%)

2020	2021	2022	2023	2030
11	30	42.9	47.8	100

- (Number of inspected food manufacturing companies) ÷ (Total number of companies)

Proportion of organic crops area (%)*

2020	2021	2022	2023	2030
1.8	2.0	2.2	2.3	Observational indicator

- (Organic crops area) ÷ (Total cultivation area)×100%

Agricultural expenditure in the composition of government's annual budget (%)*

2020	2021	2022	2023	2030
0.5	0.4	0.4	0.4	0.5

- (Agricultural expenditure) ÷ (City government's annual budget)

Public funds in the agricultural sector (unit: TWD 100 million)*

2020	2021	2022	2023	2030
6.7	12.9	19.5	7.5	6.67

- Official funds for the agriculture sector under projected plans by the National Bureau of Statistics

Approvals of agricultural rezoning cases in rural communities (piece)*

2020	2021	2022	2023	2030
58	61	63	66	65

- A community can become a rural regeneration plan community after submitting its rural regeneration plan and upon review and approval.

SDG 3

Ensure healthy lives and promote well-being for all at all ages

Indicator

Friendly reproductive environment

Number of childcare resource stations (offices)

2020	2021	2022	2023	2030
116	127	158	165	209

Childcare allowance claims (10,000 people)

2020	2021	2022	2023	2030
44.0	45.7	46.0	44.2	43.0

Number of childcare workers (people)

2020	2021	2022	2023	2030
3,088	3,146	3,229	4,097	4,200

Number of parent-child center visitors served (10,000 people)

2020	2021	2022	2023	2030
54.1	59.8	50.4	47.4	53.3

- Number of childcare resource points = Total number of public kindergartens + home childcare + private kindergartens + parenting resource stations (including parent-child centers) + parenting resource buses + location-xed and pay-by-time daycare stations
- Number of childcare workers = home childcare workers + licensed daycare center staff

Social welfare coverage (%)

2020	2021	2022	2023	2030
25	28	31	32.4	39

- (Number of social welfare facilities) ÷ (Number of administrative regions)

Homeless care project (people)

2020	2021	2022	2023	2030
7,192	5,967	6,039	5,500	6,000

- Number of people served

Screening coverage of three cancers (cervical, breast, and colorectal) (%)

Cervical Cancer

2020	2021	2022	2023	2030
53	51.8	49.9	49.3	54

Breast Cancer

2020	2021	2022	2023	2030
37.4	32.4	33.7	37.0	38.5

Colorectal Cancer

2020	2021	2022	2023	2030
37.8	33	32.6	33.2	39.5

- Cervical cancer screening rate =(Number of people taking pap smear in 3 years) ÷ (Middle-aged population)
- Breast cancer screening rate = (Mammography screenings in 2 years) ÷ (Middle-aged population)
- Colorectal cancer screening rate = (Fecal blood screening in 2 years) ÷ (Middle-aged population)

Traffic safety indicators (people)

2020	2021	2022	2023	2030
350	333	370	319	258

- Number of deaths within 30 days of traffic accidents

Utilization of long-term care services (%)

2020	2021	2022	2023	2030
55.9	57.5	68.9	83.2	80

- (Number of annual service users) ÷ (Estimated number of disabled people)

Ratio of citizens using public-funded health check resources (%)

40-64 years old

2020	2021	2022	2023	2030
31.6	32.2	31.2	31.5	31.6

65 years old or above

2020	2021	2022	2023	2030
30.9	29.3	27.1	29.0	31

- (Total number of people aged between 40–64 screened in the past 3 years) ÷ (Number of people aged between 40–64 screened in January of the year)
- (Total number of people aged between 65 or above screened in the past 3 years) ÷ (Number of people aged between 65 above screened in January of the year)

Number of Disaster Prevention Education Sessions (sessions)

2020	2021	2022	2023	2030
7,202	7,534	8,993	17,496	6,000

- Disaster Prevention Education Sessions/Events Held

Numbers of Toxic Chemical Incident Drills and Guidance for Hazardous Chemicals Operation Sessions (sessions)

2020	2021	2022	2023	2030
51	75	75	64	75

- Total of large-scale toxic chemical incident drills, on-site guidance for hazardous chemicals, and unannounced tests

Dengue Mosquito Breteau Index Level 3 or Above (%)

2020	2021	2022	2023	2030
1.8	4.0	1.5	8.4	<12

- (Number of positive containers ÷ number of surveyed households) × 100%, then converted to levels according to the "Dengue Mosquito Larva Index and Level Table."

