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## Feature Article

### Resource Recycling Policies for Zero Waste

The EPA recently formulated a draft of the Resource Recycling Policy Formulation (資源循環政策規劃) after examining the sustainable resource management approaches of developed nations. Details concerning specific measures and action plans are currently being worked out so that the task of promoting resource recycling policy will run smoothly. The ultimate goal is to build a zero waste society in Taiwan.

Taiwan's management of waste has evolved from originally relying upon tail-end treatment to the current zero waste policy. In December 2003, the Executive Yuan approved the Review of the Refuse Treatment Program and Outlook for the Future, in which the target of zero waste was first set out. In accordance with regulations for resource recycling and reuse, waste reduction and resource recycling policies were also comprehensively promulgated as the means to achieving "zero waste."

In turning a new leaf in Taiwan's management of waste resources, the EPA first looked at how developed nations such as Japan, the Netherlands, and those in the EU and OECD, handle sustainable materials management (SMM), and then decided which of their management methods and tools could

be suitably applied in Taiwan. In November 2011, the first draft of the Resource Recycling Policy Plan was drawn up. The draft outlines five practical strategies and targets: sustainable resource management; green design and production; green consumption and trade; reduction at source and reuse; and definition of resource final disposal. Details concerning specific measures and action plans are currently being worked out so that the work of promoting the resource recycling policy will run smoothly.

**Material lifecycles form basis of draft of *Resource Recycling and Reuse Act***

The government has decided to combine the *Waste Disposal Act* and the *Resource Recycling Act* into one law – the *Resource Recycling and Reuse Act (draft)*

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– that will incorporate the principle of sustainable recycling in the treatment of "waste resources" by strengthening resource recycling and reuse. Material lifecycles – production, manufacturing, recycling, reuse, and final disposal – and cyclical use will form the basis of the upcoming law. The related management regulations will cover every step in the lifecycle from reduction at the source to suitable final disposal in order to limit waste and reduce the impact on the environment. The ultimate management target is to create a zero waste system.

The main points of the upcoming Act are as follows:

(1) Reduction of waste at source and recycling of resources are considered to be the primary objectives of the Act, both to protect the environment and safeguard the health of citizens.

(2) In order to achieve zero waste through the recycling of resources, the central competent authority shall include in the development plans of commercial harbor areas and coastal industrial parks the provision of harmless, stable, inflammable waste materials that can be used as filler in land reclamation projects.

(3) The act also emphasizes reduced use of raw materials, limiting environmental impacts, strengthening material reduction at the source and

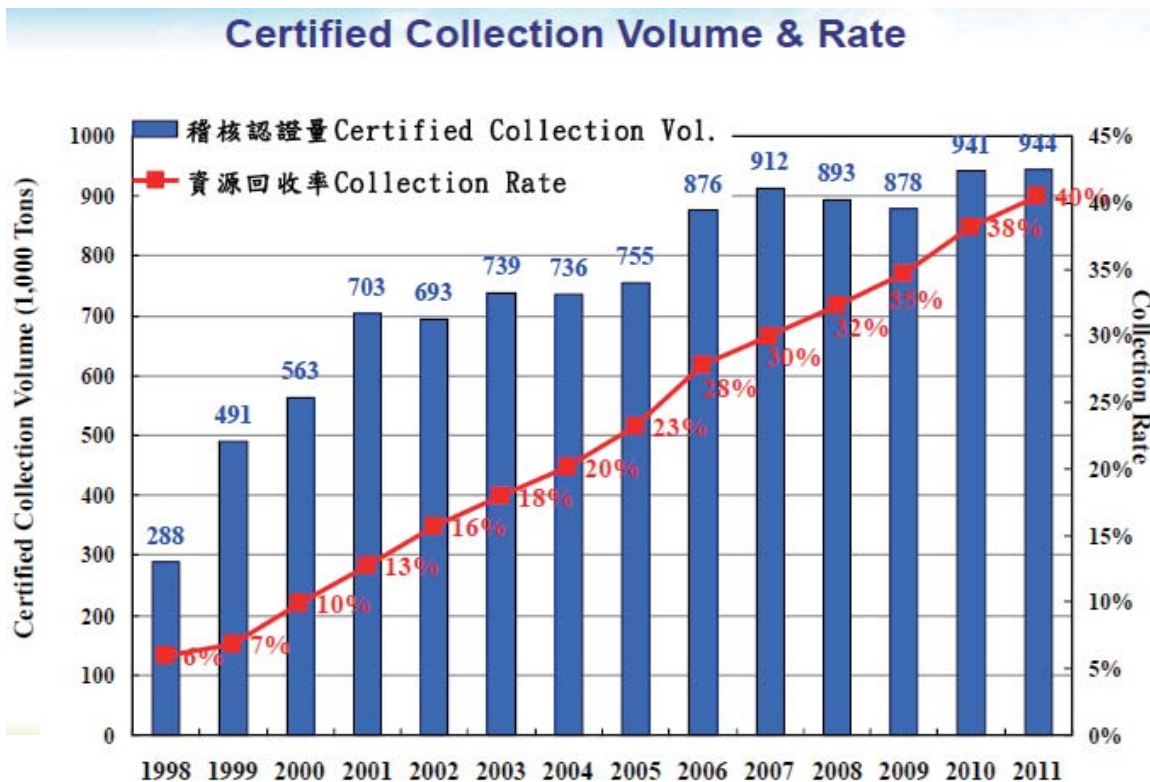
green design for manufactured products, and stresses the concept of product lifecycles. Industry competent authorities should comply with eco-friendly design standards when setting product or construction related regulations.

