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Sustainable Development

EPA Minister Lee Visits US to Release Taiwan Report on UN Sustainable Development Goals and Meet USEPA Administrator Pruitt

On 15 September 2017 in New York City, EPA Minister Ying-Yuan Lee gave a speech and released Taiwan's first Voluntary National Review: Implementation of UN Sustainable Development Goals (VNR) at "A Sustainable Planet for All: Implementation of the Sustainable Development Goals" conference. In his speech, Minister Lee outlined Taiwan's SDG implementation mechanisms, achievement highlights, and efforts in assisting other nations in implementing the UN SDGs. Minister Lee also visited Washington, DC and had a meeting with President Hilda Cathy Heine of the Marshall Islands to exchange thoughts on bilateral and multilateral environmental cooperation. Minister Lee also met with USEPA Administrator Scott Pruitt to exchange ideas on the International Environmental Partnership, energy saving, and nuclear waste. The two EPA heads agreed to work together on the common goal of sustainable development. In addition, Minister Lee visited the Center for Strategic and International Studies, a think tank, and delivered a speech on Taiwan's leading environmental efforts and achievements. Minister Lee's speeches and the release of the Taiwan's VNR received wide coverage from some 20 international and local media outlets.

Release of Taiwan's first VNR on implementing UN SDGs

On 15 September, EPA Minister Ying-Yuan Lee delivered a speech at "A Sustainable Planet for All: implementation of the Sustainable Development Goals" conference in New York City. The event was jointly held by the Sabin Center for Climate Change Law of Columbia University, the Global Island Partnership, and the Academic Council on the United Nations System (ACUNS), and was hosted by the director of Sabin Center, Professor Michael B. Gerrard. During his speech, Minister Lee released Taiwan's first Voluntary National Review: Implementation of the UN Sustainable Development Goals. He described the background, implementation mechanisms,

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achievement highlights, as well as the efforts in assisting other nations in implementing the UN SDGs. In his opening remarks, Enele Sosene Sopoaga, Prime Minister of Tuvalu, conveyed his gratitude for Taiwan's assistance in helping small island nations in climate change adaptation and sustainable development. In addition, four experts were invited to the panel discussion, including the Solomon Islands' Permanent Representative to the UN, Ambassador Robert Sisilo, Vice President Langston James Goree VI of the International Institute for Sustainable Development (IISD), Ms. Angela Chang, member of Taiwan's National Council for Sustainable Development, and Professor Hsiao-Kan Ma of National Taiwan University. The conference had more than 150 participants from around the world in attendance.

This was the first time Taiwan presented its VNR on the UN SDGs. Minister Lee pointed out that, compared to the US and advanced European countries, Taiwan has performed fairly well. In areas such as health care, education, and women's participation in politics, Taiwan did even better. In the future, the Taiwan government will review its progress on the UN SDGs on a regular basis as references for policymaking and implementation. Taiwan will also continue to share its experiences with the international community in order to work together with other nations in pursuing sustainable development for all humankind.

In his speech, Minister Lee also gave several examples of Taiwan's accomplishments. He mentioned that starting 1 January 2018, Taiwan will ban the manufacturing and importing of microbead-containing cosmetics and expand the restrictions on providing free plastic bags. Such moves drew immense interest and praise from members of the international community. Notable contributions of Taiwan's private sector to sustainable development were highlighted as well, such as an entrepreneur from Taiwan introducing Taiwan's recycling scheme to Romania by establishing the largest polyethylene terephthalate (PET) bottle recycling system in the country. Other examples brought up by Minister Lee included the younger generation in Taiwan joining forces with youngsters from other nations to turn waste into valuable resources.

Minister Ying-Yuan Lee (front, second from left), Prime Minister and Madam Enele Sosene Sopoaga of Tuvalu (front, second and first from right), the Dominican Republic's Permanent Representative to the UN, Juan Ávila (back row, far right), Professor Michael B. Gerrard of the Sabin Center (back, third from right), the Solomon Islands' Permanent Representative to the UN, Ambassador Robert Sisilo (back, fourth from right), and Vice President Langston James Goree VI of the International Center for Sustainable Development (back, fifth from right), at the release of Taiwan's first voluntary national review of the UN sustainable development goals.

Meeting President Heine of the Marshall Islands

Minister Lee later visited Washington, D.C. On 16 September he had a meeting with President Hilda Cathy Heine of the Marshall Islands, accompanied by Taiwan's Representative to the US, Ambassador Stanley Kao. Minister Lee and President Heine had an extensive discussion on climate change and environmental cooperation.

