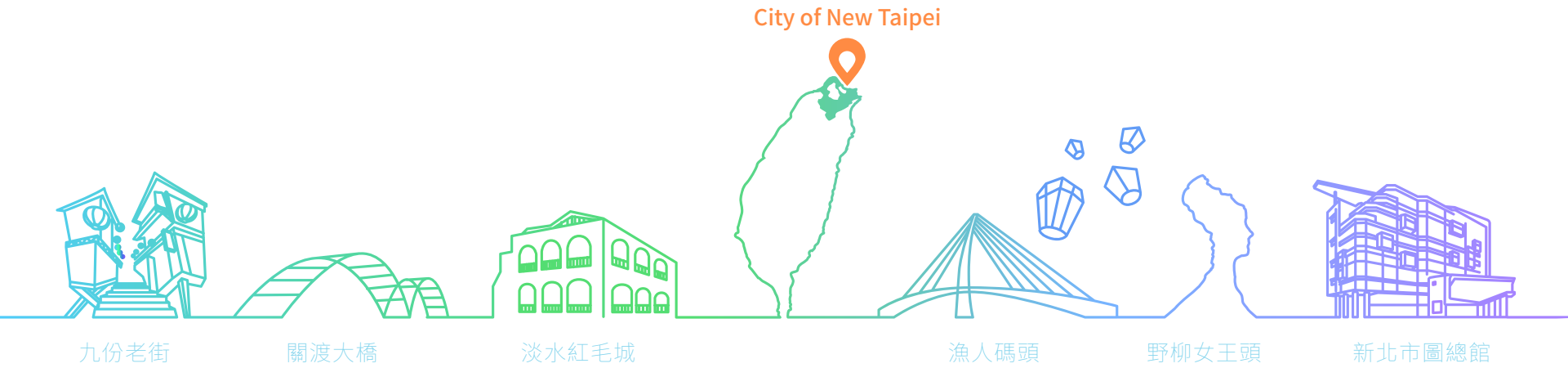
City of New Taipei Climate Action Plan



Environmental Protection Department
New Taipei City Government

Policy Commitment from Mayor

I hereby declare the intent of the city of New Taipei to comply with the Compact of Mayors, the world' s largest cooperative effort among mayors and city leaders to reduce greenhouse gas emissions, track progress, and prepare for the impacts of climate change.

The Compact of Mayors has defined a series of requirements that cities are expected to meet over time, recognizing that each city may be at a different stage of development on the pathway to compliance with the Compact.

I commit to advancing the city of New Taipei along the stages of the Compact, with the goal of becoming fully compliant with all the requirements within three years. Specifically, I pledge to publicly report on the following within the next three years:

- The greenhouse gas emissions inventory for our city consistent with the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), within one year or less
- The climate hazards faced by our city, within one year or less
- Our target to reduce greenhouse gas emissions, within two years or less
- The climate vulnerabilities faced by our city, within two years or less
- Our plans to address climate change mitigation and adaptation within three years of less

Yours Faithfullv.

[Figure 2: ICLEI 2015 World Congress]
Providing sustainable and innovative solution

[Figure 1: Tamsui River Sustainability Declaration]
Co-living with water, ecological protection, public participation

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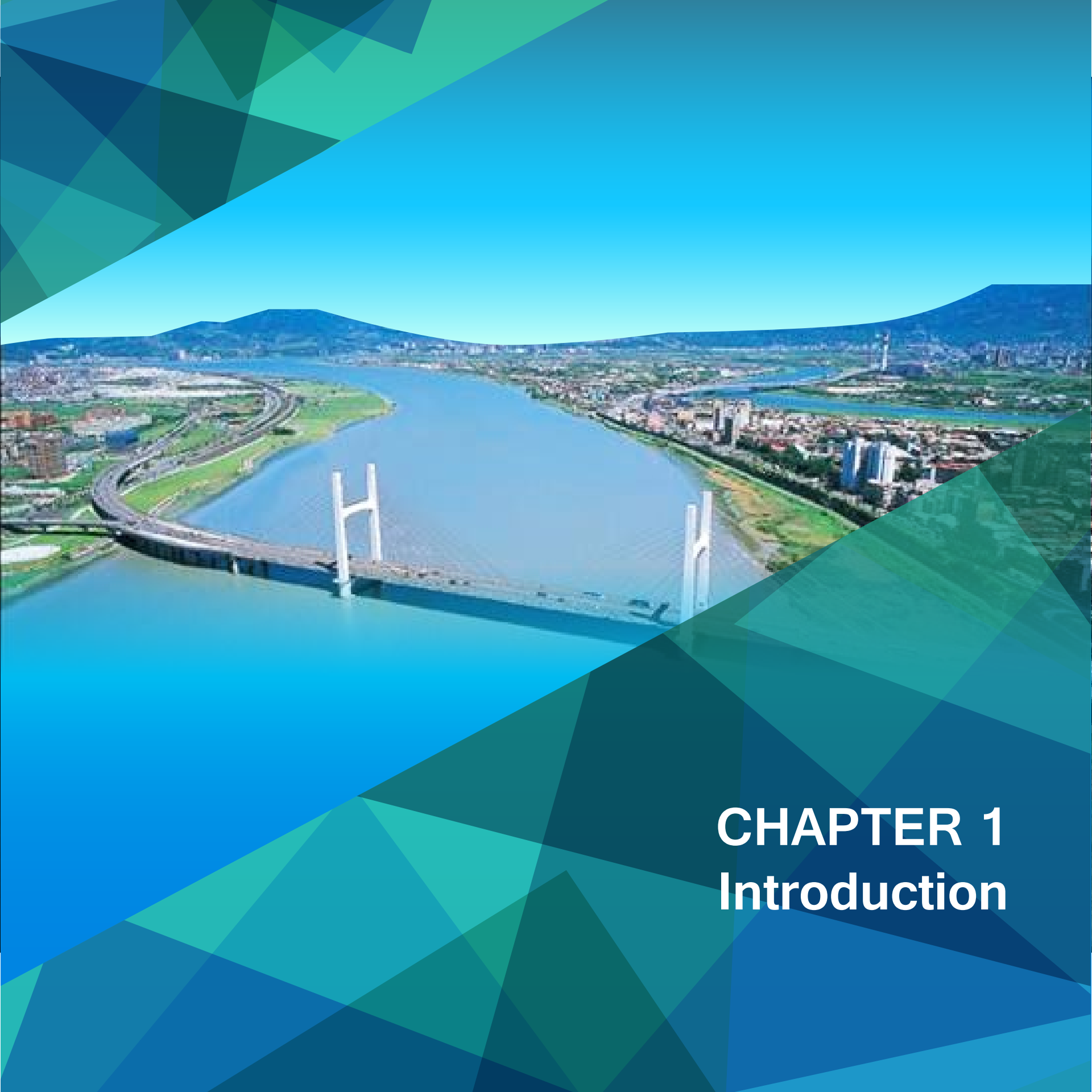


CHAPTER 1
Introduction

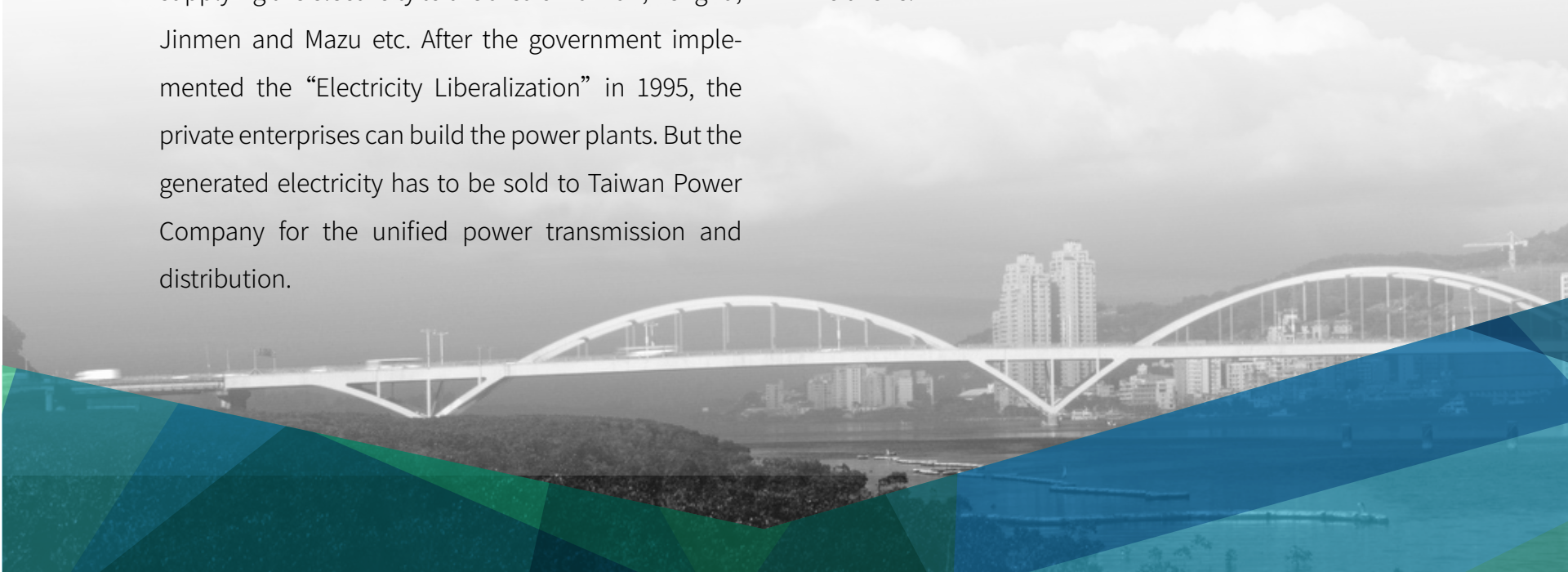
1.1 Background

Situated in the northern part of Taiwan, surrounding Taipei City and Keelung City, City of New Taipei has formed the common living circle of Metropolitan Taipei. Leaned to the Pacific Ocean and the Taiwan Straits, the area of whole city l is 2,052 km2, which accounts for 6% of Taiwan. The total length of coastline is 120 km. There are 3,970,000 populations at the end of 2014. Tamsui River is the main river flowing through City of New Taipei. The area of Tamsui River Basin is 2,726 km2, and the length of major river is 158.7 km. It is the central river of Metropolitan Taipei.

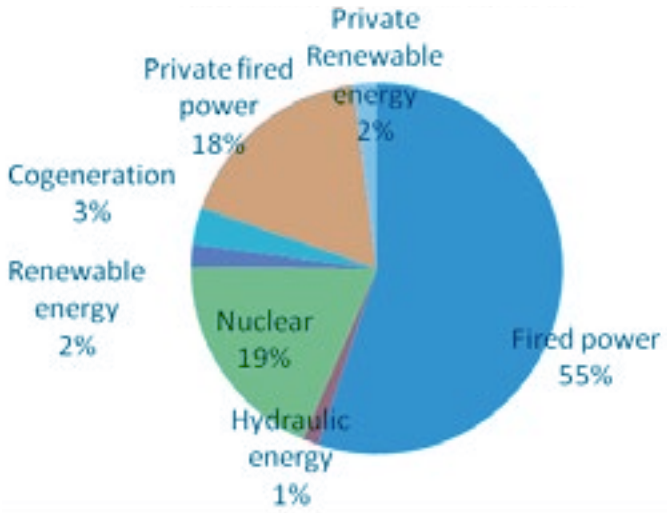
Taiwan lacks energy resources and highly depends on import. In addition, the power generating industry of Taiwan is still operated by the governmental sector mainly. Taiwan Power Company is responsible for supplying the electricity to the area of Taiwan, Penghu, Jinmen and Mazu etc. After the government implemented the “Electricity Liberalization” in 1995, the private enterprises can build the power plants. But the generated electricity has to be sold to Taiwan Power Company for the unified power transmission and distribution.

The service sector is main inductry in City of New Taipei. There are few industrial factories, but the production value is very high. The main industries are the metal products manufacturing industry, mechanical equipment manufacturing industry, plastic products manufacturing industry, computer, electronic products, optical products and electronic components manufacturing industry etc., which account for 60% of whole factories.

Naturally poor energy resources, continuously grown population and number of enterprises strengthen the pressure for responding the impact and influence of climate change. The city needs to invest more mental and physical efforts, use every resource, and grasp every chance, in order to provide suitable life to citizens.

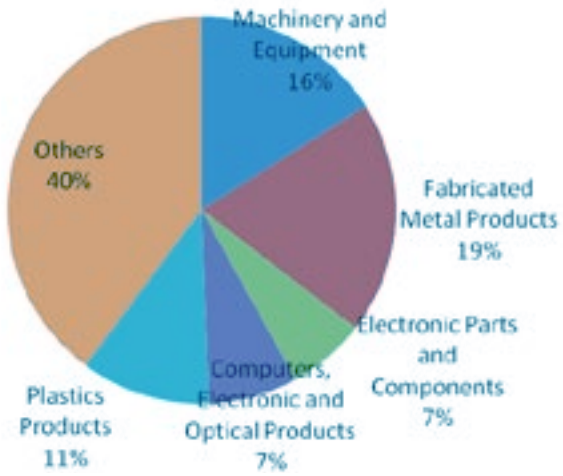


Taiwan power generation structure in 2014



Source: Taiwan Power Company

Taiwan Industrial structure in 2014



Source: Taiwan Power Company

1.2 Vision

In the past 100 years, the average temperature rose about 1.4°C in Taiwan, and the warming rate is 2 times of global average. It is a figure of worry, and even an alert warning. It tells us that the promotion of energy conservation and carbon reduction has become an urgent matter of whole people.

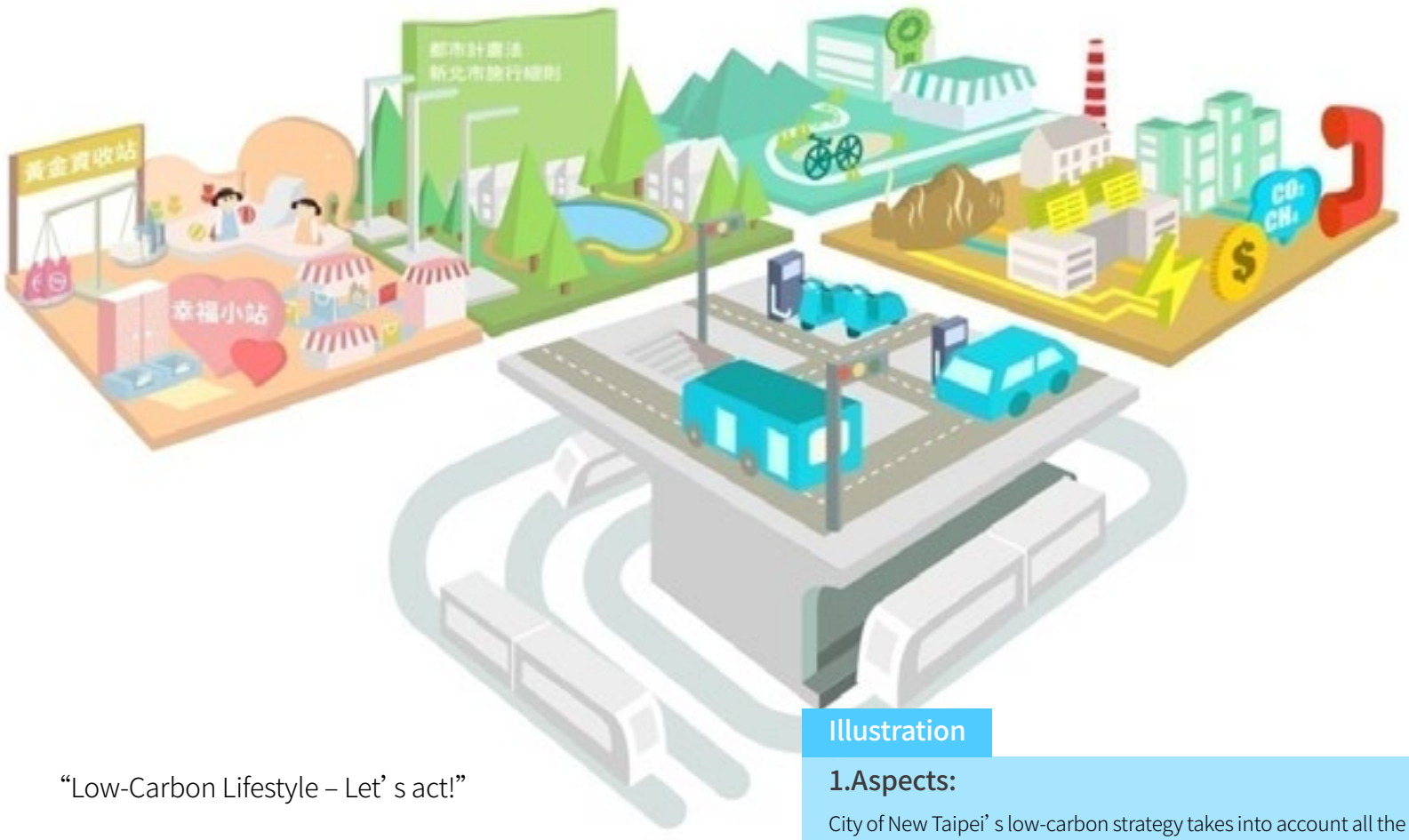
The responsibility and goal of City of New Taipei Government is to provide the citizens a comfortable living environment and good living experience. Although the climate change has brought the challenge to the city, on the other hand it has even created the green business opportunity. The hotter summer, extreme rainfall, and unstable water supply not also have brought the inconvenience to the people's life, but also have driven the progress of domestic energy-conserving and water-saving technology, activated the market for the application and development of renewable energy, and injected new vigor into green industry.