(4) Specifications have been added to reduce, restrict or ban products, packaging of products and containers, including restrictions on over-packaging, encouraging refilling for reuse, and adopting deposit-refund systems.

(5) To promote green procurement systems, government organizations, public schools, and public enterprises should prioritize the procurement of environmentally friendly products as designated by the central government.

(6) In order to promote resource renewal and achieve the objective of sustainable recycling of resources, the categorizations of industrial waste for recycling and treatment methods have been stipulated. Moreover, listed waste resources generated by industries of a specified scale should be reused or recycled according to regulations and may not be disposed of in other ways.

(7) Cases of intentional dumping and piling of hazardous waste resources, or repeat violations of non-permitted disposal of such waste within



three years, will be dealt with under criminal law in accordance with the principle of proportionality.

(8) Violators who have already been fined and have not made improvements by the given deadline will be fined incrementally. In compliance with Article 18 of the *Administrative Penalty Act*, it has been added that competent authorities shall confiscate illegal gains, with no upper limit on the amount that can be seized.

(9) After reviewing the system of penalties, it has been decided that any minor, unintentional transgression will not incur a fine. Violators will instead be given a negative rating, and a warning will be issued. Repeated transgressions will, however, result in fine being levied.

### The Sustainable Resource Recycling and Reuse Promotion Plan

The Resource Recycling Policy Formulation revolves around the two main administrative targets of maximizing resource usage efficiency and minimizing environmental impact. The EPA is also currently drawing up a draft of the Resource Recycling and Reuse Promotion Plan (Stage 1) that will contain guidelines for promoting related tasks. The plan covers the following:

#### (1) Building an Integrated Cloud System for SMM

Building an integrated cloud system for SMM will bolster the sustainable materials information infrastructure and facilitate the execution of follow-up work. The main administrative measures to be taken include:

- Evaluate economic data on national, comprehensive resources, and build an information cloud system for resource cycling. Evaluate and strengthen the national SMM strategy, and develop the Taiwan cradle-to-cradle strategy alliance and information platform.

#### (2) Advanced Refuse Reduction at Source and Resource Recycling Strategy

The overall objective of this task is to reduce volumes of non-industrial waste and improve the efficiency of refuse disposal. It also involves continuing to raise

refuse reduction rates, resource recycling/reuse rates and refuse disposal CO<sub>2</sub> reduction. The main administrative measures to be taken include:

- Manage the tasks of making environmentally friendly products and reducing refuse at source.
- Promoting Extended Producer Responsibility (EPR) to enhance the effectiveness of resource recycling and reuse.
- Promote low-carbon refuse disposal by subsidizing the replacement of old refuse disposal vehicles so as to raise refuse disposal efficiency and reduce CO<sub>2</sub> emissions.

#### (3) Promoting the Use of Renewable Materials and Reusable Products

The overall objective of this task is to raise the quality of products made from renewable materials and strengthen the link between reuse and production. A benchmark plant that will treat bottom ash for reuse will be built, which will help to raise the quality and reuse value of renewable products. The main administrative measures to be taken include:

- Build links between resource recycling industries, and nurturing environmentally friendly production.
- Raise the quality and reuse value of renewable products.
- Provide guidance and oversee corporate adoption of cradle-to-cradle product design.