Meeting USEPA Administrator Scott Pruitt

On 20 September, Minister Lee was accompanied by Deputy Representative to the US, James Lee, in a meeting with USEPA Administrator Scott Pruitt in his office. Having long looked forward to this meeting, Administrator Pruitt graciously acknowledged the achievements of the Taiwan-US environmental partnership and ensured that the USEPA will keep supporting the collaboration with the Taiwan EPA. The two EPA heads also discussed the future of the International Environmental Partnership, which was co-

Minister Ying-Yuan Lee meets Administrator Scott Pruitt of the USEPA

launched and promoted by the Taiwan and US EPAs in 2014, as well as issues on energy saving and nuclear waste. They agreed that the two EPAs would continue to work together on the common goal of sustainable development.

Visit and speech at CSIS

Another event during Minister Lee's trip was visiting the Center for Strategic and International Studies (CSIS), a think tank based in Washington, DC, and delivering a keynote speech titled "Taiwan's Environmental Leadership" on 18 September. Minister Lee spoke about Taiwan's environmental measures for waste treatment, air quality, marine environmental protection, and renewable energy. Through waste reduction, reuse, recycling and redesign, the EPA also expects to reach the goal of a circular economy, which President Tsai Ing-Wen presented in her inaugural speech. Minister Lee also described global cooperation projects, such as the International Environmental Partnership (IEP) jointly launched with the USEPA, and the 7-Southeast Asian Studies (7-SEAS) programs conducted with US NASA. To conclude, Minister Lee showcased the contributions from Taiwan's private sector to global sustainable development. A panel discussion was held after Minister Lee's speech, and Deputy Assistant Administrator Jane Nishida of the USEPA and Senior Vice President Michael Jonathan Green of CSIS were part of the panel.

A video of Minister Lee's speech at CSIS is available online. (https://www.csis.org/events/ taiwans-environmental-leadership). Below are links to news coverage on Minister Lee's visit to the US by World Tribune and the International Institute for Sustainable Development (http://www.worldtribune. com/economic-powerhouse-taiwan-has-madegoing- green-a-national-priority/ and http://sdg.iisd. org/news/taiwan-launches-first-vnr).

Climate Change

EPA Minister Lee Exhibits Taiwan's Role in Global Carbon Reduction at COP23 in Germany

The main influential event leading the global fight against climate change, the 23rd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP23), was held in November in Bonn, Germany. The Executive Yuan's delegation, led by EPA Minister Ying-Yuan Lee, held 31 bilateral meetings with heads of Taiwan's diplomatic allies, along with environmental ministers, UN ambassadors and permanent representatives to the UN of several other nations, as well as some members of the German parliament. During the trip, Minister Lee gave interviews to several German TV stations and magazines, in which he expressed Taiwan's resolve in carbon reduction.

Presided over by the island nation Fiji, the two-week UNFCCC COP23 that concluded on 18 November 2017 attracted over 20,000 attendees who discussed future action guidelines for the implementation of the Paris Agreement. Taiwan took part in this important event with delegates from the public, academic, and industrial sectors, while being professional, practical, contributive and displaying a diverse and vibrant energy to establish a sustainable environment.

Meetings with heads of state and environmental ministers of diplomatic allies

Through arrangements made by the Ministry of Foreign Affairs (MOFA) and Taiwan's Representative to Germany, Jhy-Wey Hsieh, the Executive

Yuan's delegation was able to hold 31 bilateral meetings with Taiwan's diplomatic allies and countries friendly toward Taiwan. The delegation leader, Minister Ying-Yuan Lee, took part in 19 meetings, including discussions with the heads of state of the Marshall Islands, Nauru, St. Lucia, Swaziland and Tuvalu. He also engaged in extensive and in-depth dialogues with environmental ministers and UN ambassadors of several other nations, as well as some members of the German parliament.

Interviews with multiple international media on Taiwan's determination regarding carbon reduction

During his stay in Germany, Minister Lee was interviewed by several Taiwanese and foreign media, such as Deutsche Welle (DW), TV Berlin, the (Taiwan) Central News Agency and Yahoo TV, and he spoke about Taiwan's resolve and step-by-step concrete actions in energy transition and greenhouse gas emission reductions. The influential German magazine *Business and Diplomacy* featured Minister Lee in its November issue's cover story on Taiwan's accomplishments and directions in response to climate change.

Let Taiwan Help. Leave No One Behind!

On 13 November, DW conducted a special interview with Minister Lee. The host expressed disbelief with Taiwan's exclusion from UNFCCC events and other significant efforts to deal with climate change. The minister stated that being deliberately blocked from participating in the UNFCCC actually accentuates Taiwan's difficult situation and arouses international attention and sympathy.

A video was played before the interview, showing the impact of climate change on Taiwan as well as citizen protests against nuclear power. Referring to the clip, Minister Lee emphasized Taiwan's current path of transition to clean energy as a part of meeting its carbon reduction goals.