Coverage Rate of Drug Abuse Treatment Service (%)

2020	2021	2022	2023	2030
68.2	68.2	68.2	68.2	65.0

- Number of City-Designated Drug Addiction Treatment Facilities / Number of Psychiatric Hospitals in the City

Number of Community Residents Reached in the Drug Abuse Prevention Awareness Activities (10,000 people)

2020	2021	2022	2023	2030
8.4	10.7	11.8	16.8	3.0

- Number of Participants in Physical Drug Abuse Prevention Education

Number of People Engaged in the Promotion of All-Age Sports to Encourage Public Participation in Recreational Sports (10,000 people)

2020	2021	2022	2023	2030
4.1	6.1	6.2	11.0	7.0

- Number of People Taking Regular Exercise

Promotion of Sports Economy and Industry Development (billion NT$)

2020	2021	2022	2023	2030
0.0	0.0	1.2	1.3	1.4

- Economic Benefits generated by Sports Events

SDG 4
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Supply of public, quasi-public education, and childcare services (%)

2020	2021	2022	2023	2030
63.1	89.6	97	100	90

- (Public + quasi-public approved enrollments) ÷ (Children aged 2–5 and enrolled in the kindergarten based in school year of 2018, which is 60,799)

Disadvantaged groups (including special education students, indigenous, and new residents) eligible for learning care and guidance (ten thousand people)*

2020	2021	2022	2023	2030
-	-	4.7	4.8	Observational indicator

- Number of Participants in Counseling Sessions or Activities for Disadvantaged Families and Children to New Immigrants

Personal counseling and placement for students with disabilities (%)*

2020	2021	2022	2023	2030
97.4	96.1	98.2	98.2	99

- Placements ÷ Applicants

Pre-employment training and support for the unemployed among disadvantaged groups (people)*

2020	2021	2022	2023	2030
1,185	1,263	1,652	1,450	1,199

- Participants from disadvantaged groups in the given year

Volunteers of environmental protection (unit: 10,000 people)

2020	2021	2022	2023	2030
2.8	2.9	2.7	2.7	2.68

- Volunteers of environmental protection

Teachers learning global professional knowledge*

Attended Sessions (sessions)

2020	2021	2022	2023	2030
64	76	70	82	85

Participants (people)

2020	2021	2022	2023	2030
2,339	2,124	2,005	1,855	2,000

- Workshops and Participation Numbers for Topics in Gender Equality, Human Rights, Ethics, Environment, etc.

Usage Rate of Learning Carriers (%)

2020	2021	2022	2023	2030
-	-	-	70	100

- Improvement Program-Usage Rate of Learning Carriers

Number of Environmental Education Facilities (places)

2020	2021	2022	2023	2030
18	18	18	19	22

- Number of the City's Environmental Education Facilities Certified by the "Regulations governing Certification and Management of Environmental Education Facilities"

Education and Training for Volunteer Service (10,000 people)

2020	2021	2022	2023	2030
2.6	7.6	7.6	7.9	7.8

- Number of People Engaged in the "Education and Training for Volunteer Service," and Number of Participants in Volunteer-Related Education and Training

Environmental Education (%)

2020	2021	2022	2023	2030
82	100	100	100	100

- Number of units required to report environmental education / Total number of government agencies and school in Kaohsiung City

Lifelong learning (unit: 10,000 people)

Civil Servants

2020	2021	2022	2023	2030
12.3	24.3	24.5	14.0	10

Promotional Activities

2020	2021	2022	2023	2030
217.7	200	369.8	325.5	225

Student Participation

2020	2021	2022	2023	2030
0.9	0.9	0.9	0.9	0.95

Lifelong Learning for Women

2020	2021	2022	2023	2030
3.4	2.8	3.2	3.5	4.0

Elderly Learning

2020	2021	2022	2023	2030
25.6	24.9	29.8	41.4	28.8

Lifelong learning (unit: 10,000 people)

Education for Women

2020	2021	2022	2023	2030
0.26	0.21	0.19	0.29	0.23

- Civil servants = Civil servants of life-long learning in Kaohsiung City
- Promotional activities = People reached by promotion activities
- Student participation = Students participating in lifelong learning courses
- Lifelong Learning for Women = Attendants of Senior Citizens Academy's education course + Participants in special lectures at community's women colleges
- Elderly Learning = Students at community's college and senior citizens learning center
- Education for Women = Statistics of Adult Women's Education Promotion Participation

Water Resource Education and Awareness (schools)

2020	2021	2022	2023	2030
Observational indicator	Observational indicator	11	12	12

- Schools in the City apply for water resource education and awareness events funded by central and local governments or institutions, compiling "Disaster Prevention Education Toolkits Borrowing" and "Cool School for Soil and Water Conservation" programs under the Agency of Rural Development and Soil and Water Conservation, MoA; Number of Schools Applying for the "Inclusion of Wastewater Sewer Education in Elementary Environmental Education" of the Water Resources Bureau, Kaohsiung City

Promotions of Local Ingredients and Food and Agriculture Education (hours)