As one of the global cities, New Taipei City Government swears to challenge the energy conservation and carbon reduction together with the cities of whole world. The local action will be adopted to maintain the global temperature rise within 2°C by 2100. To achieve a sustainable lifestyle, we will keep acting to mitigate climate change and increasing the use of low carbon technologies aggressively.

Therefore, City of New Taipei joined the Local Governments for Sustainability (ICLEI) in 2008 as the formal member. In November 2011, it even held the “Low-Carbon City Leader's Summit” participated by 15 cities. It not only provides more opportunities to communicate and cooperate with important international cities and local governments, but also accelerates the growth of City of New Taipei in low-carbon action.

During these years, the conduct of the low carbon city promoted by City of New Taipei has already brought the abundant achievement. City of New Taipei has become a low carbon city through the greener building, smarter transport, cleaner energy, more efficient resources allocation and more sustainable life strategies.

Illustration of Low-Carbon Lifestyle...Let’ s Act!



“Low-Carbon Lifestyle – Let’ s act!”

In the future, City of New Taipei expects to learn with other international cities, promotes international co-operation, broadens the city’ s international visibility and also hopes to promote it on the international stage.

New Taipei City Government engages our citizens to fight against climate change, and make our city more beautiful, livable, and sustainable on the basis of people-oriented approach.

Illustration

1.Aspects:

City of New Taipei’ s low-carbon strategy takes into account all the emission sectors such as residential buildings, commercial and institutional buildings and facilities, manufacturing industries and construction, agriculture, forestry and fishing activities, transportation, waste management, industrial processes and product uses and agriculture, forestry and other lands use. And the mitigation methods contain energy saving, energy efficiency, renewable energy shift and resource conservation etc.

2.Measures

The carbon reduction actions of City of New Taipei include 5 main aspects: greener buildings, smarter transport, cleaner energy, more efficient resources allocation and more sustainable life, which were planned and implemented comprehensively.

1.3 Leadership and Partnership

Taipei County was reformed as special municipality reform on October 1, 2007. Being aware of the climate change impact, City of New Taipei actively established a forward-looking agency: “Low-Carbon Community Development Center” in the Environmental Protection Department to carry on the tasks of reducing greenhouse gas emissions and mitigating global warming and environmental concerns. Five major aspects of actions include: “greener building”, “smarter transport”, “cleaner energy”, “more efficiency resources allocation” and “more sustainable life”. New Taipei City Government collaborates with other agencies, businesses and public to implement several low-carbon actions together. As for the process monitoring, New Taipei City Government annually monitors the change of activity data and calculates greenhouse gas emissions as the reference for revising our low-carbon strategies and actions.

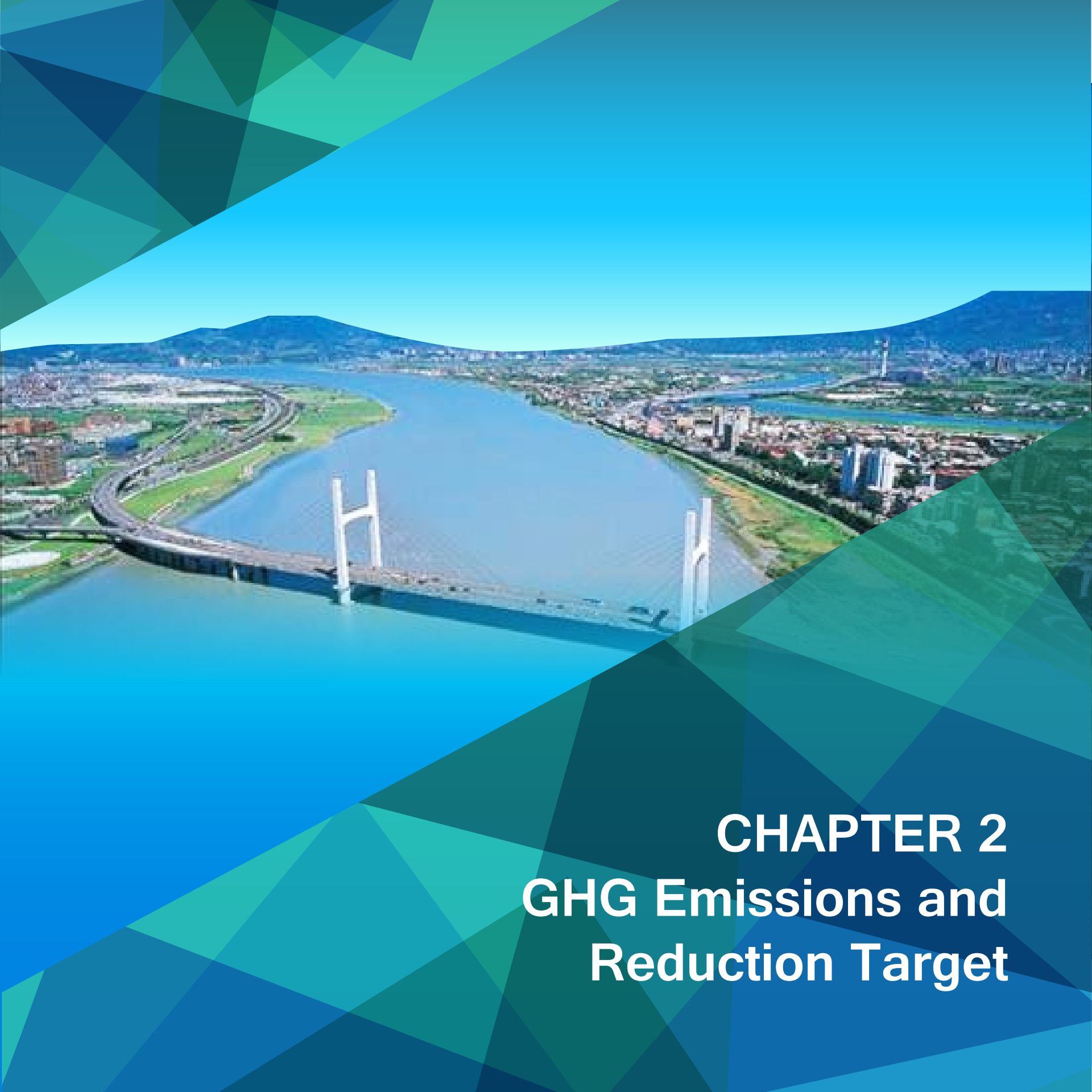
1.3.1 Organizational Structure

City of New Taipei promotes the low-carbon work at its utmost endeavor. Except the Low-Carbon Community Development Center, the Green Industry Section of Economic Development Department is responsible for guiding business to conserve energy and reduce emissions, promoting energy-saving technology, guiding business to apply for carbon label for their products, and researching and developing the road-map of green industry. “Sustainable Environmental Education Center” (SEEC) of Education Department, which is the hub of City of New Taipei to promote sustainable environmental education, ecological conservation and research in long term.

With three major aspects: low-carbon community, green industry as well as sustainable campus, the three agencies pull together to build the low-carbon city. Based on the principle of global vision for local action, City of New Taipei hopes that all of our citizens have energy and ambitions to integrate low-carbon practices into their daily lives.

1.3.2 Monitoring Plan

To make sure that New Taipei is on its way to sustainable city, New Taipei City Government reviews the achievement progress of carbon reduction goal by grasping activity data, calculating emissions and the outcomes of all actions every year. We commit that 2016 back to 2008 level and 20% off by 2026 in 2006 level.



CHAPTER 2
GHG Emissions and Reduction Target

New Taipei City Government has begun to calculate greenhouse gases emissions since 2005. City of New Taipei emited about 18 million tons carbon dioxide equivalent in 2014. Section share of carbon dioxied equivalent emission in 2014 is 72.57% of stationalry energy, 24.93% of transportation, 1.96% of waste, 0.02% of industrial process and 0.06% of agriculture, forestry and land use. Influenced by the energy structure of Taiwan, the emissions from fuel combustion (including the sectors of stationary energy and transportation) accounts for more than 97.49% in this city, wherein the stationary energy sector has the upmost emission in about 13 million tons carbon dioxide equivalent.

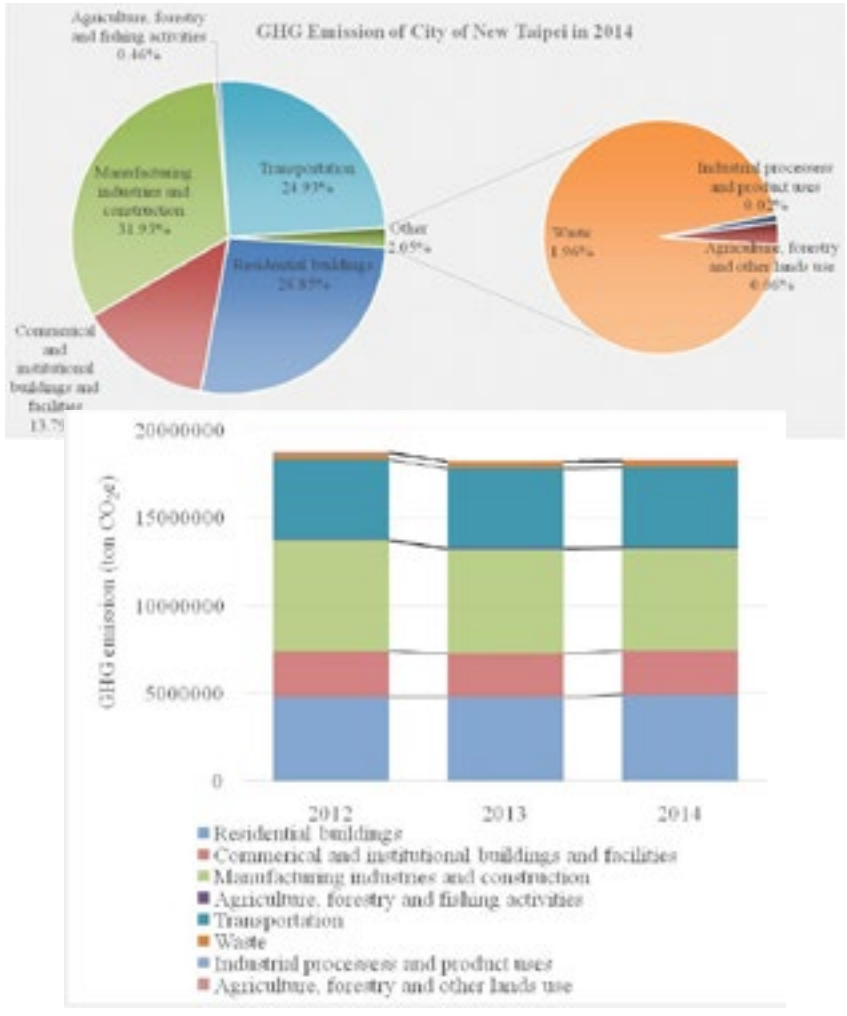
The stationary energy sector includes the residential buildings, commercial and institutional buildings and facilities, manufacturing industries and construction, and agriculture, forestry and fishery activities. Influenced by the industrial structure of this city, the residential, commercial and institutional buildings have the highest share of emission, and the emission amount is about 7.4 million tons, accounts for 56.00% of the emission of stationary energy sector. The emission of manufacturing industry takes the second place.

Because the industry of this city is light industry mainly, so the emission amount of manufacturing industry and construction industry is more than the industrial process sector. In addition, because the activity is less flourishing in agriculture and forestry and fishery sector, so the emission amount is the lowest.

The emission of transportation includes the use of gasoline, diesel oil and liquefied petroleum gas by the vehicle and motorcycle, of which the gasoline is the major emission source among the transportation sector. As for the waste treatment, through the promotion of trash bag charging, resources recovery and waste recycle policy, the amount of municipal waste is reduced directly in this city, and the emission of greenhouse gases is also reduced due to the relevant treatment procedures. Therefore, the emission produced by domestic wastewater is the highest among different kinds of wastewater.

Before the “Greenhouse Gases Reduction and Management Rule” was adopted, an ambitious carbon reduction goal had been set by City of New Taipei in 2009. The emission will be back to the level of 2008 by

2016, and 20% of reduction to the level of 2006 will be achieved by 2026. Our baseline year is 2006, and the baseline emission is about 1.98million CO2e. We also assumed and updated our business-as-usual scenario annually to forecast GHG emissions due to 2026, which took population and economic growth into account. City of New Taipei emitted 1.98 and 1.94 million ton CO2e in 2006 and 2008 respectively; and the forecast shows that the city may emit 1.94 and 2.2 million ton CO2e in 2016 and 2026 respectively. As a result, it seems that the reduction goal of 2016 could be achieved so far. But in order to achieve the reduction goal of the second stage (2026), it is necessary to activate another comprehensive efforts and planning. It only can reach and move toward the goal of low-carbon city under the limited energy resources by replacing equipment, conserving energ, raising public awareness and promoting environmental education etc.



【Chapter cover story】Junior EPD directors
Low carbon education starts at an early age
Source: New Taipei City EPD press release

CHAPTER 3
Implementation Plan

The New Taipei City Government, upholding the concept of making good use of local expertise, and the governance concept of a comprehensive promotion of the carbon reduction policy together with the people, has started the junior EPD director program in 2013, designed a 12 courses series to establish the foundation since childhood, stimulate the imagination, and from parents driving their children, up to the community, focus on a variety of environmental issues in everyday' s life, including waste disposal, resource recycling, water conservation, low-carbon conversion and other issues, think outside the box of classroom learning, and lead the junior directors to personally visit the neighborhood, the wetlands, Tamsui River, hypermarkets and other different environmental protection sites, and by observing experience, real participation and interaction, create a different environmental education learning experience.

The New Taipei City Government has also issued supplementary teaching materials for environmental education, to enhance the currently implemented exclusive school environmental education course; at the same time the New Taipei City Government has also compiled the junior EPD director quarterly publication, with contents including the status of the junior director series activities, as well as the latest environmental protection tips and junior directors sharing their participation experiences, providing the teachers, students and parents from the junior directors' schools a mean to participate in the junior EPD directors' activities.

The New Taipei City Government looks forward that after completing the lessons in each course, each junior director will bring their learning experience back to school and transform it into drving force, calling on teachers and students in the school together to do one thing to make the Earth a better place, actually on campus , community or even neighborhood to implement environmental protection, led the wave of popular movement.

3.1 MAKE BUILDING GREENER

Make building greener promotion schematics

Aspects

green building aspect involves the reduction of residential and commercial sectors

Measures

Green doctor, constructed wetlands management and education, green roofs, green homes and urban planning and green building label.

Results and benefits

by the end of 2014, 531 communities have being counseled in energy saving, 8 constructed wetlands have been connected, 79 green roofs have been established, 170 hectares unused area become greener, for a total reduction of about 20,000 tons of greenhouse gas emissions.

