



# Electronic Environmental Policy Monthly

Environmental Protection Administration, R.O.C. (Taiwan)

ISSN: 1811-4008 GPN: 2008600068

The EPM is available at <https://www.epa.gov.tw/ENG/BE5D11C9F277E893>



## Feature Article

### Sustainable Resource Utilization via Circular Economy

Taiwan's recycling goal has changed from the conventional end-of-pipe treatment to the current source reduction, gradually heading toward the goal of zero waste. Through the implementation of *2018-2020 Resource Recycling and Reuse Plans* (資源回收再利用推動計畫), the EPA hopes to build a circular economy and achieve sustainability, including maximizing resource utilization and minimizing the impacts on the environment.

Launched in 1997, the EPA's *Four-in-one Resource Recycling Plan* (資源回收四合一計畫) has combined four forces, including communities, recycling enterprises, local sanitation crews, and the Recycling Fund, with government authorities. It aims to establish recycling channels participated by all citizens and completely solve garbage treatment problems with a proper treatment rate of over 99%.

However, rapid economic development and drastic increase of the types and quantity of industrial wastes has led to more complicated treatment methods and higher costs. The conventional end-of-pipe treatment can no longer meet modern needs. In order to

achieve a circular economy of zero waste, the EPA is currently implementing the following measures:

#### Strengthening industrial waste reutilization management

The EPA announced the *Management Regulations for Reuse of Common Industrial Waste* (共通性事業廢棄物再利用管理辦法) on 8 January 2018. Eight industrial wastes -- food waste, waste cooking oil, waste iron, waste paper, waste glass, waste plastic, waste single metal (copper, zinc, aluminum, and tin), and waste cement telecommunication lines -- are listed for control and management under the EPA.

#### In This Issue

Feature Article: Sustainable Resource Utilization via Circular Economy.....	01
Revisions to Enterprise Classification and Definition of the Water Pollution Control Act.....	04
International Conference on a Sustainable Taiwan Held on World Environment Day.....	06
Online Uploading Required for Trial Operation Plans.....	07
Amendments to Air Quality Standards Preannounced.....	07
Amendments to Classes of Air Pollution Control Zones Preannounced.....	09
Soil and Groundwater Research and Technology Procurement Conference.....	09
Announcing Results of Environmental Agents Inspections, "Agents" from Unlicensed Online Auctions Prohibited.....	10
Foundation Set for a Low-carbon Homeland, Communities Take Action.....	11

Subsequently, an announcement on 9 January 2018 mandated tracking of reused coal ash, waste casting sand, and electric arc furnace slag. Each competent authority should conduct environmental monitoring if their reuses are potentially affecting the environment.

On 27 November 2018, the amended *Industries Required to Submit Online Reports of Waste Production, Storage, Clearance, Treatment, Reuse, Export, and Import* (應以網路傳輸方式申報廢棄物之產出、貯存、清除、處理、再利用、輸出及輸入情形之事業) and *Industries Required to Submit Industrial Waste Clearance Plans* (應檢具事業廢棄物清理計畫書之事業) were both announced. The revisions are specifically to include evaluation for industrial waste clearance plans for the purpose of reuse.

**Resource Recycling and Reuse**

(1) Implementation of 2018-2020 Resource Recycling and Reuse Plan

Besides incorporating the concept of circular economy,

the *Resource Recycling and Reuse Plan* launched in 2018, promotes strategies based on life cycles of various materials. Under the strategies covering production, consumption, waste management, and reused material markets, the EPA has formulated cross-departmental action strategies, measures, and key performance indexes and determined that plastic, metals, construction waste, and food waste would be the first to implement upon.

As it carries out the Plan, the EPA hopes to build a circular economy and achieve sustainability, maximizing resource utilization and minimizing environmental impacts. Recycling and reuse of waste plastic and construction waste were the targets set in 2018, and members of the committee reviewed the results of the project in the Resource Recycling and Reuse Promotion Committee of EPA, and the project's accomplishments were reviewed by members of the Resource Recycling and Reuse Promotion Committee of the EPA.