Food and Agriculture Education

2020	2021	2022	2023	2030
15	18	16	15	10

Local Ingredients

2020	2021	2022	2023	2030
32	16	16	22	50

- Food and Agriculture Education=Number of Hours for the Food and Agriculture Education Promotions
- Local Ingredients Education=Number of Hours for the Local Ingredients Promotions

SDG 5
Achieve gender equality and empower all women and girls

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

The sex ratio at birth (%)

2020	2021	2022	2023	2030
107.1	107	108.1	109.4	Observational indicator

- (Born male) ÷ (Born female)

Implementation of Domestic Violence Counterparties Counseling Services

Applicants

2020	2021	2022	2023	2030
166	140	162	103	150

People

2020	2021	2022	2023	2030
5,804	5,709	7,326	4,248	6,200

- Annual number of service recipients and people

Domestic violence and sexual assault prevention activities of the year (unit: 10,000 people)

2020	2021	2022	2023	2030
1	0.68	1.3	1.3	3.2

- Annual number of people reached by events

Same-sex marriages (couples)

2020	2021	2022	2023	2030
306	249	328	413	Observational indicator

- Calculation of same-sex marriages

Proportion of deputy chiefs, chiefs of staff and first-level female supervisors in Kaohsiung City Government (%)*

2020	2021	2022	2023	2030
28	29	29	30	30

- (Women among the current deputy chiefs, chiefs of staff, first-level unit supervisors, and the chiefs, deputy chiefs, and chiefs of staff of the municipal government) ÷ (Total number of the current deputy chiefs, chiefs of staff, first-level unit supervisors, and the chiefs, deputy chiefs, and chiefs of staff of the municipal government)

Proportion of female non-supervisors in the municipal government and its first-level agencies (%)

2020	2021	2022	2023	2030
28	42	45	40	30

- (Female non-supervisors in the municipal government and its first-level agencies) ÷ (Total number of non-supervisors in the municipal government and its first-level agencies)

Gender ratio of chairpersons of non-governmental organizations (%)

Male

2020	2021	2022	2023	2030
71.7	71.1	71.4	71.1	Observational indicator

Female

2020	2021	2022	2023	2030
28.3	28.9	28.6	28.9	Observational indicator

- (Calculation of male/female chairpersons of non-governmental organizations in Kaohsiung City at the end of the year) ÷ (Total number of chairpersons of non-governmental organizations)

SDG 6
Ensure availability and sustainable management of water and sanitation for all

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Daily water consumption per person (liter)

2020	2021	2022	2023	2030
281	272	280	279	Observational indicator

- (Tap water for domestic consumption ÷ water supply population) ÷ 365 days

Premium public toilets in Kaohsiung City (%)*

2020	2021	2022	2023	2030
79.2	79.8	92	92.3	85

- (Premium public toilets) ÷ (Registered public toilets)

Households connecting to public sewer system and sewer (%)*

2020	2021	2022	2023	2030
46	47.4	49	50.2	57.0

- (Connected households × Number of households per county/city) ÷ total population per county and city

Recycle of used water (10,000 tons / days)*

2020	2021	2022	2023	2030
5.4	5.9	9.9	8.9	21

- Summation of the amount of recycled water discharged from the public sewage treatment plant and the total amount of recycled water produced by the Water Resources Center

Mildly and slightly/not polluted length of the main rivers (%)*

2020	2021	2022	2023	2030
34.9	30.3	25.2	34.5	≧ 50

- (Mildly polluted length + not/slightly polluted length) ÷ (Total polluted length)

Stations' examining result with DO≥2.0mg/L in each water basin within the jurisdiction

2020	2021	2022	2023	2030
≧ 95	97.3	96.9	94.6	100

- (Stations with results of DO≥2.0mg/L) ÷ (Effective stations)

Leakage density of tap water and length of pipeline replacement (km/year)*

2020	2021	2022	2023	2030
44.6 (km) 4,738 (cases)	52.6 (km) 5,082 (cases)	42.9 (km) 4,425 (cases)	57.5 (km) 4,529 (cases)	Observational indicator

- Leak Repair Density (cases/km)
- Pipeline Replacement Length (meters/year)

Tap water penetration rate (%)*

2020	2021	2022	2023	2030
96.6	96.6	96.8	96.9	Observational

- (People with water supply) ÷ (Number of people in Kaohsiung City)

Green building rainwater storage and rainwater recovery (cubic meters)

2020	2021	2022	2023	2030
3,500	3,700	3,809	3,956	4,500

- Designed capacity of rainwater storage and rainwater recycling facilities for green buildings

Kaohsiung city's soil and groundwater pollution public sites (numbers) released from listing*

2020	2021	2022	2023	2030
9	16	9	5	Observational indicator

- Numbers of Kaohsiung city's soil and groundwater pollution public sites released from listing

Subsidence area or amount of stratum in Kaohsiung City (square meter)

2020	2021	2022	2023	2030
0	No monitoring results	No monitoring results	No monitoring results	No monitoring results