3.1.1 Green Doctor

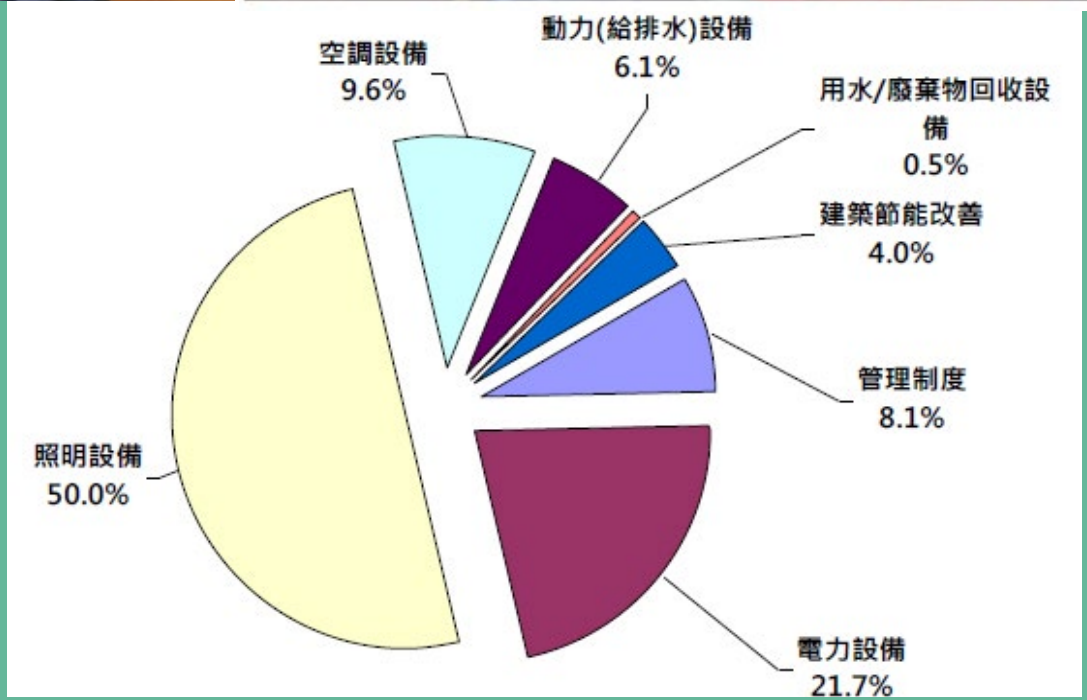
" Green Doctor" is a free energy saving diagnostic service team with the task of performing a free, itemized energy-saving diagnosis for the interested service team communities, institutions and schools, to find space for carbon reduction and provide the best recommendations for improvement; the team can also aggregate information resources related to community improvement for community reference, diagnosis items include diagnosis, energy saving, prevention and treatment related to electricity, air conditioning, lighting systems, water management, resource recycling, green building implementation, insulation and other items.

From the on-site counseling, we found that the greatest potential for improvement in energy or energy-saving by all communities was n lighting equipment, electrical equipment, air conditioning equipment and management system. Generally speaking, lighting fixtures used by old communities were mostly incandescent lamps, halogen lamps and traditional T8 ballast lamps, so eliminating and changing energy consuming lighting fixtures were the top priority recommended improvement measures from the diagnostic team. Regarding the electrical equipment, without any professional assistance, for the most part communities are unable to carry out contract capacity rationalization reviews about their public power consumption, so in addition to the increase in average electricity costs, power factor is usually of lower than 97%.

Since 2008 until the end of 2014, the New Taipei carbon reduction clinic "New Taipei Green Doctor" energy-saving diagnostic services has completed carbon reduction diagnostic services for a total of 531 communities, agencies, schools or commercial office buildings, totaling about 3,152 million kWh saved, and an estimated carbon reduction amount of 18,804 metric tons/year. In 2015 the service is expected to provide energy-saving diagnosis service to 90 communities. Providing practical solutions through visits to communities, in addition to reducing the consumption of energy and resources, at the same time improving the visibility of low-carbon brands, low-carbon measures, low carbon product, and promote low carbon economy.

Green Doctor

Green Doctor field counseling picture



Statistics on common issues in community energy-saving diagnosis

3.1.2 Constructed Wetland Management and Education

The New Taipei City Government, to accelerate the improvement of water quality of the Tamsui River located in its jurisdiction, in recent years has been actively promoting various related construction (sewerage, cutoffs, on-site treatment and all kinds of sewage and wastewater control plans, etc.), the use of various sewage system treatment capacity in coordination with users pipeline connections, cutoffs and other on-site treatment measures, and showing nprecedented law enforcing courate, water quality within the city showed significant improvement, with Tamsui River' s water quality reaching the best ever in more than thirty years

Before the overall increase of pipe connection rate, the New Taipei City Government hoped to effectively reach the function of pollution abatement at the pipes' ends through the current treatment facilities, so that before the sewage into the river mainstream, pollution intensity can be dramatically reduced, and to continue the on-site water purification promotion efforts undertaken by the New Taipei City Government (formerly Taipei County Government) since 2002, the New Taipei City Government in 2013, planned constructed wetland as on-site treatment facilities along the Tamsui River region, and with subsidies from the Environmental Protection Administration, Executive Yuan, has selected suitable fresh water sites in the territories along the Tamsui River coasts, and built constructed wetlands with pollution removal efficiency and conservation purposes, up to 2010 a total of nine constructed wetlands were built: Wugu, Hwa Chiang, Xinhai I, II, III stage, Fuzhou, Daniaopi, Chenglin and Lujiao River, are all based on the Tamsui River basin, and are interconnected to form a complete ecological corridor, at the same time distinguish between the core areas and buffer zones, to avoid causing interference to ecologically sensitive areas. Administration and management of the wetlands has to take into account citizen relaxation, bird watching and ecological functions, and has to provide sufficient ecological stepping islands and habitats for creatures.

Through of maintenance and operation of constructed wetlands, compared to 2011, the average river pollution index (RPI) for Tamsui River was 2.8 mg/L with 79.7% lightly polluted (includes no pollution) river reaches in 2012, and RPI got 2.6B mg/L with 80.8

City of New Taipei Wetland Ecological Corridor

❶ Wugu wetland

❷ Hwa Chiang

❸ Xinhai stage I

❺ Xinhai stage II

❻ Xinhai stage III

❼ Daniaopi

❽ Chenglin

❾ Lujiao River

Fig.14

% lightly polluted (includes no pollution) river reaches in 2013. Also, according to the operation and maintenance management data of 2013, the aforementioned wetlands (excluding Jiadongxi wetlands and Wugu wetlands) can be removed approximately 365.6 kg BOD per day, about 276.9 kilograms NH3-N per day, about 88.6 kg SS per day, about 447.1 kg total nitrogen and approximately 28.5 kg total phosphorus per day.

In addition, in order to promote environmental education and sustainable water conservation works, the New Taipei City Government, through the wetlands volunteer groups, has provided quality tour guide service for wetland visits, to convey important concepts of environment protection education, and with the expectation that everyone can learn to interact and coexist with the ecological environment, to raise environmental awareness, and have heartfelt involve enhancing the interests of present and future generations of all living things and environment quality, to achieve environmental awareness and sensitivity, environment conceptual knowledge, environmental values, environmental action skills and other indicators, so that the general public can cherish the Earth, to better improve the promotion of environmental education, and also achieve the purpose of promoting the construction achievements of the City of New Taipei constructed wetlands.

In 2013 wetland volunteers navigated a total of 81 games and 4,141 passengers, while a total of 132 games and 5,529 passengers in 2014 .

The creation of constructed wetlands ecology and interconnected green belts helps to maintain the ecosystems balance and biodiversity, and inject vitality for the city; in addition, through the volunteers' guidance and the creation of a public hydrophilic space, facilitate a closer public contact with nature, and teach them how to respect the environment and enhance their awareness of ecological conservation.

3.1.3 Green Roofs

With population aggregation, urban landscape and environment have changed from the original green plants concentration to be gradually transformed into concrete jungles and gray deserts. City of New Taipei has a vast territory, and the opening and connection of public transports has been making the New Taipei metropolitan area, such as Banqiao, Yonghe, Sanchong, Xinzhuang and other districts' heat island effect situation becoming increasingly serious.

To implement the vision of building a low-carbon city while achieving increased urban greening rate and mitigate the urban heat island effect, New Taipei City Government has developed a special project subsidy measure in 2009, with continues annual subsidies for institutions, schools and communities for the construction of green roof and tri-dimensional wall greening and planting.

New Taipei City Government hopes that the subsidy project can effectively increase urban area green space in the high land cost range of the city by building green roofs, green walls and other vertical greening ways, and be used as teaching samples, exchange of experience and sites for observation studies for public building greening. As of 2014, New Taipei City Government has established 79 green roofs, with a total green area of 11,348 square meters, and the benefit of at least 227 tons of carbon reduced.

The subsidy project originally was provided to subjects willing to coordinate with the promotion of green building policy and to serve as demonstration site, and the subsidy project payments include only the pre-cost part, therefore the subsequent maintenance and management are on the account of the subsidy applicants (institutions, schools and low-carbon communities), and in order to comply with the original intended purpose, to be used as low-carbon building education, observation and other demonstration sites for City of New Taipei, the applicant shall collaborate and provide a demonstration place, and organize green building observation related activities.

Green Roof implementation outcome


Before


After

Implementation outcome of the New Taipei green roof subsidy project

Year	Institutions		Schools		Communities		Total		Carbon reduction (Tons)
	Sites	(m^2)Area	Sites	(m^2)Area	Sites	(m^2)Area	Sites	(m^2)Area	
2009	1	442	3	885	-	-	4	1,327	27
2010	2	1,352	10	2,310	5	8	17	3,670	73
2011	4	808	2	308	15	745	21	1,861	37
2012	7	1,501	8	1,462	10	617	25	3,579	72
2013	6	475	4	370	3	65	13	1,640	33
2014	6	780	3	110	9	772	18	1,662	33
Total	26	5,358	30	5,445	42	2,207	98	13,739	275

3.1.4 Green Homes

City of New Taipei's total population, as of June 2014, has exceeded 395 million people and is still continuing to grow, so green area and parks are generally inadequate in the densely populated New Taipei metropolitan area.

The New Taipei Green Home promotion project is targeted mainly to conduct simple green landscaping of idle public lands, within the jurisdiction, that are not going to be developed within the next 2-3 years. Municipal agencies combine forces to jointly handle the green landscaping operations. Since its implementation from September 2011 to now, more than 180 sites have been completed, with more than 170 hectares of green landscaping bases. In 2009, every citizen enjoyed an average of only 1.26 square meters of parkland; in 2014, every citizen enjoyed and average of 2.18 square meters of parkland area.

By promoting the New Taipei Green Home project, the city's green areas and green cover rate have been increased, and in addition to increasing carbon sequestration, but also enhance the city's appearance, viewability, and provide diverse leisure space and a better quality of life to citizens.

Fig.19 Average parkland area enjoyed by citizens

Fig.20 Promotion results of Green Home project

Fig.21 22 Actual locations for Green Home projects

3.1.5 Urban Planning and Green Building Label

In recent years, City of New Taipei' s urban development form and evolved from the traditional point development to planar development, making the implementation of City of New Taipei urban plans more complex than in the past, the traditional regulatory system of using independent towns as starting point are no longer suitable. With the globalization trend, the city' s role in regional development has become even more important, therefore implementation of urban planning should be more proactive, to guide the city overall advancement.

To strengthen the push of new buildings toward green buildings, the New Taipei City Government has established the "Enforcement Rules of New Taipei City Urban Planning" expressly for the city's urban development, and was published on April 29, 2014. In addition to the overall city' s unified setting for City of New Taipei development, recent environmental protection concept such as energy saving and carbon reduction, greening and water conservation, etc., and urban development trends and planning concepts such as public transport oriented development, urban disaster prevention and environmental aesthetics were also included.

Early building sites applied for green building certification mostly because of floor area incentive, but building sites with increased floor area have instead increased the environmental load on the urban environment. To solve this problem, the currently announced Enforcement Rules of City of New Taipei Urban Planning, in regards of an area greater than 6,000 square meters and with a total floor area of more than 30,000 square meters, the building developer should obtain the green building candidacy and at least the Green Building Silver certification, making obtaining the Green Building Silver certification becoming the builders' obligation, therefore increasing the possibility of more green buildings, also there is the requirement of building 1/2 green roofs, with the aim of enhancing the efforts for architectural and urban environmental sustainability. City of New Taipei, gradually through counseling, subsidies to promote energy-saving changes in old building, will at the same time enable the newly constructed buildings to have innate planned green building strengths, and implement it directly in the city.

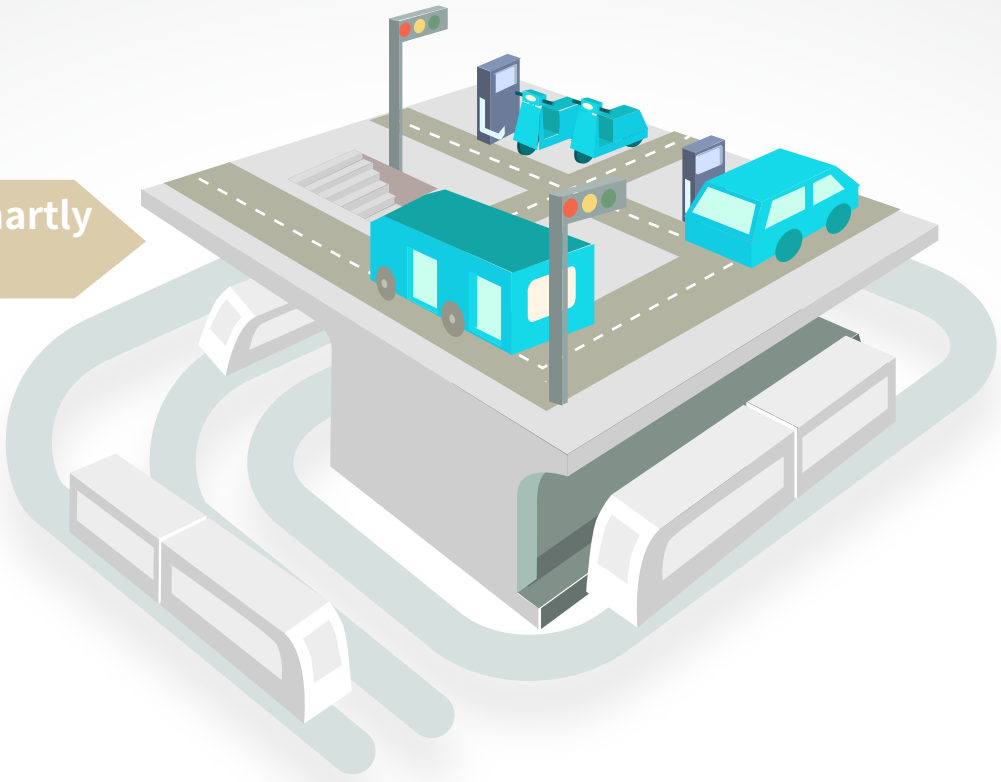
Fig.23 24 Visions for City of New Taipei Green Building promotion

Also, to promote the concepts of energy saving, greening, water-saving and other environmental protection concepts in buildings, and implement the public transport driven development, incorporate urban development trends and planning concepts such as urban disaster prevention and environmental aesthetics, in order to achieve environmental sustainability and eco-city development goals, the Enforcement Rules of City of New Taipei Urban Planning has also expressly set the green coverage standard for building sites, and also included "Permeable City" concept, reducing the building coverage rate and excavation rate in building development, standardizing the water permeability in open spaces must be more than 80%, at the same time during building development rainwater storing facilities are also required to be built, in other words, let City of New Taipei land have more space to react to heavy rainfall in recent years caused by global warming, increase disaster prevention capabilities, and protect people's lives and property.

Also, to actively guide urban development, and to avoid aimless urban expansion, n upper limit for capacity volume development has been especially established, and the floor area incentive have also been expressively established, in an attempt to create sustainable benefits for the environment, and because the legal ranking of the Enforcement Rules of City of New Taipei Urban Planning is higher than all the detailed plans and land management regulations from each urban planning area, all relevant building regulations, urban review and subsequent issues shall be handled according to the rule, the affecting level is very vast, and this also shows the importance placed by the New Taipei City Government on sustainable development and climate change.

3.2 TAKE TRANSPORT MORE SMARTLY

Take transport more smartly promotion schematics



Aspects

Transport sector

Measures

low emission bus, 3 loops & 3 lines MRT system, user-friendly cycling infrastructure, car-free day, intelligent EV and e-motor and carpooling network

Results and benefits

by the end of 2014, 912 low- emission buses have already been introduced, automated bicycle rental service for a total of 5100 vehicles, cumulative mileage for public electric cars totaled 323,087 kilometers, a total of 60 electric vehicles were introduced for company use, subsidies for the elimination of 5,460 motor vehicles were granted; in regards of the friendly development environment for green transports, 43.8 km of MRT tracks, 390 kilometers of bike lanes, 6,079 carpooling routes, 114 electric cars charging stands and 1340 electric bikes charging stands have been built. Roughly 2,000 tonnes of greenhouse gases CO2e can be reduced annually.

3.2.1 Promoting low pollution buses

To promote accessible and low pollution public transport environment, and in response to the advent of an aging society, and to provide more convenient public transport for disabled persons, since 2009 City of New Taipei has budgeted and actively sought subsidies from the Central Government to encourage bus operators to change into low fuel consuming, energy saving low-floor buses and energy saving buses, as an important measure for the establishment of the city' s green transport environment.

To encourage companies to change into low-floor buses and energy saving vehicles, in the 2011 the "Grant Guidelines for Purchasing Urban Buses for the New Taipei City Government Promotion of Green Energy, Environmental Friendly, Humanistic Public Transportation " was especially published, subsidized vehicles were electric buses, fuel saving environmental friendly buses and at least four stroke environmental friendly diesel buses, with common or low floor types. Up until March 2015, City of New Taipei's total number of buses were 2,191 vehicles, of which 912 are low-floor buses, accounting for 41.6% of the total, and serviced more than 70 routes; in 2015 subsidies will continue toward the elimination and replace of 127 vehicles, in the next three years another 300 vehicles will be replaced, hoping that by 2018 the target ratio of 80% low-floor buses can be reached.