#### (4) Building a General Waste Bioenergy Center

The overall objective of this task is to construct a bioenergy center that will use general waste and integrate forward-looking energy applications. A demonstration plant will be constructed and the project will compile and evaluate test results to serve as a reference when phasing out old incineration plants or transforming them into bioenergy centers, or when building off-island bioenergy centers. The main administrative measures to be taken include:

- Construct a demonstration bioenergy center that will use general waste.

- Build a demonstration plant.

- Build an off-island bioenergy center.

#### (5) Promoting the Use of Waste Resources for Land Reclamation

Using stable and harmless waste resources for reclamation projects both increases national land area and is a suitable final disposal solution. This task also includes completing strategic environmental assessments, planning demonstration sites, and completing environmental impact assessments. The

main administrative measures to be taken include:

- Draw up reclamation assessment plans, select suitable areas, and complete strategic environmental assessments.

- Plan demonstration reclamation sites.

- Formulate Executive Yuan implementation plans or projects for reclamation.

- Hold briefings to explain the policy behind using waste resources for reclamation.

## Climate Change

### Taiwan Delegation Holds a Successful Side Event at COP18

With the world watching closely, UNFCCC COP18/CMP8 – a major international effort to mitigate climate disasters and the long-term challenges posed by climate change – kicked off in Doha, Qatar on 26 November 2012. Two weeks of intense negotiations between all the nations of the world followed. Taiwan's delegation arrived in the early morning of 1 December 2012, and in the evening of the same day held a well-attended side event in the climate treaty conference hall.

Taiwan's delegation to the COP18 climate change summit arrived in Doha, Qatar in the early hours of 1 December 2012, and in the evening of the same day held a side event in the climate treaty conference hall (the Qatar Doha National Conference Center). The event was titled "Exploring Climate Change Adaptation

from the Perspectives of Least Developed Countries, African Nations, and Small Island Developing States" and revolved around the theme of survival and development in the face of climate change. The participants enthusiastically shared knowledge and experience and engaged in fruitful exchanges



▶ EPA Deputy Minister Yeh gave the introductory speech and the keynote presentation at the side event.

of opinion. Of all the side events that Taiwan has held at climate treaty conferences over the years, this one had the most attendees, the most media representatives, and the highest number of different nationalities. With over 200 people participating, the spirit was vibrant and the rewards were substantial.

The head of the delegation, EPA Deputy Minister Dr. Shin-Cheng Yeh, gave the introductory speech and the keynote presentation at the side event. Some other experts were also invited to give presentations: Dr. Jih-Chang Yang, senior consultant at Taiwan's Industrial Technology Research Institute; Ambassador Amatlain Elizabeth Kabua, permanent representative to the UN for the Marshall Islands; Samuel Yeye, Technical Adviser in the Burkina Faso government; Joseph Aitaro, Director of the Bureau of Protected Areas under the Ministry of Natural Resources, Environment and Tourism of Palau; and Nick Dunlop, Secretary-General of Europe's Climate Parliament.

Deputy Minister Yeh explained how Taiwan's government is developing climate change response strategies and policies, and gave a macro perspective on Taiwan's vision and planning for dealing with adaptation issues. He also talked about Taiwan's own traumatic experiences in dealing with extreme weather, and how the treaty conference's call for protection of fragile environments resonates deeply within him. He rounded off his talk by referring to the slogan "Global thinking; local action" and stressed that Taiwan is keen to cooperate with all nations, especially ones needing assistance, to respond to global climate change, the biggest threat facing humanity in the 21st century. Overall, he made every effort to express Taiwan's sincerity toward international cooperation. Dr. Jih-Chang Yang talked about some of the strengths of Taiwan's development of green technologies and displayed a depth of knowledge and expertise in describing how Taiwan's technologies can be applied to disaster prevention and relief, environmental protection, and creating alternative energy sources. He looked forward to the day when techniques developed in Taiwan are used to assist Taiwan's diplomatic allies and the international community as a whole.

