

TAOYUAN CITY ECOLOGISTICS WHITE PAPER

桃園生態物流白皮書



桃園市政府
Taoyuan City Government



EcoLogistics
Community
An ICLEI-Local Governments for Sustainability Initiative

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桃園市：國際物流基地

桃園擁有國際交通樞紐及完整產業供應鏈的優勢，2019 年獲全球智慧城市論壇 (ICF) 評選為全球智慧城市 TOP 1 首獎，並成為「2020 ICF Top7 國際智慧城市頂尖論壇」的主辦城市，也是全球首屆生態物流社群主席城市，讓桃園躍升國際舞台。

As an international transportation hub and a city with a robust supply chain, Taoyuan City was named the Intelligent Community of the Year by the Intelligent Community Forum (ICF) in 2019, after which it went on to host the 2020 ICF Top7 Announcement. Taoyuan was also named the first EcoLogistics Community Chair, further elevating the city's international presence.



桃園具有區位優勢，平均三小時航程即可抵達亞太主要城市。
On average, Taoyuan is only a 3-hour flight away from all major cities in the Asia Pacific.

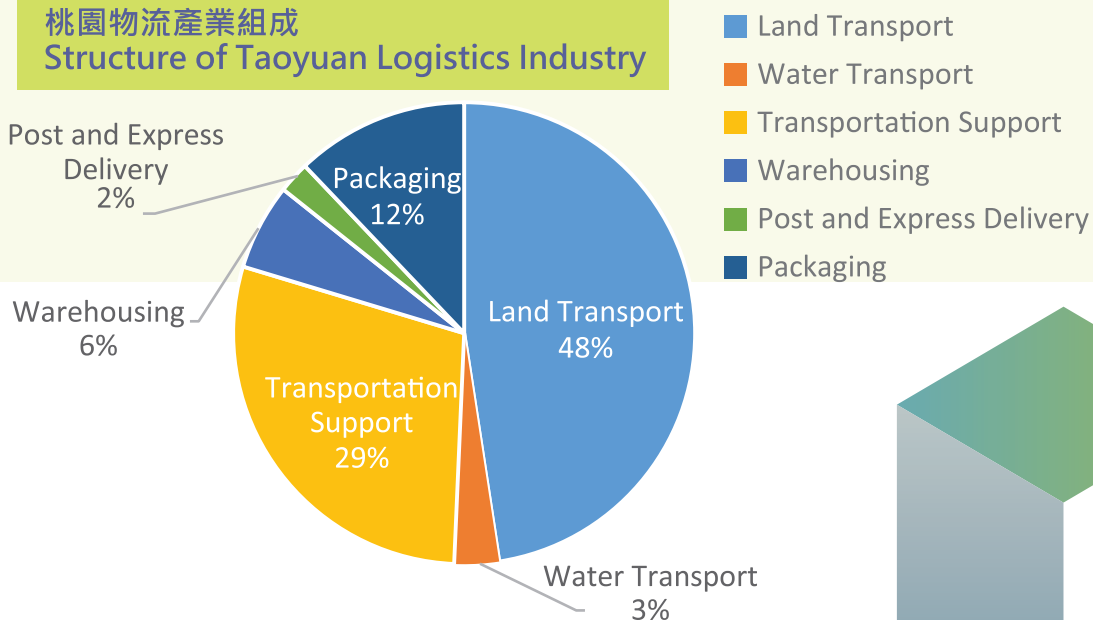
TAOYUAN CITY

AN INTERNATIONAL TRANSPORTATION HUB

桃園是國門之都，坐擁桃園國際機場，具交通區位優勢，產業聚落多元完整，是運籌亞太與鏈結世界的關鍵樞紐。桃園人口平均年齡為 40 歲，是全台最年輕的直轄市，也是工業年產值近新台幣 3 兆元的科技大城，台灣 500 大製造業中超過 1/3 的企業落腳桃園，也因此桃園匯集了最多元的物流樣態。

Taoyuan City is the gateway to Taiwan. Home to Taoyuan International Airport (TIA), Taoyuan has an edge in transportation. Coupled with its comprehensive industry clusters, Taoyuan is a key hub that connects the Asia Pacific to the world. With a population that has an average age of 40, Taoyuan is the youngest city among all municipalities in Taiwan. Taoyuan is also a technology center, with an industrial output value that exceeds USD 103 billion per year. Among Taiwan's 500 major manufacturers, more than 1/3 are based in Taoyuan, which brings together the most diverse logistics patterns in Taoyuan.

桃園物流產業組成
Structure of Taoyuan Logistics Industry



生態物流

健康、安全、永續、人本的城市物流

物流是便利生活的重要基礎，無論是企業與商家進、出貨，或者民眾日常的網購、宅配等都需要物流的配合。於此同時貨運車輛也為城市帶來了一些負面影響，包含空氣污染、噪音、溫室氣體排放、交通安全、塞車、包裝廢棄物等。

為了讓桃園成為宜居宜業的桃花源，在兼顧環境永續與經濟發展之下，桃園市政府積極推動生態物流，透過智慧科技、土地規劃與多元利害關係人合作，讓物流更低碳、市民更安心。

桃園市於2019年接受國際組織地方政府永續發展理事會 (Local Governments for Sustainability, ICLEI) 的邀請擔任生態物流社群 (EcoLogistics Community) 的主席城市，向國際城市展現桃園推動生態物流的成果，透過國際交流共同推廣生態物流。



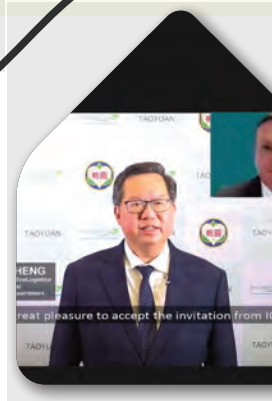
① 2019.06
ICLEI 邀請桃園市
擔任生態物流
社群主席城市

② 2019.10
桃園市與 ICLEI
正式簽約擔任社
區主席城市



③ 2020.03
生態物流
專案辦公室
揭牌成立

④ 2021.04
ICLEI 邀請桃園市
延任生態物流
社群主席城市



ECOLOGISTICS

PROMOTES URBAN TRANSPORTATION OF GOODS BY GIVING PRIORITY TO HEALTH, SAFETY, PEOPLE-CENTERED AND LOW-EMISSION.

Logistics is an essential element for constructing a prosperous urban economy and a convenient living. But urban freight may also bring some negative impacts to the citizen, including air pollution, noise disturbance, greenhouse gas emissions, traffic jams and road safety concerns, packaging garbage and waste, etc.

In order to balance the environmental protection and the economic development, the Taoyuan city government aggressively promoted the EcoLogistics and signed the contract with Local Governments for Sustainability (ICLEI), officially becoming the chair for ICLEI's first international EcoLogistics community in 2019.

 桃園市政府
Taoyuan City Government


EcoLogistics Community
ICLEI-Local Governments for Sustainability Initiative

- ① ICLEI invited Taoyuan City to become the chair for EcoLogistics Community.
- ② Taoyuan City officially became the chair for EcoLogistics Community.
- ③ Established the EcoLogistics Community Chair Office.
- ④ ICLEI invited Taoyuan City to continue chairing the EcoLogistics Community until the end of 2022.
- ⑤ Sharing experiences and continuously promoting EcoLogistics as the chair for EcoLogistics Community.