City of New Taipei has a population of nearly 400 million people, the roads threading through Taipei and City of New Taipei has a huge traffic volume, according to the Department of Transportation there are an estimate of 6.82 million trips a day in its jurisdiction, and with public transportation growing by 2.8%, it is estimated that each day there are 190,000 private trips transferring, equaling to reducing 140,000 trips of automotive and motorcycle driving, and in addition to relieving road congestion in the Greater Taipei metropolitan area, there were also significant benefits in reducing use of transportation fuel and emissions. If diesel buses are eliminated and substituted with electric buses, using 180 kilometers of daily traveling, for calculations, each low-floor bus can reduce about 13 tons of carbon dioxide equivalent per year, and it is estimated that by 2018 this will reach the reduction result of 22,786 tons of carbon dioxide equivalent.

In addition to the reduction benefits due to the change to environmental friendly buses, through the increase of bus routes, density and accessibility, it will also increase the willingness and propotion of people taking public transportation; if consideration domestic transportation usage habits, the average bus travel distance is about 10 km. Accounting for this distance, replace the fuel use for motorcycles, and there can be a further reduction of 0.84 kgCO2e per trip. Currently there are more than 70 low-floor bus routes, daily passengers numbers for each trip is about 600, assuming the increase of riding willingness ratio is 40%, the reduced emissions due to reduced use of motorcycles is about 5,150 tons of carbon dioxide eq.

After changing into hybrid low-floor buses, the total trip times and average volume of wheelchair passengers displayed growth, showing that low floor buses are indeed more attractive for people, and for passengers with reduced mobility, they provide a convenient and attentive service. In addition, according to the New Taipei City Government's grant guidelines, bus-related manufacturers may also take this opportunity to enhance their technical level, reduce costs, increase revenues, all are green business opportunities raised and expanded in the city.

In the future, New Taipei City Government will continue to encourage the industry to change urban buses into low-floor bus and environmental friendly buses, and with low carbon emissions as target, provide the public with comfortable, accessible public transport services.

Low-floor bus and quantity change

3.2.2 3 Loops & 3 Lines MRT system

In response to the international trend of green transport, to relieve the surface roads overcrowded with too many small vehicles, City of New Taipei is continuing to expand the effectiveness of public transports, amongst which the rapid transit system is the gradually expanding and extending, and when the "3 Loops & 3 Lines" will be fully opened to traffic, it will be extended to the Taoyuan airport, making the City of New Taipei mass transit system even more convenient.

The 3 Loops & 3 Lines is constituted by already open to traffic, under construction and planned rapid transit routes, and after completion will form the city's main rapid transit network within the cities. Of which the "3 Loops", the "1st Loop" refers to the Circular Line (first phase), Southern section and Northern section, coupled with the already open to traffic Wenhu line; "2nd Loop " is the Wanda Zhonghe Shulin Line connecting to the Xinzhaung Line; "3rd Loop " refers to already opened to traffic the Banqiao Tucheng Line, the planned Sanyin Line, the under construction Dingpu Line and Taoyuan Internationl Airport MRT, and then connects to the MRT line within Taoyuan City. The "3 Lines" refer to Tamsui LRT, Ankeng LRT and Xizhi Minsheng Line. As of June 2014, there are a total of 6 completed MRT routes within City of New Taipei, for a total of 43.8 km long route and 34 stations.

After the completion of the "MRT 3 Loops & 3 Lines", the Greater Taipei Metropolitan’ s Rapid Transit length will reach 300 km, more than 6 million people will be able to enjoy the convenience brought by the MRT, and with its independent right of way, shift-intensive, high capacity volume and other characteristics, the MRT can significantly shorten the travel time between different areas, relieve heavy traffic flow in metropolitan areas. Also, during the planning and construction process of the MRT, the New Taipei City Government will implement the humanist, green, sustainable transport development goals, and has planned to build in the area surrounding each MRT station of the "3 Loops & 3 Lines MRT" sidewalks, car-free zones and bike lanes, and by improving the sidewalk and bicycle system, encourage people to walk and bike, and in coordination with private vehicle control measures, make it so that people are less willing to ride motorcycles or drive cars, reduce motor vehicles traffic and creating more user-friendly spaces, at the same time the air and noise pollution caused by the use of motor vehicles will be decreased; also, the station’ s underground and elevated stations with multiple entrance/exits design, will make it easier to maintain the passengers’ and pedestrians’ safety, building a real livable living environment.

According to the MRT's past ridership and related researches it is estimated that MRT transport distance are usually 11 to 25 kilometers; assuming a transport distance of 20 km and a daily ridership of 30,000 trips, the annual substitution to automobiles and motorcycles use will bring a reduction in fuel and diesel use of about 3,796 tons CO_2e.

MRT infrastructures, in addition to providing a friendly and convenient travel environment to the public, ease traffic congestion during commute hours and increase traffic sustainability, having it replace the use of private transports will also effectively reduce the risk of urban air pollution and provide good air quality and a healthy living environment to the public.

Table
Length and operating status of City of New Taipei's 3 Loops & 3 Lines MRT

Lines within City of New Taipei	Length	Stations	Average daily ridership
2010/12	31.4	25	380,000
2014/06	43.8	34	520,000
After completion of 3 Loops & 3 Lines	147.5	129	1,800,000 (estimated)

3.2.3 User-friendly cycling infrastructure

Due to the intensification of global warming effects, the rise of environmental protection awareness and the impact of sudden changes in international oil trade, the bike system, having both transportation, recreation, sports, health building and other functions, does not require any added fuel and power, is energy-saving, reduces air pollution and other characteristics, in recent years has been more and more valued by various cities in the world, and has been actively promoted as connection modal for public transport systems.

City of New Taipei in 2008 began operating a bicycle rental system, initially the trial service used manual rental operations, and provided free public bicycles for public rental, and general response by the public was good; in September 2013 rental system was upgraded to an automated, all-weather operating system, improving service efficiency. Taking into consideration that public commuting, living and dealings in the Greater Taipei metropolitan are very frequent, at the end of 2013 the City of New Taipei Government began the integration between the 2 rental systems in Taipei and City of New Taipei.In July 2014 the trial run program was completed, and currently has set up 200 public bike rental facilities, providing 5,100 service vehicles, and has 15 riverside manual bicycles rental sites. Since operating from 2008, the total accumulated leaseholder has reached more than 1.12 million persons; number of members reached 85,500 persons, with an average of 1,200 daily leaseholders. It is estimated that the total amount of carbon reduction was 509.34 tonnes, with NT$ 10.82 million of saved fuel costs. Operations from 2008 to date, the total accumulated loan of $ 11.2 million or more passengers, the number of members 85,500 people, with an average daily rent of 1,200 people. Estimate the total amount of 509.34 tonnes of carbon reduction, 10.82 ten thousand yuan for the public to save fuel costs.

In regards of the riding environment and network infrastructure, in order to enhance the user-friendly environment and the density and smoothness of the road network, the New Taipei City Government, in coordination with the establishment operation of the public bicycle rental system, has conducted a review and improvement of the surrounding area’ s driving environment, in order to reliably increase public willingness to choose public bicycles as preferred commuting tool.

As of September 2014, New Taipei City Government has built a total of 390.8 kilometers of biking lanes, including 61.1 km of urban biking lanes, and 329.7 km of recreation-type bicycle trails.

In the future City of New Taipei will continue to expand the public bicycle rental operation system, and plans to reach 300 locations with approximately 8,000 vehicles by the end of 2016. It is expected that rented trips will reach 133 million, saving 4.45 million liters of fuel and reducing carbon emissions by about 4,500 tonnes; when calculating that each tree can absorb 12 kg of CO2 per year, the carbon reduction amount will be equivalent to the annual carbon absorption of 22.9 Daan Forest Park.

In addition to carbon reduction benefits, there will also be significant benefits and improvements to the environment or society. For the environmental benefits, through review and approval of the vehicle type and station planning, beautify the urban living environment and provide the citizens with commuter transports, reduce urban noise and air pollution and greenhouse effect, improving the quality of life of residents, and enhance people' s happiness; for the social benefits, through the public' s frequent usage, change the populations' habits, therefore stimulating the trend; by practicing and experience accumulation, strengthen the connection between public bicycles and health, thereby increasing the acceptance of public transport, promoting the development of low-carbon modal concept, and reducing the city' s operating costs.

Bicycle riding environment-friendly nuclear inspection focus

Type of biking lanes Urban/Leisure

3.3 PRODUCE CLEANER ENERGY

Produce cleaner energy promotion schematics

Aspects

residential sector, industrial energy, industrial manufacturing processes and waste sector reductions

Measures

energy conservation education, green public-owned building, geothermal power development plan, clean energy production, landfill gas recovery, incineration plant power generation and green industry cluster

Results and benefits

by the end of 2014, through energy conservation campaigns, a total of 5.17 million kWh of electricity were saved, 6245kWp capacity solar photovoltaic systems were installed, 210 tons per year of methane was recycled, and power generated by incinerator was 200,000,000 kWh. For a total reduction of 25,000 tons CO2e, the city also increased NT$ 265 million in revenue.

10MWe (megawatts)

geothermal facility is under development, with an estimated annual power generation capacity of 68.5 million, after the completion it will be able to reduce carbon dioxide emissions by about 42,677 tonnes per year.

3.3.1 Energy conservation education

New Taipei City Government, in order to promote the environmental protection concept of low-carbon life to the citizens, and to convert the educational outcomes into concrete benefits, and practice the concepts after implementation, in addition to providing flyers to borough chiefs and community groups to advocate energy conservation. City of New Taipei has also been coordinating with the Central Government to promote the "Energy-saving home users Cities and Counties Campaigns" since 2011. Being accompany with the electricity discount incentives from Taipower as reward for energy-saving measures, the New Taipei Ci ummer household energy-saving sweepstakes games, to encourage more citizen answer to the call to save energy and reduce carbon, participate in the energy-saving campaign and encourage citizens to start from everyday life. If City of New Taipei' s 1.73 million electricity users could save 1 kWh of electricity per day, it will save 630 million kWh electricity per year, equivalent to a reduction of 340,000 metric tons of carbon dioxide, the equivalent of 874 Daan Forest Park uptake of carbon dioxide per year.

Concrete results and statistic of specific energy-saving outreach activities

Through this kind of advocacy educational outreach activity, the New Taipei City Government is effectively promoting its citizens concrete implementation of energy saving in their daily lives. The energy saving competition advocacy activities organized during the peak electricity demand season from May to October, in the past three years a total of 36,370 households have been attracted to apply in participating in energy saving, save a total of 5.17 million kWh of electricity, with a reduction of approximately 3,144 metric tons of carbon dioxide emissions, effectively reducing carbon emissions from City of New Taipei' s residential and commercial sectors, more importantly, laying a stable foundation for developing the public' s saving habits for the future.

Promotion of outreach activities on energy-saving

As of September 2014, New Taipei City Government has built a total of 390.8 kilometers of biking lanes, including 61.1 km of urban biking lanes, and 329.7 km of recreation-type bicycle trails.

In the future City of New Taipei will continue to expand the public bicycle rental operation system, and plans to reach 300 locations with approximately 8,000 vehicles by the end of 2016. It is expected that rented trips will reach 133 million, saving 4.45 million liters of fuel and reducing carbon emissions by about 4,500 tonnes; when calculating that each tree can absorb 12 kg of CO2 per year, the carbon reduction amount will be equivalent to the annual carbon absorption of 22.9 Daan Forest Park.

In addition to carbon reduction benefits, there will also be significant benefits and improvements to the environment or society. For the environmental benefits, through review and approval of the vehicle type and station planning, beautify the urban living environment and provide the citizens with commuter transports, reduce urban noise and air pollution and greenhouse effect, improving the quality of life of residents, and enhance people' s happiness; for the social benefits, through the public' s frequent usage, change the populations' habits, therefore stimulating the trend; by practicing and experience accumulation, strengthen the connection between public bicycles and health, thereby increasing the acceptance of public transport, promoting the development of low-carbon modal concept, and reducing the city' s operating costs.

Bicycle riding environment-friendly nuclear inspection focus

Type of biking lanes Urban/Leisure

3.3.2 Green publicly-owned building

New Taipei City Government's vision for renewable energy development is to increase the proportion of renewable energy to 15% by 2026. In order to actively promote renewable energy applications, the New Taipei City Government is using the "Directions Governing Standard Renting of City of New Taipei Managed Public House Roofs set with Solar Photovoltaic Power Generation System", "Directions Governing City of New Taipei Subsidies for Legal Persons or Companies for Setting up Solar Photovoltaic Power Generation System" and "Implementation plans for City of New Taipei Subsidy to Sunshine Buildings for Setting up Solar photovoltaic System", etc., combining private technology and funds, through PV-ESCO ways, to provide roofs of public buildings to private companies to set up solar photovoltaic systems, including schools within the jurisdiction, public markets, district offices, etc., and promote legal persons, companies and private communities other than schools and markets to set up solar photovoltaic systems. Among them, for photovoltaic systems in school campuses, New Taipei City Government in addition to the hardware installation, at the same time will introduce smart ammeters and energy-saving management platform, use the smart energy saving concept to build schools into Green Campus.

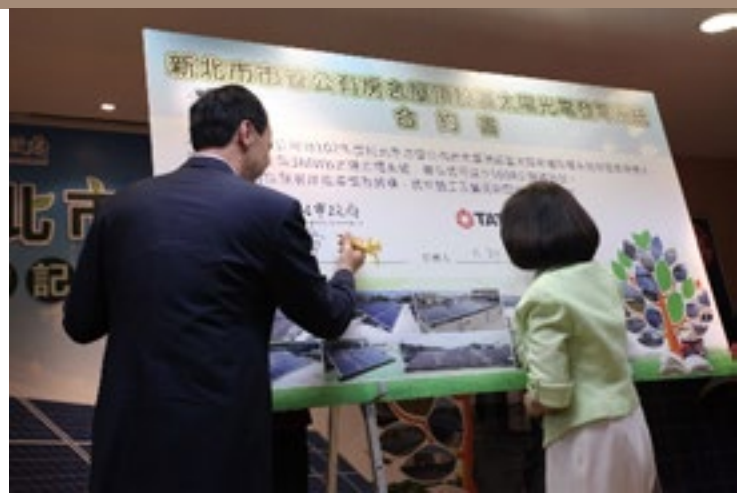
In 2013 the first phase of solar photovoltaic systems built on the public schools rooftops has completed, and a total of 24 school buildings in City of New Taipei have set 3,245.01kWp solar photovoltaic systems, power generation is expected to be more than 3.24 million, and the annual reduction of carbon dioxide emissions for 1,691 tons. Since the 2013 promotion results were excellence, in 2014 the city expanded this initiative to the jurisdiction’s public markets, Sunshine Markets and Green Energy Campus, and set up solar photovoltaic systems for more than 3,000kWp in 30 location including public markets and schools, and introduced smart ammeters and energy management platforms, if there happens to be centralized electricity consumption, smart ammeter can effectively manage the power distribution and use. The implementation of this project has already increased City of New Taipei’s solar photovoltaic system capacity to 6,245 kWp, and based on past power generation efficiency calculations (average 950 degrees of electricity produced per KW per year), then electric power grids supply can be reduced of about 5.9 million degrees; multiplied by 2014 Taiwan’s electricity emission factor (0.521 kg CO2e/kWh), it is expected to reduce annual greenhouse gas emissions by 3,074 tons equivalent and increase the city’s income.

By using ESCO model, New Taipei City Government collaborates with businesses for priority introduces solar photovoltaic power generation system and energy management systems into households and schools, both in hardware/software elements. In addition, Taiwan 's power generation is still based on using fossil fuels, so renewable energy sources will help to enhance Taiwan’ s energy independency rate, reduce dependency and risks from shortage of energy supply.

By the end of 2013, the capacity of the total non-campus roof type solar photovoltaic systems already installed is 397.33kWp, the estimated annual energy output is more than 397,000 kWh, and reduce 207 tonnes of carbon dioxide emissions per year.

In addition to increasing the New Taipei green energy sources by establishing roof type solar photovoltaic systems, it is hoped that the locations of PV module can be used for educational purposes and as key textbook cases for demonstration and display, therefore the "Directions Governing Standard Renting of City of New Taipei Managed Public House Roofs set with Solar Photovoltaic Power Generation System" declares that the solar photovoltaic power generation system locations are key areas for City of New Taipei when organizing teaching demonstrations or other needed official uses; also, regarding other legal persons, companies and private communities, the applicants had also been required to be available for use, afterwards, for organizing demonstration activities or for all kinds of promotional materials for non-profit events, electronic media and other display occasions, to facilitate the promotion of solar photovoltaic systems.