This interview on DW's English news channel could be seen by 100 million viewers.

14 diplomatic allies advocate for Taiwan's participation in UN Climate Change Conferences

For speaking in support of Taiwan in senior meetings throughout the duration of COP23 in Bonn, the delegation expressed special thanks to 12 of Taiwan's diplomatic allies: Belize, Burkina Faso, El Salvador, Guatemala, Haiti, Honduras, the Marshall Islands, Nicaragua, St. Lucia, the Solomon Islands, Swaziland and Tuvalu. Also, 14 of Taiwan's allies presented letters to the Chair of the Conference, President Jioji Konrote of Fiji, and the Executive Secretary of the UNFCCC Secretariat, Patricia Espinosa, to advocate for Taiwan's inclusion and actual participation in UNFCCC meetings and other activities.

Both inside and outside the COP23 venue, a number of organizations from Taiwan actively voiced their views at exhibition stands and in speeches, emphasizing that Taiwan should take part in such a significant event. There were also city and regional representatives from Taipei, New Taipei City, Taoyuan, Tainan, and Kaohsiung answering the call of the UNFCCC for public-private collaboration as well as for central-local government cooperation to combat climate change.

Answering the call for global carbon reduction actions, the Executive Yuan has mapped out general guidelines for greenhouse gas mitigation and climate change adaptation by approving the *National Climate Change Action Guidelines*（國家因應氣候變遷行動綱領）in February 2017. After consulting with the central government, the EPA also announced in November drafts of Taiwan's Phase 1 goals for greenhouse gas emission controls, in the *Greenhouse Gas Reduction Action Plan*（溫室氣體減量推動方案）and the *Greenhouse Gas Emission Control Action Programs*（溫室氣體排放管制行動方案）. With initially slow and then accelerating carbon reduction measures, Taiwan is set to reduce its greenhouse gas emissions to 2% lower than that of the baseline year 2005 by 2020, to 10% lower by 2025, and to 20% lower by 2030. Moreover, practical interdepartmental measures have been brought up for energy, manufacturing, transportation, residential and commercial, agricultural, and environmental sectors to share the responsibility to cut carbon emissions in order to gradually reach Taiwan's long-term reduction goal of having the carbon emissions 50% lower than 2005 emission levels by the year 2050.

Climate Change

EPA Announces Draft Phase 1 Greenhouse Gas Emission Control Goals

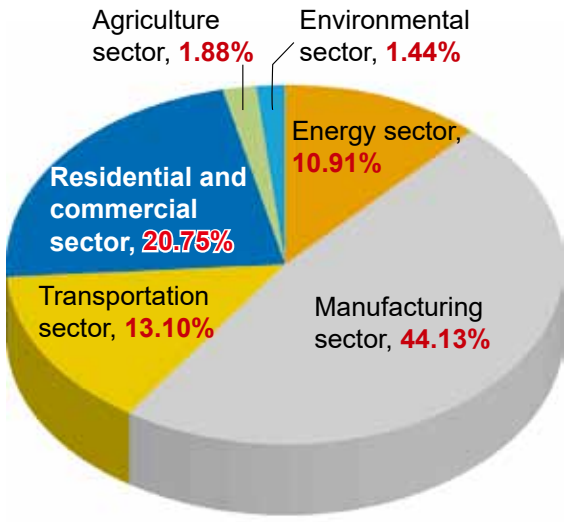
After consulting with relevant central competent authorities, the EPA has formulated the *Phase 1 Goals for Greenhouse Gas Emission Controls (draft)*（第一期溫室氣體階段管制目標草案）. This task is to be shared by the central government entities responsible for energy, manufacturing, transportation, residential and commercial affairs, agriculture, and the environment. Subsequent public hearings and meetings will be held to gather ideas from all fields for the Executive Yuan's reference.

Article 11 of the *Greenhouse Gas Reduction and Management Act* mandates setting phased goals for greenhouse gas emission control for five-year periods. Consequently, the EPA has consulted with various central competent authorities, and after many discussions has formulated the Phase 1 Goals (draft). With measures starting from small reductions in the early stages to steeper reductions in later stages, the goal for 2020 greenhouse gas emissions is set at 260.717 million metric tons of carbon dioxide equivalents, 2% lower than the emission level in 2005, which is used as the baseline. The goals for the following phases are a 10% reduction from the baseline by 2025 and a 20% reduction by 2030.