- Based on monitoring results from the MoEA's Water Resources Agency (Area with the annual subsidence rate greater than 3 cm)

Water Environment Patrol Teams (teams)*

2020	2021	2022	2023	2030
30	31	32	32	30

- Number of Water Environment Patrol Teams in Kaohsiung City

River volunteers with the volunteer service records (%)

2020	2021	2022	2023	2030
74.8	77.1	78	93.1	98

- (Number of river volunteers with volunteer records) ÷ (River volunteers)

SDG 7
Ensure access to affordable, reliable, sustainable and modern energy for all

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Energy consumption per capita (kWh/people)

2020	2021	2022	2023	2030
2,745	2,779	2,837	2,821	Observational indicator

- (Annual sales of electric lightings announced by Taipower) ÷ (Population in Kaohsiung)

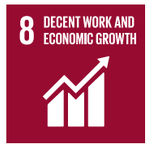
Solar photovoltaic facilities promoted (GW)*

2020	2021	2022	2023	2030
0.12	0.42	0.8	0.9	2.5

- Cumulative capacity of solar photovoltaic facilities installed on buildings

SDG 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Indicator

Entrepreneurship training courses held (sessions)

2020	2021	2022	2023	2030
29	32	30	34	38

- Sessions of entrepreneurship training courses

Service of support and advice (people)

2020	2021	2022	2023	2030
249	275	250	301	315

- Number of applicants of support-and-advice service

SDG 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Indicator

Promoting of park development and transforming into high-end manufacturing center (unit:100 million TWD)

2020	2021	2022	2023	2030
400	815.7	1,394.7	2,084.7	2,442.0

- Annual Accumulation of Amounts from Facilitation of Expanded Investments by Enterprises at the Park

Number of Newly Established Digital Economy Enterprises (Number of Entities)

2020	2021	2022	2023	2030
11	42	5	3	10

- Number of Newly Established Digital Economy Enterprises

Number of Entities Receiving Startup Green Economy Model (Number of Entities)

2020	2021	2022	2023	2030
-	-	-	82	80

- Number of Startups Receiving Guidance

Inspection Status of Self-Check over Pipelines by Existing Industrial Pipeline Operators (Number of Operators)

2020	2021	2022	2023	2030
16	14	14	14	14

- Inspection Status of Self-Check over Pipelines by Existing Industrial Pipeline Operators

Artificial Beach Construction to Prevent Coastal Erosion

2020	2021	2022	2023	2030
"Cijin Tiansheng Temple Coast Protection Emergency Project"	-	-	"Cijin Coastal Protection Strategy and Environmental Improvement Plan"	Implementation of sand source compensation work in secondary coastal protection areas and coastal protection projects

- Promotion of Secondary Coastal Protection Plan

SDG 10
Reduce inequality within and among countries

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Multiples of household income quintiles gap

2020	2021	2022	2023	2030
6.56	6.46	6.06	no data yet	Observational indicator

- (Average highest quintiles) ÷ (Average lowest quintiles)

Promoting employment for people with physical and mental disabilities (people)*

2020	2021	2022	2023	2030
3,151	2,433	3,287	3,267	3,160

- Number of people with promoted employment

Employment-by-referral rate of disadvantaged job seekers (%)

2020	2021	2022	2023	2030
54	58.2	57.6	57.6	58

- (Number of job seekers with special needs) ÷ (Number of newly registered job seekers with special needs)

Referral of Middle-aged and Elderly People for Employment (10,000 people)

2020	2021	2022	2023	2030
1.2	1.4	1.5	1.6	1.3

- Number of job seekers (middle-aged and elderly) successfully referred or employed by public employment services

Gini coefficient of income per household

2020	2021	2022	2023	2030
0.36	0.35	0.34	no data yet	Observational indicator

- Area contained between the Lorenz curve and the perfect equal line to the area of the entire triangle below the perfect equal line

SDG 11
Make cities and human settlements inclusive, safe, resilient and sustainable

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Disadvantaged households (household)*

2020	2021	2022	2023	2030
16,282	18,975	38,516	54,532	Observational indicator

- Summation of households signing the social housing contract and households receiving rent subsidies

Urban renewal (cases)*

2020	2021	2022	2023	2030
1	2	2	3	2

- Number of approved urban renewal cases

Public bike promoted (unit: 10,000 people)

2020	2021	2022	2023	2030
669.8	917.3	1,143.5	1,548.9	1,300

- Number of people riding public bicycles

Bike lanes (km)

2020	2021	2022	2023	2030
1,035.3	1,047.9	1,047.9	1,070.4	1,100

- Bike lanes length

Extended length of the MRT (km)

2020	2021	2022	2023	2030
42.7	42.7	42.7	42.7	90.3

- Extended rail length of the MRT

Extended length of the LRT(km)

