



Environmental Policy Monthly

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

Feature Article

Resource Recycling Policy - Promoting Eco-Industrial Parks

Going a step beyond the conventional concept of waste management, Taiwan is drawing on other nations' concepts of sustainable materials and implementing resource recycling policy through the promotion of eco-industrial parks. These parks are designed to create sustainable energy and resources links between factories, industrial parks and different industries as a strategy to minimize environmental impacts while maximizing the cycling and reuse of resources.

In recent years sustainable development has taken center stage in the international arena, and great strides have been made toward achieving the goals of zero waste, energy conservation and carbon reduction. International trends have evolved to embrace a more comprehensive picture of materials management. In response, domestic management of waste not only emphasizes appropriate treatment, but even more importantly, the concept of regarding waste as a resource. This new way of thinking is evident in the EPA's merging of two acts—the Waste Disposal Act (廢棄物清理法) and the Resource Recycling Act (資源回收再用法)—into the "Waste Resource Recycling Promotion Act" (廢棄資源循環促進法). The new Act incorporates related environmental concepts such as product life cycle management.

Eco-Industrial Parks to Achieve Zero Waste

In responding to related environmental protection trends, each nation has begun developing numerous policies and measures for managing waste and resources. One of the most important strategies is the concept of resource-cycling eco-industrial parks.

There are two definitions of eco-industrial park (EIP) in the international arena. One definition is a group of collaborating businesses working together with local communities to efficiently share resources in a way that offers economic gains, improves environmental quality, and promotes fair use of commercial and local community resources. Another definition is an industrial system designed for the sharing of resources

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and energy to minimize consumption of energy and raw materials, reduce waste, and establish sustainable operations and social relationships.

Establishing Green Supply Chains between Factories, Industrial Parks and Industries

EIPs differ from conventional industrial parks in that they expand the life cycle concept to emphasize optimal planning of energy and resources throughout the entire industrial park. Consideration must be given to the environmental impacts of each factory and product, including each stage of the life cycle from obtaining raw materials to disposing of or reusing materials after they have been used. Equally important is to minimize the environmental impacts of all supply chains in the industrial park or region. This requires thinking beyond just clean production of one factory or creating one single green supply chain, and requires building links between the inputs and outputs of factories, industrial parks and different industries. Each facet of production requires a whole systems approach to planning appropriate cycling, and integration of energy and resources. Whereas waste treatment processes for each factory in a conventional industrial park are unrelated, EIPs are planned in such a way that makes numerous by-products available for direct sharing between factories, keeping all materials in an interconnected cycle (see chart).

The main reason for the rapid development of EIPs around the world is that they are instrumental in helping nations effectively manage their waste and materials, while conserving energy, reducing carbon, cutting down on water use, promoting green community development, raising public environmental awareness, enhancing the greenery and aesthetic appeal of the nearby environment, and achieving urban sustainable development goals. EIPs contribute to regional industrial and economic development while minimizing impacts on the environment and ecology, creating an ideal living environment that combines production, livelihood and ecology into one whole.

Providing Tax Cuts and Subsidies, Establishing Communication and Cooperation Mechanisms

To achieve the above goals, EIPs adopt the following six strategies: 1) administrative regulations: enforce

implementation through laws and administration; 2) economic incentives: offer tax cuts or subsidies; 3) information: provide information on energy and resource sharing and cooperation models; 4) technical guidance: assist in recycling resources, environmental technology research and development, and technical consulting; 5) partnerships: establish good communication and cooperation mechanisms between governments, factories, communities, organizations and residents; 6) environmental education: raise environmental awareness of governments, factories, and residents.

Apart from Kalundborg in Denmark which was established as the world's first EIP, other nations including Canada, U.S., France, Holland, China, Japan and Korea have begun establishing EIPs. Japan has taken the zero emissions concept a step further through the successful establishment of a leading model called "Eco-town." By the end of 2009, already over 200 EIPs had been established worldwide.

Among the EIPs established around the world include Kalundborg in Denmark, Industrial Eco-System (INES) in Holland, Synergy Park in Australia, Eco-Town in North Kyushu, Japan, and Ulsan Eco-Industrial Park in Korea. Comparative parks in Taiwan include the Kaohsiung Environmental Science and Technology Park (ESTP) and the Linhai Industrial Park. Factors determining the successful promotion of EIPs can be delineated into two categories: process factors or materials factors. Process factors include regarding EIPs as environmental or economic plans, degree of local support, and level of participation by a number of players including local and central governments, local business alliances, communities, and local industries.

Material factors include infrastructure for exchanging by-products and waste, energy cascading and cogeneration, water resource infrastructure, information technology, and sharing of public facilities. Apart from the two key factors involving process and materials, there must also be active involvement of factories in the park, sharing of necessary planning costs between governments and factories, and systems for sharing public facilities to ensure EIPs are successful in the long run.