Relative emission contributions (see graph below), current emissions, reduction trends, and reduction potentials of the six sectors have been taken into account. The draft of the Phase 1 Goals clarifies each sector's responsibilities and requires joint efforts on carbon reduction in addition to setting overall national emission targets. As the energy sector is likely to have increased emissions during the transitional period, it nonetheless needs to strive to reach its phased goals. Meanwhile, the government has also mapped out complementary projects and measures to further cut emissions, for example in the EPA's draft of the *Greenhouse Gas Reduction Action Plan*, on overall reductions. Also, the Ministry of Economic Affairs (MOEA), Ministry of Transportation and Communications (MOTC), Ministry of the Interior (MOI), and Council of Agriculture (COA) each proposed drafts for the *Greenhouse Gas Emission Control Action Programs* for their respective areas of responsibility, along with evaluation standards and more detailed targets for greenhouse gas emission control. Public opinion will be gathered concerning all the measures and programs above during the public hearings on phased control goals.

The EPA pointed out that after the draft goals are approved by the Executive Yuan, the ministers responsible for each sector's emission reduction will be required to present annual implementation reports. Each department's own progress on phased goals will be examined based on emission statistics and data, and those that fail to reach targets will be required to provide improvement plans. Combined with evaluations and modifications on a dynamic basis every five years, Taiwan is expected to phase-by-phase meet its long-term greenhouse gas emission reduction goals and reach a minimum 50% reduction from 2005 emission levels by 2050.

The draft specifies Phase 1 Goals, which stipulate the allowed maximum of total emissions of



Proportions of greenhouse gas emissions in Taiwan in 2015 (based on sectors stated in the Greenhouse Gas Reduction and Management Act)

greenhouse gases, in carbon dioxide equivalents, from 2016 to 2020. The details include:

(1) National greenhouse gas emission control target: 1437.531 metric tons of CO_2e
(2) Sector greenhouse gas emission control targets:
1. Energy sector: 163.139 metric tons of CO_2e.
2. Manufacturing sector: 741.543 metric tons of CO_2e
3. Transportation sector: 189.663 metric tons of CO_2e
4. Residential and commercial sector: 298.845 metric tons of CO_2e.
5. Agriculture sector: 26.187 metric tons of CO_2e.
6. Environmental sector: 18.154 metric tons of CO_2e.

(3) Target for greenhouse gas emissions factor for electricity (annual average): 0.517 kilograms.

Air

Comprehensive Air Pollution Control Scheme Launched to Cut $PM_{2.5}$ to 8 μg/m^3

Concerning the ongoing 14+N Air Pollution Control Plan, on 2 November 2017, EPA Minister Ying-Yuan Lee invited the Minister of Economic Affairs (MOEA), Jong-Chin Shen, and the Mayor of Taichung City, Chia-Lung Lin, to jointly survey the air pollution control and improvement progress of the Taipower coal-fired power plant in Taichung. Further measures, such as oil-burning boiler replacements, mobile pollution source reduction in the metropolitan Taichung area, smoke control equipment installation for night market food vendors, and establishment of a straw gasification power plant, are in place in order to minimize the occurrence of poor air quality days in central Taiwan.

Minister Lee, Minister Shen, and Mayor Lin first looked through Taipower's air pollution control plans. The Taichung power plant has promised to upgrade pollution emission control facilities for its existing generators, install new, more efficient natural gas-powered generators, and adopt the best available control technology (BACT). As a result, power generation went from roughly 138.1 billion kWh in 2016 to over 160 billion kWh, and overall air pollutant emissions from 99 thousand metric tonnes to 66 thousand metric tonnes, a 33% reduction rate. The goal is to steadily meet domestic energy needs while minimizing air pollutant emissions per unit of energy generated.

Regarding air quality improvement in central Taiwan, Minister Lee pointed out that conventional industrial and commercial boilers burn coal or heavy crude oil and play significant roles in affecting the air quality in central Taiwan. Currently, control measures as well as subsidies are used to encourage enterprises to switch to cleaner energy such as natural gas, and stricter national standards will be implemented in 2020. Also on 20 June, the Taichung City Government announced its own boiler air pollutant emission standards, which mandate that newly installed boilers burn natural gas or run on electricity, and that existing ones switch energy sources within a year. The EPA also started to subsidize the replacement of commercial boilers in 2017, and thus far subsidy applications for five boilers in Taichung are being processed. In addition, since 2015, the Taichung City Government has received a total of 101 applications after it started providing subsidies from its own budget for boiler replacement. In the future, the Industrial Development Bureau (IDB) of the Ministry of Economic Affairs (MOEA) will follow suit.

The EPA's analyses of pollution sources show that, aside from generators and industrial and commercial boilers, the local population, number of vehicles, and amount of oil pumped in gas stations have all been on the rise recently, hence driving up air pollution in Taichung. To combat air pollution caused by the increasing traffic, the city government has proposed the "Critical 8μg/m^3" Green Traffic Plan. The plan covers four areas: improving energy consumption patterns, improving transfer efficiency, establishing an environment for low-carbon transportation, and decreasing the use of private vehicles. Twelve projects are proposed, including the addition of electric buses in busy traffic corridors and discounts for transfers is to greener transportation. The plan is to be

carried out jointly by the central and city governments with a budget of NT$750 million (NT$500 million from the central government and NT$250 million from the city government). In addition, the EPA will keep focusing on policies for the replacement of old diesel vehicles, installation of soot filters, and tightening of gas/diesel-fueled vehicle emission standards so as to lower emissions from mobile sources.