2020	2021	2022	2023	2030
8.7	12.8	14.9	22.1	22.1

- Extended rail length of the LRT

Number of happy buses for the elderly (unit: trips)

2020	2021	2022	2023	2030
122	50	78	126	123

- Number of trips for the happy bus for the elderly

Developed land size of urban planning public facilities areas (unit: 10,000 hectares)

2020	2021	2022	2023	2030
1.2	1.2	1.2	1.2	Observational indicator

- Statistics of developed of urban planning public facilities areas

The suburban area planning in Kaohsiung city's spatial planning (cases)

2020	2021	2022	2023	2030
1	1	2	2	1

- The suburban area planning in Kaohsiung city's spatial planning

National land plan and non-urban land development permission (cases)

2020	2021	2022	2023	2030
2	3	3	5	2

- Permitted cases of National Spatial Planning and non-urban land development

Completion rate of barrier-free facilities in public buildings (%)

2020	2021	2022	2023	2030
90.9	91	92	90.5	91.3

- (Barrier-free public facilities) ÷ (All public facilities)

Pavement environment and access area around schools (unit: 10,000 square meters)

2020	2021	2022	2023	2030
12.3	14	15.5	16.9	24.2

- Walkable area of pavement

Length of pavements with motorcycles' parking space removed (km)

2020	2021	2022	2023	2030
4.5	11.5	13.5	19.3	22.5

- Total length of the motorbike parking spots removed on the pavement

Continuous selection of public/private facilities in each jurisdiction suitable for emergency shelter for during disasters (%)

2020	2021	2022	2023	2030
10	10	10.2	10.1	＞10

- (Evacuation capacity) ÷ (Number of citizens)

The number of people died, missing, injured during natural disasters (only includes earthquakes, typhoons, and floods) (person)

2020	2021	2022	2023	2030
0	0	0	0	Observational indicator

- Fire Department Official Statistics Report

Annual average concentration of fine suspended particles (μg/m³)*

2020	2021	2022	2023	2030
18.4	18.5	16.9	16.8	13

- (Annual average sum of fine suspended particles found through manual monitoring stations) ÷ (Number of fine suspended particles manual monitoring stations)

Ozone for eight hours (ppb)

2020	2021	2022	2023	2030
75.3	71.3	69.2	69.9	Observational indicator

- Average of annual ozone's concentration for 8 hours in 12 air quality automatic monitoring stations in Kaohsiung City

AQI value*

2020	2021	2022	2023	2030
82.8	80.7	87.5	88.9	90

- Improving the air quality by increasing AQI to≤100

Available air quality automatic monitoring data (%)

2020	2021	2022	2023	2030
98.8	96.8	98.6	99	＞94

- (Hourly data included in the scheduled number of effective data) ÷ (Month included in the total scheduled number of transactions) × 100%

Environmental noise monitoring (%)

2020	2021	2022	2023	2030
100	100	100	100	96

- 1-(Number of periods of anomalous environmental noise monitoring) ÷ (Total number of periods of monitoring)

Green Space Area Available to Urban Residents (square meters)*

2020	2021	2022	2023	2030
10.3	10.4	10.5	10.5	12.3

- Average park and green area per capita

Number of Permanent Soil and Water Conservation Facilities under the Soil and Water Conservation Plans Inspected (Number of Cases)

2020	2021	2022	2023	2030
36	51	66	81	170

- Post-Completion Survey for Permanent Soil and Water Conservation Facilities under Legally Applied Soil and Water Conservation Projects of the City

Cumulative Number of Green Building Candidate Certificates Issued (cases)

2020	2021	2022	2023	2030
881	891	918	935	960

- Cumulative number of buildings that have obtained green building candidate certificates

Sustainable Land Use Planning

Cases Implemented (Number of Cases)

2020	2021	2022	2023	2030
29	21	36	37	Observational indicator

Cases on Public Display (Number of Cases)

2020	2021	2022	2023	2030
19	34	40	39	Observational indicator

Total Area Changed in All Cases (hectares)

2020	2021	2022	2023	2030
36.8	363.3	86.9	230.2	Observational indicator

- Number of cases of urban plan reviews and individual land use changes

Inventory over the Utilization of Idle Public Spaces in the City (cases)

2020	2021	2022	2023	2030
494	441	471	408	Observational indicator

- Number of Rental and Activation Cases of Idle Public Land and Buildings Managed by City Authorities

Electric Bus Ratio (%)

2020	2021	2022	2023	2030
13.6	21.8	21.8	32	100

- Proportion of Electric Buses to Total Buses in the City

Number of Residence Subsidies Granted (10,000 households)

2020	2021	2022	2023	2030
1.6	1.6	3.6	4.9	Based on the number announced for the current year

- Households meeting the eligibility criteria are included based on assessment scores

Clean Homeland Index (hectares)