(2) “Cradle-to-cradle (C2C)” design concepts and circular economy evaluation

<p>Subsidizing the authorities in charge of recycling with needed equipment</p>	<p>Neighborhood Recycling Station Plan &amp; Recycling Force Plan</p>
	
<p>Perfecting management of recycling and treatment channels</p>	<p>Promoting recycling to increase effectiveness</p>
	

 *Strengthening the functions of the Recycling Fund*

To encourage companies to prioritize product design from the beginning and enhance public awareness of C2C design concepts and understanding of circular economy, the EPA continued to invite corporations to participate in the C2C Platform in 2018. To date, the platform has 94 members. In 2018, nine meetings were organized with group discussions to increase exchanges among members and promote the platform.

Evaluation for circular economy of waste resources had been conducted in 2018 on reuse institutes to further encourage and promote reuse. After the evaluation, nine of 74 enterprises that signed up were awarded with two stars, and 15 with one star. Enterprises with excellent performances are used as examples to encourage and guide each industry to commit to circular economy. Moreover, the EPA hopes that the evaluation will become an index on the promotion of circular economy by various industries.

(3) Promoting recycling and treatment of waste solar panels

In response to future treatment of waste photoelectricity modules, the EPA has planned out a semi-automatic recycling mechanism and mandated enterprises to fulfill their extended producer responsibilities (EPRs). A joint recycling, clearance, and treatment organization is to be established by enterprises.

Before the revisions, waste recycling, clearance, and treatment fees collected by the Bureau of Energy of the Ministry of Economic Affairs and fees specially applied by the EPA were used on recycling, clearance, and treatment of waste solar panels. After the revisions, the EPA has become in charge of collecting the relevant fees, which are managed under the Recycling Fund.

## Strengthening functions of Recycling Fund

1. Perfecting management of recycling and treatment channels

The EPA has actively encouraged authorities in charge to conduct recycling plans, open up recycling channels, and increase recycling results.

(1) Authorities in charge of recycling have been supplied with needed equipment and facilities. In 2019, it is expected to subsidize purchase of 11 loaders, construction of one and renovation of three recycling and storage sites, and replacement of 192 hybrid recycling vehicles.

(2) The *Neighborhood Recycling Station Plan* ( 村里資源回收站計畫 ) prescribes the setting up of 1,400 stations in 2019. As many as 1,299 had been set up by February 2019 to strengthen the recycling system.

(3) The *Circular Economy and Recycling Force Plan* ( 循環經濟資收大軍計畫 ) prescribes the hiring of 2,982 people every month in average in 2019 to help sort recycled wastes. The EPA will also try to prevent self-employed recyclers from being financially affected by price changes in the recycling market.

(4) The *Recycling Care Program* ( 資收關懷計畫 ), newly launched in 2019, focuses on self-employed recyclers that are also medium-low income households. For wastes required to be recycled, subsidies of NT\$5/kg or NT\$20/set (or unit) are provided.



▲ 2018 Resource Recycling and Reuse Promotion Committee

Among them, the subsidy for waste paper container will be raised from NT\$5/kg to NT\$10/kg beginning since 1 July 2019.

(5) Annual performance evaluation is conducted on competent authorities, where exchanges on innovative recycling methods in different areas are also carried out to raise recycling efficiency.

To set up a comprehensive system of recycling and treatment channels, 614 recyclers and 92 treatment enterprises had obtained registration licenses as of the end of February. Among those, 226 recyclers and 75 treatment enterprises have been subsidized. The EPA has finished helping subsidize enterprises to set up closed-circuit television, measuring equipment and systems. The monitoring efficiency has also been raised through monitoring operations of both subsidized enterprises and inspecting and certifying organizations. Measuring and weighing data can now be uploaded to an online system without manually keying in the data, largely cutting down costs and raising efficiency.

The EPA has been publicly asking for innovative and research projects on recycling and treatment in order to encourage enterprises to develop recycling and treatment technology, attract talents, and create reuse channels. Fifteen applications were approved in 2018, and 17 in 2019.

## 2. Monitoring responsible enterprises to practice recyclable waste management

A total of 23,714 responsible enterprises (35,096 per company/time) had been listed under control as of the end of May 2019 with 804,676 pieces of registered data of operation evaluated and put into the system. Responsible enterprises can pay fees in banks, post offices, and convenience stores. To provide a convenient way to pay the fee, they can set up a link on the reporting system via the e-bill website and pay

directly online.