Four ESTPs and Nine Industrial Park Resource Recycling Networks Established

The EPA has begun promoting the EIP concept by assisting Kaohsiung, Hualien, Taoyuan and Tainan governments to establish Environmental Science and Technology Parks (ESTPs). Resource recycling networks have been established in the following nine industrial parks to facilitate the reuse of waste and resources and work toward the goal of zero waste: Linhai Industrial Park, Linyuan Industrial Park, Taoyuan Industrial Park, Hsinchu Science Park, Taichung Harbor Related Industrial Parks, Benjhou Industrial Park, Hsinchu Industrial Park, Changhu Coastal Industrial Park and Yongan Industrial Park.

Taiwan's ESTP plans promote the introduction of six key green industries that focus on the following:

1. Clean production technology, for example, assembly and manufacture of green electronics products that are small and have lead-free and halogen-free solder
2. Recycling resources, for example, recovering rare heavy metals from waste catalysts or reusing wood products as raw materials for particleboard
3. Transforming renewable resources into renewable products, for example, using sludge from water

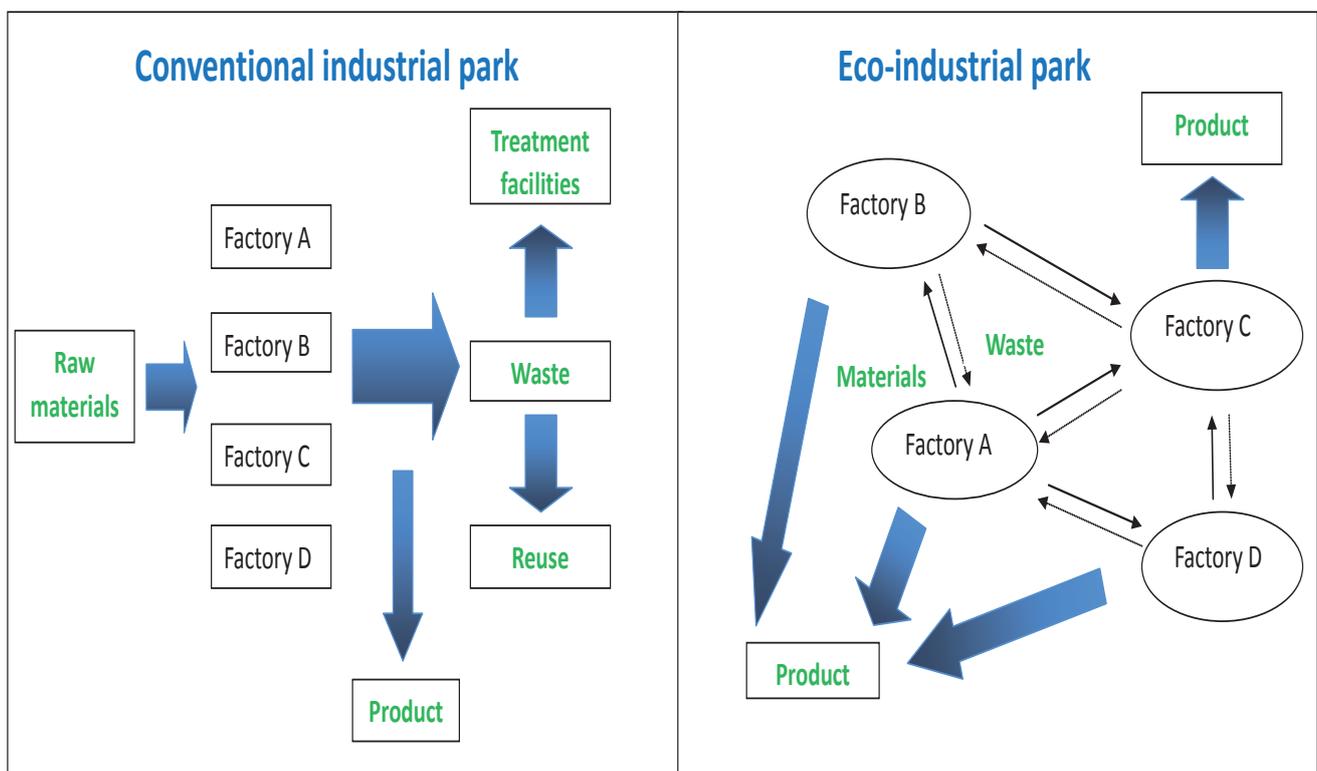
purification processes to manufacture permeable bricks

4. Newly emerging or strategic environmental technologies, for example, high-grade wastewater treatment technology development and technical consultation service

5. Renewable energy products and systems, for example, manufacture of wind power components or development of solar cell accessory products

6. Critical areas of environmental protection, for example, research, development and manufacture of high-grade filtration membranes for wastewater treatment

In the future the EPA hopes that further promotion of EIPs will help integrate Taiwan's many years of experience with pollution prevention technology to create a green industry that is competitive on an international scale. The development of integrated industries that cycle resources and sustainable cycling between rural and urban resources is expected to achieve a balance between production, livelihood and ecology, and foster sustainable development of society.