Ambassador Kabua from the Marshall Islands gave a vivid description of the perils that small island nations face from rising sea levels and how it feels to wait to be rescued. Pointing out that climate change disasters

are already affecting such islands, the ambassador called for quick and effective action to be taken. Mr. Yeye from Burkina Faso started his speech by thanking Taiwan for supporting his country in the areas of environmental protection, energy supply, health and education. He was particularly grateful to Taiwan's government and citizens for the solar panels that have been installed on elementary schools in his country and are now lighting up classrooms. He also expressed the hope that the good relations between the two nations would continue indefinitely. Director Aitaro also expressed gratitude to Taiwan for being the first nation to offer material support for the Palau Protected Areas Network that is diligently being established to protect sustainable ecosystems in and around the island nation.

Nick Dunlop, Secretary-General of Europe's Climate Parliament, was the final speaker. He talked about the proposed innovative "Super Grid," adaptation and slowing down global warming, and the concepts and experiences underpinning international efforts to develop and integrate regional energy sources. He also stressed the pivotal role Taiwan is playing as a willing and capable partner in international emissions reduction and adaptation efforts for a sustainable future for all humanity. Deputy Minister Yeh then closed the proceedings by pointing out that all of the research papers presented at the conference clearly indicated that maintaining "business as usual (BAU) lifestyles is not an option in the face of climate change." He also reiterated Taiwan's willingness to continue to bring nations together and continue the struggle against climate change.

The side event went smoothly and the high attendance demonstrated that adaptation strategies are an important part of both global climate change treaties and on-the-ground action. The event attendees were unanimous in their approval for Taiwan's unstinting efforts in building responses to climate change. Also recognized was the need to develop deeper international cooperation spanning all borders, regions, and ethnicities in order to fulfill the COP18 slogan, "7 billion, 1 challenge." Such a degree of cooperation is built on empathy for others and the knowledge that we all have to pull together for the common good.



## Five New Regulations Implemented under the *Indoor Air Quality Act*

On 23 November 2012, the EPA announced five new regulations to accompany the implementation of the *Indoor Air Quality Act*. They are: the *Indoor Air Quality Act Enforcement Regulations*, the *Indoor Air Quality Standards*, the *Regulations Governing the Establishment and Management of Dedicated Indoor Air Quality Maintenance Personnel*, the *Indoor Air Quality Testing Management Regulations*, and the *Fine Determination Criteria and Fine Rates for Violations of the Indoor Air Quality Act*.

The *Indoor Air Quality Act* was promulgated by President Ma Ying-jeou on 23 November 2011, making Taiwan the second country in the world after South Korea to enshrine indoor air quality management in law. The act extends air pollution controls that were originally only for the outdoor environment to indoor environments of both public and private premises. The passing of the act indicates the government's determination to provide the citizens of Taiwan with healthy indoor working and leisure environments.

Over the last year since the act was promulgated, the EPA has held a series of related research meetings and public hearings to work out the regulatory details and hear opinions from all sides. This has resulted in five subsidiary laws being formulated which will see the establishment of an indoor air quality control improvement guidance platform and courses to train specialist indoor air quality control personnel. Related events and activities are also in the pipeline. The EPA hopes that the above measures will lead to thorough control over indoor air quality being implemented by operators of public and private premises. The implementation of the act will add further safeguards to public health, and will be a joint effort by all government departments.

As this is a new law, the EPA will be moving ahead gradually by dividing listed announced premises into batches and preannouncing those that have been considered suitable targets for controls. During the preannouncement period the competent authority will be providing advice on making improvements. After formal announcement of the regulations a reasonable grace period will be also be given to allow the announced premises sufficient time to train specialist personnel, test indoor air quality, and make any necessary improvements so that they will be in full compliance once the regulations take force.

The main content of the five accompanying regulations include:

(1) The *Indoor Air Quality Act Enforcement Regulations* stipulate the "non-attributable items" for the *Indoor Air Quality Act*, the indoor air quality control plan criteria, inspection guidelines for the competent authority, and specific content to be included in improvement plans.

(2) The *Indoor Air Quality Standards* stipulate concentration values for indoor air fugitive pollutants that can directly or indirectly harm human health following long-term exposure. Nine control values have been drawn up along with the principles for determining compliance with the standards. In future, the number of control values for announced premises will be reduced in order to mitigate their impact on day-to-day operations.