Green energy public houses signing ceremony



Actural Case for Green publicly-owned building promotion – Yehliu Elementary School

Actural Case for Green publicly-owned building promotion –Jhangshu Junior High

Actural Case for Green publicly-owned building promotion –Dajue Temple

Actural Case for Green publicly-owned building promotion –Grand Dynasty Industrial Co., Ltd.

3.3.3 Geothermal power development project

With the support of the Bureau of Energy, Ministry of Economic Affairs, the Industrial Technology Research Institute (ITRI) has studied Taiwan's geothermal resources and power generation technology for a long time. In 2015, ITRI assisted City of New Taipei to assess the feasibility of developing a BOT (Build-Operate-Transfer) geothermal power plant in Sihuangziping area and drill geothermal exploration wells to verify its capacity.

According to domestic studies, it shows that the energy potential of Taiwan's geothermal resource is about 730 MW, with the Tatun reserve accounting for more than half. In recent years, materials technology has overcame the high acidity problems which was often found in geothermal areas, so the Sihuangziping located in Jinshan District, City of New Taipei, has been selected as a starting point, with plans for a preliminary development of 10MW, acting as the first hit in promoting large-scale geothermal development in Taiwan.

Tatun area has a power generation potential of about 514 MWe (megawatts), this time Jinshan District's Sihuangziping has been selected as the starting point, the project will first develop 10MWe (megawatts) as the city's pioneer for large-scale geothermal developments. The geothermal energy development of Sihuangziping in the Tatun mountains system, Jinshan District, is estimated to have an annual power generation capacity of 68.5 million kWh, enough to supply, after completion, the yearly electricity consumption of the Jinshan and Wanli area 16,000 inhabitants, and can reduce carbon dioxide emissions about 42,677 metric tons per year.

Geothermal energy has the characteristics of being clean and a baseload power supply, and unlike wind power or photovoltaic power, is not limited by weather, land and other natural environmental conditions, therefore if it is smoothly developed it will increase Taiwan's electric power system's reserve capacity rate, relieve future power consumption dilemma; through the New Taipei Jinshan geothermal power development project, it is hoped to gradually realize the vision of localizing and industrialization of Taiwan's geothermal power.

Jinshan geothermal area

Jinshan geothermal development site map

3.3.4 Clean Energy Production

In order to establish a green supply chain, enhance the greening of the city's industry and products, promote the development of the city's green industry and get into the green trade market. Clean energy production project aims to provide energy-saving diagnostic services to manufacturers, counseling our city’s manufacturers to conserve energy, reduce waste, adopt low pollution process; help manufacturers to produce their products’ carbon footprint inventory, introduce energy management system ISO50001, and help manufacturers to set up cloud power monitoring system.

Since 2009, City of New Taipei has been promoting clean production, green industry and other related projects, counseling City of New Taipei numerous manufacturers to conduct improvements for clean production process, including the process aspect and product/service aspect. For example, in process aspect, how to save energy resource in the production process, how to introduce clean production processes and how to optimize and enhance the end function. And in product/service aspect, how to substitute high contaminates with alternative materials, how to determine and manage hazardous substances, how to manage health risks, how to comply with international environmental regulations such as EU Directives and how to improve environmental management performance etc. By providing multiple counseling accesses to manufactures, it not only attain good results in clean production and carbon reduction, but also create high economic value in the industry, and also fulfill our responsibilities in protecting the environment.

Through the continuous promotion of this project, in combination with the City of New Taipei Economic Development Bureau’s "Green industry development", "Green energy applications", "Clean production" and "Carbon footprint inventory" as the main axis for industry development, will be able to accelerate the formation of the New Taipei Green industry settlement, expand the industry’s green trade market, and reach jointly the visions for a low-carbon City of New Taipei.

New Taipei Industry's Golden Corridor

Promotion achievements over the years

2013	電子產業	•輔導33家電子廠及4家機關學校，發掘節能潛力2500萬度、CO2e減量逾15000公噸。 •輔導項目包括能源管理系統(ISO 50001)、產業碳足跡(PAS 2050、ISO 14067)以及節能績效保證專案(ESPC)等。
2014	金屬製品、印刷及紡織等產業	•輔導廠商代表逾50家，推動清潔生產，發掘節能潛力2,900萬度/年、減碳逾15,000公噸CO2e/年、促進投資近8,500萬元、節省費用達9,500萬元/年以上
2015	塑膠業、機械設備製造業、非金屬製造及電子等產業	•輔導服務內容包括「節能減碳」、「雲端能源系統應用」、「雲端節能減碳輔導」以及「獎項及補助申請」等項目

2015 counseling contents

節能減碳輔導

掌握自身碳排放，推動節能減碳
降低生產成本，拓展低碳商機

輔導名額：30家廠商
輔導對象：以塑膠業、機械設備製造業、非金屬製造及電子等產業為優先
提供服務：現場節能診斷、節能技術應用評估、改善方案規劃

雲端管理系統輔導

掌握能源現況，提高能源效率
降低能源成本，持續進行能源改善

輔導名額：30家廠商
輔導對象：企業、機關或社區單位
提供服務：智慧電錶應用、雲端電能管理平台應用、電力即時監測、異常警報、能源監看服務

雲端節能減碳輔導

加速改善效益，提升企業綠色形象

輔導名額：25家廠商
輔導對象：有興趣應用線上機制參與節能輔導或接受技術媒合之廠商
提供服務：遠端節能輔導、節能技術解析改善重點討論、專屬營運影響試算

獎項及補助申請

協助爭取額外資源，擴大企業能量

輔導名額：5家單位
輔導對象：有意年度參與新北市政府經濟發展局輔導計畫之單位
提供服務：協助申請環保節能、綠色永續等獎項，或申請相關資源或補助

3.3.5 Landfill gas recovery

The "Shanxia Carbon Neutral Park" is located in Shaxia District, City of New Taipei, and used to house the sanitary landfill for household supply wastes of the Greater Yingge and Shanxia area. The landfill area is about 8 hectares, and after 7 years of landfill use, it has been officially closed since June 2000. The Park in September 2010 officially changed its name and become the first "Carbon neutral Park" in Taiwan, providing the public with free accommodation in the park with the usage of Green Homes, which is built with environmentally friendly building materials and using renewable energy sources, so that visitors can experience the simple low-carbon green living.

In addition to building Green Home, in 2005 the park set up Taiwan's first micro turbine biogas power generation equipment, to provide all the electricity currently required by operating and managing the full park. Using advanced engineering technologies to recycle the park' s garbage and convert the originally environment pollutants into renewable energy in line with world trends and provide clean "Green power", successfully establishing "a new image for environmental protection facilities".

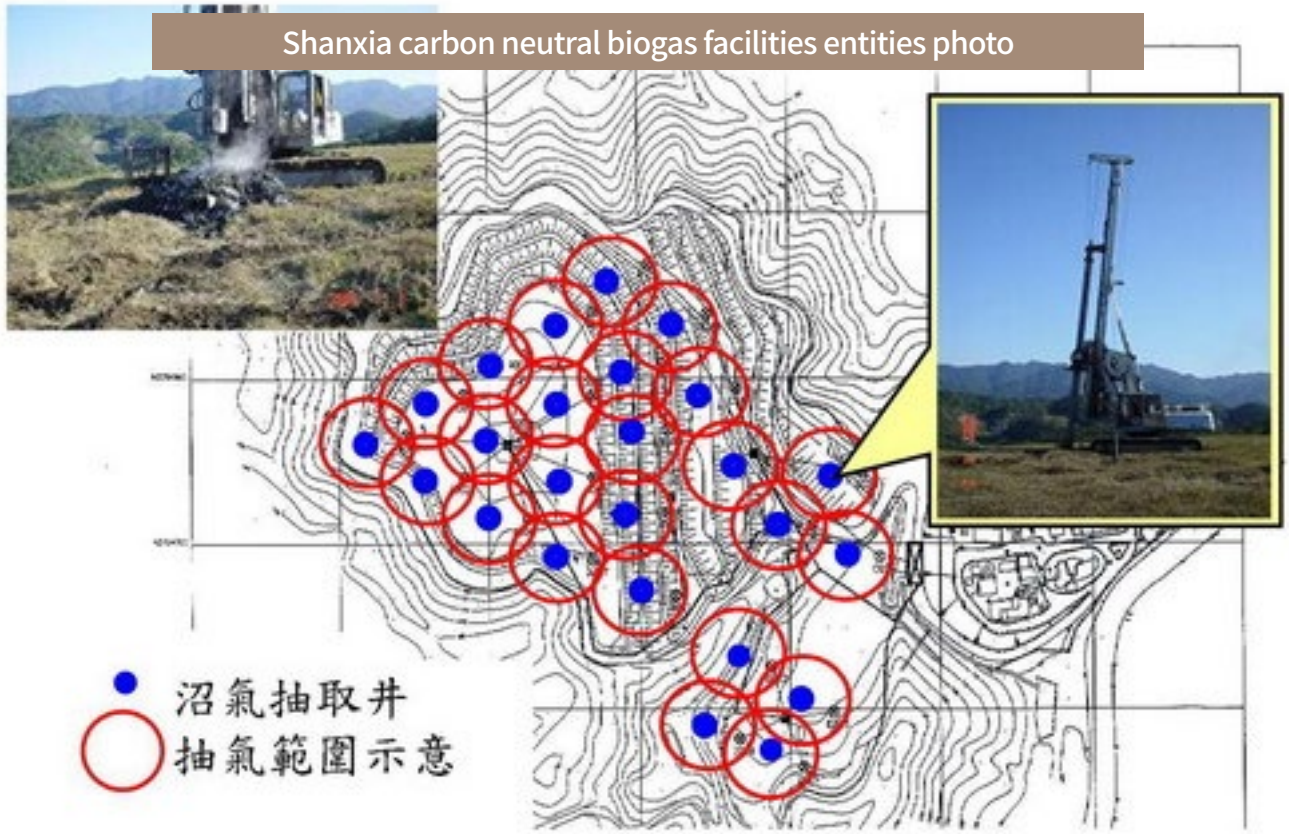
The Shanxia carbon neutral park' s biogas power generation equipment generates up to 570,000 kWh per year, with monthly savings of about NT$ 40,000 in electricity bill, and also:

- Recycles 580,000 cubic meters of landfill methane
- Reduces greenhouse gas emissions of methane by 210 metric tons
- Reduces greenhouse gas carbon dioxide emissions equivalent to 5,150 metric tons equivalent
- Costs savings for reducing greenhouse gas emissions amounted to NT$ 66 million

The Shanxia carbon neutral park successfully transformed the image of green facilities, converted a NIMBY facility into a recreation facility, providing a new recreation option to the public, and by introducing accommodation experiences in the Green Home and guided tours, and presentation about landfill gas power generation facilities, it has enriched the park' s environmental education contents. In addition, the landfill gas power supplies stable electricity for operating and managing the park, and also increase the park' s adaptation capacity for power supply.

Picture of Green Home

Shanxia carbon neutral biogas facilities entities photo



3.3.6 Incineration plants power generation

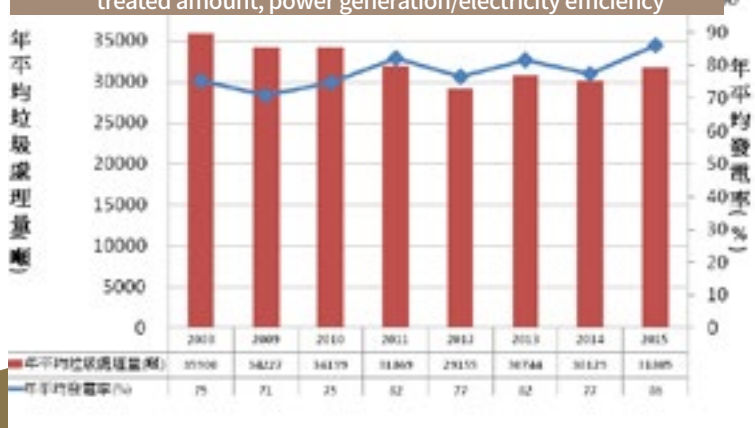
Picture of the Bali incineration plant

The Bali incineration plant is responsible for handling the household garbage from City of New Taipei' s 10 administrative districts, and properly disposes the wastes from the City' s business institutions; thereby it is one of the most important waste disposal center, and also a power generating plant with good efficiency.

In 2007 the Bali incineration plant used OT (promotion of private participation) model for entrusted operation; during a period of five years, under the effective supervision of the EPD, the operating company have successively invested by their own more than NT$ 400 million, changed and eliminated the old equipment, in addition to adding the county's first WCC (water-cooled condenser), they also replaced the fin tubes of some of the ACC (air-cooled condenser), greatly enhancing the existing waste processing effectiveness, thereby increasing generating power capacity; in 2011 the annual power generation capacity after incineration improve significantly up to 248 million degrees, increasing the power generation revenue to NT$ 25 million compared with 2010, and in addition reducing 15,000 tonnes of carbon dioxide for Earth, the Municipal Government also earned NT$ 265 million, and is the best example of government and private enterprise cooperation to create a win-win situation.

The Bali incineration plant' s power generation efficiency is very good, in addition to supplying electricity for its own plant' s use, has still surplus electricity that can be sold to the state-run electric power company. The introduction of incineration plant power generating equipment has reduced the use of fossil fuels, transformed wastes into energy resources, in addition to increasing the proportion of independent power generation and increasing the ability to adapt to climate changes it has also brought significant revenue to the city.

Statistic chart of the Bali incineration plant waste treated amount, power generation/electricity efficiency



3.3.7 Green Industry Cluster

List of City of New Taipei renewable energy and energy management related actions

City of New Taipei is currently promoting renewable energy and energy management-related plans, including 7 big projects: promote solar photovoltaic power generation system implementation project (hardware/software), promote the implementation project for setting up solar photovoltaic systems, smart energy-saving demonstration and subsidy project, voluntary power-saving registration for energy saving reward project, clean, energy-saving and carbon reduction counseling program, the City of New Taipei energy saving participatory budget promotion team selection, etc., from multiple aspects such as energy-saving equipment, management systems, energy-saving behavioral changes and educational promotion, and starting to act from oneself, to reach renewable energy targets together with the citizens, communities and businesses, enjoy cleaner energy and create a better environment quality.

City of New Taipei, through various project aspects for the implementation and counseling, has been integrating the power from the green energy industry to create Green Industry Cluster, and stimulate demand and business opportunities in green energy industries. At the same, indicative green energy industry companies and public associations in the city' s jurisdiction, after counseling, have set up the "City of New Taipei Green Energy Industry Alliance" to promote information and technical exchanges among green energy industries. Regarding the actual promotion of carbon reduction, City of New Taipei has launched four strategies in response to different industries and targets: clean production for manufacturers, energy management for service industry, energy service industry promotion and the promotion of green energy applications.

New Taipei Green Industry New Policy – Industry energy saving press conference

New Taipei Green Industry New Policy – factory on-site counseling

New Taipei Green Industry Support – Green Industry Alliance

New Taipei Green Industry Support – Photovoltaic system signing ceremony

3.4 ALLOCATE RESOURCES MORE EFFICIENTLY

Allocate resources more efficiently promotion schematics

Aspects

waste sector

Measures

Adaptive reuse of old building, second-hand market and exchange platform, household waste reduction and recycling, reBAG

Results and benefits

by end of 2014, properly used old buildings were 164, with an area of 71,005 m2; second-hand stuffs recycling has reduce 213.12 tonnes of MSW waste, and has successfully improved the situation of 880 needing families in the city; the average monthly recycling capacity has reached 1,156 tons, mainly are paper and glass. Through various measures, carbon dioxide emissions were reduced by at least 575.3 metric tons.

3.4.1 Adaptive reuse of old building

New Taipei City Government space matchmaking system upholds the concept of both cutting costs and resource sharing, activation of city owned assets and improve use efficiency, so that public buildings can have added value through adaptive reuse such as composite usage or internal space adjustment. Adaptive reuse of old building help government acquiring usable space by not spending construction funds or renting, with significant savings in government spending to support this Government' s important policies (such as public daycare center, the elderly sunshine care, community care locations, libraries, activity centers, etc.), improving the business environment for citizens, improving service quality and providing the newly established agencies spaces for their offices.

Until June 30, 2014, old buildings that have been allocated were 164, with an area of 71,005 m2, and not counting land acquisition costs total savings were about NT$ 1.944 billion in building construction costs, or in terms of rental cost savings about MT$ 1.5 million rent expenses per year.

