

# Environmental Policy Monthly

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## Feature Article

### *Taiwan's Eco-labelling Scheme Rapidly Matures*

**Over the six years since the launching of Taiwan's eco-labelling scheme, 577 products in 47 product groups have been awarded an eco-label. A total of nearly 1.3 billion individual eco-labels have been used since the program's inception. The system is expected to make even more progress when green purchasing statutes in the *Government Purchasing Act* go into effect next year. Future developments of the eco-label system include linking the system with ISO14020 certification system trends, building in product lifecycle analysis considerations, promoting mutual eco-label recognition with other nations, strengthening eco-label use oversight and management, and promoting initiatives such as "green purchasing alliances."**

Since Taiwan's eco-labelling scheme was launched by the EPA in November of 1993, criteria for 47 eco-label product groups have been established. A total of 577 individual products, produced by 150 different companies, have been certified to carry an eco-label (called the "Green Mark" in Taiwan). Since the program's inception, a total of nearly 1.3 billion individual eco-labels have been used, with a total production value of NT\$25 billion. Compared with the eco-labelling schemes of other nations, Taiwan's system has performed very well (see Table).

Performance of various eco-labelling schemes			
	Years since inception	No. of qualifying product groups	No. of qualifying products
Taiwan, R.O.C.	6	47	577
United States	8	84	281
Germany	20	89	4,485
The Netherlands	6	35	70

Of the 47 product groups for which eco-label criteria have been established, 16 items can be classified as low pollution products, 16 as resource-saving products and 15 as recyclable products. Most products awarded a Green Mark are consumer goods, while some products are being specially promoted by the R.O.C. government, such as electric powered motorcycles and portland cement.

The product groups with the highest number of Green Mark products include

standard water-saving toilets, recycled-paper packaging products, and beverage cans with pull-tab tops. The latter group had the highest individual label usage due to the large consumption quantities in that category.

To accommodate green purchasing statutes that go into effect in May of next year, the EPA plans to strengthen promotion of eco-labels. According to Article 96 of the *Government Purchasing Act*, government approved “green products” can be given priority for purchases and will be eligible for a 10% price margin above comparable “non-green” products. So called “green products” will in most cases be those products that have been awarded a Green Mark.

Taiwan’s eco-labelling scheme is expected to make even more progress when green purchasing statutes go into effect next year. With this in mind, the EPA has set challenging growth targets. By 2001, the number of product groups should be expanded to 70 and the number of individual products qualifying for a Green Mark should reach 900. By 2006, the number of product groups should hit 120, with 2,000 individual Green Mark products. These numbers shall jump again by 2011 (the R.O.C.’s centennial anniversary). By that time, there should be a total of 150 product groups and 3,000 individual products, and a total of 3.3 billion individual labels will have been used. Furthermore, Taiwan’s Green Mark system should, by this time, have achieved mutual recognition with most other eco-labelling schemes in use throughout the world.

To accelerate development, eco-label promotion efforts will be strengthened. Apart from printing and distributing new green product directories and news briefs and improving online information, the EPA has commissioned the Environment and Development Foundation to promote the organization of “green purchasing alliances.” It is hoped that these alliances can integrate the efforts of government agencies, businesses, academia and environmental groups to accelerate the promotion of green products.

Additionally, international cooperation for eco-labelling schemes will be strengthened. This work will include promoting mutual recognition of globally recognized eco-labels, raising product standards and keeping pace with the international community to avoid “green trade barriers.” Other efforts include strengthening oversight and controls on eco-label users to raise the public’s trust in green products.

Other important efforts include reviewing the current development of product standards. In the future, eco-labelling scheme development will more closely follow ISO14020 certification system trends in the international community to develop more reasonable and environmentally sensitive product standards for use in eco-labelling schemes.

A look inside the EPA:

## ***The Bureau of Performance Evaluation and Dispute Settlement***

According to the *Environmental Protection Administration Organization Statutes*, the EPA's Bureau of Performance Evaluation and Dispute Settlement is primarily responsible for developing environmental dispute appraisal and settlement regulations, assisting the appraisal, settlement and appeal of major environmental disputes, evaluating the enforcement of local environmental matters, auditing, evaluating and investigating the management of environmental matters and other items related to the enforcement and evaluation of environmental matters and management of environmental disputes.

In terms of organizational structure, the Bureau has a General Director, Deputy General Director, and three higher-level staff members. Reporting to them are three Divisions. The following are the duties of each Division:

Division I is responsible for evaluating the systems of local enforcement for major national environmental policies, measures, and regulations; tracking and evaluating environmental affair performance appraisal systems and technical development; and, tracking and evaluating internal case development and coordinating environmental performance appraisal work. Other duties include planning, research & development, implementing and auditing eco-label technology and systems, promoting the establishment of environmental management standards and all other matters not listed as the responsibility of the other Divisions.