During January and May 2019, an accounting firm was commissioned to audit 757 recycling and treatment enterprises that have larger amount of reported recycling, clearance, and treatment fees. The audited fees amounted to approximately NT\$2.816 billion. The rate of enterprises accurately reporting fees is 99.19%.

## 3. Promoting recycling to increase effectiveness

There were 1.407 million metric tons of recyclable waste in 2018 and 119,000 metric tons in January 2019. The EPA actively helps Southeast Asian countries develop business opportunities for recycling industry-needed technology and equipment by assisting them with evaluations and skill-building projects and exchanging recycling and reuse technology. A toll-free phone number is in place to assist anyone in need. The resource recycling system had adopted its website with responsive website design (RWD) and issued e-newsletters to intensify online promotion with interactive videos, images, texts, and social networks. Until the end of May 2019, civil organizations had been sponsored to hold 52 recycling and treatment promotion activities, with a total of 82,110 participants.

## Future prospect

The EPA believes the future policies of circular economy should aim for resource sustainability. With recycling, reuse, and innovation as the guidelines, the EPA has been adopting the idea of materials' life cycles and circular utilization and gradually heading toward the final goal of zero-waste. In addition to the conventional 3Rs (reduce, recycle, and reuse), another 3Rs -- recovery of energy, land reclamation, and redesign -- have also been introduced to build a circular economy.

## Water

# Revisions to Enterprise Classification and Definition of the Water Pollution Control Act

To meet management needs, the EPA announced revisions to the *Enterprise Classification and Definition of the Water Pollution Control Act* (水污染防治法事業分類及定義) on 1



May 2019. Five enterprise categories, including seawater desalination plants, have been added for future control. The revisions for different categories will take effect on different dates.

The EPA noted that so far 61 types of enterprises are under control under the current *Water Pollution Control Act* (水污染防治法) and that the revisions further intensify controls in response to practical management needs. The reasons for the revisions are as follows.

Seawater desalination plants are currently controlled under the classification of waterworks. Moreover, application conditions are different due to characteristics of seawater treatment and emissions, so they should be individually controlled for water pollution. Recently, there have been water pollution incidents caused by enterprises of scales that were too small to be required for water pollution controls. Examples include untreated total phosphorous-containing wastewater being discharged into rivers and causing eutrophication in reservoirs. Pollutants in storage tanks were leaked and led to soil or groundwater pollution. However, the culprits could not be required to install pollution-controlling facilities and monitoring equipment based on the *Water Pollution Control Act*. Also, steam-producing enterprises that use wet oxidation to treat waste gases generated wastewater containing pollutants like dioxins, suspended solids (SSs), and organic matter.

In addition, for both livestock and copepod-farming enterprises' agricultural waste reutilization trial projects approved by competent agricultural authorities, the control needs to be tightened as wastewater generated by farming activities contains high concentrations of organic matter that affect water body quality.

The revisions include the following main points:

1. Newly adding "enterprises that collect livestock manure or liquor and fiber digestate treated with aerobic fermentation for aquatic plant seeds and animal feeds like farming algae, and rotifer or other aquatic animals": Control applies to enterprises in two conditions. Its size must exceed 0.25 hectares if it's located inside a protective area for water quantity and quality in water origin and 0.5 hectares if outside of it. Control will take effect on 1 July 2019. The enterprises will be controlled with control items, standards, and limited for Enterprise 59, "animal

husbandry and animal excreta or bioenergy treatment center (or biogas center)".

2. Newly adding Enterprise 61: "seawater desalination plants." Enterprises that collect, desalinate seawater or semi-saltwater for water use. Twenty-one control items are specifically added.

3. Newly adding Enterprise 62: "enterprises within total phosphorous reduction control zones of reservoirs": Control targets, control standards, and limits are according to the reservoirs' total phosphorous reduction control zones and control methods announced by the competent authorities in special municipalities, counties, and cities.