⑤ 2022

桃園作為主席城市
持續推動生態物流

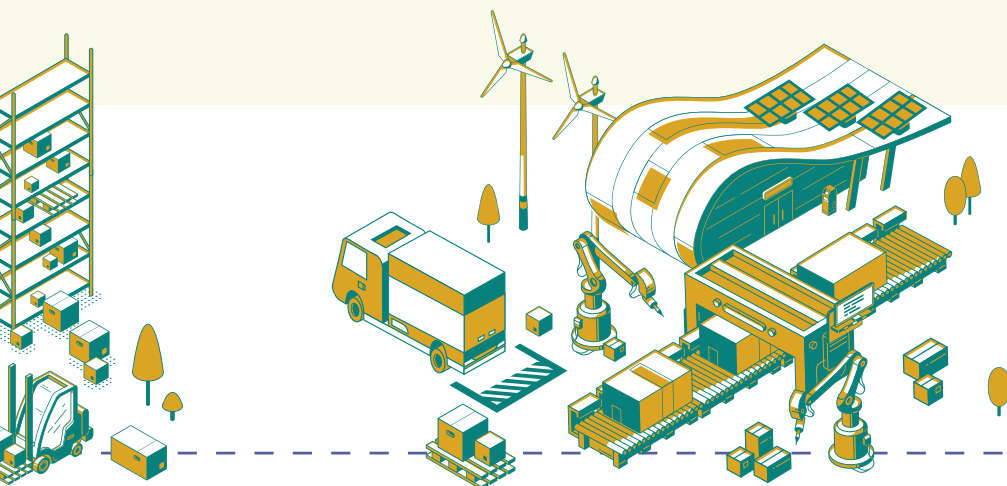
國際物流 展望全球

全國有近八成的物流業者座落於桃園，桃園市與全球最大永續城市組織 ICLEI 合作，並擔任首屆國際生態物流社群主席城市，積極推動物流產業智慧化、低碳化及綠能化，並選定機場倉儲物流、沙崙綠倉儲、青埔綠能物流聚落、中華郵政物流暨華亞科技園區、大溪老街商圈與楊梅智慧共享倉儲聚落等 6 個應用示範場域，從整體產業鏈打造物流解決方案，同時攜手各物流業者以低碳車隊聯盟方式，宣示優先使用環保低污染貨車，推廣保檢合一政策，盼有效改善物流運輸時的空污問題。專案辦公室連結產、官、學、研，共同訂定生態物流國際指標、辦理國際交流論壇等，藉由 ICLEI 全球 2,500 個會員城市的龐大網絡，將桃園卓越的生態物流經驗，行銷全球。



GROWING INTERNATIONAL LOGISTICS WITH A GLOBAL OUTLOOK

Nearly 80% of logistic businesses in Taiwan are based in Taoyuan. Taoyuan has been named the first EcoLogistics Community Chair by ICLEI, the world's largest sustainable city organization. Six demo sites, including the Airport Cargo Terminals and Logistics Area, Shalun Green Warehousing Park, Qingpu Green Energy Logistics Cluster, Chunghua Post Logistics and Huaya Science and Technology Park, Daxi Business District and Yangmei Smart Sharing Warehouse cluster are selected for creating logistics solutions that fit the needs of the overall industry chain. In addition, the Taoyuan EcoLogistics Community Chair Office collaborates with logistics businesses to form low-carbon fleets that prioritize the use of eco-friendly, low-pollutant trucks and promote simultaneous maintenance and inspections, which work toward decreasing air pollution caused by the transport of goods. The office combines the strength of the industry, government, academia, and research to formulate international Ecologistics indicators and organize international forums. The enormous network formed by ICLEI's 2,500 member cities worldwide serves as a conduit for Taoyuan to share its abundant experience in eco-logistics with the world.



桃園六大生態物流示範區



沙崙綠倉儲

Shalun Green Warehousing Park

On-going

- 生態地景 Ecological landscape
- 智慧運輸 Smart transportation
- 智慧綠建築 Smart green building



青埔綠能物流聚落

Qingpu Green Energy Logistics Cluster

Developed

- 自動化倉儲 Automated warehouse
- 綠建築 Green building
- 綠能 Green energy

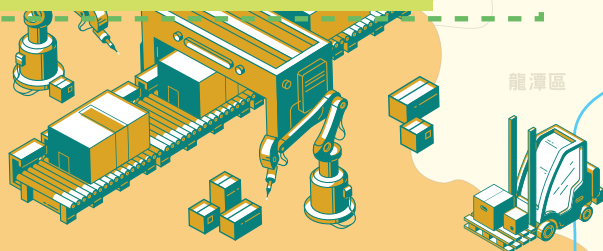


楊梅智慧共享倉儲聚落

Yangmei Smart Sharing Warehouse cluster

Developed

- 智慧倉儲 Smart warehouse
- 共享倉儲 Sharing warehouse
- 低碳倉儲 Low carbon warehouse



6 ECOLOGISTICS DEMO SITES IN TAOYUAN



機場倉儲物流 Airport Cargo Terminals and Logistics Area

Developed



- 土地管理與規劃 Land planning and management
- 空氣品質維護區 Air quality protection
- 低碳運具推廣 Low carbon vehicles introduction

中華郵政物流暨華亞科技園區 Chunghwa Post Logistics and Huaya Science and Technology Park

On-Going



- 智慧物流 Smart logistics
- 低碳運輸 Low-carbon transportation
- 柴油車動力檢測站與車隊自主管理 Diesel power check station & fleet self-management

大溪商圈 Daxi Business District

Developed



- 共享物流與倉儲 Shared logistics and warehousing
- 低碳運具推廣 Low-carbon vehicles promotion
- 交通管理 Traffic management

沙崙綠倉儲

Shalun Green Warehousing Park



面積 AREA:

0.28 km²



亮點 HIGHLIGHT:

智慧綠建築 Smart green building



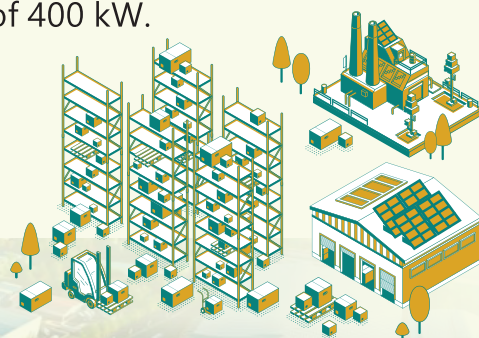
產值 PRODUCTION VALUE:

上看10億台幣 (~34 million US dollar)



綠能設置容量達400 kW

Green energy installation of 400 kW.



青埔綠能物流聚落

Qingpu Green Energy Logistics Cluster



面積 AREA:

4.9 km²



亮點 HIGHLIGHT:

自動化倉儲 Automated warehouse
綠能設置 Green energy



產值 PRODUCTION VALUE:

超過百億台幣 (over 338million US dollar)



綠能設置容量超過 10 MW

Green energy installation over 10 MW.



楊梅智慧共享倉儲聚落

Yangmei Smart Sharing Warehouse cluster



面積 AREA:

89 km²



亮點 HIGHLIGHT:

智慧倉儲 Smart warehouse

共享倉儲 Sharing warehouse

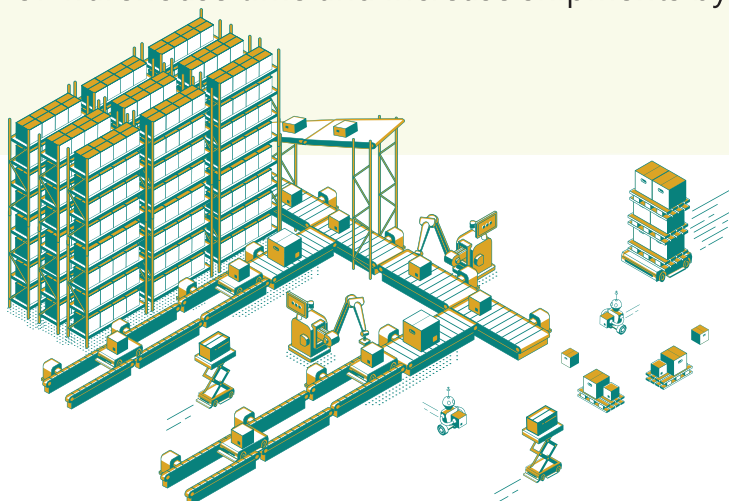


產值 PRODUCTION VALUE:

超過50億台幣 (over 169 million US dollar)

導入智慧倉儲機器人、電子輔助揀貨系統，提升理貨效率近3倍、減少3成人力，更讓揀貨工作快速上手並減少8成的行走距離，兼顧人本與營運效率，進一步導入AI系統可減少6成的出倉時間，提升10倍出貨量。

Introducing automated guided vehicles, Computer-Aided Picking Systems, making improves tally efficiency by nearly 3 times, reduces manpower by 30%, makes picking work easier, and reduces the walking distance by 80%. It balances the people-centered development and the operational efficiency. Further introduction of AI system can reduce 60% of the out-of-warehouse time and increase shipments by 10 times.



機場倉儲物流

Airport Storage and Logistics Area



面積 AREA:

45.64 km²



亮點 HIGHLIGHT:

空氣品質維護區

Air Quality Management Areas



產值 PRODUCTION VALUE:

上看1.19兆台幣 (~ 40 billion US dollar)



補助一至三期大型柴油車汰換4,428輛·PM_{2.5}減量達18公噸
、NO_x減量達3,728公噸。

Replacing 4,428 Euro1~3 diesel vehicles, reducing
PM_{2.5} by 18 tons and NO_x by 3,728 tons.