Division II is responsible for investigating, coordinating and analyzing environmental matters, investigating and evaluating the management of environmental appeal related cases, inspecting the certification of environmental engineers and all matters related to environmental pollution source control reexamination. It is also responsible for supervising the collection of environmental fees and carrying out various administrative duties related to government reengineering.

Division III is responsible for drafting, amending and disseminating laws related to public dispute appraisal and management, collecting and managing public dispute management information, assisting the appraisal, management, auditing and evaluation of public disputes, developing public dispute appraisal and management technology and researching and planning systems for public dispute settlement.

## ***EPA Sits Down with High-tech and Environmental Firms***

**With the world economy slowing, the EPA and various high-tech firms held a forum for businesses to air their views on environmental policies and for the EPA to explain current**

**environmental policies and the direction of future streamlining efforts. The EPA also said it would consider the semiconductor industry's request for a one-year buffer before volatile organic substance controls go into effect.**

With the world economy slowing and competition increasingly fierce, high-tech businesses are more than ever aware of environmental regulatory pressures. To give businesses a chance to air their views, the EPA and various high-tech businesses recently held a forum attended by industry representatives in such areas as semiconductors, electronics, precision machinery and environmental consulting/engineering. According to EPA officials, the forum gave them an opportunity to take in the views of businesses and to explain current environmental policies and the direction of future streamlining efforts.

Many issues were raised by businesses during the forum. Among them, the semiconductor industry suggested that, as pollution controls have been steadily tightened over the past year, administrative requirements should be tied to overall socioeconomic considerations. One example given was the EPA's plan to bring volatile organic compound (VOC) emissions by the semiconductor industry under control. As pollutant concentration level detection instruments that must be installed according to the draft *Semiconductor Manufacturing Industry Air Pollution Substance Control and Emission Standards* are not yet commercially available, companies will be in violation of the draft as soon as it goes into effect.

In addition, the draft stipulates that, in terms of air pollution emission standards, VOC emissions should be reduced by more than 90%, or total factory emission quantities should be less than 0.6kg/hr. Trichloroethylene emission reductions should exceed 90%, or factory emission quantity should be less than 0.02kg/hr. This regulation will go into effect on January 1, 2000. Businesses said that having to meet these emission standards would be a heavy investment burden for smaller companies and would increase competitive pressures. They therefore asked for a one-year buffer before the regulation goes into effect.

In response to points raised, EPA Deputy Administrator Ta-Hsiung Lin noted that every consideration must be given to regulatory effectiveness and enforceability. The EPA will instruct the commissioned organization to determine the actual circumstances and will seriously consider delaying implementation of the draft if the claims prove to be valid.

Environmental protection industry representatives questioned whether domestically produced pollution control equipment would be subject to the green purchasing statutes once they go into effect next year. The EPA noted that there are clear conditions under which the statutes may be applied. These include eco-label products or products that are low polluting, resource-saving or recyclable. In preparation for the statutes, it is

estimated that there will be criteria for 70 product groups by 2001. The policy of the EPA is to encourage all outstanding products and technologies to pursue an eco-label.

Many businesses raised concerns over environmental permit application processing efficiency, which is often blamed for lost investment opportunities. The EPA said it had planned or was planning to streamline a total of 65 articles this year in line with government renewal policies promoted by the Executive Yuan.

The EPA also established the Stationary Pollution Source Installation and Operation Permit Work Group to continue researching administrative procedures for regulatory streamlining. Current plans call for shortening regulatory review time from 45 days to 27 days and simplifying application procedures. In line with the down-sizing of the provincial government, initial and repeat review work will be combined and carried out at the county/city level.

Given Taiwan's small land size and large population, tightening controls on waste is an unavoidable direction of future policies associated with treating industrial waste. As the waste generated by high-tech industries is largely hazardous and since Taiwan does not have adequate treatment technology, future environmental policies will encourage high-tech industries to import appropriate waste treatment technology along high-tech manufacturing technology.

In addition, the EPA assisted by target industry competent authorities will promote the establishment of joint or allied treatment systems or the joint installation of treatment organizations in industrial parks to resolve problems associated with the treatment of high-tech industry industrial waste such as etching fluid and hazardous sludge.

In terms of resource reuse, 14 types of general industrial waste reuse and management methods have been announced in three rounds of formal announcements. General industrial waste substances that have been announced need only be reused in accordance with announced management methods and do not require an application for reuse. General waste substances to be reused that have not been announced can have their applications reviewed and receive a reply in no more than 30 days to 40 days. The EPA is currently simplifying and revising a number of related regulations.