EPA Minister Ying-Yuan Lee (third from right), Minister of Economic Affairs Jong-Chin Shen (second from right) and Mayor of Taichung Chia-Lung Lin (third from left) discuss measures to improve air pollution in central Taiwan.

Other than industrial and commercial activities or vehicle emissions, air pollution also comes from open-air burning of rice straw after harvest, which has always been a major problem in agricultural regions in central Taiwan. According to investigations by the Council of Agriculture (COA) and the EPA, open-air burning of straw was still practiced in about 5% of rice paddies in Taiwan in 2016.

To handle this issue, the Taichung City Government will build a straw gasification power plant in Waipu Green Energy Ecopark in order to deal with agricultural wastes and promote incineration treatment. Combined with biomass energy development and an increasing green energy supply, the city government hopes this will help build a circular economy. The straw gasification power plant will have a capacity to treat 50,000 metric tonnes of straw annually and be able to generate 24.9 million kWh of energy, while cutting 320 metric tonnes of fine particulate matter and 13,147 metric tonnes of carbon emissions. The plant therefore will greatly benefit the air quality every autumn and winter.

In addition, grilling and frying in night markets generate smoke and unpleasant odors that often give rise to complaints from surrounding neighborhoods. As central Taiwan's dry weather during autumn and winter does not help disperse air pollutants, the EPA is encouraging night market vendors to install the smoke-control equipment best suited to control the pollutants they emit, such as odor-removing ozone air purifiers or electrostatic air filters.

The EPA has joined forces with units in the central government and regional governments to improve air quality in industrial, commercial, and agricultural areas as well as in people's daily lives. Through improving air pollution, the EPA expects to safeguard the public's right to fresh air and to live free from the dangers of $PM_{2.5}$.

Chemicals

Thirteen Chemicals with Food Safety Concerns Announced as Toxic

To improve regulations on chemicals and reduce the risks of harmful substances in food, the EPA announced 13 chemicals, which are sometimes illegally added to food, as toxic chemical substances. Chemicals such as Rhodamine B, metanil yellow, rongalite, coumarin, and maleic acid have been involved in cases of food contamination, found in red sweet dumplings, dried tofu, wraps for spring rolls (run bing), black tea, and tapioca balls. These chemicals are all mentioned in this announcement.

The EPA indicated that the 13 chemical substances listed in the announcement are not legal food additives. Companies that illegally use such substances in food are doing so largely to cut costs and improve the appearance of their products. Companies add these chemicals to improve the texture of certain foods, change their color, add fragrance, extend shelf life, or obscure the results of quality inspections. For instance, metanil yellow is used in the leather and paint industry and is roughly half

Table: Thirteen newly announced toxic chemical substances (not announced as food additives by the Ministry of Health and Welfare)

Name	Incidents or Relevant Uses
Malachite green	It has been reported that malachite green was added to water bodies for control of parasites and to increase the survival rate of fish, shrimp, crabs, etc.
Cis-butenedioic acid (maleic acid)	May be used as chemical starch to produce items such as tapioca balls, tempura, and flat rice noodles to create a chewy texture, prepare food for extended cooking, and act as a preservative.
Maleic anhydride	It has been reported that maleic anhydride was used to make modified starch.
P-ethoxy phenyl urea	May be added as a sweetener to preserved fruits and drinks.
Potassium bromate	May be used to improve the texture of flour
Dimethyl fumarate	May be used to extend the freshness of food products, drinks, animal feed, Chinese medicinal materials, fish, meat, fruits, and vegetables.
Benzyl violet	May be used as a dye for food products (e.g. candy and cookies)
Metanil yellow	It has been reported that metanil yellow was used to improve the color of soy products, such as bean curd skin and dried bean curd.
Rhodamine B	It has been reported that rhodamine B was used as a dye in foods, including red turtle cakes, rice ball dumplings, candies, pickled daikon radish, noodles, dried bean curd, dried mackerel, fresh fish, and pickled mustard greens.
Dimethyl yellow	It has been reported that dimethyl yellow was used to improve the color of foods, including soy products (e.g. dried bean curd skin, and dried bean curd), cake, and candy.
Formaldehyde sodium sulfite (Rongalit)	It has been reported that formaldehyde sodium sulfate was added to increase the elasticity of spring roll wraps and keep them white.
Melamine	Enterprises in China had used melamine in dairy products to increase products' chances of passing inspection, and the tainted products were later found in Taiwan.
α-benzopyrone	Coumarin

the price of yellow 4 and 5 used for food coloring. Metanil yellow also has stronger dyeing properties, and as such is used in dried tofu. The chemical Rhodamine B is often used in wax paper and paint. Though not cheap, it does not fade easily and therefore might be used to produce sweet dumplings. Malachite green, known for its carcinogenic properties, is to be further regulated as it is sometimes illegally used in waterbodies for pest and disease control and affects fish and crustaceans.