4. Newly adding Enterprise 63: "steam suppliers." Enterprises that install boilers and engage in steam production, delivery, and supply, and as a result generate wastewater. Control will be effective from 1 July 2019. Control standards and limits are additionally set for a total of 46 items, including dioxins, and will take effect from 1 July 2020.

5. Newly adding "enterprises that install storage facilities within operating premises, store materials designated by the central competent authorities in Article 33 Paragraph 1 of the Water Pollution Control Act with storage capacity of 200 liters or more": Control will take effect on 1 July 2020.

6. For enterprises with incinerating facilities that set up wet or semi-dry washing equipment for their own air pollution control facilities, dioxins within the effluents should be listed for control whether or not the washing equipment generates wastewater. Moreover, regulations of total residual chlorine for effluents with high salinity (if using seawater as base) specify chlorine-formed oxidants as control items if an actual need for this is required.

The EPA emphasizes that it aims to encourage enterprises to properly operate wastewater treatment facilities and improve water body quality by putting under control enterprises that may pollute and also adding suitable control items and limits for effluents.

## Sustainable Development

## International Conference on a Sustainable Taiwan Held on World Environment Day

To demonstrate Taiwan's determination to promote sustainable development, the National Council for Sustainable Development (NCSO) held the International Conference on a Sustainable Taiwan: Accelerating the Localization of UNSDGs on 5 June 2019. Sustainable Development Goals (SDGs) experts from the US, Europe, Asia-Pacific and Africa were invited to the conference to share SDG implementation experiences and future strategies with Taiwanese representatives across different sectors, including heads or deputy heads of county and city environmental bureaus.

In the opening ceremony, students from Micang Elementary School, which has won the National Sustainable Development Award in the education category twice, spoke on behalf of the new generation about their vision for the future. During the conference, three main topics on SDGs were discussed to exchange international implementation experiences and to integrate knowledge from central and local governments, businesses, academia, and the general public. As the secretariat of the NCSO, the EPA aims to form global partnerships through the conference and together they will embark on the journey of building a sustainable environment for future generations.

The other purpose of the conference was to announce the Taiwan Sustainable Development Goals formulated by the NCSO so that related ministries can carry out their implementation accordingly. In

response to the UNSDGs launched in 2015, the Taiwan SDGs were devised based on the UNSDGs and Taiwan's current circumstance and future goals in sustainable development. After spending two years working with different ministries and gathering opinions from the public and the Legislative Yuan, Taiwan has finally completed its SDGs.

To stimulate the promotion of SDGs and achieve sustainable development, several experts in the area of SDG promotion from the US, Europe, Asia-Pacific and Africa were invited to participate in the conference and share their implementation experiences. The EPA also invited heads and deputy heads of five city and four county environmental bureaus, businesses and schools that have won the National Sustainable Development Awards, and student representatives and youth activists advocating the SDGs.

關於研討會  
About

關於永續發展目標  
SDGs

臺灣永續發展目標  
Taiwan's SDGs

研討會議程  
Agenda

研討會報名  
Registration

研討會場地  
Venue

線上直播  
On-line

### International Conference on a Sustainable Taiwan: Accelerating the Localization of UNSDGs

邁向永續臺灣國際研討會  
— 聯合國永續發展目標在地化

永續世代，就是現在；發展未來，共創永續

主辦單位 | 行政院環境保護署



大會手冊下載

講者簡報下載

Activity related reports available on the website (<https://www.sdgstw.com/>)

## Air

## Online Uploading Required for Trial Operation Plans

After reviewing the *Regulations on Trial Operations and Assessments for Public and Private Premises*, the EPA added a new stipulation requiring public and private premises to upload their trial operation plans on a designated website for the general public.

The *Air Pollution Control Act* was amended on 1 August 2018 to include stipulations on the information transparency of trial operation plans. Therefore, the *Regulations on Trial Operations and Assessments for Public and Private Premises* will also be updated correspondingly to maintain regulation consistency.

According to the current regulations, public and private premises are required to submit trial operation plans and other related documents before resuming the operation of pollution sources or business if it meets the following circumstances:

1. The premise is ordered by the competent authority to suspend the operation of pollution source, suspend work or business pursuant.
2. The premise is ordered to make improvements by the competent authority but voluntarily suspends work or business.