Deputy Administrator Lin promised that all concerns raised during the forum would be compiled with EPA measures and submitted together to the Executive Yuan as a reference for high-level general policymaking.

## ***EPA Promotes Establishment of Cleaner Production Indicators***

**The EPA plans to establish Cleaner Production indicators and research the scope of production process conditions. For the concrete and steel industries, these include an**

**environmental conditions indicator (ECI), management performance indicator (MPI) and operating performance indicator (OPI). The EPA aims through this plan to create technical guidelines that can be used to promote the establishment of cleaner production indicators across all industries.**

With environmentalism an increasingly important selling point worldwide, “green consumerism” considerations in international trade have gradually worked their way into the production process. Cleaner Production principles have thus become widely used with advocates in Taiwan receiving more and more attention.

For years, the Industrial Technology Research Institute (ITRI) commissioned by the MOEA’s Industrial Development Bureau (IDB) conducted research related to green production. Then in FY1999, China Technology Consultants’ (CTCI) Industrial Pollution Control Center was commissioned by the EPA to research and plan Cleaner Production indicators and develop an implementation plan for Taiwan’s concrete and steel industries.

According to the United Nations Environment Programme (UNEP), Cleaner Production involves a set of concepts or activities with an integrated approach to pollution prevention. It includes the sustainable application of production processes, products and services to advance ecological benefit and reduce risk to humans and the environment. CTCI’s mission is to develop a concrete Cleaner Production indicator system for various industries.

Cleaner Production indicators will include an environmental conditions indicator (ECI), a management performance indicator (MPI), and an operating performance indicator (OPI). Of them, the ECI will include resource, energy and various forms of pollution indicators. OPI will include waste reuse ratios, water and energy recycling rates and consider the cost of control equipment maintenance, operation and installation. MPI will include the cost of environmental incidents, pollution prevention investment amounts, and ISO14001 certification system approval objectives.

During a meeting to discuss the plan, academics stressed that mainstream acceptance of Cleaner Production indicators rides on whether accurate information can be obtained. The difficulty of establishing a satisfactory set of indicators in the past was due mainly to the difficulty of establishing a set of Cleaner Production indicators that can be compared across industries. Academics suggested to CTCI that it utilize its extensive practical experience with manufacturing to acquire information and establish data for each stage of the production process. This principle was agreed upon at the meeting. The biggest difference between this plan and past Cleaner Production related research is beginning the study from the production process unit.

IDB 7<sup>th</sup> Division Director Chih-Sen Lin said that the roots of Cleaner Production in Taiwan were first established by the IDB in 1974. These early efforts included the

gradual promotion of ion membrane electroplating tanks as a substitute for liquid mercury electroplating tanks at alkaline chlorine factories. In the 1980s, chemical manufacturers were gradually required to use calcium stearate in place of calcium cadmium. These measures generally embodied the spirit of Cleaner Production by focusing on improving production processes and substituting raw materials to control industrial pollution.

These examples illustrate that in the past the IDB could issue executive orders requiring businesses to make improvements to production processes. With passage of the *Industrial Management Act*, which has been pending for some time, the IDB will again have a legal footing in this regard. In the mean time, only the EPA has the legal basis to require businesses to make adjustments to manufacturing processes.

The *Environmental Protection Fundamental Act*, which was recently approved by the Executive Yuan and includes articles related to Cleaner Production, will consolidate the EPA's legal basis for promulgating and enforcing regulations concerning Cleaner Production.

In the future, as Cleaner Production indicators are established, environmental agencies will extend their authority to production process and raw materials management. Cleaner Production indicators will also serve as key reference values for the EPA when it sets the regulatory scope for high polluting industries and production processes. These indicators will also be important in establishing "best available control technology" (BACT) and ISO related policies and measures.

Given the importance of Cleaner Production values, the current plan will serve as a model for setting criteria for other industries. Through this plan, the EPA also intends to create a set of technical guidelines for establishing Cleaner Production indicators and will promote step-by-step the use of indicators for all industries.

### ***EIA Tracking and Monitoring Work to be Systematized***

**The EPA and target industry competent authorities have engaged in a functional division of work to strengthen post-EIA tracking activities. The EPA has already begun tracking 87 cases of which three development projects were each fined NT\$300,000 and eight cases were ordered to submit response plans. Of the 11 development projects not in compliance, three encountered concerns related to environmental monitoring. Experience has shown that the ideal monitoring period for typical development projects should continue one to two years after the completion of development. If a developer modifies the content of its required environmental monitoring plan according to actual circumstances, the *Environmental Impact Assessment Act Enforcement Rules* state that the developer does not need to submit an environmental variance analysis report.**

The *Environmental Impact Assessment Act* has been in effect for four years and all

related regulations have been enacted. In the future, the EPA will focus not only on steadily improving EIA review efficiency and objectivity but also on strengthening post-EIA tracking activities.