中華郵政物流暨華亞科技園區

Chunghwa Post Logistics and Huaya Science and Technology Park



面積 AREA:

89 km²



亮點 HIGHLIGHT:

智慧物流 Smart logistics

低碳運輸 Low-carbon transportation



產值 PRODUCTION VALUE:

上看57億台幣 (over 193 million US dollar)



低碳車隊聯盟使用環保低污染貨車與推動貨車進廠保養等手段，一年可削減PM₁₀ 34.6公噸、PM_{2.5} 30.6公噸、NO_x 437公噸。

Diesel power check station & fleet self-management reduce PM₁₀ 34.6 tons, PM_{2.5} 30.6 tons and NO_x 437 tons per year.

北臺灣郵件作業中心

郵政物流中心

郵政資訊中心

營運中心

服務中心

形象公園

- 臨文桃路處面寬
- 規劃多項休閒及公共藝術作品，

大溪商圈

Daxi Business District



面積 AREA:

0.22 km²



亮點 HIGHLIGHT:

共享物流 Shared logistics

低碳運具推廣 Low-carbon vehicles promotion



產值 PRODUCTION VALUE:

平均每日1萬人 ~10,000 people per day.



為減少進出大溪老街的貨車數量，設置了物流業者與在地商家臨時存放貨物的共享倉庫。司機應將卡車停在這裡，並改用低碳排放車輛將貨物運送到各個目的地，每年可減少約 300 公斤的二氧化碳。

To reduce the amount of trucks entering the Daxi old street, sharing warehouses for temporarily storing goods by logistics operators and local merchants have been built. Drivers should park trucks here and change to low carbon emission vehicles for delivering goods to various destinations. That could reduce about 300 kg CO₂ per year.



落實生態物流八大原則

8 Approaches of Taoyuan EcoLogistics



支持城市貨運的集散策略

SUPPORT CONSOLIDATION SCHEMES FOR URBAN DELIVERIES

建立大溪低碳寧靜轉運站，貨車在轉運站卸貨後，使用電動機車/三輪車完成最後一哩路配送。

Establish Daxi Low Emission Consolidation Station. Freight trucks load and unload at the depot, and use electric motorcycle/moto tricycle for the last mile delivery.



承諾採用更安全的城市運具，以維護道路安全

COMMIT TO SAFER URBAN DELIVERY VEHICLES FOR SAFER STREETS

交通寧靜區內將實施車輛限速和交通噪音管制，例如禁鳴喇叭。Vehicle speed restrictions and traffic controls such as honking bans and noise reduction will be implemented in the quiet zone.



優化運送營運效率

OPTIMIZE THE EFFICIENCY OF DELIVERY OPERATIONS

物流業者可以透過路線優化、運輸資訊收集、駕駛行為監控和培訓來改善營運效率，政府也可以建立智慧交通系統來增強交通安全。

Freight service providers can use route optimization, vehicle telematics, driver monitoring, and training to improve delivery operations. Governments can establish intelligent transportation systems to enhance traffic.



整合都市計畫以促進城市貨運發展

INTEGRATE LAND USE PLANNING FOR FREIGHT DELIVERY

整合土地利用規劃，建設物流園區、設置貨運車輛公共停車位。

Integrate land use planning to establish logistics parks and set up public parking places for freight vehicles.



提升民眾意識並鼓勵行為改變

RAISE AWARENESS AND ENCOURAGE BEHAVIOR CHANGE

鼓勵民眾購買綠色商品，推廣創新的智慧自取解決方案。

Encourage the public to purchase products with green marks and promote innovative self-pickup solutions.



改採更永續的運送選項

SHIFT TO ALTERNATIVE DELIVERY OPTIONS

推廣電動汽車和氫能汽車等低排放車輛，以提高城市貨運系統的效率。

Promote low-emission vehicles, such as electric and hydrogen vehicles, to improve the efficiency and performance of the urban freight system.



創造有利於氣候友善商業模式發展的框架

FRAMEWORKS FOR CLIMATE-FRIENDLY BUSINESS MODELS

鼓勵安裝再生能源裝置，使用節能設備和可重複使用的包裝。

Encourage the installation of renewable energy devices and use energy-efficient equipment and reusable packaging.



推廣多元利害關係人的決策架構

PROMOTE MULTI-STAKEHOLDER DECISION MAKING STRUCTURES

每年召開 30 多場會議，並積極邀請居民、在地業者、物流公司 and 有關部門等眾多利害關係人參加會議。

Held more than 30 meetings per year and actively invited many stakeholders, for example, residents, local businesses, logistics companies, and relevant authorities, to join these meetings.

桃園生態物流指標

ECOLOGISTICS INDICATORS FOR TAOYUAN CITY





桃園特色 生態物流 永續人本 串聯全球

Ecologistics in Taoyuan

Building a sustainable
and livable city



桃園生態物流指標

EcoLogistics Indicators for Taoyuan City

物流業是否符合永續發展精神，其評估工具很重要，桃園為國際生態物流社群主席，率先與ICLEI合作發展生態物流指標，作為桃園全面自我檢核生態物流發展現況、確認政策目標的實踐以及檢討、修正推動城市物流淨零碳排之依據。

The assessment tools are essential for evaluating the sustainability of the logistics industry. As the Chairman of the EcoLogistics Community, Taoyuan City leads first to cooperate with ICLEI for investigating the EcoLogistics Indicators, making a comprehensive self-assessment for the City's EcoLogistics. Reviewing the selected indicators and assessing the progress of the implementing policies should provide guidelines for accomplishing the net-zero goals of urban logistics.

3大面向34項指標

本指標包含環境永續、社會平等與營運效率三大面向，涵蓋34項量化與質化項目評估城市生態物流推動情形，且以2019年（生態物流專案辦公室成立前一年）作為基準年，未來將逐年填列，進行全面性的生態物流盤點。

3 Categories with 34 Indicators

The EcoLogistics Indicators for Taoyuan City are classified into 3 Categories: Environmental Sustainability, Social Equity, and Operational Efficiency, and include 34 quantitative or qualitative indicators for evaluating the status of the urban EcoLogistics. The baseline for the assessment was set in 2019 which was one year before the setup of the EcoLogistics Project Office in Taoyuan. Assessment will continuously be carried out by the City, to track the progress of the sustainability of the City's logistics.

生態物流指標分類

The framework of Ecologistics Indicators for Taoyuan City



環境永續：從空氣品質、噪音、溫室氣體排放、能源消耗與企業推動環境永續政策等項目評估城市貨運永續性。

Environmental Sustainability assesses the sustainability of urban logistics from the air and noise pollution, GHG emissions, energy consumption, and the sustainable operation in enterprises.



社會平等：從相關政策制定程度、城市貨運安全、公眾參與、從業人員性別差異等項目評估城市貨運的社會平等實踐，並透過從業人員數量與產值評估物流業對城市經濟的貢獻。

Social Equity of urban freight considers the formulation of relevant policies, urban freight safety, public participation, gender differences in employees, etc. It also evaluates the economic contribution of urban logistics from the number of employees and the industrial output.