Achievements in public-owned building allocation

3.4.2 Second-hand market and exchange platform

With the advent of M-type society, some families throw away furniture that is not broken, while some other families do not even have chairs to sit on. In order to reduce the resource waste, at the same time taking into account the care for the disadvantaged, City of New Taipei creatively launched in 2008 the "Happy Station" policy, re-using surplus resources from the citizens' home and providing them free of charge to people in need, so that old loves can becomes a new favorites, resources are reused, not only saving energy and reducing carbon emissions, but also create a love cycle. The targets assisted by this station are mostly needing households without means and desperately needing second-hand furniture to revive their situation, and will continue to encourage private organizations to join and in combination with the city' s recycling units, expand the supply sources, in order to appropriately meet the needs of each household in need of help provided by each agency, and the target of increasing resource recycling rate to help vulnerable families, care for the disadvantaged and improve the resource imbalance situation, and also create different district happy stations through different environmental themes, and plan theme activities through various stations, encouraging the local awareness on environmental protection

Currently City of New Taipei has set up happy stations in Xindian, Zhonghe, Tamsui and Bali, respectively, with themes like resource recycling, carbon reduction, care for the disadvantaged, arts and education, through the planning of various themed events, the stations bring different environmental knowledge to the public; also conduct the implementation of the maintenance and management work for each station; expand resource integration, increase the kinds and quantity of reusable goods, in order to improve resource recycling rate. At the same time by exposing the relevant information through the internet, effectively transmit the concept of loving and cherishing what we possess, encourage more people to participate so that carbon reduction actions become integrated with our daily life.

In July 2013 City of New Taipei has completed the revision operation for the "Happy Station" surplus goods matchmaking internet platform, and formally launched the service for users. To effectively operate the happy stations City of New Taipei has also established related administrative procedures to ensure fair and open service quality. Until September 30, 2014, City of New Taipei happy stations have successfully improved the circumstances of 880 families in need of aid, found new homes for 6,785 second-hand goods, filled up the home of 3,293 members with love, and reduced wastes for 213.12 metric tons, reduced 12,529.15 cubic meters of stacking space, and reduced carbon dioxide emissions up to 575.3 tonnes.

Achievements in public-owned building allocation

Happy Station exchange process

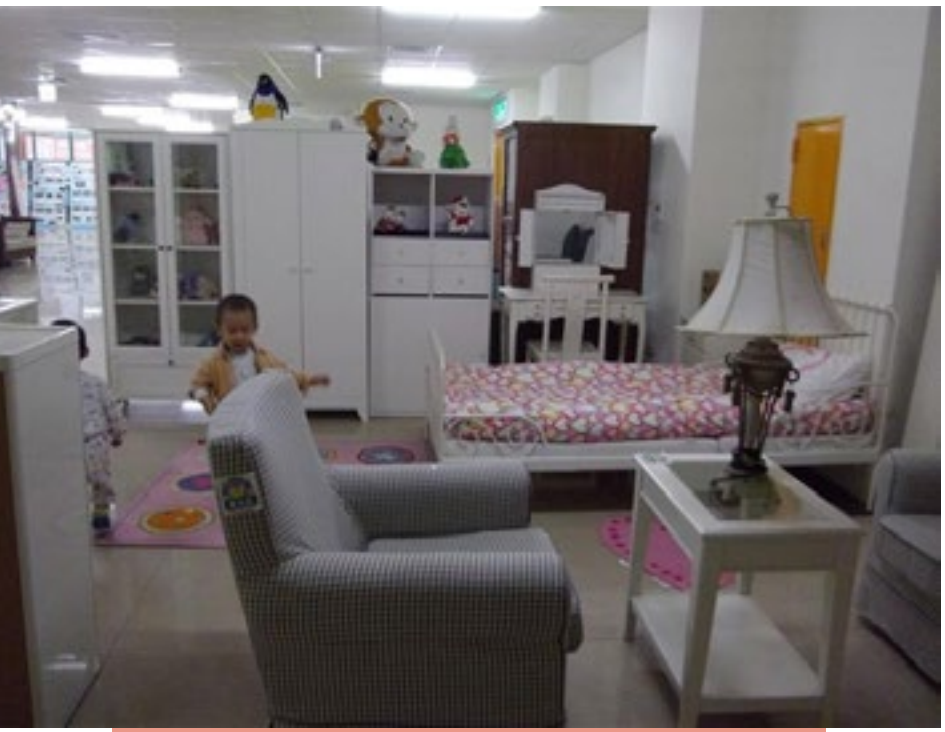


Photo of Happy Station

Happy Station advocacy event

3.4.3 Household waste reduction and recycling

City of New Taipei has a high population density, so the amount of waste generated every day is quite amazing, before the implementation of the per bag trash collection fee, every day there were about 2,500 metric tons of waste generated, in order to effectively reduce the amount of waste generated, and consulting the user charge principle often implemented in environmental issues, on December 1, 2010 the New Taipei City Government officially implemented the City of New Taipei per bag trash collection fee policy; after implementation the daily garbage volume remained steady at 1,300 to 1,400 tonnes, waste reduction margin has stabilized and the results are good, therefore there are many proposals for cutting the dedicated bag fee from all sectors, but after calculating the relevant data on waste disposal costs and others, there is no margin for cutting the fee, and blindly reducing the fees will probably decrease the public's willingness to perform garbage sorting, in turn resulting in reflux of wastes amount, losing the original objective of this policy.

According to statistical estimates, there are about 22% of recyclable materials in people's everyday wastes, therefore, in order to further achieve the goal of general resource recycling, in August 2011 the New Taipei City Government planned to promote the "Recycling bank system set up project - gold borough resource receiving stations", to encourage the public to actively participate in resource classification, as to actually reduce the amount of household wastes and also increase resource recovery rate. This plan mainly uses feedback to citizens' resource recovery with dedicated garbage bags, so in addition to indirectly reduce garbage disposal fees, it can further reduce the amount of waste generated, increasing resource recovery, and also 70% of the actual sales income is used as resource recovery fee for the borough building, thereby using the "general resource recovery, comprehensive feedback" approach to achieve "general benefit". Also, since borough chiefs are personally promoting the operation of the gold borough resource receiving stations, the whole borough will be more energetic, vital and cohesive, so that environmental protection and resource recycling concepts will penetrate more deeply into the hearts of each citizen.

Since the establishment of the gold receiving station system until now, in City of New Taipei' s 29 administrative districts there are a total of 273 gold resource receiving stations, reviewing New Taipei' s total of 1,032 boroughs, the overall set up rate of the stations is 26.5%, and the top three stations set up rates are respectively Jinshan District (60.0%), Yingge District (55.0%) and Tamsui District (45.2%). Since beginning to operate, the effectiveness of resource recovery has been significantly growing year by year, and the total weight has reached 1,156 tons in average per month; statistics for each resource collected have all shown growth trends, and the total weight of top two resources collected are respectively 16,542 tons for recycled paper, accounting for about 38.69% of total recovered resources, and 14,058 tons of glass, accounting for about 32.88% of total recovered resources.

Operation schematic of the gold resource receiving station system

Table, Statistics of amount of recovered resources

Type	Total weight (tons)	Monthly average weight (tons)	Percentage
Paper	16,542	447	38.69%
Plastic	3,373	91	7.89%
Metal	2,555	69	5.98%
Glass	14,058	380	32.88%
Tires	2,427	66	5.68%
Styrofoam	102	3	0.24%
Miscellaneous	2,042	55	4.78%
Home appliances and informatics	1,655	45	3.87%
Total	42,754	1,156	100.00%
Remark : statistics for the period from August 2011 to August 2014, total of 37 months			

Public participation at gold resource receiving stations

Public participation at gold resource receiving stations

3.4.4 reBAG

The value of reusable shopping bags is that they can be carried and reused, but oversupply will transform them into another type of garbage. According to the British Environment Agency' s 2011 research, results showed that a cotton shopping bag needs to be used for an average of more than 131 times in order to offset the environmental impact of the use of 1 disposable shopping plastic bag, that is to say, in order to achieve the original plastic limiting, environmental protection effectiveness, green shopping bags are more environmentally friendly the more they are used, otherwise, they could cause even greater environmental harm than disposable plastic bags.

To make implementing environmental protection possible in everyday' s life, the New Taipei City Government no longer encourages the production of new reusable shopping bags, and in August 2014 has officially launched the " reBAG passed from generation to generation platform". "re" stands for reuse, so reBAG means that this is a reusable green shopping bag donated by the public.

Citizens are encouraged to donate surplus shopping bags from their home, and the Environmental Protection Department is responsible for cleaning, sorting and applying the reBAG tag, giving old idle shopping bags from each household a new life to "Revitalising sharing". Each cleaned bag will have the triangular reBAG tag, the pattern on the tag' s front has changed arrows from the original triangular recycle mark into a shopping bag mark, emphasizing the concept of "reuse" of this shopping bag; barcodes are printed at the writing' s bottom, and each reBAG have their own code, EPA will register each bag when it is distributed and recovered, so the number of reBAG cycles can be calculated in this way.

These reBAGs will be distributed to 22 cooperating businesses and hypermarkets within City of New Taipei, to be offered as free loan to the public and to be returned after use, providing a new environmental friendly choice to people who forget to bring their own shopping bags.

Currently the New Taipei City Government and the EPA employees have donated approximately 4000 green shopping bags, after the cleaning unit has finished cleaning and hanging the reBAG tag, they will be distributed to the 22 cooperating businesses and hypermarkets as free loans to the public.

reBAG platform starting press conference

reBAG platform advocacy

3.5 LIVE A MORE SUSTAINABLE LIFE

Live a more sustainable life promotion schematics

Aspects

residential, commercial, waste, agriculture, forestry and other land use sectors.

Measures

Citizen’s Farm, Energy Conservation and Carbon Reduction Label, Reduced Combustion of Ghost Money, Clean the Pet Droppings, Ranking of Neighborhood Environment, Rating and Reform of Low-Carbon Community Label, Rating and Reform of Low-Carbon Campus Label, Green Leader Training, Low-carbon and Green Industry Exhibition, Energy Conservation of Service Sector and Green Travel.

Results and benefits

Till the end of 2014, New Taipei City Government provided about 33,058 m2 of farmland for planting 5,699 kg of organic vegetables, combusted 11,000 tons of ghost money centrally, got 18 energy-conservation labels and 360 neighborhood environmental certified indicators, issued 45 low-carbon community labels, counseled 322 low-carbon communities and 117 schools to conserve energy and install renewable energy facilities, invited 370 shops to implement energy conservation and carbon reduction, and the low-carbon travel people reached more than 80,000, reduced about 25,000 tons of CO2e of greenhouse gases emission in total.

3.5.1 Citizen’ s Farm

After the gather of population and the gradually urbanization of living environment, the early field scene becomes another practice of people. After the busy work, if people can return to the rural area, take advantage of stepping on the land barefoot, picking up the hoe and turning over the soil and removing the weed, rolling up the trousers, planting the vegetables to eat for the vacation or idle time, it will be a kind oAf new recreation activity to experience the fun of rural area, and the rural scene of field scenery becomes a friendly symbol of environment.

In order to build the vision of low-carbon city, and let the people to experience the fun of cultivating in rural area, New Taipei City Government will activate and utilize the abolished farmland. The Government sought the land of larger area in this city and cooperates with the landlords, drafted the subsidy method since 2011, and subsidized the Farmers Associations to set the “Citizen’ s Farm” at every district every year continuously. In the cultivation course, 30% of planted crops will be fed back to weak groups, 70% will be kept by the tenant to enjoy eating or sent to the relatives and friends as gift for sharing the healthy and delicious food to more people! In addition, the agricultural garden provides the seed, seedling, materials and various tools.

There are field administrators to provide the specific coach and plant consultation etc. In order to promote the healthy and safe agriculture, the organic and non-toxic planting way is adopted in the “Organic Promoted Citizen’ s Farm”, the use of chemical fertilizer and pesticide is prohibited, and the organic agricultural culture teaching lecture is provided, let the citizens to learn the basic concept of organic agriculture, in order to learn to plant the nontoxic and healthy vegetables more lightly and elementarily.

Since the promotion of Citizen’ s Farm so far, about 33,058 m2 of farmland have been provided for planting 5,699 kg of organic vegetables, and have been sent to several dozens of weak groups. By the arrangement of Citizen’ s Farm, except managing the idle space effectively, increasing green coverage area, increasing landscaping rate of city, reducing the hot island effect of city and implementing low-carbon, it can also provide the citizens to enjoy the planting and settling down vegetables and experience agro-farming fun, and care the environmental landscaping, land and water preservation, and the outdoor temperature lowering etc., which also give consideration to the social humanity of helping the poor and the weak at the same time.

Photo of Citizen’ s Farm

Achievement exhibition of Citizen’ s Farm

Abundant outcome of Citizen’ s Farm

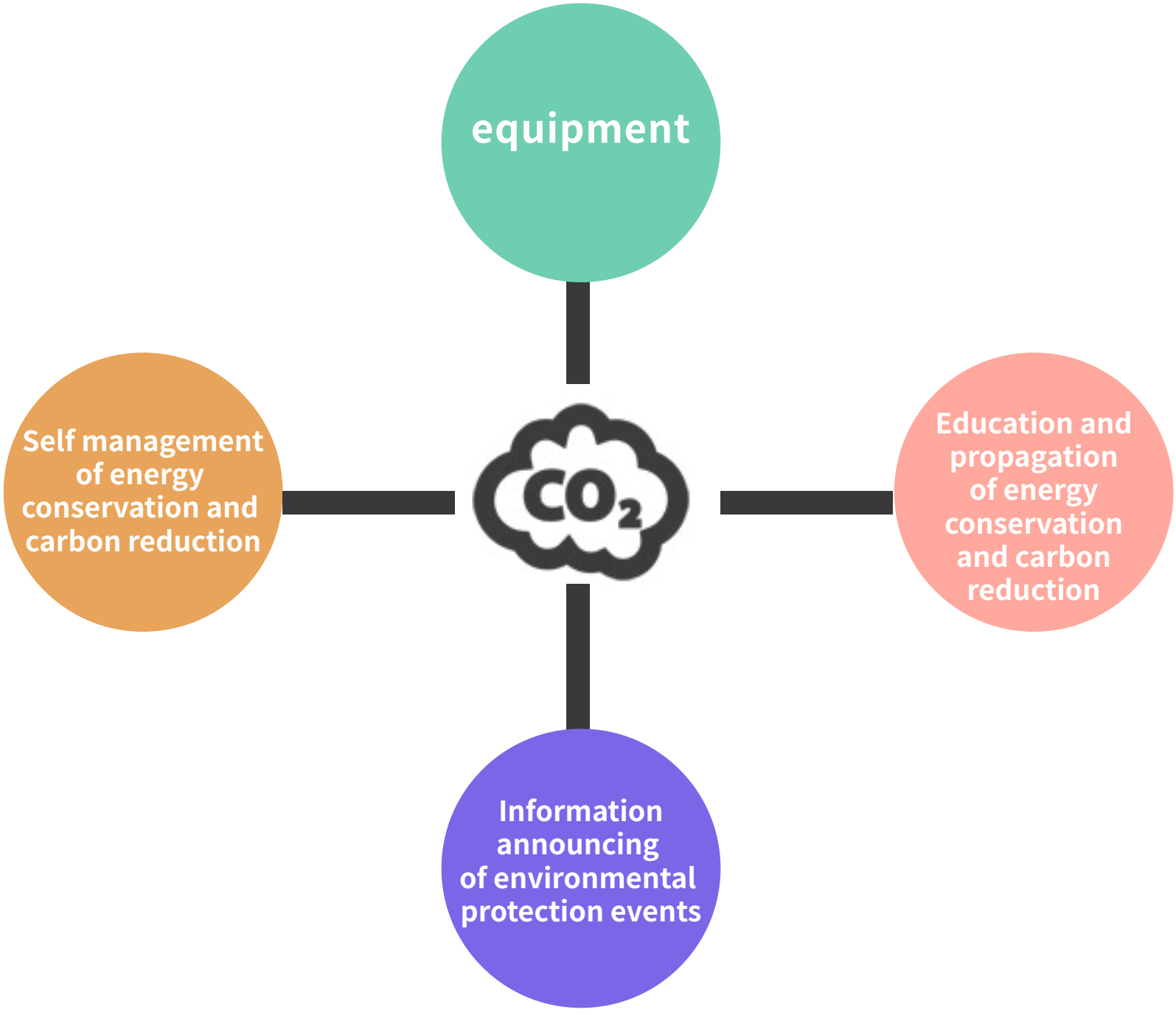
Teaching course for organic cultivation of Citizen’ s Farm

3.5.2 Energy Conservation and Carbon Reduction Label

In recent years, accompanying with the promotion for related concept of energy conservation and carbon reduction and environmental sustainability, every body corporate, authority, school, community and building puts into the rank of energy conservation and reform, in order reflect and praise its energy conservation achievement, reward the enterprise, trade company or civilian organization, recommend the atmosphere of carbon reduction to the public. New Taipei City Government cooperates with the Environmental Protection Administration to promote the Energy Conservation and Carbon Reduction Label by four aspects, including the improvement measure of energy conservation and carbon reduction equipment, self management measure of energy conservation and carbon reduction, education and propagation and future improvemwnt measure of energy conservation and carbon reduction, and information announcing of environmental protection events. It will encourage and coach the enterprise, non-prfit organization and community to pursue these four major action indicators, apply for the Energy Conservation and Carbon Reduction Label actively.