The EPA points out that companies that use any of these 13 chemical substances must first apply for approval beforehand, regardless of whether the chemicals are used in manufacturing, import, usage, or sale. Companies must regularly report their operations and go through the application process mentioned above. This will allow the EPA to better grasp the flow of these chemicals. Companies are also required to have labels on all containers and packaging that read "CANNOT BE USED IN FOOD" in order to reduce accidental usage. Companies are also required to file their first report by 15 February, 2018, complete the labeling by 15 July 2018, and obtain the approval documents by 15 January 2019 in order to manufacture, import and sell such chemicals. Enterprises that do not comply will be fined NT$60,000~500,000 in accordance with the *Toxic Chemical Substances Control Act* （毒性化學物質管理法）.

To strengthen the management of chemicals with food safety concerns, the Toxic and Chemical Substances Bureau (TCSB) began conducting inspections of the chemical industry in February 2017. From May 2017, the TCSB has been conducting comprehensive inspections and has provided assistance to 2,196 enterprises. Beginning from "establishing a baseline information system," the TCSB has promoted a form of management including inventory, questions, management, and reporting. It establishes partnerships with local governments and local chemical industry associations. To improve the basic understanding of chemical substances among private enterprises, this partnership allows all parties to carry out inspections and provides assistance concerning chemical substances which may pose risks

to food safety.

In addition to the TCSB, local inspection participants include environmental and health departments. Joint investigation not only strengthens interdepartmental law enforcement mechanisms and exchanges of management experiences, but also further blocks chemicals for industrial use and other prohibited chemical substances from entering the food chain. As of 26 September 2017, a total of 1,518 investigations on industrial chemical enterprises had been completed.

EIA

Highly Efficient EIA Review Process for Offshore Wind Power Reaches a Milestone in Green Energy

The EPA has processed 22 environmental impact assessment (EIA) reviews for offshore wind power. The initial investigation process has been highly efficient, with 19 cases completed in six months, and resulted in recommendations to pass the EIAs. The increased efficiency of the EIA process stems from government policies on impact assessments. The EPA enumerates demands and issues related to the environment by conducting on-site surveys and taking stock of local residents' opinions, as well as initiating joint investigations to ascertain the cumulative effects of development. These steps have allowed the EPA to take both economic development and environmental protection into account.

In accordance with Taiwan's renewable energy goals, the EPA handled 22 EIA reviews for offshore wind power, with 19 cases completing the preliminary review within six months. The EPA explained that the capacity of installations, which already passed the preliminary review, is up to 10.07 GW. This is a significant increase from cases processed in 2016, which were 0.61 GW. This adjustment is in line with Taiwan's 2025 renewable energy goals and the government's objective to have "selections for 3 GW and bids for 2.5 GW" from offshore wind power. These advancements will allow Taiwan to reach a major milestone in green energy.

Despite the fact that Taiwan's renewable energy development trails that of western European countries, the government has taken steps to actively promote renewable energy. In order to reach Taiwan's 2025 energy goals, the EPA first completed its Policy Assessment for Offshore Wind Power Development on 28 December 2016. It also set up consultations and investigated the most prevalent environmental issues for offshore wind power development and possible response measures. This information will aid plans for development as well as provide a reference and benchmark for the follow-up EIA reviews. As the 19 cases continue through the review process, the review committee will determine how environmental policies and consultations align with practical application. The EPA will enumerate the specific demands derived from the most common environmental issues.

Civic group concerns about the conservation of the Indo-Pacific humpback dolphin are an example of a frequent issue arising during the EIA process. Thus, the EIA review placed a strong emphasis on determining and restricting the direct impacts of construction and piling. The EPA set standards for distances that should be restricted to development and will carefully monitor construction during the pile-driving period. The EPA also set regulations on restricted distances, noise monitoring during pile driving, the application of soft starters and noise-reducing engineering, and restricted the time for pile driving. In addition, during initial investigations, the EPA recommended that the noise threshold comply with German standards (StUK4, 2013). The sound exposure level (SEL) value for noise 750 meters below water in watch areas must not exceed 160dB. In areas where mothers and juveniles of whales and dolphins are discovered, the threshold values will be further restricted.