(3) The *Regulations Governing the Establishment and Management of Dedicated Indoor Air Quality Maintenance Personnel* covers the conditions under which announced premises must employ air quality control personnel, and the qualifications, training (if necessary, and to what degree), accreditation, suspension, and dismissal of those personnel. The EPA is currently putting together a suitable course for the training of air quality control personnel to be run by contracted agencies and held in three locations – in northern, central, and southern Taiwan – for the convenience of would-be trainees.

(4) The *Indoor Air Quality Testing Management Regulations* stipulate the methods for periodic testing that announced premises must adopt. They also state installation and operation methods for automatic monitoring facilities and how results from periodic testing and continuous testing are to be announced and shown in the electronic media. They also state

the minimum length of time that the results must be stored.

(5) The *Fine Determination Criteria and Fine Rates for Violations of the Indoor Air Quality Act* state the amounts of fines that can be levied according to the degree to which the violation exceeds the *Indoor Air*

*Quality Standards*.

The five new regulations have been posted on the EPA's notice board and published in the Executive Yuan's gazette. Interested parties can go to the EPA's Web site to get more details: <http://ivy5.epa.gov.tw/epalaw/index.aspx>.

## Recycling

# Environmental Experts from Ten Nations Meet in Taipei to Discuss Recycling Policies

The EPA held the "2012 International Conference and Exhibition on Resource Recycling" in Taipei from 13-15 November. The main theme of the conference was the creation of sustainable resource recycling cities. Government urban waste experts from ten nations – Brazil, Estonia, Finland, Germany, Israel, Japan, New Zealand, South Korea, Sweden, and the USA, – were in attendance to share relevant experiences.

As EPA Minister Stephen Shu-hung Shen pointed out in his opening speech, zero waste through resource recycling is one of the five central pillars of the EPA's administrative strategy. Through the EPA's 4-in-1 resource recycling plan, Taiwan citizens are now accustomed to sorting their refuse according to recycling categories and complying with pay-per-bag refuse collection policies in some municipalities. As a result, the average daily amount of refuse per capita has fallen from a peak of 1.1 kg to 0.43 kg in 2011, while the refuse recycling rate has risen to 51.76%. But for modern cities to remain competitive they must continue to incorporate sustainable operations into their future development policies. There is a saying in Chinese to the effect that jade can be polished with stone from other hills. This principle lies behind the EPA's policy of promoting intergovernmental environmental exchanges in order to raise the international competitiveness of Taiwan's cities.

The keynote speaker of the 2012 International Conference on Resource Recycling was Henrik Harjula, former Principal Administrator at the Pollution Prevention and Control Division of the Organization

for Economic Co-operation and Development (OECD), who spoke on the topic of the green economy as a growing force. Delegates from each nation also gave presentations on waste resource recycling systems in the cities of their home nations, followed by in-depth exchanges between the foreign delegates and local representatives of government, industry, and academia on the three main conference topics: the green economy as a growing force; green ideas for a green economy; and the future of materials and materials for the future. The fruitful exchanges produced a raft of innovative ideas for sustainable urban management and environmental policies.

In order to give the foreign guests a deeper understanding of Taiwan's approach to sustainable urban management, an eco-friendly home display was set up at the conference hall. The display featured sections created by government agencies, research organizations, recycling operators, and green product manufacturers that, when taken as a whole, gave a sense of the feasibility of building sustainable cities.

## Waste Management

# Online Payment System for Online Permit Applications to Become Nationwide by End of 2012

The EPA's online application system for environmental permits is being implemented in stages. The first stage involves setting up an online application and electronic signature system for Taiwan's listed enterprises. Having an online payment system is a part of this, and the system has already become available for companies in five special municipalities: Taipei City, New Taipei City, Taichung City, Tainan City, and Kaohsiung City. The system will be rolled out nationwide by the end of 2012.

In the past, the application process for environmental permits involved filling in forms online, printing them out, affixing stamps or signatures, and then mailing them off to the local government environmental protection bureau for evaluation. Payment was done either by postal order or bank remittance. The whole process consumed much paper and valuable time. The current system is far more efficient, and the online payment system that is being rolled out this year will hopefully make it even more so.