Additionally, to ensure that stationary pollution sources comply with the emission standards prior

to the resumption of operation, the regulations also include clear stipulations on the assessment procedure and standards of trial operation plans.

However, to respond to the current emission control status and management system, adjustments are to be made to the regulations.

Other revisions to the regulations include:

1. Public opinions shall be included for reference in the assessment process of trial operation plans.
2. During the meeting for the assessment of trial operation plans, the minutes of the meeting shall be published on the designated website.
3. In response to the changes in the *Air Pollution Control Act*, the regulations will be renamed as the *Regulations on Trial Operations and Assessments for Public and Private Premises Prior to Operation Resumption*.

## Air

## Amendments to Air Quality Standards Preannounced

To further improve the air quality in Taiwan, the EPA has revised the *Air Quality Standards* (空氣品質標準) according to the current air quality conditions and international trends. The daily average PM<sub>10</sub> limit value will be brought down from 125 µg/m<sup>3</sup> to 100 µg/m<sup>3</sup>.

It has been five years since the air quality standards were last amended on 14 May 2012. In the last revisions, standards for both the annual and 24-hour PM<sub>2.5</sub> concentrations were added. Hence, the determination methods for the compliance of the standards that apply to air quality control zones and total emission control zones were also revised in accordance with the changes.

To gradually reduce smog and particulate matter pollution that have been raising public concerns, the EPA plans to tighten the air quality standards based on the WHO Air Quality Guidelines to serve as the basis of future reduction timetable and goals. The new standards will lower the daily average PM<sub>10</sub> limit value from 125 µg/m<sup>3</sup> to 100 µg/m<sup>3</sup> and reduce the annual average limit from 65 µg/m<sup>3</sup> to 50 µg/m<sup>3</sup>.

To keep in line with international trends, the EPA will lower the maximum one-hour average SO<sub>2</sub> concentration from 0.25 ppm to 0.075 ppm and also the maximum one-hour average NO<sub>2</sub> concentration from 0.25 ppm to 0.1 ppm. Furthermore, the air quality standard for lead (Pb) will be set at 0.15 µg/m<sup>3</sup> as a rolling three-month average concentration. The new standard aligns with the current US air quality standard for lead, which is currently considered the strictest in the world.

The new revisions to the air quality standards were formulated after taking into account of the current progress on air quality improvement and international research and studies on public health. By evaluating the differences in air quality standards between Taiwan and other countries, the EPA has tightened the standards to strengthen the implementation of air pollution reduction policies.

 Draft amendment to Taiwan's Air Quality Standards

Pollutant	Time average	Current standards	New standards (draft)
TSP (µg/m <sup>3</sup> )	Annual average	120	-
	24-hour value	250	-
PM <sub>10</sub> (µg/m <sup>3</sup> )	Annual average	65	<u>50</u>
	24-hour value	125	<u>100</u>
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Annual average	15	15
	24-hour value	35	35
SO <sub>2</sub> (ppb)	Annual average	30	<u>20</u>
	24-hour value	100	-
	Hourly average	250	<u>75</u>
O <sub>3</sub> (ppm)	8-hour value	0.060	0.060
	Hourly average	0.120	0.120
NO <sub>2</sub> (ppb)	Annual average	50	<u>30</u>
	Hourly average	250	<u>100</u>
CO (ppm)	8-hour value	9	9
	Hourly average	35	35
Pb (µg/m <sup>3</sup> )	Monthly average	1	<u>0.15</u>



**Air**

## Amendments to Classes of Air Pollution Control Zones Preannounced

According to the *Air Pollution Control Act*, air quality standards shall be reviewed at least once every four years. Since the EPA is revising the air quality standards, the classes of air pollution control zones for special municipalities, counties, and cities will also be reevaluated to make adjustment based on realistic needs.

The *Air Pollution Control Act* divides the air quality control zones into the following three classes:

1. Class 1 control zones refer to national parks and nature conservation areas as delineated by law.
2. Class 2 control zones refer to areas whose air quality meets air quality standards, with the exception of Class 1.
3. Class 3 control zones refer to areas whose air quality does not meet air quality standards, with the exception of Class 1.