▶ Chart: comparing conventional industrial parks and eco-industrial parks

Health and Sustainability: Two-Year Review of the EPA under the Ma Administration

Since President Ma entered office on 20 May 2008, the EPA has proposed 172 tasks based on the president's environmental agenda of "health and sustainability." In the past two years, the government has devoted every effort to support President Ma's views on environmental protection. Despite the global financial crisis and heavy damage inflicted by Typhoon Morakot, government and citizens have worked hard together to complete 105 of the 172 tasks. In fact, a great diversity of accomplishments have been achieved including the establishment of the Ministry of Environment and Natural Resources, legislation in support of environmental education, greenhouse gas reductions, strengthened remediation of rivers, waste reduction and recycling initiatives, and campaigns to clean up residential areas.

The EPA has listed some of the most important accomplishments over the last two years:

Establishment of basic infrastructure:

1. Since the third reading of revisions to the Organic Act of the Executive Yuan (行政院組織法) passed on 12 January 2010, the EPA has been planning to merge resources and conservation affairs through the official establishment of the Ministry of Environment and Natural Resources in 2012.

2. Legislation of the Environmental Education Act (環境教育法) was completed on 18 May 2010, making Taiwan one of the few nations in the world to enact an environmental education bill.

3. The "Working Guidelines for Environmental Impact Assessment Public Briefings" and the "Working Guidelines for Environmental Impact Assessment Public Hearings" were drafted to further information transparency, and engage mechanisms allowing citizens to join panels of experts during meetings. These guidelines have successfully resolved disputes and can be applied to other areas of environmental protection disputes. The establishment of the Ministry of Environment and Natural Resources and the legislation of the Environmental Education Act are significant accomplishments that will turn a new page in the development of environmental protection work in Taiwan.

Greenhouse gas emission reductions:

1. The EPA: continued working with the Legislative Yuan to expedite progress on legislating the Greenhouse Gas Reductions Act (draft); supported the Copenhagen Accord, by submitting Taiwan's reduction targets (reduce greenhouse gas emissions

30% by 2020 under a business-as-usual (BAU) scenario); set a goal to reduce carbon emissions to 2005 levels by the year 2020; and achieved negative growth of carbon dioxide emissions in 2008 and 2009 (-4.4% and -5%, respectively).

2. The EPA continued promoting the greenhouse gas inventory registration management platform which has attracted 250 companies that account for 73% of industrial and energy sector emissions.

3. The EPA strengthened international cooperation in carbon rights affairs, planned carbon trading and encouraged corporate carbon reductions. So far voluntary reductions have reached 3,300 tonnes.

4. The EPA announced the Taiwan Carbon Footprint Labeling system, making Taiwan the eleventh country to promote such a system.

Promotion of low-carbon homeland and green transportation:

1. Active promotion of low-carbon communities and cities has led to the signing of the "Energy Service Strategic Alliance" and the "Electric Vehicle Strategic Alliance," which successfully introduce the industry to participate in low-carbon community building mechanisms.

2. Promotion of liquid petroleum gas (LPG) dual fuel vehicles has led to the use of over 21,000 such vehicles on the road, and the establishment of 38 fueling stations.

3. The commodity tax for hybrid vehicles was cut in half to increase public willingness to purchase these vehicles.

Resource recycling and zero waste:

1. The garbage clearance volume in 2009 decreased 52.44% compared to 1998, while the garbage recycling rate reached 45.49%.

2. Incineration plants have been gradually transformed into local biomass energy centers that gasify wood, garden and agricultural wastes for the generation of electricity. The EPA has already completed 24 incineration plant efficiency evaluations to facilitate technology transfer.

3. Promotion of Environmental Science and Technology Parks (ESTPs) has attracted private investment of NT\$18.6 billion, generating a total production value of over NT\$34.2 billion, and creating 2,575 jobs.

Expedited river remediation:

1. The percentage of unpolluted river segments increased from 61.8% in 2007 to 67.2% in 2009, while the percentage of seriously polluted river segments dropped from 6.7% to 5.9%.

2. The EPA completed construction of 93 in-situ treatment facilities and executed urban river restoration and remediation work on the Fengshan River in Kaohsiung County

3. The EPA assisted efforts to improve river water quality and revitalize riverbanks. Remediation of nine major rivers including the Danshui River resulted in dissolved oxygen content greater than 2 mg/l, and weighted percentage of acceptable data at 87.1%, exceeding the 2009 target of 82%. The overall goal is to expedite the return of rivers that do not lack oxygen, do not have odors, and have banks teeming with life.

Promotion of green consumption:

1. Total spending on green procurement by government agencies in 2008 and 2009 exceeded NT\$13.9 billion, and green procurement comprised 90.4% of spending on categories in which green products are available, exceeding the annual target of 88%.

2. Over 8,600 convenience stores and other retailers were assisted to become "Green Shops," making green consumption available around the clock and in all locations.

Neighborhood clean-up:

1. The EPA completed the EcoLife Web site, which focuses on cleaning up residential environments, developing an environmental volunteer mobilization system, and promoting a three-tier mobilization program to mobilize village, township, city and county personnel. The Web site receives an average of 10,579 hits per day, while cumulative total blogs established by all counties and cities reached 1,057,564. The Web site has promoted the adoption of clean-up routes with voluntary patrols recording a total of 407,197 sets of data. These efforts will help attain the goal of enhancing the beautification of residential environments.