On 1 August 2007, the EPA made life easier for over 40,000 enterprises by combining the online application systems related to air, water, waste, and toxic substances into a single Environmental Management Systems (EMS) Web portal at <http://ems.epa.gov.tw>. This year the EPA has been actively promoting its online environmental permits application system. This involves applicants using their electronic proof of identity (either a personal or company password) to log on to the EMS. They then fill in the relevant online application forms, use their password again to affix an electronic signature, and send it in to their

local government environmental protection bureau for evaluation. During the process of evaluation the environmental agency also uses electronic signatures to indicate that documents have been reviewed and accepted. Once the application has been approved the applicant can pay the evaluation fee or permit fee online using a credit card, integrated circuit (IC) card, or by transferring money from a bank account.

The EPA hopes that the full implementation of the electronic application system will lead to a more efficient service for the enterprises involved and a reduction in the amounts of paper being unnecessarily consumed. The government of Taiwan is keen to see "web use replacing road trips." Facilitating the application of environmental permits from home or office and thus saving innumerable car journeys fits well with this goal. Enterprises or local government environmental protection bureaus that have queries about the new electronic system can call a free hotline – 0800-059-777 – or download the relevant guidelines from the EMS Web site information section at <http://ems.epa.gov.tw/Anonymous/EmsArea.aspx>.

## Air Quality

### Subsidies for Electric Scooters and Bicycles Planned to be Extended Two More Years

In November 2012, the EPA preannounced revisions to the *Regulations Governing Subsidies for Newly-Purchased Electric Scooters* and the *Regulations Governing Subsidies for Newly-Purchased Electric Bicycles* to extend the subsidy regime for another two years until 30 November 2014.

With the increasing importance being given to saving energy and reducing carbon emissions, it is not surprising that more people are buying electric scooters and electric bicycles: from 22,803 in 2010 to 27,964 in 2011 to 20,978 as of the end of September 2012. In order to further encourage the uptake of low-pollution vehicles, the EPA has decided to extend the subsidies for members of the public buying electric scooters and electric bicycles for another two years until 30 November 2014, with the subsidy remaining at NT\$3,000 per person per unit.

The EPA is also promoting the establishment of battery swapping systems for electric vehicles, and is pushing for a common specification for batteries used in electric scooters and electric bicycles. From 1 January to 31 December 2013, any domestic manufacturer or local branch of an overseas manufacturer that produces or imports electric scooters or electric bicycles that have batteries that match the EPA's recommended specification will receive subsidies equivalent to NT\$500 per unit. The EPA will soon be requesting domestic manufacturers



or local branches of overseas manufacturers that produce or import electric scooters or electric bicycles to adopt the common battery specification from 1 January 2014 in order to be eligible for the subsidy.

The EPA is also urging members of the public to take full advantage of the subsidies and buy electric scooters and electric bicycles in the knowledge that they are improving the air quality for all.

## Environmental Inspection

### Over 50% of Survey Respondents Satisfied with EPA's Handling of Public Complaints in 2011

In 2011, the EPA received 207,463 public nuisance complaints. Results of a follow-up survey sent to 37,047 complainants who left contact details indicated that 52.58% of them were either "very satisfied" or "satisfied" with the EPA's handling of their complaints, suggesting that more than half of Taiwan's citizens feel the hard work that the central and local environmental agencies have put into dealing with public nuisance complaints has been effective.

Since the EPA integrated local petitioning systems into a national system, the number of complaints received annually has increased from 85,768 in 1998 to 207,463 in 2011 – the first year that the total has risen above 200,000. The figures are a clear indication that the general public has ever-higher expectations with regard to environmental quality. Problems that seem to particularly impact upon people's lives include environmental sanitation; noise from motorcycles, karaoke, and interior decorating; offensive odors; and fumes from restaurant kitchens. The complaints the EPA receives are in the form of phone calls, online petitions via Web sites, e-mails, and complaints placed in suggestion boxes.

EPA statistics showed that most of the complaints were from residents of Taipei City (59,627), followed by New Taipei City (45,633), and Taichung City (21,112), which altogether accounted for 60.91% of the national total. Of the various categories of pollution reported, 69,458 complaints (33.48%) concerned noise pollution, while 54,243 (26.15%) were in regard to offensive odors – together these two categories accounted for 59.63% of the total. The average time it took for inspectors to arrive at the scene of a reported public nuisance in 2011 was 0.38 days, which was an improvement by 0.72 hours over the figure of 0.41 days for 2010. The figures clearly showed that Taiwan's environmental protection agencies deal with public nuisance complaints actively and as quickly as possible.