The EPA reiterated that it wishes to have an efficient process for the EIA procedure as it promotes a number of large developments. Cases brought forward that should pass, will pass. Cases that require modification will receive specific details on what needs to be adjusted. Assessments

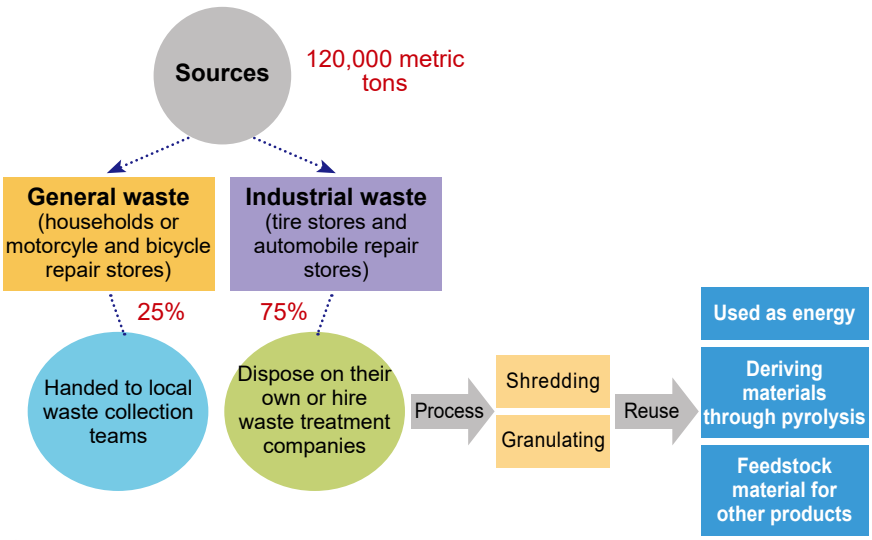
are to be completed within three reviews. The EPA will reduce environmental concerns to the lowest level and seek to prevent any protests or conflicts that could arise later in development. Conducting effective EIA is the only means to sustainable economic development.

Waste Used Tire Recycling Problems Resolved

Owing to a significant drop in the amount of shredded used tires taken as a supplemental fuel in 2016, the end-of-cycle treatment of used tires was affected and hence their stockpiles grew. Thus, the EPA put extra effort into expanding the reuse channels for used tires. For example, the EPA encouraged the disposal industry to take volume reduction measures, such as shredding tires into tiny pieces. Also, the EPA subsidized local governments for the temporary storage and emergency treatment of used tires. As a result, the scrap tire disposal problems have been resolved, and the monthly average reuse amount has exceeded 10,000 metric tons since March 2017.

An estimate of over 120,000 metric tons of tires are discarded annually, meaning that about 10,000 metric tons of waste tires need to be processed every month. Of these, 8,600 metric tons are shredded, and the used tires are mainly sold to co-generation plants and pulp and paper companies as a supplemental fuel. The EPA explains that the recycling channels of used tires are divided into two types, according to their sources. Used tires produced by households, motorcycle and bicycle repair stores are categorized as general wastes and should be handed to local waste collection teams. Those generated by specific industries, such as tire stores and automobile repair stores, have to be disposed of by those industries or by waste treatment companies in accordance with Article 28 of the *Waste Disposal Act*.

After being transported to processing plants and before being shredded and reused, used tires will first have to be inspected and certified according to Article 39 of the *Waste Disposal Act*. There are three main ways to reuse waste tires: as a fuel alternative, using them as substitutes for coal; deriving tire oil and carbon black from them using pyrolysis; and granulating them for reuse as a feedstock material for other products.



End-of-life treatment of used tires

Last year, the five reuse organizations that use tires as a fuel alternative all encountered different situations that suppressed the clearance of used tires (for example, suspension, reduction of used tires, damage to equipment). As a result, the total amount of discarded tire reuse declined to an average of 7,500 metric tons per month. In response to this problem, the EPA implemented various new strategies. First, the EPA assisted the existing reuse organizations to resume or even increase their use of shredded used tires as fuel. The EPA also assigned processing plants that still have available storage space to shred their used tires to increase the storage capacity. In this way, the EPA was able to store an extra 4,200 metric tons of used tires per month. In addition, the EPA simplified export processes to encourage foreign reuse companies to purchase shredded used tires from Taiwan and to expand more reuse channels. It is estimated that the amount of used tires exported to Japan for reuse

purposes had exceeded 4,800 metric tons by the end of October this year.

According to statistics, the total amount of stockpiled used tires had decreased from 4,695 metric tons in March 2017 to 1,318 metric tons in the beginning of November 2017. In fact, the total amount of used tires piled up in Taiwan now is far lower than the permitted amount by 3,000 metric tons, which is only 43.9% of the total permitted amount. The statistics also indicate that the EPA's administrative measures have effectively resolved the disposal problems caused by the insufficient reuse volume.