Based on current plans, first-stage follow-up tracking focuses mainly on in-progress construction projects. Regarding concrete implementation strategies, the EPA and target industry competent authorities will agree on responsibility for auditing targets and separately engage in on-site construction inspection work.

According to the recently announced *Environmental Impact Assessment Act Enforcement Rules*, the target industry competent authorities are responsible for auditing and investigating whether or not developers have actually carried out the items identified in their environmental impact statements (EIS) or EIA reports. The EPA, on the other hand, is charged with an oversight role. This year, the EPA and target industry competent authorities, agreed on the functional division of EIA tracking work. Development cases that are important, or that might require strengthened supervision, are to be tracked by target industry competent authorities while others are to be inspected directly by the EPA.

According to this division of work, the MOEA's Energy Commission will cover privately-owned electricity generation projects and combined heat and power generation projects; the Executive Yuan's Physical Education Commission will cover golf course development; the MOEA's Commission of National Corporations will cover the R.O.C.'s 10 state-owned enterprises, including Taiwan Power Company, Chinese Petroleum Corp., and Taiwan Fertilizer; the MOEA's Industrial Development Bureau will oversee the development of industrial parks; and, the Ministry of Education will focus on the development of university and vocational institute campuses. All of these agencies have begun on-site auditing and investigation work.

In terms of inspection work, by the end of November of this year, the EPA had begun auditing 87 cases of which three development projects were each fined NT\$300,000 and eight cases were ordered to submit response plans. Of the latter eight projects that received a warning, most were old cases that existed before the *EIA Act* went into effect. According to the *Act*, projects that have received a first warning must submit a remedial strategy.

It is worth noting that from 1985 to November of 1998, the EPA estimates that 362 development projects passed the EIA review process of which 73 were completed, 92 were under construction and 197 had not begun. Thirty-three projects failed to submit an environmental variance analysis report, resulting in their EIA approval being rescinded. In terms of projects under construction, the EIA auditing and investigation rate had already reached 70%.

Of the three penalized projects, the two projects that were fined had failed to conduct

monitoring work according to EIA instructions while one project that had been ordered to submit a response strategy had also made monitoring related oversights.

As a significant portion EIS and EIA report content is written by consultants, businesses are often unfamiliar with the details. To facilitate the smooth approval of EIS' and EIA reports, consultants often make unrealistic commitments in terms of monitoring items and timing. After the project has been approved, development units often get into trouble when they find that they cannot live up to the terms of the EIA.

The EPA advocates waiting until development work is finished and the environmental impact has stabilized. Following completion of development work, a site should base its performance on existing air, water, solid waste, and toxic control regulations. The ideal monitoring period of typical development projects should therefore continue for one or two years after development is completed. Given the effectiveness and convenience of this approach, the EPA agreed that businesses should reevaluate their EIA monitoring plans based on actual needs.

According to previous regulations, businesses must submit EIA variance analysis reports to the EPA and competent authority of the target industry for their approval. Administrative agencies have agreed that the requirements for approval shall not be too severe. Modification of an environmental monitoring plan will only require submission of a form comparing the modified contents and the reason for the change.

In addition to efforts made at the central government administrative level to carry out post EIA auditing work, the EPA also worked hard at both the central and local government levels to promote the systemizing of auditing work. Since September of this year, local environmental authorities must fill out an EIA tracking report each month that shows citations issued and the amount of fines collected. A preliminary statistical analysis of local EIA work efficiency and auditing results is scheduled for completion at the end of November.

### ***Guidelines for Residential Development EIAs Drafted***

**The EPA recently completed a draft of guidelines for reviewing residential community development EIAs and concluded related discussions with relevant agencies under the Executive Yuan. The draft will be formally announced once related details have been completed. The draft sets the criteria for development zone restrictions, EIA review environment classification, environmental impact remedial measures, and regulations governing mountain slope, residential, and agricultural development.**

To raise the efficiency and quality of EIA review work, the EPA is revising EIA review and related EIA technical criteria for 21 activities where an EIA should be performed. In terms of EIA review, the EPA recently completed two related drafts: *Guidelines for Reviewing Removal of Soil and Stone in Secondary Agricultural Land*

and the *Guidelines for EIA Review of Residential Community Development Activity*.

There are 34 Articles in the guidelines pertaining to residential community development. These articles establish the criteria for development zone restrictions, EIA review environment classification, environmental impact remedial measures, and mountain slope and agricultural regulations.