2. The EPA promoted the "Public Restroom Sanitation Quality Enhancement Plan," regulating over 40,000 public restrooms and making comprehensive improvements. To date over 35,000 public restrooms have been upgraded into top grade facilities.

Future prospects call for consolidating the strengths of all fields to put President Ma's environmental agenda into effect and firmly uphold his stance on environmental protection. This includes building social consensus and accelerating the completion of unfinished tasks on the President's political agenda to protect Taiwan's environment, create a healthy sustainable society, and advance national sustainable development.

Toxic Substance Management**EPA Drafts "Environmental Sanitation and Beautification Promotion Act"**

In recent years residents have placed increasing importance on environmental sanitation, visual beautification, and overall quality of residential environments. To ensure each level of government actively improves

environmental sanitation and visual aesthetics to create peaceful, attractive and healthy living environments, the EPA has formulated the draft Environmental Sanitation and Beautification Promotion Act (環境衛生及美質促進法).

The main framework of the Environmental Sanitation and Beautification Promotion Act (draft) reinforces integration of central and local management mechanisms through the "Environmental Sanitation and Beautification Guidelines" drafted by the EPA, "Environmental Sanitation and Beautification Management Plans" drafted by county and municipal governments, and "Environmental Sanitation and Beautification Promotion Plans" drafted by local administrative offices. These regulations will enforce greening and beautification of public and private vacant lots, maintenance of billboards, signs, and utility poles and lines, as well as maintenance and management of sanitation in vacant lots, vacant buildings, and public restrooms. The new Act is seen as a way to solve current problems of environmental unkemptness and reach the goal of creating a beautiful and harmonious environment.

In recent years the government has initiated active efforts to improve environmental sanitation, including the elimination of garbage, maintenance of sanitation at public toilets, upkeep of unkempt areas, cleanup of residential areas, elimination of breeding spots for vector mosquitoes, removal of illegal advertisements, clearance and maintenance of scenic areas, and environmental cleanliness performance evaluation, inspection and enforcement. While implementation

of the above measures has already met noticeable results, there is still much room for improvement in terms of environmental sanitation and visual aesthetics. The disorganized billboards and signs, untidy vendor stalls, littered streets, disarranged utility poles and lines, and cluttered fire escape alleys are all problems that need to be solved in order to uphold environmental sanitation and the appearance of the city.

Current management of environmental sanitation and visual aesthetics is regulated by ordinances set by different ministries, making it difficult to clarify responsibility and work to the greatest overall effect. While some county and city governments stipulate environmental cleanliness and maintenance through local government ordinances, it was deemed necessary to draft the Environmental Sanitation and Beautification Promotion Act in order to thoroughly solve the abovementioned problems on a national level. The Act would integrate the powers of each government ministry to actively promote environmental sanitation and beautification. The main objective of the Act is to enhance the overall sense of serenity and beauty in living environments throughout Taiwan, and ensure that all residents can live in attractive, healthy and peaceful neighborhoods.

Air Quality

VOC Air Pollution Controls and Emission Standards under Revision

Working to strengthen controls on volatile organic compounds (VOCs), the EPA issued a preannouncement on 5 May 2010 regarding draft revisions to the Volatile Organic Compound Air Pollution Controls and Emission Standards (揮發性有機物空氣污染管制及排放標準). The content of revisions is online at <http://ivy5.epa.gov.tw/epalaw/index.aspx>.

The EPA stated that air quality monitoring data over the past several years indicates air pollution control measures have led to gradual improvements in terms of pollutant concentrations throughout Taiwan. The exception to this trend is ozone, which is continually increasing in concentration. The number of days in which ozone is causing poor air quality is also on the rise. Data from the EPA's photochemical assessment monitoring stations indicate that

concentrations of certain pollutants with high ozone formation potential (OFP) are still high. In order to reduce ozone air pollution it is necessary to revise emission standards and strengthen VOC pollutant emission inspection and control work.

A significant part of the revisions to these standards focuses on petrochemical industry flare stacks that are installed to vent gases during emergency

conditions. Flare stacks are not considered a part of air pollution prevention equipment, making it necessary to regulate the times and number of days they are used. Companies with emissions entering flare stacks in excess of the specified volume will be required to submit reports on the conditions under which flare stacks are used, as well as additionally install monitoring equipment to understand the content of emissions from flare stacks and operating conditions. Revisions also cover guidelines for minimal emission plans, which require annual reductions

of emissions, and set forth control standards that encourage enterprises to install flare stack emission recovery systems.

Consideration has been given to the time required to improve existing pollution sources and manufacturing processes. Existing facilities should conform to standards within a year after this revision takes effect, and all new facilities should conform to standards once this revision takes effect.

Air Quality

2010 Green Motor Vehicles Announced

The EPA has chosen seven cars and nine scooters as environmentally friendly vehicle models for the year 2010. Consumers are welcome to refer to this evaluation when selecting a vehicle to purchase. Related information is posted on the Internet for people to research further.

The EPA held the "2010 Green Car and Scooter Awards" and display event on 18 May 2010. Citizens are reminded to walk, bicycle or use mass transportation systems whenever possible, but if it is necessary to use a motor vehicle, an environmentally preferable model should be chosen to help improve environmental air quality, save energy and reduce carbon emissions.