2020	2021	2022	2023	2030
2.0	1.9	1.7	1.7	1.7

- Area of Greening and Construction Thereof in Communities

Volume of public transportation system (hundred million people)

Volume (hundred million people)

2020	2021	2022	2023	2030
-	31.9	96.9	125.6	An increase of 2% from the actual volume in 2025

Year-on-year growth rate (%)

2020	2021	2022	2023	2030
-20.4	-	-	27.5	An increase of 2% from the actual volume in 2025

- The calculation includes buses, MRT, taxis, water buses, public bicycles, shared vehicles, light rail, and total system usage

SDG 12
Ensure sustainable consumption and production patterns

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Increase of the issued green factory certificates (factories)*

2020	2021	2022	2023	2030
18	19	19	19	Observational indicator

- Number of green factory acquired certificates

Reuse of industrial food waste (%)

2020	2021	2022	2023	2030
94.4	91.7	94	96.6	95.5

- (Amount of reused industrial food waste) ÷ (Amount of total industrial food waste)

Reuse of industrial waste (%)*

2020	2021	2022	2023	2030
90.6	91.8	91.1	87.3	92

- (Amount of reused industrial waste) ÷ (Amount of total industrial waste)

Tracing cases of the flow of toxic chemicals (%)*

2020	2021	2022	2023	2030
82.9	100	98.8	100	88

- (Inspections of the regulated factories with toxic chemicals) ÷ (Numbers of the regulated factories with toxic chemicals)

Selling rate of particles recycled from incinerated bottom slags (%)

2020	2021	2022	2023	2030
80.2	90.4	96.5	100.6	85

- (Selling number of particles recycled from incinerated bottom slags) ÷ (Total amount of particles recycled from incinerated bottom slags)

Recycle rate of agricultural waste (%)

2020	2021	2022	2023	2030
84.7	84.7	97.7	91.8	85.7

- (Amount of recycled agricultural waste in registered companies) ÷ (Total amount of agricultural waste in registered companies)

Recycled food waste (%)

2020	2021	2022	2023	2030
2.4	2.2	3	3.6	5.5

- (Amount of recycled food waste) ÷ (Waste volume, in despite of the business employees' household waste)

Livestock wastewater turned into resource (%)

2020	2021	2022	2023	2030
-	2.5	3.3	3.9	≧ 10

- The percentage of resource utilization of livestock ranches

Recycled waste (%)

2020	2021	2022	2023	2030
61.5	64.8	61.6	61.6	62

- (Amount of recycled food waste, recycled waste and recycled huge waste) ÷ (Waste volume, in despite of the business employees' household waste)

Number of TWSE/TPEx Listed Companies Filing Sustainability Reports (Number of Entities)

2020	2021	2022	2023	2030
521	586	686	859	136

- Number of Kaohsiung-Based TWSE/TPEx listed Companies Submitting Sustainability Reports for the Previous Year at TWSE's MOPS

Green procurement by public organizations (%)*

2020	2021	2022	2023	2030
99.7	99.2	99.7	99.6	99

- The annual purchases of environment-friendly products that meet the first category (with environmental protection labels), the second and third categories of "low pollution, resource conservation, and recyclability" in total, which should reach a set target ratio of the agency's total purchase budget for the year

Green procurement by private enterprises and organizations (unit: 100 million TWD)*

2020	2021	2022	2023	2030
28.4	45.1	61.9	57.4	82

- The annual purchases with Taiwan's environmental protection labels, second-grade environmental protection labels, energy conservation labels, water conservation labels, green building material labels, carbon footprint labels, carbon reduction labels and foreign green products in total

Occupancies of tourist hotels (%)

2020	2021	2022	2023	2030
41.4	45.7	44.8	55.0	50

- (Number of guest rooms occupied) ÷ (Number of guest rooms)

Low-carbon sightseeing (trips)

2020	2021	2022	2023	2030
3	3	3	4	4

- Trips of low-carbon sightseeing

Proper Disposal of Port Waste (tons)

2020	2021	2022	2023	2030
1,703	1,838	1,878	1,506	1,651

- Annual Average Recovery Tonnage and Total Resource Recovery Tonnage

Issuance Amount of Green Bonds (hundred million NT$)

2020	2021	2022	2023	2030
-	-	-	20	Observational indicator

- Total Amount of Green Bonds Issued by the City Government

Statistics of Green Loans and Investments by the Bank of Kaohsiung (hundred million NT$)

Green Loans

2020	2021	2022	2023	2030
-	-	-	210	Observational indicator

Investment in Green Bonds

2020	2021	2022	2023	2030
-	-	-	77	Observational indicator

- Statistics of Green Loans and Investments by the Bank of Kaohsiung

SDG 13
Take urgent action to combat climate change and its impacts

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Volume of detention basins (10,000 tons)

2020	2021	2022	2023	2030
326.6	326.6	434.8	498.0	490

- Volume of detention basins in Kaohsiung city

Volume of detention basins (%)