In terms of assessing the environmental impact of residential community development activities, the draft clearly stipulates that these activities should meet related environmental regulations. By 2011, these activities should also comply with the objectives stated in the *R.O.C. National Environmental Protection Plan*. According to the draft, residential development cannot take place in the following areas:

1. Forest or important reservoir water catchment zones.
2. Drinking water source water quality protection zones or zones within a certain radius of drinking water outlets. Residential development within these zones may be undertaken in aboriginal areas if made necessary by natural population growth and if approved by the competent authority.
3. Zones within a 1,000 meter level radius of water source water quality protection zones.
4. Zones delineated by the relevant competent authority in accordance with the law or zones that prohibit development in accordance with related regulations.

The draft states that developers should assess the potential for reuse and recycling of solid waste and effluent generated by construction and operation activities. It also states that they should handle all waste created or hire a public or private waste disposal organization to do so. According to special regulations in mountain slope areas, if a community cannot find a sanitary landfill to treat its waste, the development must include a plan for treating refuse.

In terms of waste/polluted water controls, the draft stipulates that wastewater discharged in surface water bodies must meet the year 2000's *Effluent Standards*. If special protection is needed or water body water quality standards cannot be achieved due to industrial density, the development site should carry out total quantity controls on waste water in accordance with environmental carrying capacity of the water.

The draft stipulates a number of important regulations in terms of mountain slope areas. The average gradient of restricted development areas within a 25 square meter area must not be altered more than 15%. In line with revisions to construction related regulations, 80% of areas with an average gradient of more than 40% should remain undeveloped and the other 20% should be used for roadways, parks and foliated areas. Areas with an average gradient of between 30% and 40% as depicted on a topographical map should remain as open spaces that contain no architectural structures.

The draft states that ground should not be broken until disaster control projects such as sediment ponds are completed. Projects should be implemented stage-by-stage and region-by-region. The first stage must be located on the most downstream side and its surface area must not exceed 30% of originally reserved total surface area. In addition, greenery in 95% of slope areas and woodlands must make up 50% of the base area upon completion of the development activity. The last figure must be increased to 60% if the base area is located in a water source water quality protection zone.

In terms of the impact on the local transportation system, the draft stipulates that after project completion, daily peak traffic flow must not exceed the residual capacity of D class service standard county level and above roadways leading to major cities.

In terms of the concerns of environmental groups that residential development in many agricultural areas will lead to environmental damage, the draft also includes detailed precautionary measures. Residential development in agricultural areas cannot influence crop production in the vicinity of agricultural areas. Water and agricultural pathway functions for which the land was originally applied for should be maintained wherever possible. Waste/polluted water generated by the development areas is prohibited from being discharged into irrigation systems that belong to the agricultural industry.

Development areas located in specially designated agricultural areas and that manufacture products that are incompatible with nearby agricultural businesses must be separated by a 20 meter or wider buffer extending from the agricultural land or its facilities. The last figure can be reduced to 10 meters or wider if the base is located in a general agricultural land area.

Based on lessons learned from the RCA soil pollution incident in Taoyuan County, the draft stipulates that applications to develop formerly polluted areas should submit a response strategy and, prior to breaking ground, must submit a detailed treatment plan, including monitoring plans, to the competent authority for approval.

As there was little disagreement during discussions with businesses and government agencies, the EPA will prepare the draft for formal announcement as soon as the details are complete.

### ***Spent Battery Recycling Fee Rates to Be Significantly Increased***

**Proposed spent battery recycling fee rate increases for FY2000 have met with strong business opposition. Environmental group representatives advocate comprehensive recycling of spent batteries and cite the difficulty of recognizing which batteries need to be recycled as the reason for low recycling rates. The EPA indicated that it would carefully consider the request and that it plans to hold a public forum on the subject in**

## **November.**

On October 22, the EPA held a public hearing on spent dry cell battery recycling fee rates for FY2000 (July 1999 to June 2000) announcing the new rates and formula. The new formula seeks to balance the budget. Multiplying recycling and disposal costs by the target recycling rate and dividing by the percentage that trust funds accounts for recycling funds (70%) yields the new recycling rates.

Based on the new formula, recycling fee rates for spent mercury batteries will be increased from NT\$89.45/kg to NT\$132/kg. Button-style mercury batteries will be raised from NT\$279.51 to NT\$428/kg; and the recycling rate of Nickel Cadmium (NiCd) batteries will decrease from NT\$50.52 to NT\$48.