The EPA stated that the green car selection referred to the US SmartWay environmental labeling methods by developing a chart to evaluate the level to which 2010 car and motorbike models are environmentally friendly, based on vehicle pollution emissions, noise, and fuel consumption. This chart was used to select the best of 164 car models and 63 scooter models available in 2010. The seven selected environmentally friendly cars were Luxgen MPV (electric), Lexus RX450H (hybrid), Toyota Prius (hybrid), Mercedes-

Benz S400 (hybrid), Nissan TIIDA C11, Honda CR-V 2.0 VTi-S, and Toyota (KuoZui Motors) Camry 2.0E. The nine selected environmental scooters were E-Ton Power e-MO (electric), Kymco SunBoy (electric), CMC Motor e-moving (electric), Yamaha JOG CIAO, Yamaha Breeze, Yamaha CUXI, SYM Tini 100, Kymco MANY FI 110, and Yamaha BW'S X.

The EPA has posted the results of this green car evaluation on the online Green Car Directory (<http://car.itri.org.tw/GreenCar/GreenCar.aspx>). This Web site features several specialized Web pages, including information on the Three Lows of each vehicle model (low pollution, low noise, and low fuel consumption). Consumers need only select "Green Vehicle Search" of this Web site, and further select "car/motorbike" or "model" to find more information. This site allows users to see whether the model they wish to purchase is considered a green vehicle.

Eco-labeling

Carbon Footprint Label Application System Launched

In an effort to encourage businesses to display the carbon footprints of their products and services on carbon labels, the EPA announced related application procedures and officially launched the Taiwan Product Carbon Footprint Web site (<http://cfp.epa.gov.tw>) on 6 May 2010. Businesses are now able to use the electronic application service to obtain Product Carbon Footprint Label Certification. Businesses that file an application and submit all related documents before the end of the pilot stage on 31 December 2010 will be exempt from paying review fees and certification fees.

Global warming and climate change have become important issues in the international arena and

all nations are analyzing the carbon footprints of products throughout their life cycle, and displaying this

on carbon footprint labels to encourage low-carbon consumption. Taking action on global warming, the EPA announced the Taiwan Carbon Footprint Label on 15 December 2009, and has since completed product carbon footprint labeling guidelines and standard procedures to apply in the pilot stage. Businesses are now able to apply for Product Carbon Footprint Label Certification. After applications pass the EPA review process, the label can be applied to products, packaging, service premises, or other marketing media to show carbon label and carbon footprint data.

The Taiwan Carbon Footprint Label shows data about the carbon footprint of the product, including greenhouse gas emissions generated throughout each stage of the product life cycle, i.e., raw materials extraction, manufacture, transport, marketing, product usage and recycling at the end of the product's lifetime. This is represented in a single number by calculating the carbon dioxide equivalent (CDE). In order to implement energy conservation and carbon reduction, businesses are required to make a detailed inventory of greenhouse gas emissions at each stage throughout the life cycle of each product or service (for example, the hotel industry). Each business

should find opportunities to reduce emissions at each stage of manufacture or along the supply chain, and show this data on carbon footprint labels to help consumers understand the meaning of product carbon footprint, so that they can do their part to reduce carbon emissions when using and disposing of the product.

On 10 May 2010 the EPA launched the Product Carbon Footprint Web site to introduce the concept of product carbon footprints and the Taiwan Carbon Footprint Label application system. The site also provides a personal lifestyle carbon footprint calculator and announces related developments and activities regarding domestic product carbon footprints. The public is encouraged to browse this Web site.

Businesses interested in applying for the Product Carbon Footprint Label Certification can download related information from the Product Carbon Footprint Web Site and send in their application to the Taiwan Environmental Management Association's Product Carbon Footprint Label Program (6F-1, No.48, Baociao Rd., Hsindian City 23145, Taipei County) or call 02-29122910 for more information.

Environmental Analysis

Free Allergy Tests with New Chip for Infants

The Environmental Analysis Laboratory has successfully developed a chip that can rapidly detect allergenic fungi spores. As children aged 5–10 are the most prone to suffering from allergies, the EPA prioritized testing in indoor environments most frequented by these children and starting in May 2010 provided free testing in 100 schools nationwide.

The EPA's Environmental Analysis Laboratory (EAL) worked together with the Department of Medical Laboratory Science and Biotechnology, Medical College of Cheng Kung University to develop a chip that can rapidly detect the presence of allergenic fungi. This chip will be instrumental in testing for 21 of the most common types of airborne allergenic fungi in indoor environments in Taiwan. This technology is proven effective in determining the presence of potential allergens in indoor settings.

This indoor air "allergenic fungi rapid detection chip" (allergy detecting chip) has been tested and the sensitivity to all the 21 target fungi was 100% while the specificity also reached 98%. As this is the only test available in the world, the EAL has sent a manuscript

of the test results to an international journal, and applied for a domestic patent.