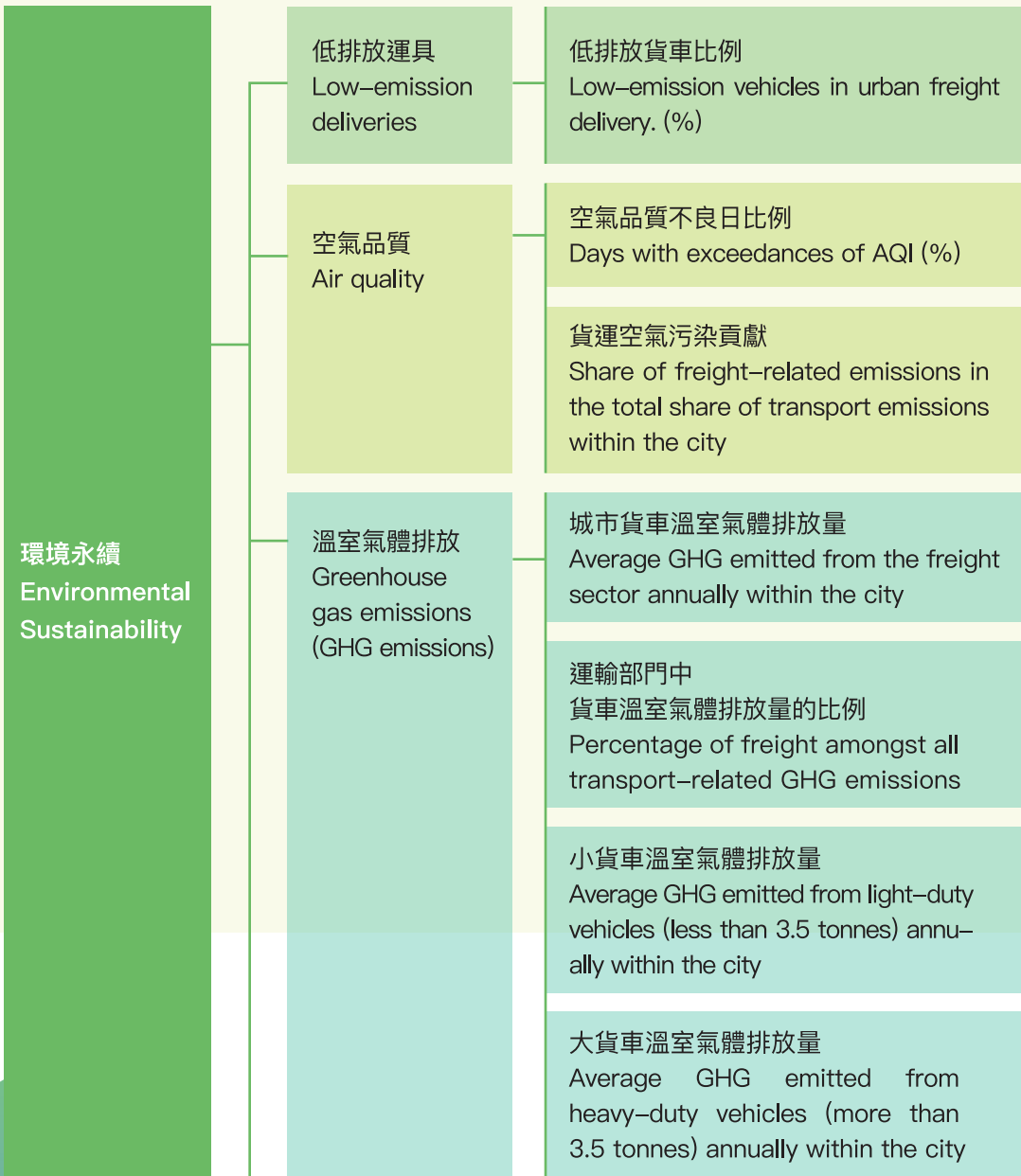
營運效率：從運具的使用、貨運對交通的影響等面項評估城市物流的營運效率。

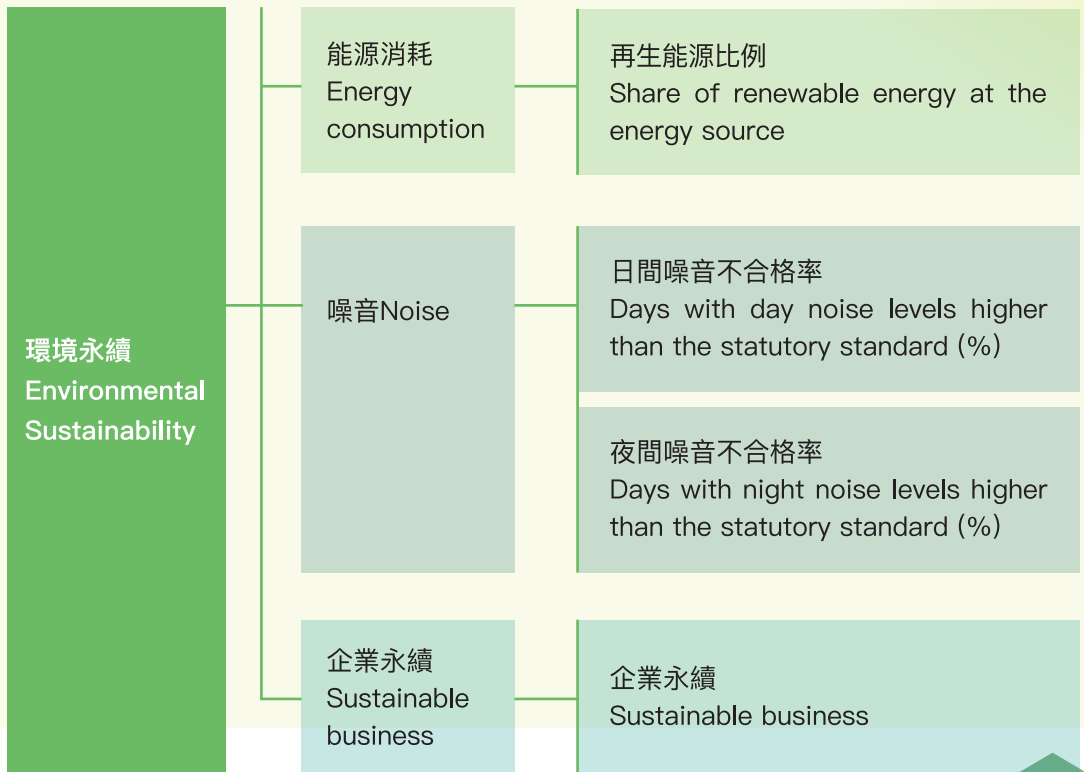
Operational Efficiency of the urban logistics is evaluated from the utilization of vehicles and the traffic impact from the freight.

桃園生態物流指標架構

經濟環境平衡發展 公私協力共創典範

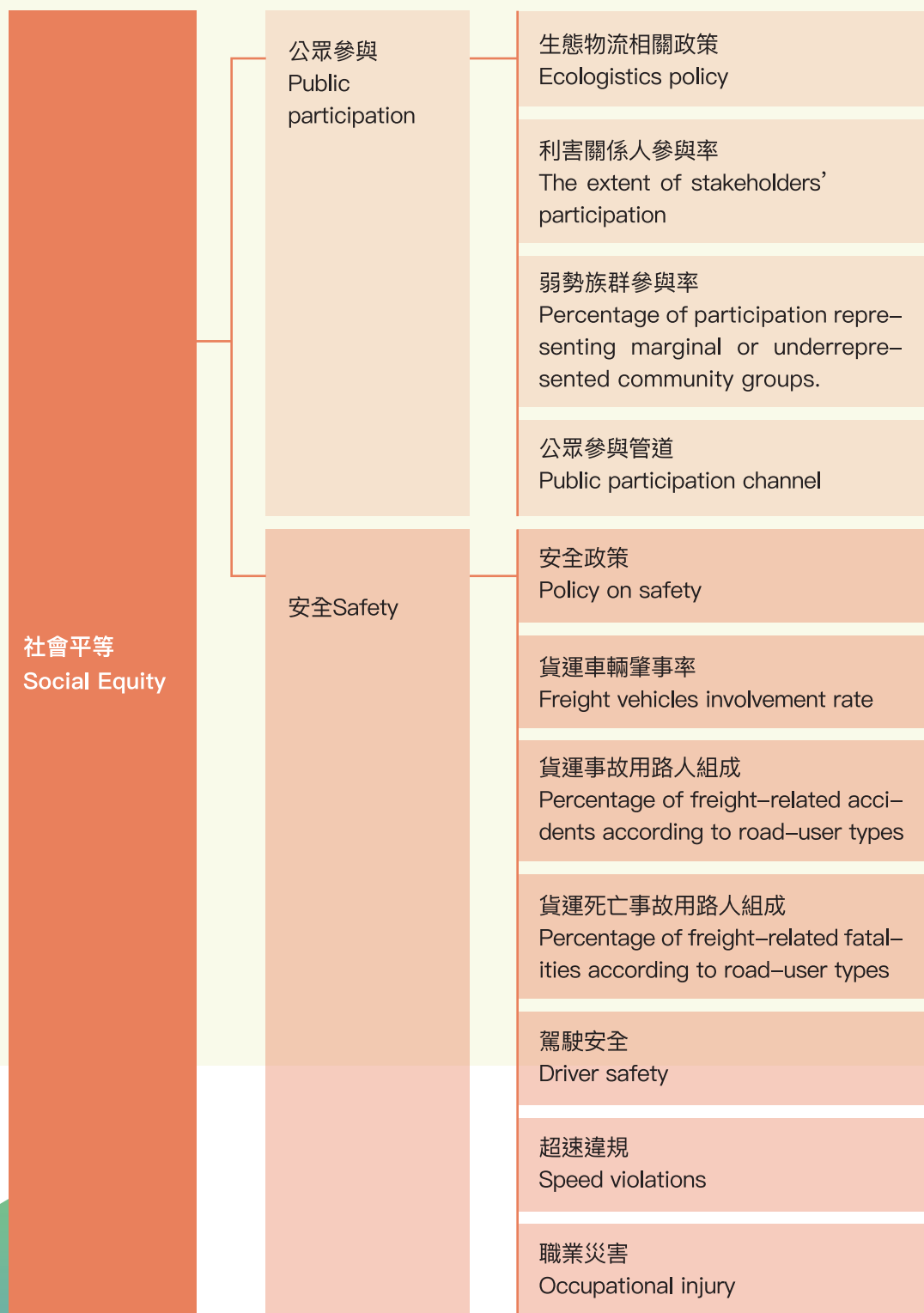
The framework of Ecologistics Indicators for Taoyuan City