Watch battery businesses said the increase in fee rates far exceeds the actual rise in prices this year for button-style mercury batteries. In response, the EPA noted that when spent mercury batteries were first recycled, cylinder- and button-style batteries were recycled together and recycling fee rates were calculated on average. When separate recycling of the two began at the end of last year, the extremely high per kilogram quantity of button-style batteries naturally required a higher fee rate.

Environmental group representatives and recycling fee rate committee members cite the difficulty of recognizing which batteries need to be recycled as the reason for low recycling rates. Environmental groups therefore advocate comprehensive recycling of spent batteries.

Faced with having to levy ever higher fee rates and given the exceptionally low recycling rates, the EPA has for a long time considered comprehensive recycling fee rates and conducted a number of assessments on economic and environmental benefits.

The advantage of comprehensive recycling is that it would make the overall job of recycling more simple and practicable. As the scale of recycling work would increase, the marginal capacity and efficacy of the whole recycling system would be better utilized and fee rates would be significantly lowered. The disadvantage would be intense resistance from newly targeted businesses. A compelling environmental justification is therefore essential to the success of a policy advocating comprehensive recycling.

The EPA has commissioned a number of academics and experts to conduct related research and collect examples from various foreign countries to serve as a reference. In addition, a public hearing on the comprehensive recycling of spent batteries will be held in the near future. Once the views from all sides have been assembled, a clear policy will be developed.

## *Keelung River Non-Point Source Pollution Remediation Moves Forward*

With initial phase remediation of the Tamshui River nearing completion, the next step is to launch a non-point source pollution control plan for the Keelung River. Based on initial survey results, pollutants in the Keelung River proposed for priority control include clay and sand, heavy metals and chemicals, oxygen depleting substances and salt nutrients respectively. Polluting activities proposed for priority control include construction sites, industrial activity areas and large communities respectively. The control plan aims to bring targeted pollutants and polluting activities under control by implementing EIA requirements and promoting the best management measures.

Following years of hard work, initial phase remediation of the Tamshui River system is nearing completion. This work encompasses establishing large-scale sewer system and related effluent interceptors. As soon as initial phase work is operating smoothly, principal point source pollution in the river basin (includes residential and industrial wastewater) can be reduced. Once principal point source pollution is brought under control, initial water body water quality objectives for mid- and down-stream river sections can be achieved.

To quickly return the Keelung River basin to a clean state and resuscitate its aquatic ecosystem is the objective of follow-on remediation efforts. Controlling non-point source pollution is essential to achieving this objective. This year, the EPA launched the *Keelung River Non-Point Source Pollution Remediation Plan* and commissioned a consulting firm to carry out a survey analysis and remediation plan on the state of non-point source pollution in water source zones in upstream sections of the Keelung River.

Non-point source pollution has been the most overlooked area of traditional controls. The EPA commissioned National Cheng Kung University to carry out a five-year study on non-point source controls. Over the past five years, the study focussed on the state of environmental loading in areas with different types of land use such as communities, recreational park areas, construction sites, agricultural land and industrial land where pollution was generated. The study also yielded the “best available control technology” (BACT).

This is the first opportunity to comprehensively apply the accumulated non-point source pollution control data and methodologies to the Keelung River basin.

Initial survey results found the following principal sources of suspended solids in water source zones of the Keelung River:

1. Construction sites: Major pollutants include silt and chemicals; major projects roadway construction and miscellaneous rural projects.

2. Large communities: Principal pollutants include dust, oxygen depleting substances and refuse.
3. Industrial areas: Principal pollutants include raw materials for manufacturing, materials, chemical agents and dust.
4. Recreation and rest areas: Principal pollutants include waste substances, alkali and oxygen depleting substances. Principal areas include upstream sections of Keelung River from its headwaters to Ruifang.
5. Forest and agricultural areas: Principal pollutants include silt, nutrient salts, agrochemicals and decayed produce/foilage. Principal areas include Ping-hsi and Ruifang along the upstream sections of Keelung River from its headwaters to the water treatment plant in Reifang. They also include the upstream tributaries along the mid-stream sections of Keelung River from Reifang to Hsih-chih.

Based on the results of the study, non-point source pollution control targets along the Keelung River include: Recreation and rest areas, agricultural areas and forest areas from the headwaters to Ruifang; roadway development projects, large communities and three industrial parks including the Ruifang Industrial Park from the Ruifang water extraction outlet to Shi-chien Bridge; construction sites, factories, container yards and large communities from Shi-chien Bridge to Shehou Bridge.

Of these, clay/gravel/silt mainly generated from construction sites have had the most noticeable impact on the river. For this reason, pollutants in the Keelung River proposed for priority control include clay/gravel/silt, heavy metals and chemicals, oxygen depleting substances and salt nutrients respectively. Polluting activities proposed for priority control include construction sites, areas of industrial activity and large communities respectively.