Carbon Reduction

Promotion of Carbon Label and Carbon Reduction Label

In addition to the Green Mark that was launched over two decades ago to promote environmentally friendly products, the EPA established the Carbon Label (also called Carbon Footprint Label) in 2009 to help reduce carbon footprints. The carbon labeling is promoted in two phases: carbon footprint disclosure (Carbon Label) and the Carbon Reduction Label. The EPA hopes that this will help the public better understand the importance of green consumption and the impact of carbon footprints on the environment. The EPA also hopes that through assisting the public to select low-carbon products in an easier manner, this will help move Taiwan towards becoming a low-carbon society.

A product's carbon footprint is the amount of carbon generated directly and indirectly throughout the entire life cycle of a product or service.

Enterprises are growing more concerned with issues of climate change and with taking a more serious stand on carbon reduction and environmentally friendly products. In response to this mindset, the product carbon footprint has become a major carbon reduction measure for governments and enterprises, as well as a reference to communicate with the public on carbon reduction.

The Carbon Footprint Label is also known as the Carbon Label or Carbon Emission Label. The first carbon label to be introduced was the Carbon Reduction Label created by the UK in 2006. With a carbon labeling system, carbon emission sources throughout all stages of a product's life cycle are made transparent, allowing companies to adjust manufacturing processes to lower carbon emissions and help consumers use products in ways that maximize carbon reduction.

Concepts and implementation of Taiwan's Carbon Label

In response to global warming, in 2009 Taiwan began the process of establishing a carbon labeling mechanism. In 2009, the EPA held a carbon label design competition. A total of 1,286 designs were received, and one image, titled "Love the Environment, Lower Carbon Footprint", was chosen after also reviewing procedures such as calculation of Taiwan's Carbon Label.

The label's logo consists of a large footprint made of a green heart and a green leaf, with a CO_2 symbol and a number in the heart that indicates the labelled product's carbon footprint. The image depicts a nature-loving heart and the determination to reduce carbon and increase green consumption so as to build a low-carbon society. In the future, the EPA hopes that through examining the carbon emissions at all stages throughout the life cycles of more products, manufacturers can find potential areas for carbon reduction. Meanwhile, consumers are encouraged to improve consumption habits, paying attention to Carbon Labels to become more environmentally mindful.

Two phases in promoting Carbon Label and Carbon Reduction Label

Promotion of the carbon emission-related labels in Taiwan are implemented in two phases as described below.

1. Promote Carbon Label for product carbon footprint disclosure

Countries around the world develop their own carbon labelling systems, and no international standards on relevant measures exist. In the first stage of establishing the system, there are fewer carbon-

label certified products, and carbon footprints of products within the same categories cannot be adequately compared. Thus the first phase focuses on encouraging manufacturers to analyze the carbon footprints of their products and work towards disclosing them.

Analysis of a product's carbon footprint helps one understand the carbon emissions generated in different stages throughout its life cycle, allowing manufacturers to review carbon-cutting measures, such as switching to environmentally friendly materials, reducing packaging, recycling more, improving shipping efficiency, and asking material suppliers to collaborate on lowering carbon footprints. In addition to cutting carbon emissions and building a green supply chain, these steps can also reduce costs.

Consumers can support manufacturers' disclosure of product carbon footprints by choosing products with carbon labels as well as follow instructions on proper usage and waste treatment to lower overall carbon emissions.

Product Carbon Footprint

2.Establishment of a Carbon Reduction Labelling system

The Carbon Reduction labelling system is based on the current Carbon Label. The carbon footprints of products on Carbon Label certificates or documents issued by third party verification organizations can be used as baselines for reduction by manufacturers, who then formulate practical reduction commitments and implementation methods. After the EPA evaluates and confirms that these promises are fulfilled, a product will be certified with a Carbon Reduction Label.

For manufacturers, the carbon reduction labelling system will be combined with the green point system. In the future, the government will include products with a Carbon Reduction Label on its preferential procurement list, which would provide immense incentives for manufacturers to apply for the label. This will help cut carbon emissions and shape a complete green supply chain.

Likewise, consumers can also choose Carbon Reduction Label-certified products, and thereby contribute to the mitigation of global warming through green consumption and building a green consumption trend.

To promote green production and consumption, the EPA has actively pushed for certification of various products with the Green Mark and the Carbon Label. Since the Green Mark was launched in 1992, roughly 15,000 products in diverse categories have been certified. Meanwhile, the EPA conducts inventories of Taiwan's greenhouse gas emissions as well as assists enterprises and manufacturers in carbon footprint calculations and label certification.

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