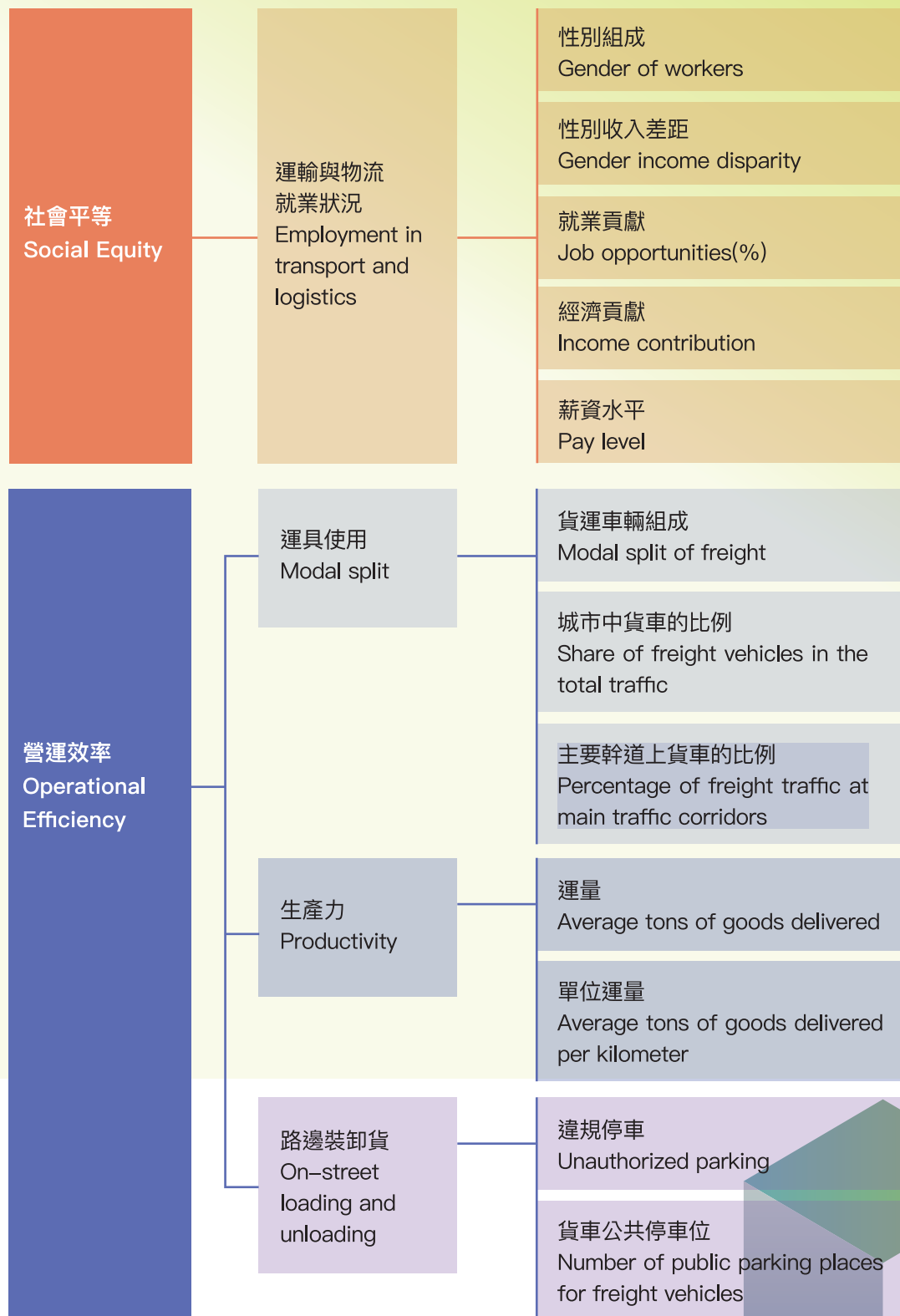




桃園生態物流指標架構 | 經濟環境平衡發展 公私協力共創典範

The framework of Eclogistics Indicators for Taoyuan City





桃園生態物流發展現況

環境永續

Current Status of Taoyuan EcoLogistics Environmental Sustainability

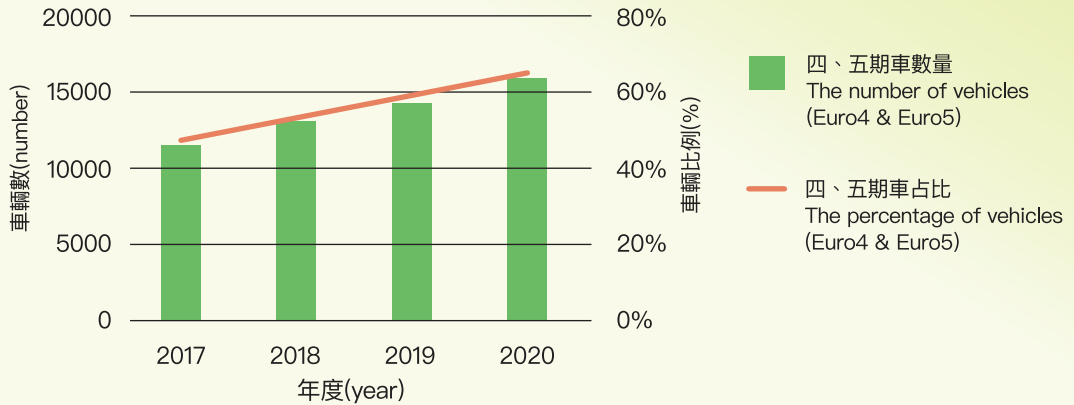
- 環境永續面向之指標以低排放運具比例為例，基準年2019年環保貨車占比達60%，2020年進一步提升至66%，低排放運具比例持續成長。
- 環境品質持續改善，空氣品質指標基準年2019年為6%，2020年空氣品質不良日比例進一步下降至5%。
- Take the percentage of low-emission vehicles as an example for the Environmental Sustainability indicators. The percentage of low-emission trucks was 60% in the baseline year 2019 and has been increased to 66% in 2020, which shows the growth in low-emission vehicles in the city.
- The air quality has been improved. The percentage of the days with Air Quality Index exceedances (AQI>100) was 6% in 2019 and dropped to 5% in 2020.

指標 Indicator	內容 Definition	基準值 Baseline Value
低排放運具 Low-Emission Vehicles	環保貨車（4~6期車）占總貨車之比例 The percentage of low-emission vehicles (Euro4~Euro6) in urban freight delivery	60%
空氣品質 Air Quality	空氣品質不良日（AQI>100）比例 Percentage share of days with exceedances of AQI (AQI>100)	6%

低排放運具比例快速成長

The percentage of low-emission vehicles is growing.

四、五期環保貨車數量與比例

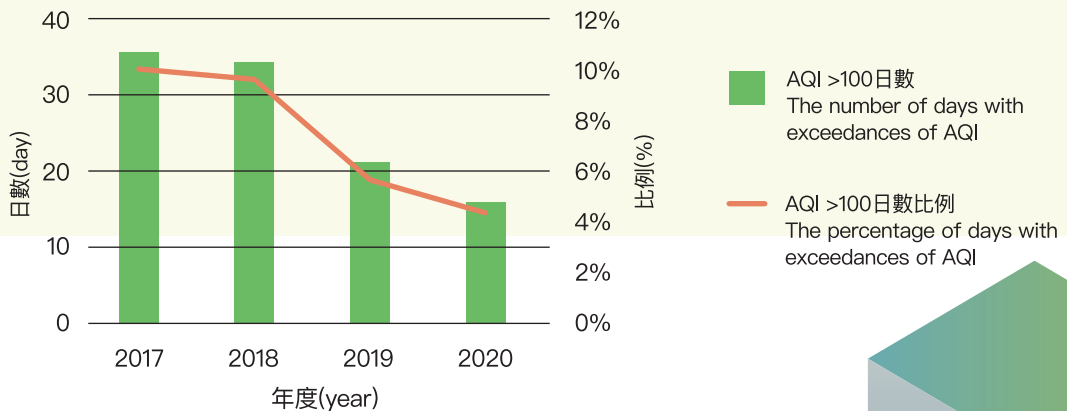


數據來源：桃園市政府環境保護局

空氣品質大幅改善

Air quality is improving.