2020	2021	2022	2023	2030
40	40	40	40	Observational indicator

- (Pedestrian areas with permeable pavement in square meters) ÷ (Pedestrian areas suitable for permeable pavements)

GHG emissions reduction (%)

2020	2021	2022	2023	2030
19.4	13.3	20.8	25.1	30

- (Annual GHG Emissions - 2005 GHG Emissions) ÷ 2005 GHG Emissions

Smart flood prevention and monitoring stations (stations)

2020	2021	2022	2023	2030
172	208	223	267	Observational indicator

- Numbers of flood sensors, water level stations and mobile pump sensors

Sewer monitoring stations

2020	2021	2022	2023	2030
0	0	5	5	Observational indicator

- Each monitoring station is equipped with flow meters, water level meters, pH meters, conductivity meters, and total organic carbon analyzing devices

Number of sustainable campuses (campuses)*

2020	2021	2022	2023	2030
213	234	254	266	290

- Cumulative value of approved campuses

Landslide prevention education and training (sessions)

2020	2021	2022	2023	2030
24	50	76	101	150

- Training sessions for landslide prevention education and training (including landslide prevention drills, actual military drills, etc.) in total per year

Awareness raising sessions of high temperature adaptation, prevention and treatment (sessions)

2020	2021	2022	2023	2030
347	861	1,744	1,012	7,000

- Cumulation of awareness raising sessions of high temperature adaptation, prevention and treatment

Sustainable environment and high/low temperature adaptation courses (unit: 10,000 people)

2020	2021	2022	2023	2030
10.1	24.6	40.4	24.3	100

- Cumulation of participants

Communities with autonomous landslide disaster prevention (communities)

2020	2021	2022	2023	2030
3	7	13	19	22

- Number of communities awarded with the 2.0 Bronze Community Certification Award for Quality Independent Disaster Prevention Communities by the Water and Soil Conservation Bureau of the Council of Agriculture

Communities with autonomous flood prevention (communities)

2020	2021	2022	2023	2030
31	32	32	32	43

- Number of communities continuously operating the autonomous flood prevention

Flood Simulation Early Warning Capture Rate (%)

2020	2021	2022	2023	2030
80	80	80	80	80

- 80% as Threshold for Capture Rate of Flooding for Each Torrential Rain Event

Number of Users and Usage of "Water Regime e-Portal" (10,000 people)

2020	2021	2022	2023	2030
0.7	1.2	1.3	1.4	1.4

- New UserGrowth and Reading by Citizens for the Official LINE Account by Year

SDG 14
Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Qualified rate of coastal and ocean water quality*

2020	2021	2022	2023	2030
100	100	100	100	100

- Σ (Total numbers of water quality meeting the marine environmental quality standards) ÷ (Effective monitors with 7 water quality indicators)

Marine education and environmental education (sessions)

2020	2021	2022	2023	2030
40	40	40	40	40

- Annual sessions of marine conservation and marine environmental education

Preservation of species

2020	2021	2022	2023	2030
4	7	8	6	6

- Clean-ups of the nets in the artificial reefs every year

Cancelation of fuel subsidies of the illegal fishing vessels

2020	2021	2022	2023	2030
0	11	8	16	Observational indicator

- Cancelation of fuel subsidies of the illegal fishing vessels

Subsidies for off-fishing (%)

2020	2021	2022	2023	2030
98	98	100	98.7	100

- (Number of approvals) ÷ (Number of applications)

Dissemination of Sustainable Development Information (10,000 people)

2020	2021	2022	2023	2030
54.6	78.9	84.8	89.0	104.6

- Cumulative Views (previous year's total plus 100,000 people)

SDG 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Forest coverage (%)*

2020	2021	2022	2023	2030
57.9	57.9	57.9	58.4	58

- (Forest area) ÷ (Total land area)

Research and investigation report of the natural reserve area managed by Kaohsiung (reports)

2020	2021	2022	2023	2030
5	4	3	1	Observational indicator

- Number of investigations per year in Wushanding Mud Volcano Nature Reserve and Nanzihsiian River Wildlife Reserve in Namaxia District

Important wetland area (hectare)

2020	2021	2022	2023	2030
583.5	583.5	583.5	583.5	Observational indicator

- According to the Wetland Conservation Act, the total area of international, national, and local grades of important wetlands approved by the central government

Reservation areas for indigenous people (hectare)

2020	2021	2022	2023	2030
12.7	8.8	14.9	25.0	Observational indicator

- Applications by the public

Memorial trees registered and in conservation (trees)

2020	2021	2022	2023	2030
558	564	579	737	750

- Number of memorial trees in Kaohsiung

Proportion of reserved area in mountainous areas (%)*

2020	2021	2022	2023	2030
23.3	23.3	23.3	23.3	Observational indicator

- (Total area of the city's natural reserves) ÷ (Total area of the city's mountainous areas)