The EPA pointed out that Taiwan provides an ideal environment for fungi and the commonly seen fungi may be different from those in other countries, therefore there is no reliable reference available elsewhere. The allergy-detecting chip was a result of three years of studies involving long-term surveys on the distribution of fungi spores in domestic air. Twenty-one of the most frequently occurring harmful species were selected to develop a rapid-screening chip that is especially suited to detecting fungi species in Taiwan.

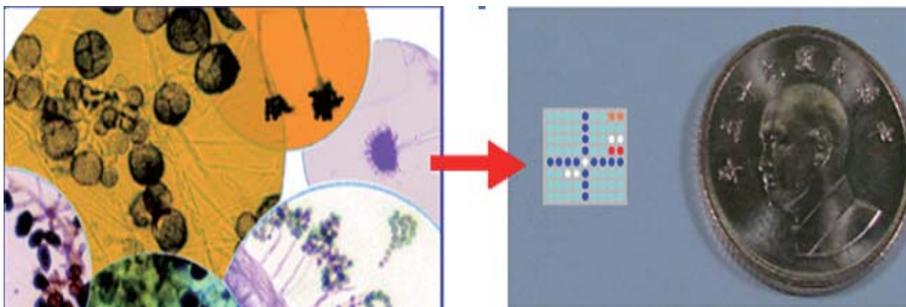
In as short as three to five days, this chip can detect

the presence of pathogenic or allergenic fungi in indoor air. Conventional methods require testing for each individual type of fungi, a process that takes one month. Comparatively speaking, the new chip not only provides a high degree of specificity, but is low-cost and saves time and human resources. The chip technology can be applied to rapid screening over a large set of samples and confirm presence over a wide range of surveys.

Research shows that Taiwan is similar to the US in having fungi contamination in over half of all indoor environments. About 30% to 50% of fungi spores found in indoor environments cause respiratory problems including sneezing and coughing, and

21% of asthma cases are caused by certain types of microscopic airborne fungi spores. As children aged 5~10 are the most susceptible to allergies, the EPA has prioritized testing of public indoor areas most frequented by this age group.

The EAL indicated that it has completed free testing service for a total of 100 schools in northern, central and southern Taiwan since May 2010. If this plan is implemented successfully in the future, the EAL will not rule out the authorization or transfer of this patented technology to accredited environmental testing organizations to make this service more widespread.



▶ *Smaller than a one New Taiwan Dollar coin with a diameter of 2 cm, the "allergy detecting chip" is capable of detecting 21 types of allergens.*

Environmental Sanitation

Environmental Cleanup and Beautification Stewards Return to the Streets

In May and June 2010 the EPA held this year's annual Environmental Cleanup and Beautification Stewards meetings in northern, central, southern and eastern Taiwan, respectively. EPA Minister Stephen Shu-hung Shen personally attended the meetings to hand out EcoLife pins and patrol bags to each steward, as well as announced the official entry of new stewards that have dedicated themselves to enhancing the quality of residential living environments.

Cleanup and beautification stewards have returned to the streets to assist city and town municipalities with promoting clean living environments, reducing disease vector breeding spots, enhancing the quality of recreation facilities, and protecting the environment at the village and borough level. The stewards pursue the goals to: "inspire mobilization," "patrol and inspect," "clean and maintain," and "update Web site."

Based on the outstanding results of promoting the cleanup and beautification steward program in 2009, localities have continually conveyed that they wish to

continue this program. In 2010 the EPA hired 1,234 unemployed citizens as cleanup and beautification stewards through the Council of Labor Affairs' Multi-Employment Promotion Program. Their job is to help villages and boroughs establish a mobilization system, promote clean residential environment patrol and energy conservation and carbon reduction work. The plan effectively used human resources and raised the employment rate while improving the health and environmental quality of living environments.

The EPA expressed that the cleanup and beautification stewards assist village and borough

chiefs and cleaning units to patrol living environments and put related environmental information on the EcoLife Web site (<http://ecolife.epa.gov.tw/>), which helps build an overall picture of health and environmental quality. Unkempt spots are reported to government agencies of all levels, which can use this Web site to show concrete measures they have made toward environmental protection. The Web site provides the public with the information they need, while the public, corporations, and volunteer organizations can use the site to display actions of care for living environments. The EcoLife Web site also provides the government and citizens with a mutual communication and information exchange platform with the goal of enhancing the overall quality

of environmental sanitation in Taiwan.

The EPA strives to encourage cleanup and beautification stewards to take up the task of village and borough cleanliness, work together to raise the overall quality of rural and urban living environments, and create a vision for a sustainable high quality environment. This was the goal behind this year's "Cleanup and Beautification Steward Pledge Rally to Enhance Village and Borough Cleanliness." The EPA announced that the cleanup and beautification stewards will be back on the streets again to enhance the cleanliness and beauty of village and borough environments.

Waste Management

General Waste Resource Recycling Promotion

The evolution of Taiwan's garbage treatment policy can be traced over the years. The "Urban Garbage Treatment Plan" in 1984 called for landfilling as the primary method of treatment. The "Garbage Treatment Plan" in 1991 shifted to incineration as the main means of treatment and landfilling as an auxiliary method. The "Resource Recycling Four-in-One Plan" in 1998 went a step further by employing a recycling fund and market mechanisms to increase people's willingness to recycle, while also expanding the scale and performance of recycling operations. After the "Review and Prospects of the Garbage Treatment Plan" in 2003, a "Zero Waste" policy was adopted based on source reductions and resource recycling. This policy promotes green production, green consumption, source reductions, recovery, reuse and recycling to ensure efficient cycling of all resources.