In terms of complying with executive controls, academics and experts recommend that, similar to research experience in the US, polluters should voluntarily comply. In addition, actual implementation of the best available control measures is the key to effectively controlling non-point source pollution and this is especially the case in terms of controlling non-point source pollution from construction activities.

There is currently to clear legal basis for the control of many forms of non-point source effluent, therefore most controls are carried out under the authority of related regulations. Among these, the *Environmental Impact Assessment Act* places the most direct demands on development activities. In addition, as major development activities are regulated by the *EIA Act* and must submit an EIS, academics and experts propose that commitments made in an EIS be kept through “voluntary compliance.”

According to EPA research, in the future, non-point source pollution control strategies, by strengthening monitoring of EIS commitments and through integrating the research of experts and academics on the feasibility of best management practices

(BMPs). Parties whose EIA has already been approved will be required to fully implement their EIA commitments. Developers who have not yet received EIA approval will be required to implement BMPs.

Implementation of the plan is currently being undertaken by a commissioned consulting firm. Identified by the EPA as a model plan, the non-point source pollution control plan has already yielded initial results. All of this will serve as a major reference for non-point source remediation in other river systems.

### ***EPA Shortens Air Pollution Permit Application Process***

**The EPA has steadily improved the efficiency of air pollution permit processing work. In recent years, installation and operation permit processing time has decreased by 46% and 48% respectively. The process will soon be streamlined further by combining initial review and reevaluation procedures and by merging application review, and permit issuance into a single service window. Some test conditions will also be loosened.**

The EPA recently launched a new study that compared air pollution permit processing work efficiency of various environmental authorities for various industries. The study will be conducted in successive rounds on a yearly basis and will serve as a reference for improving the air pollution permitting system.

Statistics indicate that review times averaged 108 and 105 days respectively when the first and second round of application for stationary pollution source permits. Several factors contributed to the length of these review times. As these stationary pollution sources were major targets, these targets had relatively large quantities of pollution and complicated production processes. In addition, environmental authorities were not adequately experienced in permit review work. The review times of subsequent rounds gradually decreased to an average 72 days during the fifth round for an overall improvement of 32% compared with the first round.

In 1997, permit review regulations were amended and review time improved drastically. Review time for installation permits took 54 days on average before the amendment and only 29 days after or a 46% improvement. Review time for operating permits took 100 days on average before the amendment and only 52 days after or a 48% improvement.

Although review efficiency is gradually improving, the number of cases exceeding the legal time limit remains high. The EPA therefore proposed that some permit work procedures be streamlined further.

The current approach includes combining initial review and reevaluation procedures at the local level and merging application review, and permit issuance into a single service window. In addition, permit application for small scale and temporary pollution sources would be simplified and controls on internal administrative agency work would

be strengthened. The following is a list of some work regulations that would be changed:

1. Review meetings attended by academics and experts would not need to be convened for pollution cases that are not large.
2. If production capacity achieved after trial-run monitoring cannot in a short period of time achieve the highest production capacity for which the business applied, it can use the production capacity conditions reached at the time as the permit conditions. Otherwise, it can carry out monitoring at 80% of the highest production capacity reached to avoid a delay in permit issuance due to trial monitoring.
3. If the pollution sources, production processes, equipment, operating conditions and scale of a business when applying for a second permit are the same as those for the first, the review process should be simplified (including referring to the circumstances of the first permit) to help fast growing sectors like the semiconductor industry get the permits they need.

The EPA also plans to get local environmental authorities to establish Unified Permit Assistance Windows to help businesses resolve difficulties associated with permit application and additional document submission.

### ***Regulatory Guidelines Proposed for Sand and Gravel Extraction on Agricultural Land***

**To assist the liberalization of gravel extraction policies, the EPA has compiled current related regulations and drawn up the draft *Guidelines for Reviewing Sand and Gravel Extraction on Secondary Agricultural Land* that clearly lists no-extraction zones. The regulatory scope also addresses groundwater conservation, gravel removal, extraction site rehabilitation and reuse, and environmental welfare and compensation.**

Steady depletion of gravel in Taiwan's river environments has driven up the price of gravel and put pressure on many public works projects. As a result, accelerating the development of sand and gravel extraction on agricultural land has become one of the government's most pressing policy development issues.

Plans call for the Executive Yuan's Council of Agriculture to release 389,000 hectares of secondary agricultural land for permitted gravel extraction. To ensure that the ecology of the land is not damaged, the Executive Yuan instructed the EPA to quickly delineate agricultural land areas unsuitable for gravel extraction activities and submit a report to the Executive Yuan for approval.