桃園市空氣品質不良日數與比例



數據來源：桃園市政府環境保護局

桃園生態物流發展現況

社會平等

Current Status of Taoyuan EcoLogistics

Social Equity

- 以社會平等面向中，生態物流相關政策指標為例，本市透過多元管道積極推動利害關係人參與，公私協力打造宜居樂活桃花源。2019年基準年，生態物流相關政策指標達Level 2，已有通用物流政策，2020年達Level 3，已制定生態物流政策並有多元利害關係人參與，更將於今年正式發表生態物流白皮書。
- 公眾參與指標方面，本市建立多元利害關係人溝通管道，透過參與式預算、網路投票等方式鼓勵公眾參與，2020年起持續辦理生態物流相關會議，整合產、官、學、民多方意見推動生態物流。
- Take the Indicator of EcoLogistics related policies' existence as an example of Social Equity. Taoyuan City has been actively promoting multi-stakeholder engagement through various channels, building a livable LOHAS City through public-private partnerships. The Indicator of related EcoLogistics Policies was already existed within the City governance and assessed at Level 2 in 2019. The Indicator has been improved to Level 3 with more participation of multi-stakeholders. Besides, Taoyuan City will announce its EcoLogistics White Paper in 2022.
- Regarding the public participation Indicators, the City has established more communication channels and encouraged multi-stakeholders and citizens to participate in the public hearing about budgeting or online voting for public events, etc. Since 2020, the City has been holding some EcoLogistics conferences and workshops to integrate the voices and opinions from industries, government, institutes, and citizens, for promoting EcoLogistics in the City.



指標 Indicator	內容 Definition	基準值 Baseline Value
生態物流相關政策 EcoLogistics policy	<p>生態物流相關政策制定進度：</p> <p>Level 1: 沒有政策和機制解決與貨運相關問題。</p> <p>Level 2: 存在通用政策，但在生態物流方面並未單獨規劃相關政策。</p> <p>Level 3: 存在永續城市物流計劃或生態物流政策，並且多元利害關係人積極參與。</p> <p>Policy existence：</p> <p>Level 1: No policy and no mechanism to address freight-related consultations.</p> <p>Level 2: Generic policy exists requiring public participation but not actively in the field of EcoLogistics.</p> <p>Level 3: A Sulp or EcoLogistics policy exists where consultation is mandatory in a politically endorsed policy and a multi-stakeholder group for freight (Freight Partnership) exists actively.</p>	Level 2
公眾參與管道 Public participation	<p>公眾參與的管道與程度：</p> <p>Level 1: 單向資訊取得（網站、廣播、報紙、客服系統等管道）。</p> <p>Level 2: 政府邀請公眾就政策或文件發表意見、評論和回饋的雙向溝通。</p> <p>Level 3: 公眾積極參與問題定義、決策和實施等所有決策階段，建立積極的伙伴關係。</p> <p>The extent of public participation in place：</p> <p>Level 1: Access to information (online website, radio, newspapers, call center)</p> <p>Level 2: Consultative process where government invites the public to provide an opinion, comments, and feedback on a policy or document.</p> <p>Level 3: Active partnership in all decision-making stages where the public is actively involved in the issue identification, decision, and implementation, including impact communities.</p>	Level 3

桃園生態物流發展現況

營運效率

Current Status of Taoyuan EcoLogistics Operational Efficiency

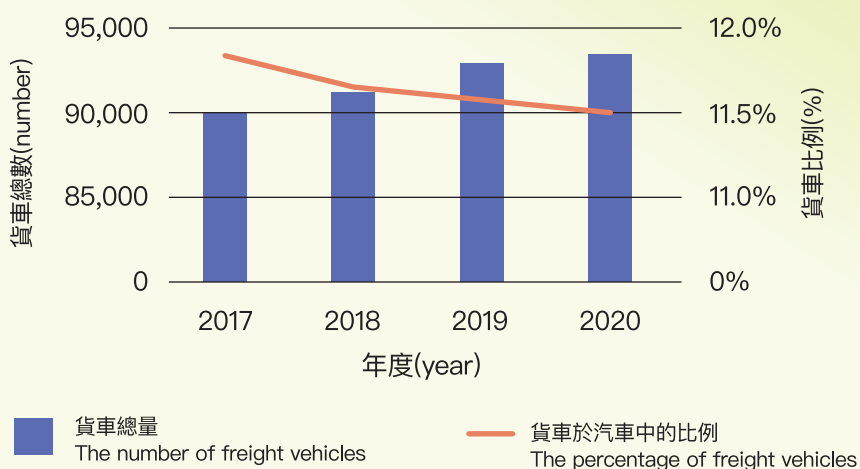
- 以營運效率面向中，城市中貨車的比例指標為例，本市貨運車輛（大貨車、小貨車與郵車）約占城市汽車登記數12%，與國際10%–15%的平均值相符，貨車的總量隨城市的發展增加，比例則略為下降，顯示貨運的營運效率持續提升，可用較低的車輛比例完成大幅增長的貨運業務。
- 貨車公共停車位數量指標中，本市為提升道路暢通與安全，積極推動裝卸貨專用停車位，基準年2019年停車位數量為143格，2020年增加為174格，增加22%。

- Take the Indicator of the share of freight vehicles in the City as an example for Operational Efficiency. The registered freight vehicles, including trucks, light delivery trucks, and mail cars in Taoyuan City account for 12% of registered cars which is in line with the global average about 10–15%. In recent years, the number of trucks has increased with the City's development, but the ratio of the trucks has been decreased slightly. This shows an improvement in operational efficiency, meaning the growing freight demands can be handled by using a lower proportion of freight vehicles.
- Regarding the indicator of the number of public parking spaces for trucks, Taoyuan City has been actively building public parking spaces for handling cargo to avoid traffic congestion and ensure road safety. In 2019, there were 143 truck parking spaces; and in 2020, the number has been increased by 22% to 174.



營運效率提升 貨車比例下降
Operational efficiency is improving.

貨車數量與比例



數據來源：交通部統計查詢網

指標 Indicator	內容 Definition	基準值 Baseline Value
城市中貨車的比例 Share of freight vehicles in the total traffic	貨車 (大貨車、小貨車與郵車) 登記數/總汽車登記數 The percentage of delivery vehicles in urban traffic	12%
貨車公共停車位數量 Number of public parking places for freight vehicles	裝卸貨專用停車位數量 Number of public parking places for freight vehicles	143格

生態物流主席 低碳永續先行

EcoLogistics Chair City Towards Sustainable and Livable City

桃園在物流產業快速成長之際，關注環境永續與人本議題，在空氣品質、交通噪音、道路安全等層面持續進步，並已制定多面向的生態物流政策，透過多元管道積極推動利害關係人參與。

本市將持續推動生態物流，依據指標填列成果逐年檢討與修正，結合智慧、低碳技術，公私協力攜手邁向2050淨零碳排。

生態物流指標可做為城市評估物流現況的工具，透過本指標，了解應包含的項目與目標，協助城市推展生態物流。

本市作為生態物流社群主席，將與國內外城市夥伴分享成果，共同邁向低碳永續未來。

Taoyuan City always focuses on environmental sustainability and people-centered issues, along with the rapidly growing logistics industry. The city sticks to progressing in air quality, traffic noise, and road safety. The multifaceted EcoLogistics policy has also been formulated, City also actively promotes engagement of the stakeholder and citizen through multi-channels.

Taoyuan will keep promoting EcoLogistics in the city. Review and revise the policies annually according to the examining the result from the EcoLogistics Indicators. With the introduction of smart and low-carbon technologies, and the private and public sectors are working together to accomplish net-zero emissions by 2050.



The EcoLogistics Indicator is an assessment tool for cities to evaluate their current status of logistics. Cities are therefore able to recognize which data and targets should be considered and assist themselves in promoting the EcoLogistics.

Taoyuan City, the Chair of the EcoLogistics Community, will share its experiences and achievements with global partners, work together to construct a low-carbon and sustainable future.