After reviewing the current classification of the control zones, changes have been made based on the draft amendments to the air quality standards as follows: Changhua County has been reclassified as Class 3 PM<sub>10</sub> control zone from Class 2, Yilan and Hualien County as Class 2 PM<sub>2.5</sub> control zones from Class 3, and Kaohsiung City and Pingtung County as Class 2

O<sub>3</sub> control zones from Class 3.

In accordance with the new control zone classifications, Yilan, Hualien and Taitung counties are now considered Class 2 PM<sub>2.5</sub> control zones while the rest of the cities/counties remain as Class 3. Therefore, the EPA will continuously strengthen the reduction of PM<sub>2.5</sub> and precursor emissions to achieve phased reduction goals.

Affected by the amended air quality standards that will tighten the daily average PM<sub>10</sub> limit value from 100 µg/m<sup>3</sup> to 50 µg/m<sup>3</sup>, the following cities/counties will still remain as Class 3 PM<sub>10</sub> control zones: Changhua, Yunlin, Chiayi, Pingtung and Kinmen counties, and Chiayi, Tainan and Kaohsiung cities. In the future, the EPA will focus on the emission control of fugitive dust from paved roads and construction sites and open-air burning to better improve air quality and safeguard public health.

**Soil & Groundwater**

## Soil and Groundwater Research and Technology Procurement Conference

On 4 June, the EPA held the Cultivating Technologies for a New Era—Soil and Groundwater Research and Technology Procurement Conference 2019. The conference exhibited technology developments in the areas of soil and groundwater. It also facilitated dialogue and exchange between private industries, the government, and academia for the purpose of improving field applications for technology and accelerating efforts to remediate polluted soil and groundwater sites.

The EPA stated that quickly recovering polluted sites has become its key mission. As such, optimizing and innovating the development of soil and groundwater technology is now one of its most critical tasks. The EPA annually budgets NT\$30 million to encourage public and private universities in Taiwan to invest in research and development related to soil and

groundwater. As of this year, there have been 129 international publications, 20 patents, and five technology transfers. The EPA has also successfully matched 43 pieces of technology to be applied at test sites. These developments have cultivated talented experts in soil and groundwater.

The EPA held this research and technology procurement conference to particularly focus on presenting technology developments and cross-field applications. As such, Taiwan's experts and scholars in soil and groundwater were invited to share their research results and demonstrate the potential applications for certain technologies. In addition, the conference provided a channel for

exchanging technology. The conference brought together industries applying local technology related to soil and groundwater to effectively improve Taiwan's polluted sites. Participants could also take advantage of the conference to forge ties with industries, the government and academia, creating more market opportunities.



▲ Minister Tzi-Chin Chang (second from the left) talked with experts and scholars and introduce R&D equipment

## General Policy

# Announcing Results of Environmental Agents Inspections, “Agents” from Unlicensed Online Auctions Prohibited

In order to guarantee that consumers select legal, safe and effective environmental agents, the EPA drafts the *Environmental Agents Assessment Plan* (環境用藥查核計畫) each year. In 2018, the EPA investigated the ads, packaging and active ingredients of environmental agents: 40,166 were examined with an approval rate of 99%.

The results of this year's investigations included 11,224 advertisements, with 139 online advertisements determined to be illegal. The fines for which totaled NT\$4,070,000. Illegal advertisements were largely comprised of individuals on e-commerce sites advertising sales of mosquito repellant patches imported from Japan. For packaging, 28,719 cases were reviewed, with

283 failing inspection. One hundred and ninety-two sample tests were conducted on the active ingredients of environmental agents, with four cases failing inspection. The investigation determined that there were 31 cases involving the forging of permits for environmental agents. Eight of said cases were determined to have persistent organic pollutants (pesticides) that were included in the Stockholm

Convention on Persistent Organic Pollutants. Cases that did not pass inspection were given penalties and taken off shelves for a fixed time in accordance to the *Environmental Agents Control Act*.