The purpose of issuing this label is to cite its outstanding achievement, and to be used as the demonstration of other subjects, 2-year validity and control mechanism is set, and someone will be appointed to the labeled unit irregularly to confirm the application information, in order to track its implementation situation. If any defect is found for the label, a letter will be sent to notify the labeled unit to improve it within a definite time period. If the defect is not improved within the definite time period for reexamination or big violation item is found again, a letter will be sent to cancel its qualification of Energy Conservation and Carbon Reduction Label, and order it to return the award of “Energy Conservation and Carbon Reduction Label” and announce the state in the official website of Energy Conservation and Carbon Reduction Label. The unit will not be able to apply the Energy Conservation and Carbon Reduction Label within 1 year after its qualification is cancelled, in order to guarantee the meaning of fairness, justice and demonstration of this system.

Taking 2013 as an example, 8 enterprises, 11 communities and 6 villages had applied and coached by New Taipei City Government. Finally, 18 units in City of New Taipei had been approved by the Environmental Protection Administration. After the calculation of energy conservation and carbon reduction, 3,745 tons of greenhouse gases emission was reduced in total which was equivalent to about 1-year carbon fixation amount of 10 Da'an Forest Parks, so the effect is remarkable.



Aspects for promotion of Energy Conservation and Carbon Reduction Label in City of New Taipei

3.5.3 Reduced Combustion of Ghost Money

The Ghost Festival in the lunar July is a traditional religious activity of our people, and the memorial ceremony is to burn joss sticks or combust the ghost money to express the compliments of ancestor or ghosts and gods. But the combustion of ghost money will produce the particulate matter (PM10), carbon monoxide (CO), carbon dioxide (CO2), sulfur oxide (SOx), nitrogen oxide (NOx), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). If a large amount of these pollutants is inhaled in a short time, the trachealis, pneumonia and airway infection may be caused to the sensitive ethnicity, old people or infant with weak resistance, and the carcinogenic risk will also be increased, so it needs to give more care.

In order to maintain the public health and air quality, the Environmental Protection Department of City of New Taipei proposes the “New culture of Hungry Ghost Festival – do not burn, concentrate to burn, and reduce to burn the ghost money”. The first one is “do not burn the ghost money”, which hopes the people conduct the on-line ceremony and contribute money to replace the traditional burning of the ghost money.

The second one is “concentrate to burn the ghost money”, which encourages the people to send the ghost money to a centralized place set by every District Cleaning Squad and transported to the incinerator for burning. The third one is “reduce to burn the ghost money”, which recommends the people to buy one ghost money for one home with appropriate amount or use the big ghost money instead, it is most important to be earnest and sincere.

Since the promotion for concentrating to burn the ghost money from 2003, about 11,000 tons have been collected totally. In addition, the network Hungry Ghost Festival and love Hungry Ghost Festival activity had been handled in 2007, and the participated persons had already exceeded 102,000 which prevented the production of 26 tons of pollutant, and reduced more than 209 tons of carbon dioxide emission. As for sincerity praying for blessings and providing sacrifices, it had reduced the influence to the environment at the same time.

The fee saved from reducing combustion of ghost money can be donated to the social welfare authority love charity organization for love activity of Hungry Ghost Festival, it not only can conduct the Hungry Ghost Festival but also can do the good thing, and it is very helpful to environment and one's own health.

New culture of Hungry Ghost Festival – Promulgation poster and website for three burning strategies of ghost money

3.5.4 Clean the Pet Droppings

The area of City of New Taipei is vast in 2,052 km2. During the time that economy grows up fast, it is the important strategic place of industrial and commercial development in the whole country. It has economic miracle and convenient life system making people express one's admiration, but with 3,950,000 people load in the whole city, due to the backwardness of a few people's social morality heart and hygienic habit, the dog droppings have become one of the environmental problems in this city. The dog droppings are mainly divided into two big sources. The first one is the droppings of roam dogs. The second one is the droppings of dogs neglected by the fostering owner. Because in environmental protection mode policy rubbish fall the whole city so far seek and accept with the bag the 2010s, due to the food of roam dogs is reduced, the quantity of roam dogs is also reduced, but the pollution problem of dog droppings still exists continuously in the environment.

In order to maintain the appearance of the city, reduce the pollution of dog droppings, it is a neat primary concept of an environment to improve citizen's living environment quality, besides strengthening and cleaning and maintaining by the unit in environmental protection mode, the people give play to the social morality heart to be the basic way, so in order to arouse people's social morality heart, reach and terminate the goal of reducing the pollution of dog droppings, declare and lead and reward the respect to set about in a more cost-effective manner, except encouraging and letting the dog owner to clear the dog droppings, hope other to raise the people for assisting clear up dog droppings by oneself, let everybody in City of New Taipei maintains the environmental sanitation together, raises consciousness of people to “clear dog droppings oneself conveniently”, and combine the people's strength to maintain the neat hygiene of the environment.

Declaring and leading the activity to hold through having education of rewarding properties at the beginning, attract people's involve under the circumstances that the environment is improved effectively, attract the long support in the basic unit and then lead all involve to get the result of expanding and extending the serving energy, also set up dog's bag room or declare setting up the card in the appropriate place at the same time, arouse people's social morality heart to maintain living environment together.

2011

Handling the activity of “clearing dog droppings by all person”. The people find the dog droppings and make the clearance in the public area of City of New Taipei, and they can get the lottery coupon from every District Cleaning Squad for drawing the gold. Add up to 4,102 persons to participate in it during the activity period, remove 14,562 dog droppings, draw 14,562 of lottery coupons, and the activity obtains one of “eight lotteries for making better world” from the Time Magazine.

2012

Handling the “pick up the gold, draw the gold” activity and the “dog's courteous sport” activity. Upon uploading one photo of clearing dog droppings, the dog foster owner can join to draw a lottery. Add up to 20,000 persons to participate in it during the activity period, and draw more than 20,000 of lottery coupons, and the activity obtains the interview of Japanese Northwest TV Station.

2013

Handling the “gold bank accepts the dog droppings and draws the gold bankbook, gold dog” activity. Encourage the people to pick up the dog droppings to get good gift and lottery coupon from the gold bank. A lot of persons participated in this activity enthusiastically, exchange 53,532 lottery coupons, and drew the gold bankbook winner out.

3.5.5 Ranking of Neighborhood Environment

New Taipei City Government combines every District Office to collaboratively implement four major aspects to promote “clean”, “energy conservation”, “waste reduction”, and “environmental education”, and spreads out 8 environmental indicators and authorizes the mechanism through the indicator, strengthens citizens to the acceptance of living environment and sense of honor, in order to mold City of New Taipei to continue establishing a high-quality living environment and brand-new visual view, and create a “clean, low-carbon, suitable” city, and raise a good international image for City of New Taipei, specially make this project.

This project adopts three visions of “clean”, “low-carbon” and “suitability” and extends them down to four aspects of “clean”, “energy conservation”, “waste reduction”, and “environmental education”, and sets up eight indicators of “clean lane and alley”, “clear public toilet”, “clean empty land (house)”, “landscaping and beautification”, “water conservation and power saving”, “low-carbon life”, “resource recovery”, and “all people participation”, and it is expected to firm the endeavor of Neighborhood Office on the environmental protection affairs through the indicator certification system.

According to the certified number of neighborhood finally, it can further divides the award neighborhoods into the selective grade (obtaining 2 certification indicators), three-star grade (obtaining 3 certification indicators), four-star grade (obtaining 4 certification indicators) and five-star grade (obtaining 5 certification indicators). This project added up to 393 neighborhoods to register for participation since 2013, the registration indicator counts were 1,469 indicators, and improved to 420 neighborhoods and 2,096 indicators in 2014, the neighborhoods obtaining the selective grade were increased to 80% from 71%

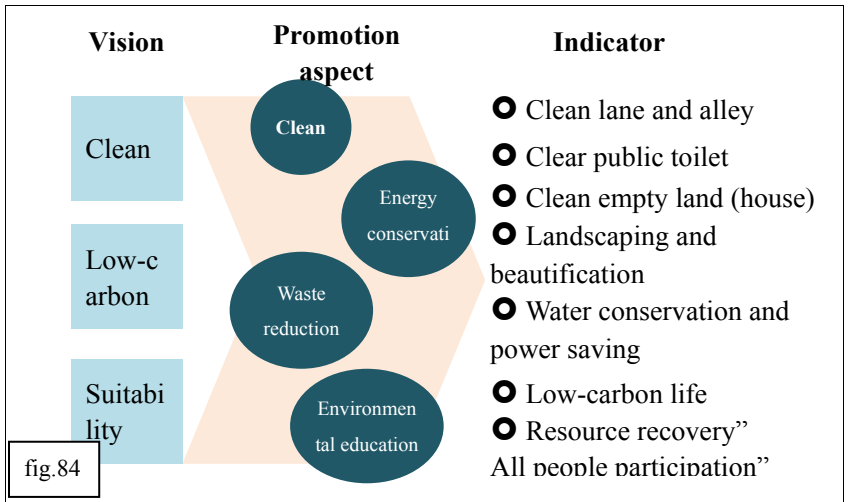


fig.84

Structure for ranking of Li environment

Limon Neighborhood of Shitz District

Shuande Neighborhood
of Sangchung District

3.5.6 Rating and Reform of Low-Carbon Community Label

In order to affirm and reward the efforts and contribution for the community taking action continuously, and promote the mutual exchange and study, knowledge and technology of improving and reducing carbon and taking action together. New Taipei City Government announces low-carbon action as 6 aspects, 20 indicators, and 150 scores altogether. Put forward the community which makes the label application and sets the label system, encourages the community to participate in it voluntarily. The indicator of label certification includes the green building, green energy, recycling resources, green traffic, sustainable living environment and innovative community. It shall be reviewed by the Low-Carbon Community Label Certification Committee of City of New Taipei, and it is divided into the platinum grade, gold bear, and silver goose. In 2012-2014, 45 communities were certified, wherein there were 5 platinum grades, 8 gold bears, and 32 silver geese.

In order to avoid being limited by finite resources, reducing the willingness of community for promoting energy conservation and carbon reduction, New Taipei City Government makes low-carbon community reformation and subsidizes the main point, assists and finish the reformation operation smoothly.

the community to eliminate and change public illumination, air conditioning, electrical appliance and consume water equipment separately, also encourages the community to use the renewable energy flexibly, for example adopting the solar water heater, installing wind power systems etc. In addition, establish “low-carbon community planning designer” and “regional low-carbon popularization center” system too, in order to assist this city community to propose the subsidizing plan

In 2009-2014, New Taipei City Government assisted 322 communities to carry on the reformation, economized on electricity by 19,180,000 kWh/year, and the newly-increased renewable energy power was 19,500 kWh /year, saved 5,856 kWh of water per year, newly-increased green coverage was 6,319m2, saved the expenditure of NT$ 56,570,000 per year, and reduced 9,991 tons/year of carbon.

condense the common understanding to handle the application. Through the promotion of label, every community improves, progresses greatly community energy-conservation actively, achieves the goal that the community reduces the carbon ability is built and constructed, and will spread the benefit continuously in the future, create, drive more low-carbon communities, to build up the low-carbon city.

Summary for subsidy contents of low-carbon community

社區公共照明	社區路燈、地下室停車場燈具、社區景觀用燈、中庭花園庭園燈、各樓層梯燈、樓梯間樓層指示燈、緊急逃生指示燈、消防警示燈、健身房、游泳池、交誼廳、會議室等照明設備。
社區空調	電梯空調、大廳廊道空調、警衛室空調等空調設備。
社區動力	地下室排風扇抽風機、電梯載重調整、揚水馬達等動力設備。
社區用水	省水器材、雨水利用設施、生活雜排水再利用系統等節約用水設備。
能源開發	太陽能熱水器、風力發電機組或使用太陽能光電系統等社區建置之可再生能源系統。
其他	社區生態化、建築外殼節能、綠屋頂、綠覆率、綠牆或綠廊、設置資源回收區、設置自行車或電動機車專用停車區等其他節能工作。

Community reformation -
the installation of solar energy on roof
(before reforming)

Community reformation -
the construction of sky garden on roof
(before reforming)

Community reformation -
the installation of solar energy on roof
(after reforming)

Community reformation -
the construction of sky garden on roof
(after reforming)

3.5.7 Rating and Reform of Low-Carbon Campus Label

As the environmental topic is paid more attention these days, the setup of environmental consciousness and low-carbon education is the whole people's responsibility, so the popularization that energy conservation and carbon reduction should be comprehensive considers relevant legal person's organization etc., but it can give play to the role of teaching beginners even more by school education particularly among them. City of New Taipei has a vast territory, including numerous domestic schools. There are 334 elementary, junior and senior high schools, and the number of students is about 853,000. According to the statistics, the time that the students of middle and elementary schools in Taiwan stay in the school is about 1,200-1,600 hours in one year, add the school besides educating student's basic courses and professional knowledge, the school has become main living environment of children beyond the family, also a place to improve and foster the place of the habits and customs. It can channel campus into in an all-round way low-carbon concept, start low-carbon, take root, take action from school, and then is expanded in the community by the school. It is fully worthy of waving the school education function, marching toward the low-carbon city together. Therefore, New Taipei City Government regards and considers this as including comparison and assessment and reformation for sustainable low-carbon school in carrying out in the focal point.

So, in order to promote low-carbon idea, it is set about deepening the daily life to students of low-carbon concept since education. City of New Taipei set up the whole country to initiate “City of New Taipei Low-Carbon Campus Label Certification” system in 2009 first, and encouraged the school to use its own advantages and characteristics. It accords with the campus environment of low-carbon concept to promote, reaches low-carbon life and promote the function with teaching, and a carbon campus goal of orientation. Every school can loud to face in accordance with 6 major aspects (green building, green energy, recycling resources, green traffic, sustainable living environment and innovative action) and 25 indicators on commenting. If the scores are over 60 points, it can apply the certification label from the Environmental Protection Department. After approved by Low-Carbon Campus Label Certification Committee, the label of silver goose and gold bear can be issued. It is expected to start and educate the action taking root, the seed sown in the campus, follow the growth of this group of masters in the future, which can find another

green miracle. From the year of 2011 till now, 11 schools were authorized the gold bear grade, and 39 schools were authorized the silver goose grade.

In addition, through the promotion of “low-carbon campus four scenes: indicator, technology, coach, accreditation”, coach and build low-carbon school complied with six major low-carbon aspects, and then encourage this city in more than 300 schools and put into low-carbon and reform the ranks. Because there are certain difficulties in the reformation, so this system is also matched and channeled into expert's group to arrive school and direct against campus building and environment when being promoted, diagnosed and provided to assist for coaching low-carbon, and through “low-carbon subsidy” plan to coach the school and carry on the reformation of hardware facilities, incorporate teaching of every energy, energy-conserving facility in the campus, become the best teaching aid which implements the environmental education, encourage the goal of the “teaching material of the campus” of the orientation of the school to build and construct the standard environmental teaching material. And low-carbon reformative measures have already let 117 schools to carry on campus greening and energy-saving equipment eliminate change and regenerated the energy and construction etc. The low-carbon reformative measures, nearly reduce 590 tons of carbon dioxide emis

sion every year, it is equivalent to a carbon sequestration in one year of a Da'an Forest Park, representing the campus of highly carbon reduction potentiality

In order to further promote environmental education and energy-conservation to carbon reduction and take root while as a child, through promoting plan of the “little director of environmental protection”, establishing student's autonomy organization and developing the whole school course in environmental protection mode the software, let the students of City of New Taipei study and manage the environment while as a child then participated in low-carbon to continue the topic voluntarily, and then call the classmate, teachers of school, even the family, community to implement environmental protection, let every seed open a scattered leaf continuously, give play to the influence in the society deepening continuously.

Follow-up New Taipei City Government will promote low-carbon of City of New Taipei to continue the certification mechanism of the school continuously, and compile relevant funds and provide administrative resources, is in the hope of assisting City of New Taipei to implement the concept that low-carbon sustainability in all schools while having jurisdiction over continuously, make kindhearted academic environment, at the same time, reach master to form in the life implementing low-carbon, continuing great goal of sustainability in the future too.

Table Subsidy result of low-carbon campus

Year	Number of school	Carbon reduction (tons/year per year)
2009	16	50
2010	22	40
2011	15	200
2012	33	70
2013	16	115
2014	15	115
Total	149	590

Table Label certification of low-carbon campus

Year	Grade	Quantity
2011	Gold bear grade	2
	Silver goose grade	4
2012	Gold bear grade	5
	Silver goose grade	15
2013	Gold bear grade	2
	Silver goose grade	11
2014	Gold bear grade	2
	Silver goose grade	9

Award ceremony in the low-carbon campus

Low-carbon campus outdoor scene

Service items of low-carbon campus coach group

3.5.8 Green Leader Training

The energy conservation and carbon reduction topic is paid more attention day by day, the people at the basic level begin to care about and expect to improve to the existing environment to some extent too, but because City of New Taipei have a vast territory, in the village under the community and numerous situation, coach and provide scene most direct reformation to advise totally while being difficult by common strength of department only, so New Taipei City Government is in order to assist the community to promote low-carbon reformation to work, handle the "low-carbon community planning designer training course in City of New Taipei", through the training of the low-carbon community planning designer, foster low-carbon seed talents progressively, assist the community to finish energy-conservation and reduce the relevant reformation of carbon to plan, provide the relevant suggestion which builds low-carbon communities, and can reflect to the government low-carbon community reforms the demand in right time and link the bridge with the intergovernmental importance as the community.