After the Executive Yuan approved of the "General Waste Resource Recycling Promotion Plan" in March 2007, considerable effort went toward promoting "Zero Waste" and six other focal tasks. By 2009 accomplishments had been made in the following areas:

1. Enforced sorting of waste: Local governments received subsidies to purchase 177 recycling trucks; annual volume of recycled resources reached 2.74 million tonnes for a recycling rate of 35.34%, exceeding the annual target of 1.76 million tonnes and a recycling rate of 33%.
2. Diversified reuse of food waste: Annual volume of recycled food waste reached 720,000 tonnes, averaging 1,977 tonnes per day, exceeding the annual target of 1,900 tonnes per day.
3. Diversified reuse of bulk waste: Over 65,000 tonnes of bulk waste were recycled throughout the year, averaging 179 tonnes per day. About 23,000 used home appliances and pieces of furniture made

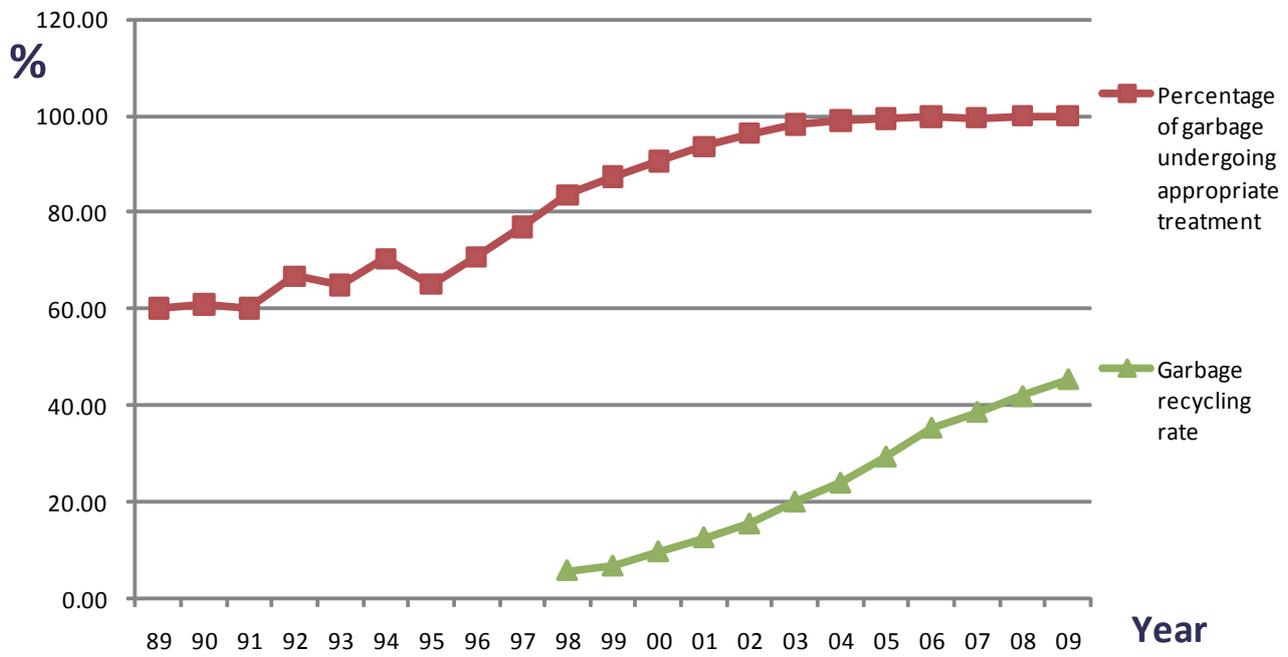
from used materials were sold throughout the year. This exceeded the annual target of 46,000 tonnes and 20,000 sales of recycled furniture and appliances.

4. Reuse of waste from interior decoration remodeling: The average daily volume of recycled remodeling waste reached 47.51 tonnes, exceeding the annual target of 16 tonnes per day.
5. Zero waste: Total area of rehabilitated garbage landfills reached 28.2 hectares.
6. Septic waste treatment facilities: Total treatment capacity has reached 1,490 tonnes per day, exceeding the annual target of 1,100 tonnes per day.
7. Replacement of aged garbage clearance vehicles: A total of 1,101 vehicles were replaced by the end of 2009, resulting in enhanced clearance efficiency, reduced maintenance costs and fewer repairs.

Implementation of the above plans has resulted in a

45.49% garbage recycling rate in 2009, exceeding the annual target of 42%. The average daily per capita garbage clearance volume dropped from 1.143 kg in 1997 to 0.501 kg in 2009, or 52.44% lower than the highest volume recorded in 1997. The waste reduction also achieved the 2009 target of 48% set by President Ma Ying-jeou during his election campaign. Meanwhile, the percentage of appropriately treated

garbage has soared from 2.4% in 1984 to 99.98% in 2009. All of these accomplishments play a part in greatly reducing the burden on garbage treatment facilities and the need to establish more facilities. These results also serve as a firm foundation for the setting of further waste reduction targets that will expedite the attainment of resource recycling and zero waste goals.