生態物流淨零碳排 2050 共創雙贏





ECOLOGISTICS NET ZERO 2050 WIN-WIN STRATEGY



2050淨零碳排策略

國家2050淨零轉型策略

能源轉型

產業轉型

生活轉型

社會轉型

桃園2050淨零轉型策略

能源轉型

- 2030 綠能設置1000MW
- 持續發展再生能源及氫能運用普及

產業轉型

- 2030 燃煤逐步轉型零煤
- 2050 超過90%工業為低碳排放

生活轉型

- 2040 新建築能效達到1級
- 2050 超過50%環境實現以人為本

社會轉型

落實參與式預算確保公民參與

Net Zero Strategies by 2050

National Net Zero Strategies by 2050

Energy

Industry

Life style

Society

Taoyuan's Net Zero Strategies by 2050

Energy

- Green energy installation of 1000MW by 2030.
- Continuous development of renewable energy and scaling up hydrogen energy.

Industry

- Gradually phasing out coal by 2030.
- Over 90% of industrial facilities achieve net zero by 2050.

Life style

- New buildings' energy efficiency reaches level 1 by 2040.
- Over 50% of the built environment is people-centered by 2050.

Society

Promote participatory budget and other citizen participation methods.

桃園生態物流白皮書

擘劃桃園未來願景

TAOYUAN CITY ECOLOGISTICS WHITE PAPER

GOAL : NET ZERO EMISSIONS BY 2050

本市作為我國最大的物流聚落，致力於推動生態物流，並透過桃園生態物流指標填列成果研擬解決方案，提出相關策略。

因而將率先推出生態物流政策白皮書，期透過桃園的經驗及策略，邁向 2050 物流淨零碳排。

本市將由五大面向推動桃園 2050 物流淨零碳排：低碳運具智慧運輸、規劃路徑新技術導入、智慧倉儲冷能利用、包裝減量循環使用、再生能源與土地應用。並據此結合健康、安全、永續、人本理念發展桃園生態物流未來願景。

Vision:

As the most crucial logistics city in Taiwan, Taoyuan City has been dedicating to promoting EcoLogistics, and through the assessment of EcoLogistics Indicators, proposing a long-term strategy to solve the related difficulties about EcoLogistics.

Taoyuan City proposes "Taoyuan City EcoLogistics White Paper", and is looking forward to establishing a new benchmark for urban sustainable logistics governance and reaching Net Zero by 2050.



包裝減量循環使用

減少物流包裝廢棄物，透過循環再利用減廢減碳。



氫能車

智慧倉儲冷能利用

應用自動化設備進行倉儲管理，並應用 LNG 低溫減少倉儲冷凍耗能減少排碳。



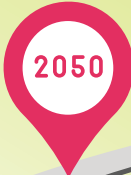
規劃路徑新技術導入

產業減碳路徑規劃輔導，導入碳交易，推動建置運輸和存儲基礎設施，促進碳捕捉、封存新技術應用。



再生能源與土地應用

提高能源使用效率降低能耗支出，增加物流園區土地利用，推動建築零排放、綠化增加碳吸收。



低碳運具智慧運輸

限制運具溫室氣體排放設定，採用電動車，推動氫能運輸，逐步朝向運輸零碳轉型。

挑戰與機會
生態物流淨零碳
桃園市2050減碳目標

EcoLogistics Net Zero : Taoyuan city 2050 Roadmap

Including 5 aspects :

1. Low carbon vehicles and Smart Transportation
2. Pathway Planning and Introduction of New Technologies
3. Smart Warehousing and Utilization of LNG
4. Package Reduction and Circulation
5. Green Energy and Land Use

新能源低碳運具

桃園航空城 航向氫能新未來

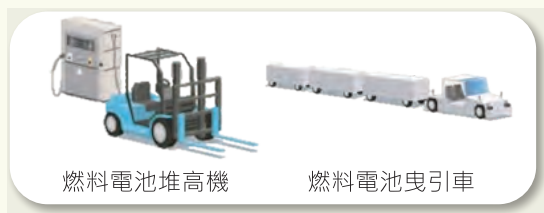
每年有平均 59 萬輛次貨車進出桃園機場運送貨物，當中有 72% 為一、二期柴油客貨車，造成空氣污染及碳排放等問題。本市將以桃園航空城為核心發展氫能貨運，不論是堆高機、曳引車，或者機場氫能巴士、氫能計程車等，在機場中均可有多元的氫能應用情境。

桃園將透過發展航空城氫能示範計畫，建立氫能產業聚落，建立包含製氫、運輸、儲存、加氫設施等新興產業鏈，引領全國邁向新能源未來。

後期：發展氫能運具周邊產業



前期：機場內作業車輛氫能導入



燃料電池堆高機

燃料電池曳引車

逐步推動氫能產業發展

中期：設置固定型基礎設施



儲氫設施

加氫站

NEW ENERGY & LOW CARBON VEHICLES

HYDROGEN ENERGY DEMONSTRATION PROGRAM IN TAOYUAN AEROTROPOLIS TOWARDS NEW ERA

There are an average of 590,000 freight trucks that go in and out of Taoyuan Airport every year. Among them, 72% of vehicles belong to 1 or 2 terms of diesel engines, causing problems such as air pollution and carbon emissions. Taoyuan City will demonstrate hydrogen energy applications in Taoyuan Aerotropolis where various scenarios will be exhibited such as stackers, airport tractors, buses, taxis, etc.

Taoyuan will build a hydrogen energy industry cluster under the Energy Hydrogen Demonstration Program in Taoyuan Aerotropolis. An emerging industrial chain including hydrogen production, transportation, storage, and hydrogen refueling facilities will be established and lead Taiwan towards a new energy era.

備註

氫能具有快速補充、高動力輸出與高續航力的優點，適合應用於物流產業，且以氫氣做為燃料，使用過程僅會排放水，無溫室氣體與空氣污染物質的排放。

NOTE

Hydrogen, which can fill vehicles as fast as conventional fuels and run the same driving distance, should be suitable to apply for logistics. By using Hydrogen as fuel, the water is the only exhaust with zero air pollution and carbon emissions.

土地應用高效低碳

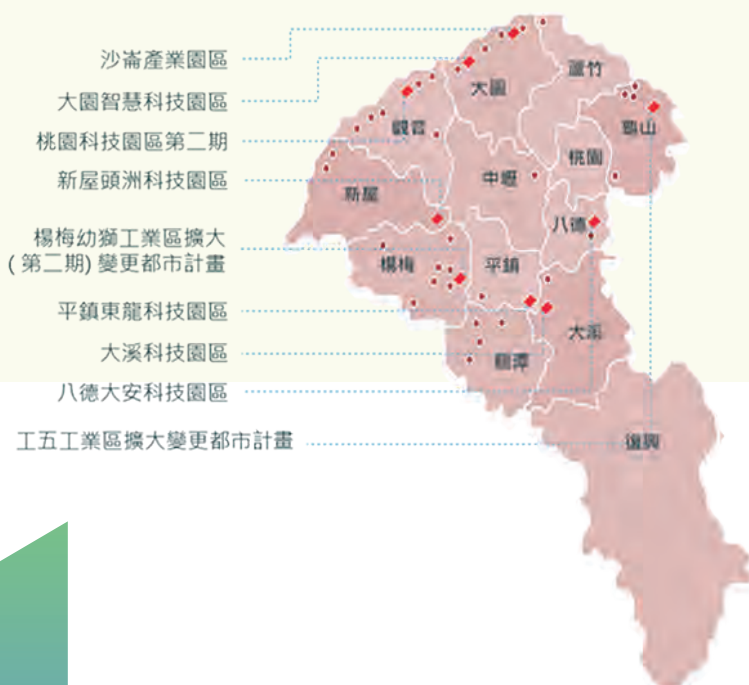
打造物流園區 資源整合共享

城市發展為全球永續發展的最前沿。其中土地規劃也必須符合永續、人本等生態物流理念，提升物流作業效率與土地使用效益。

打造物流園區 整合產業上下游資源

透過規劃智慧共享物流園區，導入最先進自動化設備及 AI 系統，約能提升 3 倍理貨效率、10 倍出貨量，並減少 6 成出倉時間、3 成的人力成本、8 成行走距離，兼顧人本與營運效率。

由不同業者分享倉儲空間，減少企業淡季閒置資源，可降低約 18% 的營運成本。若整合產業上下游，可減少貨物的移動與相應的碳排放，緩解交通壅塞、空氣污染、資源重疊浪費等問題。本市已積極打造產業園區供物流業者進駐，透過公私協力，建構新型態的智慧共享物流園區。



前瞻基礎建設計畫平價產業園區	
園區名稱	面積
大園智慧科技園區	44公頃
八德大安科技園區	9公頃
新屋頭洲科技園區	26公頃
大溪科技園區	29公頃
平鎮東龍科技園區	6公頃
桃園科技園區第二期	53.94公頃
沙崙產業園區	28公頃
都市計畫變更為產業專用區	
園區名稱	面積
楊梅幼獅工業區擴大(第二期)變更都市計畫	125公頃
工五工業區擴大變更都市計畫	50公頃

LAND USE

HIGH EFFICIENCY AND LOW CARBON INTEGRATING RESOURCES IN LOGISTICS PARK

Urban development is at the forefront of global sustainable development. Among them, land use planning must conform to sustainable, people-centered, and other EcoLogistics concepts, and should be improving the efficiency of logistics operations and land use benefits.