Number of afforestation seedlings given out (unit: 10,000 seedlings)

2020	2021	2022	2023	2030
4.2	4	4.6	4.2	4.5

- The public was encouraged to apply for the afforestation seedlings

Removal of alien species*

Kaloula pulchra (unit)

2020	2021	2022	2023	2030
202	987	153	234	Observational indicator

Polypedates megacephalus (unit)

2020	2021	2022	2023	2030
36	30	50	147	Observational indicator

Egg foams of Polypedates megacephalus (unit)

2020	2021	2022	2023	2030
2	-	-	-	Observational indicator

Geopelia striata (unit)

2020	2021	2022	2023	2030
28	134	87	87	Observational indicator

Copsychus malabaricus (unit)

2020	2021	2022	2023	2030
42	66	124	-	Observational indicator

Iguana iguana (unit)

2020	2021	2022	2023	2030
3,047	5,217	5,052	5,052	Observational indicator

Leucaena leucocephala (hectare)

2020	2021	2022	2023	2030
2	-	4.6	12	Observational indicator

Mikania micrantha and Fragrant Eupatorium (hectare)

2020	2021	2022	2023	2030
20.8	23.31	35.72	15.2	Observational indicator

Mimosa pigra (hectare)

2020	2021	2022	2023	2030
3.5	1.5	1	1.0	Observational indicator

Parthenium hysterophorus (hectare)

2020	2021	2022	2023	2030
1	0.5	6	0.5	Observational indicator

- Number of removed alien species

SDG 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Violence crimes committed (cases)*

2020	2021	2022	2023	2030
76	51	38	28	100

- Cumulation of violence crimes

Investigation of children under 12 years old in the household of wanted criminals and current criminals in violation of the Narcotic Hazards Prevention Act (%)*

2020	2021	2022	2023	2030
100 (15 people)	100 (16 people)	100 (49 people)	100 (38 people)	100

- (Children interviewed by telephone + Children interviewed in-person) ÷ (Children that should be interviewed)

Investigation rate of children in the household of suspected criminals in violation of the Narcotic Hazards Prevention Act(%)

2020	2021	2022	2023	2030
100 (488 people)	100 (786 people)	100 (402 people)	100 (273 people)	100

- (Number of visits to suspects that violated the Narcotic Hazards Prevention Act under a child protection or with vulnerable family for less than one year) ÷ (Number of suspects that violated the Narcotic Hazards Prevention Act under a child protection or with vulnerable family for less than one year)

Crime reporting and requiring for assistance by the general public(%)

2020	2021	2022	2023	2030
29	30.8	28.7	24.6	32

- (General public reports through the 110, police phone number, and the 113, women's and children's protection phone number) ÷ (Annual crime reports)

Restorative Justice Seed Teachers (people)

2020	2021	2022	2023	2030
76	72	104	116	120

- Restorative Justice Seed Teachers

Open data downloads of Kaohsiung City Government (unit: 10,000 people)*

2020	2021	2022	2023	2030
40	43	44	45	60

- Cumulation of downloads via Kaohsiung City Open Data Platform

Kaohsiung City Government information platform queries provided (queries)

2020	2021	2022	2023	2030
452	516	542	585	720

- Total amount of query services provided by the Kaohsiung City Government information platform

SDG 17
Strengthen the means of implementation and revitalize the global partnership for sustainable development

Indicator

- Items with asterisk ("*") corresponds to Taiwan Sustainable Development Indicators

Conference of sustainability (sessions)

2020	2021	2022	2023	2030
4	9	15	25	40

- Cumulated numbers of conference and educational training of sustainability

Participating in Fulbright Project (school)

2020	2021	2022	2023	2030
20	22	26	24	20

- Cumulation of school participating in Fulbright Project

Collaborating projects with international sustainable organizations/government units (projects)

2020	2021	2022	2023	2030
29	29	30	32	Observational indicator

- Number of sustainability-related technical or strategic partnerships with international organizations and government units

Number of International Events on Sustainability Organized and Participated (Number of Events)

2020	2021	2022	2023	2030
5	1	2	1	Observational indicator

- Number of Sustainability-Related international Events Organized and Participated in by City Government Agencies

Number of Awards from Participation in Domestic/International Sustainability Competitions or Evaluations(by Items)

2020	2021	2022	2023	2030
49	53	20	71	Observational indicator

- Awards from Related Competitions or Evaluations

International Mental Health Training Center Taiwan (IMHTCT) under the New Southbound Policy (people)*

Visiting Taiwan

2020	2021	2022	2023	2030
428	158	110	40	Observational indicator

Teaching Abroad

2020	2021	2022	2023	2030
336	168	124	56	Observational indicator

- Number of participants from overseas visiting Taiwan and teaching from abroad

2024

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