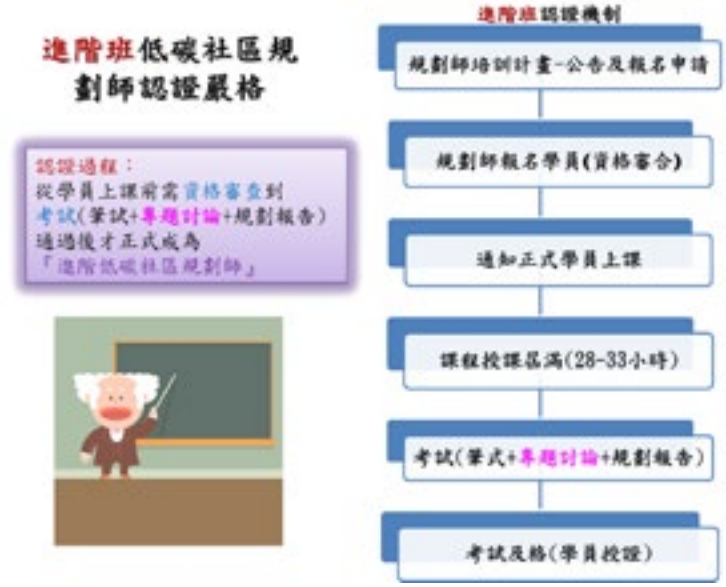
This system is started since 2009, the low-carbon community planning designer recruits the marriage partner in order to set up the book, living, work or go to school in City of New Taipei and build the persons who are interested in community afforesting, low-carbon life in order to enroll preferably, look at the registration state to adjust as one feels fit. The senior planning designer needs to possess low-carbon community planning designer qualification and can participate in training. Till 2014, 182 low-carbon community planning designers were trained and 9 of them were senior planning designers.

For guarantee, train low-carbon community planning designer, that finish can gear the study to practical use, have the community and target to improve demand can have channel can be consulted too, New Taipei City Government database provide all the contact and message of planning designer by low planning designer of carbon community talent so far 1998, assist community people to build and construct the reference which plans the low-carbon community, really link the bridge with the intergovernmental importance as the community, put it into the low-carbon community in City of New Taipei while reforming specifically, have house community of the board of trustee that cooperates with City of New Taipei together, strengthen the improve basic ability of low-carbon in City of New Taipei.

In addition, in order to guarantee the low-carbon community planning designer coaching direction and propose keeping up with changing times, suit the most important key, New Taipei City Government is setting about grinding and drafting the low-carbon community planning designer to train system and low-carbon community planning designer and authorize and manage the plan draft regularly too, standardizing and ordering the planning designer main function roles.

Low-carbon community planning designer training process

Advanced low-carbon community planning designer training process



Green leader trainees in the class

Community visit of green leader trainees

3.5.9 Low-Carbon and Green Industry Exhibition

n business opportunity arises at the historic moment, in order to promote environment sustainability and industry development, New Taipei City Government specially entrusts the professional group to coach and produce the manufacturer to participate in the internationally recognized exhibition of green industry while having jurisdiction over, in order to produce the popularity of the green manufacturer while improving and having jurisdiction over, make the green brand of City of New Taipei.

Handling the “2014EPIF International Green Industry Exhibition” from March 13 to March 16 of 2014: it combines 25 industries and alliances and green manufacturers in City of New Taipei to participate in “EPIF International Green Products Exhibition” at the First Taipei World Trade Hall, make the “City of New Taipei Green Products Fleet Hall” and the “City of New Taipei Green Products Market”, become the whole the exhibition and square industrial merger hall. In the City of New Taipei Green Products Fleet Hall, it plans three major themes of green life, smart control, and renewable energy. In the exhibition, about NT$ 0.3 billion green business opportunity was created successfully, and about 7,000 buyers and people were attracted, which became one of the most popular venues in the exhibition.

City of New Taipei Green Products Fleet Hall

Integrating green products
manufacturers for common marketingS

3.5.10 Energy Conservation of Service Sector

The energy conservation and carbon reduction needs the whole people cooperate together, to promote the solar photoelectric system setting up, energy-conserving administrative system to channel into outside, New Taipei City Government also combines enterprises, including the strength of industry and service industry, encourage all circles to implement energy conservation and carbon reduction work. Coach the special project besides providing service industry energy conservation to consult in energy conservation of service industry, visit, look, declare, lead, implement the energy conservation and law, call service industry economize on electricity management activity independently by 11 appointed users actively, still depend on the spot situation channel into the energy conservation performance and guarantee the special project, promote the demonstration case as ESCO. Expanded and handled the “Saving Electricity by City of New Taipei Service Industry” in 2014, invited 35 service industries, 335 business places and commercial circles to implement energy conservation and carbon reduction together in City of New Taipei, estimated to save 20 million degrees of electric consumption per year.

In order to assist the enterprises to manage independently with the electricity, diagnose and coach by the energy conservation of person who sends industry that provides office, expert group opens in the space to diagnose the energy uses the state inside the enterprise, provide energy-conserving way, medium and long-term energy-conservation that can be improved immediately to improve the plan, and the energy-conserving performance guarantee the special project serve, the assisting industry person solves and eliminates and changes fund, technology, specialized personnel that the energy-consuming apparatus needs. And manage the technological alliance of cloud, Chinese Telecommunication Company and cooperate with low-carbon of Ministry of Science and Technology, assist the service industry of the people's livelihood to use the energy-conserving monitoring system in the high in the clouds, through intelligent ammeter and high in the clouds science and technology, control the power consuming situation and manage power consuming apparatus and workflow effectively immediately, reach, manage independently with electricity really, economize on electricity and the section and goal of fee. Carry out on later stage, the

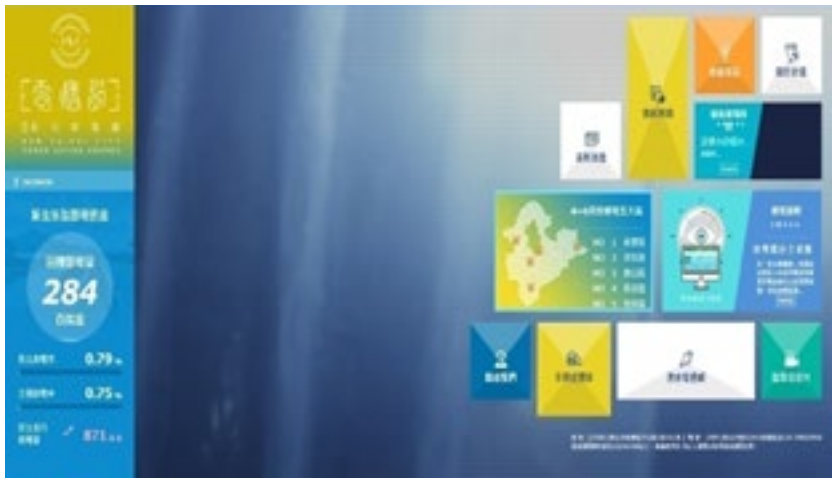
family property that the municipal government economizes on electricity voluntarily to participation too person looks over the achievement, reach power consumption, shoulder person who grow up or economize on electricity effect to get outstanding success in praise and encourage.

Economized on electricity, shared the measure of economizing on electricity voluntarily for the person who encourages City of New Taipei and service industry in 2015, it sets up the “2015 City of New Taipei Electric Addiction Website”, through rewarding to induce City of New Taipei people and service industries, get power consuming information and propose not lasting goal participation voluntarily, implement the behavior of economizing on electricity, City of New Taipei calls 90,000 energy users of service industry in the whole city to participate in economizing on electricity to take action actively, already over 1,000 shops have responded to at present, including a lot of banks, general merchandise industries respond to community responsibility actively.

Promote the achievement to economize on electricity by 20 million degrees in 2014, the pushing goal in 2015 is to reduce extra 2% power consumption, which is about 100 million degrees, pass and consider the electricity of 2014 in our country and power emission sion coefficient (0.521 kg CO2e/degree), reduce about 62,520 tons of carbon dioxide equivalent.

City of New Taipei economizes on electricity to promote through plural channel, the result except reaching and economizing on electricity, and through popularizing the energy-conserving goods and channeling into the chance of the service industry of the energy technology, in order to contribute to the green economy

Press conference of 2014 Saving Electricity by City of New Taipei Service Industry



Homepage of City of New Taipei Electric Addiction Website

3.5.11 Green Travel

Because City of New Taipei has a vast territory, ground form variety and topography changes greatly, and the culture background is plural, a lot of people visit the good destination in ground characteristics and have a rest. In 2008, New Taipei City Government began directing against the low carbon tourism at Pinglin District and Shwanshi District (Pinglin Township and Shwanshi Township at that time). Start the popularization operation of low-carbon travel, combine low-carbon education, low-carbon traffic, low-carbon behavior, low-carbon shop, carbon and gather together six major elements such as certificate and rubbish reduction, and make low-carbon tourism specifically.

The Pinglin District locks its culture main shaft of township of tea, also direct against the natural factor on its fine mountain fine water of protection zone of source of water, match the tour journey of the level ground forest and peripheral key beauty spots, buildings of old street, mainly pushing away in the tea culture, tea industry and experiencing and such travel journeys as fish's brake ecology of small house of gold melon is experienced. The Shwanshi District locks the characteristics of one pair of irons of its pair of small streams, match under the local country sides and cultural and educational historic site characteristics, activity of experiencing etc. of mainly pushing experiencing, ecology and dugout canoe of fire money of countryside. Hope to promote the experience by this, is studying, improving, expand and other and visit the tourist zone in the future from it, with activation, tourist resources of all districts of diversification, and reduce extra greenhouse gas emission that the tour industry causes.

In order to promote the concept of low-carbon tourism, New Taipei City Government is after finding out about local characteristic, consider low-carbon element that can be incorporated in travel links, channel into electric motor car, bicycle, masses' means of transport in plugging into, promote in eat the material, recommend carrying the conduct of tableware and shopping bag by oneself from habits and customs in diet, further call the local shop to carry on low-carbon reformation too, and carry on relevant achievement and travel journey through multimedia websites low-carbon and travel and promote, and will fix the favorable demonstration journey and provide the interested people to sign up, promote low-carbon element specifically to understand in the activity for

the people by this, spreading one by one, promoting the concept of low-carbon travel to the life of citizens in City of New Taipei.

Up to the end of 2014, the low-carbon tourism of Pinglin District and Shwanshi District had 82,696 person participation, the electric motor car plugs into the number of people through the popularization of low-carbon travel, estimate and reduce by nearly 1,549,000 kilograms of carbon dioxide emission in two districts, and bring into economic output value and additional value of about NT$ 100 million for two districts.

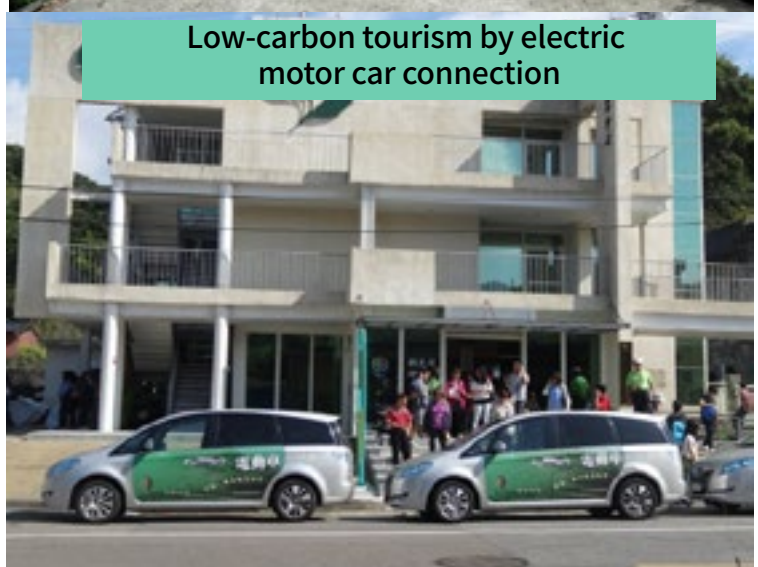
To handle the “low-carbon tourism”, make resident and family property person hotel owner understand the businesses opportunity brought and prosper distant view in the district activity this, also make outside visitors and the local people experience the importance of environmental ecological protection actually, expect with the idea of tourist activity planning of low-carbon - green traffic, low-carbon behavior, low-carbon shop, eco-tour, rubbish and carbon reduction together the certificate, march toward the health city and foundation that the low-carbon society develops the greatest motive force continuously in City of New Taipei.

Promotion concept of low-carbon tourism

Low-carbon tourism at Pinglin District

Low-carbon tourism at Shwanshi

Low-carbon tourism by electric motor car connection



【Chapter cover story】Junior EPD directors
Low carbon education starts at an early age
Source: New Taipei City EPD press release

CHAPTER 4
Our Sustainable Future

In order to find out emission sources and manage greenhouse gases emission appropiately, New Taipei City Government has begun to calculate both city-wide and municipal government greenhouse gases emissions since 2007. Next, New Taipei City Government planned and implemented various measurements on the basis of the inventory report to mitigate the environmental impact of operations of municiple government; which is necessary for us to move toward a green government. In addition, every department and division of City of New Taipei actively implements five main aspects of our miticgation actions, such as “greener building”, “smarter transport”, “cleaner energy”, “more efficient resources allocation” and “more sustainable life” to promote energy conservation and carbon reduction measures continuously, and build the low carbon city in an all-round way.

According to the greenhouse gases invetory report, it is found that the residential and commercial buildings and facilities have the highest share of emission in greenhouse gases. Therefore, City of New Taipei has priority to improve the energy efficiency of buildings and facilities, whether it belongs to public or not. In the mid-term, we plan to expand the implementation range of green building through alliances and exchanges of community, school, and private enterprise, we also plan to increase installed capacity of r

renewable energy sources and its generating efficiency. In the long-term, we hope to further change the regional energy structure through the promotion of distributive renewable energy, regional energy and natural resource recycling.

tiple benefits is promoted. In the short-term, we will keep constructing mass transmit system to match up the urban development and build friendly public transportation environment. In the mid-term, we will build the green traffic infrastructure (including terminal and track), and improve energy efficiency of traffic infrastructure or use the low carbon intensive fuel. In the long-term, we will put terminal and renewable energy together, and reduce the power consumption of terminals. In the commercial and industrial sector, under considering the industrial competitiveness, we will subsidize the energy-saving equipment as the short-term measure, introduce the energy management system as the mid-term strategy, and for the long-term, we will adopt source management, clean production strategy, process improvement and emission reduction as the basic solutions.

In the future, City of New Taipei will cooperate with Environemtanl Protection Administration to combat climate change continuously, and also roll to revise the existing policy, improve and draw the experience promoted in the past, learn from other best practices, implement low-carbon measure, develop reduction project and foster low-carbon economy, and activate every possibility for low carbon in City of New Taipei. To respond the influence of global warming, it has to take precaution against calamity in advance. New Taipei City Government also involves the concept of extreme climate, energy conservation and carbon reduction, and sustainable development into the administrative planning and consideration, including the construction of green infrastructure, promotion of green building, conservation of water environment and proper use of land etc., in order to provide a livable environment for citizens.

The sustainable development is not only self–motivated of the municipal government, but also the expectation from all the citizens. City of New Taipei will promote the public communication and participant, walk into the community and neighbors, school campus, come into the factory, shops, listen attentively to the opinions from all sectors, together with people, make City of New Taipei as a top international sustainable city.

	Short-term strategy	Mid-term strategy	Long-term strategy
	Strengthen existing measure and introduce carbon reduction measure for future construction	Integrate various measures to demonstrative field and forming linkage	Source management and optimize the energy structure
Residence and public sector	Comprehensive promotion of green building	Formation of green alliance	Regional renewable energy system
Transportation sector	Involvement of low-carbon concept to design and planning of traffic construction	Power saving for terminal, track, and combination of renewable energy	Cooperate with commercial vehicle teams to promote electrical vehicle
Industry and commerce sector	Subsidiary for replace of energy saving equipment	Introduction of energy management system for large-scale factory or mall	Source management, clean production strategy, process improvement
policy instrument	Endeavor to get more resources, including Subsidiary fund, technology support	Introduction of ESCO model investment	Promotion of demonstrative field and carbon reduction measure by urban planning

Figure 107 Illustration of carbon reduction route