Online shopping and auctions are convenient, and many people not only purchase but also sell goods (such as mosquito repellent patches and sprays) on e-commerce platforms. Nevertheless, the EPA reminds everyone that advertisements for environmental agents must first have proper permission before being published. Violators will be fined a minimum of NT\$60,000 and maximum of NT\$300,000. Regarding these advertisements, the EPA asks people to follow the “3 Don’ts”: Do not publish advertisements without proper permits. Do not buy without consideration. Consumers should not purchase products when the source of the environmental agent is unclear or the product lacks labelling stating approval from the EPA with a registration number for “environmental

protection product,” “environmental protection import,” or “environmental protection mosquito repellent.” Finally, the EPA does not recommend products from online advertising that claim to have environmentally friendly environmental agents that kill insects or act as pest control.

The EPA created a query system for looking up permits for environmental agents and vector controls (<https://mdc.epa.gov.tw/PUBLICInfo> ). Users simply input the product’s name or permit number and can ascertain whether the product has been approved as well as find its source. Users can also find information about legal sellers for vector control products and environmental agents. People interested in learning more about safe environmental agents or seeing what environmental agent products do not comply with EPA guidelines can visit <https://evsu.epa.gov.tw/EVagents/EVSecurity/Index.aspx>.

## Environmental Management

### Foundation Set for a Low-carbon Homeland, Communities Take Action

To raise awareness of climate change and improve our homeland’s environmental durability, the EPA began promoting the Low-carbon and Sustainable Homeland since 2009. As of this year, 3,887 neighborhoods are participating. Of these, 783 have actively implemented green energy, recycling, restoration of green environments, low-carbon lifestyles, green transportation and shipping, as well as sustainable business practices. Communities have used these six ways to take action against climate change and received either a bronze or silver certification from the EPA.

The EPA noted that communities autonomously implement initiatives to respond to climate change and then apply for in the Low-carbon and Sustainable Homeland certification. Communities that have successfully executed 5-7 items of the initiative or made adjustments to their practices may receive a bronze certificate. Communities that have implemented 13 or more items from the initiative as well as showed excellent performance in four out of the six dimensions can qualify for the silver certificate. Since the formal start of the project in 2015, the number of communities applying for certification has steadily increased. In 2018, 15 silver and 95 bronze certificates have been awarded.

Local governments have also actively participated. In 2017, a number of places were awarded the silver certificate: Taipei, New Taipei, Taoyuan City, Tainan, Hsinchu County, Yilan County, and Chiayi City. Kaohsiung and Kinmen County were added to the list in 2018. Based on 2018’s numbers, 3,887 villages, 337 towns (town, cities, districts), and 22 municipalities or counties participated in the initiative. The participation rate is 50%, 92% and 100%, respectively. Forty-seven villages received silver certificates and 736 earned a bronze certificate. Ten urban areas received silver certificates, while 108 earned bronze. Among municipalities and counties, nine received silver certificates and 11 earned bronze.



Among the 738 villages to earn a silver rank, 95% adopted measures to lower indoor temperatures (such as promoting green roofs, plant walls or hedges, and permeable pavement). According to the Bureau of Energy's statistics, to lower the temperature of a room by one degree, an air conditioner uses 6% more electricity. However, when area temperature reduction measures are taken, indoor temperatures can be reduced by 3-5 degrees, simultaneously lowering electricity use by 10-25%. Thus, these

measures not only reduce carbon emissions but also improve communities' abilities to adjust to high temperatures.

In addition, 88% of villages adopted recycling measures and 83% made use of green energy. These communities have also been able to implement diverse initiatives to reduce carbon and implement adjustment measures based on their local conditions.



▲ Installing a green roof with solar power equipment to shade the building and cool down the temperature.

**Electronic Environmental Policy Monthly**  
**R. O. C. (Taiwan)**

**Publisher**

Tzi-Chin Chang, Minister

**Editor-in-Chief**

Huichen Chien

**Executive Editors**

Shiuan-Wu Chang; Yu-Ling Yang; Chun-Wei Yang;  
Shaowen Chang; Jason Hoy; Ken Lee

For inquiries or subscriptions, please contact:

**Electronic Environmental Policy Monthly**

Office of Sustainable Development  
Environmental Protection Administration  
83, Sec. 1, Jhonghua Rd., Taipei 100, R.O.C. (Taiwan)  
tel: 886-2-2311-7722 ext. 2211  
fax: 886-2-2311-5486

Contents Copyright 2019