As for levels of satisfaction with the EPA's performance, the 37,047 people surveyed in 2011 represented 17.86% of the total public nuisance complainants. Among those surveyed, 12.67% were "very satisfied," and 39.91% were "satisfied" with the EPA's performance, which together gave a total of 52.58%. Another 39.60% described the EPA's performance as "acceptable." The main factors affecting levels of satisfaction were whether or not inspections were carried out within the designated time period and whether or not there was a noticeable improvement in the problem. The fact that over 50% of the public are satisfied with environmental agencies' handling of complaints indicates that the inspectors are working hard on both main factors. The EPA will continue to improve the training and field skills of public nuisance inspectors in order to raise levels of satisfaction even higher.

The telephone is still the main medium that members of the public use to lodge complaints or express feelings about public nuisances. As a result, hotline personnel working in environmental report centers have been receiving more training and education on both environmental regulations and telephone answering skills. In addition, for public nuisance incidents that only last for a limited time, such as many cases of noise pollution and offensive odors, a review of regulatory standards prompted by rising public expectations has led to inspectors arriving at complaint sites quicker than ever in order to be able to properly deal with the incident. Inspectors are also

reporting back their findings to complainants at a faster rate.

As for cases in which inspectors initially found no wrongdoing, but local residents continued to lodge complaints, the EPA will be requesting local environmental protection bureaus to be more conscientious about conducting follow-up inspections

in order to ensure that the pollution is mitigated. The EPA will also be implementing "in-depth inspection" for serious cases of environmental pollution which will focus on capabilities, treatment efficiency, and operational effectiveness. More effective inspections could lead to the recovery of illicit gains, which will act as a further deterrent to law breakers.

## Control and Evaluation

# Winners Announced for the 2013 Enterprise Environment Protection Awards

The 21st R.O.C. Enterprise Environmental Protection Awards ceremony was held on 5 November, with EPA Deputy Minister Tzi-chin Chang presenting awards to this year's 15 winning enterprises. Of the 15, O'right International Corp. won the first-ever award for model implementation of the EPA's Carbon Neutral Pilot Plan for Products. Dayeh University was also mentioned for taking first place in the Asia region in the 2011 UI GreenMetric World University Ranking.

The EPA has been holding the R.O.C. Enterprise Environmental Protection Awards ceremony annually since 1992, and this year's was the 21st. The awards are the highest honor that the nation bestows upon corporations for their overall environmental performance. A total of 237 enterprises won awards this year, of which 26 were each awarded a special Environmental Protection Honorary Trophy for the laudable achievement of winning an environmental award for three years running.

The whole world is talking about global warming, hence the growing trend towards energy saving and carbon reduction. Taiwan's corporations are heeding the call and paying close attention to the EPA's environmental awards. This year's winners – whether in pollution prevention, reducing waste at its source or during manufacturing, introducing environmental management systems, green product design and procurement, energy saving, water saving, conducting greenhouse gas audits, or promoting environmental concepts – were all exceptional. They are the industry role models from which other manufacturers should learn.

The selection process for the R.O.C. Enterprise Environmental Protection Awards involved five major categories and produced 15 winners of the top honors (see the below for names of the winning enterprises).

In their statement, the selection committee said that in addition to thoroughly incorporating environmental concepts into their manufacturing and services operations, the special characteristic of this year's winners was that they also placed much emphasis on environmental management, saving resources, reducing waste in their manufacturing operations, recycling resources, environmental education, social participation, and green procurement. Their efforts have helped reduce environmental pollution and lower their own operating costs, while fulfilling their corporate responsibility and taking great strides toward becoming fully-sustainable enterprises.

Information on the awards and ceremony has been published on the EPA Web site <http://ivy3.epa.gov.tw/AEEPA/>.

Winners of the 21st R.O.C. Enterprise Environmental Protection Awards:

### 1. High-tech Manufacturers

- Corning Display Technologies Taiwan Co. Ltd., Southern Taiwan Science Park branch Tainan factory
- Taiwan Semiconductor Manufacturing Co. Ltd., 12th plant
- Taiwan Semiconductor Manufacturing Co. Ltd., 5th plant

- Unimicron Technology Corporation, Precision Load Board Department
  - United Microelectronics Corp Fab8D factory
  - Toppan CFI
2. Traditional Manufacturers
- Minnesota Mining and Manufacturing Co. Taiwan, Yangmei factory
3. Professional Services
- Wan Fang Hospital
  - Fortune Energy Corp
- Ditmanson Medical Foundation Chia-yi Christian Hospital
4. General Services
- Dayeh University
  - Taiwan High Speed Rail Corporation
  - Hotai Motor Corp.
  - Tamkang University
5. Small and Medium Enterprises
- O'right International Corp.