► Garbage treatment statistics over the years

News Briefs

Legislature Passes the Environmental Education Act

The Legislative Yuan passed the Environmental Education Act (環境教育法) on 14 May 2010, making Taiwan one of the few nations in the world to legislate an environmental education bill. This fulfills one of the items on President Ma's political agenda as he completes his second year in office. It also marks a significant milestone in the history of environmental protection in Taiwan.

The Act will take effect one year after its promulgation to provide a grace period during which the EPA will continue to set enforcement rules and accreditation methods for environmental education staff, organizations, facilities and sites. Regulations will be drafted for environmental education plans and an online reporting system, environmental lectures and curriculum planning, standards for issuing penalties, and collection, management and operation of an environmental education fund. Other details include related bylaws and follow-up measures on environmental education guidelines, and environmental education action plans. The creation of related regulations will be made transparent to

the public and views from all circles will be solicited in hopes of making a bill that can be successfully implemented and reflect the efforts of all involved (please see Environmental Policy Monthly Vol. 13, Issue 5 for more information).

Establishing Government Integrity to Build a Clean Taiwan

Since his inauguration on 20 May 2008, President Ma Ying-jeou has demonstrated his resolve to push for clean governance, taking integrity, professionalism, sustainability and equitable distribution of wealth as the administration's guiding principles, and asking that public servants uphold the core values of integrity, professionalism, effectiveness and compassion. Some of the main policies include:

1. Establish a Central Integrity Committee
2. Request local governments to establish integrity committees
3. Implement the Integrity and Ethics Directions for Civil Servants

4. Implement the Sunshine Laws: Lobbying Act, Political Donations Act, Act on Property-Declaration by Public Servants, and revise the Act on Refusal of Public Servants Due to Conflicts of Interest.

5. Amend the law to designate as a crime "refusal of those indicted for corruption to explain sources of assets," stipulating that such persons are obligated to explain to prosecutors the sources of unusual increases in assets.

6. Refer to other examples of similar legislation including the UN Convention Against Corruption, German and Japanese criminal laws, and Hong Kong's anti-bribery regulations, and designate "bribery without violation of duties" as a crime for public servants who do not violate work rules, but perpetrate bribery or other fraudulent behaviors.

7. Amend the Money Laundering Control Act to bring it into line with the International Convention for the Suppression of the Financing of Terrorism and the Nine Special Recommendations on Terrorist Financing issued by the Financial Action Task Force on Money Laundering (FATF).

8. Promulgate the National Integrity Building Action Plan.

Top Performing Counties and Cities in Environmental Protection

The EPA announced performance evaluation results for county and municipal environmental protection bureaus (EPBs) based on 19 indicators including air quality improvement and ensuring clean water resources. The top eight EPBs were Taipei City, Taipei County, Taoyuan County, Hsinchu County, Taichung City, Taichung County, Tainan City and Yilan County.

Apart from overall good performance and compliance with implementing policies set by the EPA, the eight top performing EPBs displayed innovation in working with their own unique local resources. For example, Taipei City drew on its status as a large metropolis to develop a creative way of enforcing strict emission control measures for vehicles that drive illegally in bus lanes. Taoyuan County initiated a quick four-hour service to remove and recycle bulk waste with great efficiency. Hsinchu County drew on its rich ecological resources for education and recreation by creating a model ecological park. Taichung County actively promoted local patrolling of roads and established patrol blogs in all of its villages and boroughs. Tainan City launched a program to guarantee garbage clearance within a half day after a phone call request has been made. Yilan County held the 2009 Yilan Green International Film Festival in Taiwan to enhance public awareness of important

environmental concepts such as reducing carbon and caring for Earth.

Forum on Carbon Trading and Carbon Financial Development Strategies

On 28 May 2010, the EPA held the "Forum on Carbon Trading and Carbon Financial Development Strategies," inviting US Chicago Climate Exchange (CCX) Vice President Jeff Huang as well as domestic financial sector organizations, industry representatives, experts and scholars in finance and economics. Huang introduced the course of developments at CCX and delivered a keynote lecture on prospects of the global carbon market and experience in establishing trading platforms. The EPA stated that the discussion during this forum, combined with the legislation of the Greenhouse Gas Reduction Act, can contribute to capacity building for making reductions and attaining national reduction targets.

With priority consideration given to promoting domestic greenhouse gas emission reduction plans, the EPA will continue assisting industries to participate in domestic greenhouse gas emission offset programs. The EPA also reminds domestic industries to pay attention to developing trends in international cooperation in carbon reduction and carbon trading markets. Only by taking advantage of opportunities to manage carbon rights can industries capitalize on low costs to reach better reduction results, while simultaneously taking into consideration environmental protection and economic development.



▶ US Chicago Climate Exchange Vice President Jeff Huang (second from left) and EPA Minister Stephen Shu-hung Shen (left)

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