By designing a smart shared logistics park and introducing the up-to-date automatic equipment with AI systems, the efficiency of arrangement goods can be increased by about 3 times, the shipment volume can be increased by 10 times, and 60% of the delivery time, 30% of labor costs, 80% of walking distance can be saved.

If storage space can be shared by different operators, it can reduce 18% of the cost for idling and operating during the off-season. Clustering the industry chain, the moving distance and the carbon emissions for transporting the goods can be reduced. Other problems such as traffic congestion, air pollution, overlapping, and waste of resources can be also alleviated. Taoyuan City has been building a new type of smart shared logistics park through public-private partnerships.

包裝減量循環使用

降低耗材，再次利用

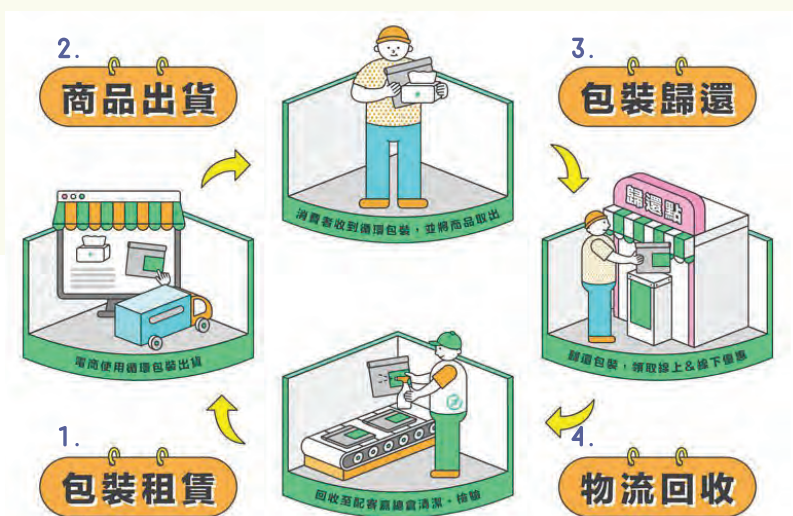
貨物包裝廢棄物處置為城市物流發展中的重要課題。本市積極推動包裝減量與循環使用，導入循環包裝、提高消費者環保意識，進而減少耗材使用與廢棄物產生，以達環境永續之目標。

AI 判別 包材減量

利用 AI 人工智慧、影像辨識模組及大數據判斷貨物尺寸，自動選擇最合適的紙箱，避免選擇過大的紙箱而造成耗材浪費，亦提高車輛裝載率，減少運送趟次，預估將可減少約 11% 碳排放量。

網購循環包裝袋

桃園致力於發展氣候友善的商業模式，與第三方業者合作推廣可循環使用的網購包裝，協助業者解決逆物流成本與減少重複投資，降低網購包裝帶來的碳排及廢棄物處理成本。更利用大數據分析歸還點的設置地點，使歸還率達到 8 成，預估將可減少整體包裝廢棄物的 8% 碳排放。



- procedures of using circular packaging bags
- 1. Rent packaging bags
- 2. Delivery
- 3. Return packaging bags at collective points
- 4. Recycle by freights

資料來源：配客嘉 / source: Package+

PACKAGE REDUCTION AND RECYCLING

REDUCE AND REUSE MATERIALS

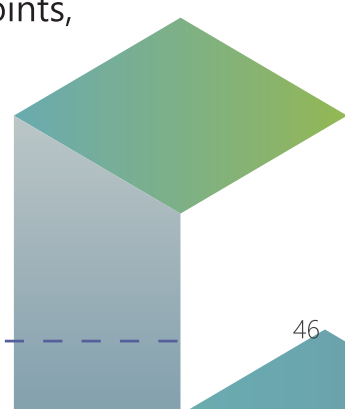
How to handle the packaging materials and waste is a significant issue in the sector of urban logistics. Taoyuan City has been actively promoting the reduction and circular projects for the packaging industry, and has been educating consumers about environmental protection on how to reduce packaging waste and achieve environmental sustainability.

REDUCING PACKAGING MATERIALS BY AI SYSTEM

Use AI system to reduce packaging waste. AI with image recognition module and big data will help to pick the optimal box to avoid wasting packaging material by picking an oversized box, increase the loading factor of logistics, and the trips of delivery. All of these processes are estimated to reduce 11% carbon emissions.

CIRCULAR SOLUTIONS FOR PACKAGING FROM E-COMMERCE

Taoyuan has been dedicated to developing a climate-friendly business model. Cooperating with third-party operators to promote circular solutions for packaging from E-commerce helps operators solve reverse logistics costs and reduce repeated investment. Carbon emissions and waste disposal costs caused by online shopping packaging thus can be reduced. It also uses big data to analyze the best locations of collective points, so the recycling rate reaches 80%. It is estimated to reduce the carbon emissions of the overall packaging waste by 8%.



桃園生態物流願景

城市物流治理新標竿

桃園於 2019 年成為生態物流社群主席城市、2020 年成立專案辦公室，持續與國際城市夥伴一同推動生態物流，並透過公私協力提出產業及民眾所需之實際解決方案，以及研擬桃園未來願景。

生態物流政策白皮書則結合了桃園生態物流成果及經驗，除了響應國際永續發展的目標，擘劃本市生態物流施政藍圖之外；更強化中央與地方的連結，提供推動生態物流的政策依據，期獲得業界、民眾，以及相關團體的認同與支持，透過整體都市規劃、帶動產業界共同前行。

桃園以此本白皮書出發，在低碳運輸、土地應用、包裝減量等層面提出宏大目標及實行路徑，從永續及經濟層面提升臺灣物流的全球影響力，樹立城市永續物流治理新標竿，邁向 2050 物流淨零碳排。



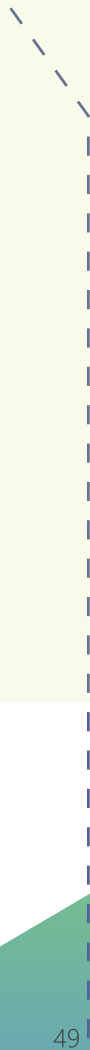
VISION OF ECOLOGISTICS IN TAOYUAN CITY

NEW MILESTONE FOR CITY GOVERNANCE

Taoyuan City became the chair of the EcoLogistics community in 2019. In 2020, EcoLogistics Community Chair Office was set up to promote EcoLogistics with international city partners. It has been proposing practical solutions for solving the needs of industry and people and fulfilling the vision of Taoyuan City through cooperation with public-private partnerships, industries, and citizens.

The Taoyuan City EcoLogistics White Paper elaborates on the achievements and experience of EcoLogistics in Taoyuan. In addition to responding to the Sustainable Development Goals (SDGs) and drawing up the blueprint of the city's EcoLogistics policy, it also strengthens the connection between the central and local governments and provides a national policy basis for promoting EcoLogistics. It is expected to gain recognition and support from the industry, citizens, and related groups, and drive the industry to move forward to the goal together with the overall urban planning.

Taoyuan proposes ambitious goals and pathways in low-carbon transportation, land use, packaging waste reduction, warehouse sharing, and new green energy aspects based on the white paper. Taoyuan will establish a new milestone for urban sustainable logistics governance, and move towards Net-Zero Emissions in Logistics by 2050.



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Scan it for more about Taoyuan EcoLogistics.



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Taoyuan City Government

CO-ORGANIZER :



財團法人 台灣產業服務基金會
FOUNDATION OF TAIWAN INDUSTRY SERVICE





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