## Water Quality

# Heavy Fines for Illegal Operators Who Damage Algal Reefs

An in-depth inspection of Dayuan Industrial Park and Guanyin Industrial Park in Taoyuan County from April to September 2012 revealed that contracted wastewater treatment plant operators were responsible for illegally dumping wastewater. These operators have been taking advantage of a loophole in the law, since at present only the enterprises registered as being based in the parks are governed by industrial park regulations. The EPA intends to fine these illegal operators and confiscate their illegal gains according to the *Administrative Penalty Act*.

A special feature of the Taoyuan County coastline is its algal reefs. In order to protect these reefs, the EPA has drawn up an algal reef pollution source monitoring and control plan for the area. As part of the plan, from April to September 2012, the EPA conducted 195 inspections of listed factories and issued 81 warnings: a violation rate of 41.5%. Of the violators, Fu Hsun Fiber Industries Co. Ltd., Ching Mei Paper Co. Ltd., and Jun Fang Co. Ltd. were all forced to halt operations due to the illegal dumping of wastewater. The inspectors discovered that these enterprises were storing untreated wastewater in huge tanks and then discharging it at night – sometimes after diluting it with groundwater – through sanctioned drainage systems. In the past, the more common practice was to use non-sanctioned drainage systems.

1. Some owners of wastewater treatment plants in industrial parks have been employing outside contractors to store untreated wastewater in huge tanks and then illegally dump it at opportune times. If the violation comes to light, then the contractor invariably takes responsibility.

2. The wastewater storage tanks are often in hidden places where inspectors are unlikely to look, and the wastewater is discharged at night through the normal drainage system.

3. Wastewater has been diluted with groundwater or tap water mixed with factory cooling water. Strong oxidants are sometimes also added to disrupt effluent water quality tests.

4. Some enterprises have been diverting their industrial wastewater through drainage pipes that do not have a flow meter installed, resulting in recorded volumes of discharged wastewater lower than the true figures.

5. Some enterprises have not waited for their water pollution prevention measure plans to be approved before beginning discharges of effluent.

All industrial park enterprises and outside contractors who are caught engaging in such activities described above will be penalized according to the *Administrative Penalty Act* and their illicit gains will be confiscated.



▶ Wastewater and sludge being stored illegally on a rooftop

## News Briefs

### Star Level Certification Now Available for Healthy and Environmentally Friendly Restaurants

Statistics show that every year in Taiwan, restaurant customers consume 4.6 billion pairs of single-use chopsticks and 1 billion plastic bags. The resource use and environmental impacts related to such consumption is enormous. In order to create an eco-friendly and healthy dining environment, the EPA held a press conference to launch the "Green Restaurants Demonstration Plan," which will assess the environmental performance of restaurants according to five facets: namely, complying with environmental and health regulations, waste reduction, electricity conservation, water saving, and green procurement. The results of these assessments will be shown by the number of stars awarded to each restaurant, and a list of restaurants winning more than three stars will be posted on the EPA's webpage dedicated to green living information for the reference of consumers. Many restaurant owners and representatives of restaurant associations attended the press conference

to show their support for the EPA's new scheme. Under the witness of the Deputy Director of the Department of Supervision, Evaluation and Dispute Resolution of the EPA, these restaurant owners and association representatives signed their names to declare their support, while expressing their willingness to provide discounts to customers to encourage them not to use single-use tableware.

### Foreign Experts Invited to Exchange the Newest Technologies on Carbon Capture

On 5 November, the EPA held the "2012 International Forum on Accelerated Weathering of Limestone and Mineral Trapping" in Taipei. Professor Greg Rau from the University of California, Professor Alissa Park from Columbia University, and Professor Bogdan Dlugogorski from the University of Newcastle in Australia were invited to share their research results and practical experiences in accelerated weathering of limestone and mineral trapping with Taiwan's scholars, experts, governmental agencies, research institutes and industry.

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