To accommodate existing Executive Yuan policies and to protect the environment, the EPA recently accelerated drafting of the *Guidelines for Reviewing Sand and Gravel Extraction on Secondary Agricultural Land*. In preparation for the draft, the EPA compiled current regulations related to gravel extraction and promulgated by a range of

government agencies. In consideration of the experiences of other nations, the regulatory scope addresses gravel extraction locale, scale, potential environmental damage and response measures. It also addresses land development compensation, extraction site rehabilitation and land reuse methods.

On October 20, the EPA invited representatives from related agencies at all levels to discuss the draft. The following is a list of the types of areas that will be designated “no-extraction zones.”

1. Extraction prohibited areas clearly stated in related laws: The EPA and Council of Agriculture compiled current laws and regulations related to gravel extraction restrictions and submitted it to the Executive Yuan for approval. Tables and diagrams will later be used to clearly show no-extraction areas in the released agricultural land.
2. Agricultural land in city plans: Focuses on agricultural land in city plans that function as areas for future expansion but which are often located close to areas with high human density and therefore not allowed to be developed.
3. Coastal land stretching 500 meters inland: Focuses mainly on preventing damage to the coastline. The definition of coastline areas takes into consideration the MOI Construction & Planning Administration’s draft *Coastal Act*. As coastal area sand and gravel extraction will focus on outer islands, there should be no conflict between the no-extraction principle for the coastline on Taiwan proper and future coastal sand and gravel extraction policies.

Reservoir water catchment areas, areas adjacent to communities and public facilities and areas within 150 meters of principal roadways originally to be listed for no-extraction regulations were added to category 1 as they were already provided for in construction and planning related regulations and the *Tap Water Act*.

In terms of extraction restrictions within the scope of groundwater resource conservation, representatives had different views on how the laws are interpreted. For this reason, a resolution was reached whereby the Ministry of Economic Affairs (MOEA) Water Resource Bureau will delineate clear groundwater conservation zones. If the latter cannot provide related information, the EPA and Council of Agriculture might do so through formal announcement.

Chapters 2 and 3 of the draft address flatland and mountain slope sand and gravel extraction methods, scale and soil/water conservation measures. Environmental groups expressed concern over the problem of groundwater conservation. In flatland areas, sand and gravel extraction is restricted to a depth above the water table during rainy seasons but that cannot exceed a maximum depth of 15 meters. In mountain slope areas, gravel extraction depth limits are based on the results of exploratory drill holes whereby the horizontal distance extending from the extraction area land surface cannot

exceed 30% of its vertical depth.

Chapters 4 and 5 address operational processes involving the crushing and panning of rock/soil and the stacking and transporting of waste soil, sludge and rock/soil. It also sets the regulatory scope for the much criticized transporting of waste soil, sludge and rock/soil from extraction sites.

Chapter 6 addresses extraction site rehabilitation and land reuse methods. Chapter 7 addresses extraction site environmental conservation and compensation. There have been cases of agricultural land owners selling extraction rights and then using the resulting pit as an illegal landfill. To prevent such incidents, the draft stipulates that later use of flatland extraction sites as landfills should be avoided. Otherwise, waterproof soil barriers and an above and below ground drainage system must be installed.

If plans call for the extraction site to be filled in and reused a second time, the refilling earthwork should be carried out with the objective of reusing the land. Substances acceptable for use as fill material are in general clearly specified in the draft.

Before the extraction site can be filled in and reused a second time, soil/water conservation and all environmental protection measures must be completed and the relevant competent authority must inspect and approve the site as qualified. Similar to what has been done in Germany, all rights over extraction sites are lost to local governments if any preexisting silt pond or reservoir, flood control reservoir or extraction shaft is used directly as a pond.

Given the immense size of the draft, discussions during the meeting could not be concluded. EPA Bureau of Comprehensive Planning Director General Shi-Piao Ni who chaired the meeting that day said that to accelerate progress, the EPA and Council of Agriculture would submit a “negative” list of agricultural land no-extraction zones to the Executive Yuan for approval.

Director General Ni said that the EPA will also propose to the Taiwan Provincial Government’s Bureau of Mining that a “positive” list of sand and gravel deposits and sites suitable for extraction be generated from survey results over the years and submitted to the Executive Yuan. The positive and negative lists are both important and are a top priority for execution by the EPA. The remaining items in the *Guidelines for Reviewing Sand and Gravel Extraction on Secondary Agricultural Land* will be completed by the EPA and related agencies in the near future.

## ***News Briefs***

### ***EPA Announces Consolidation of General Waste Recycling Categories***

On October 23, an amendment to the *Guidelines for the Selection of General Waste Recycling and Disposal Certification and Authorization Groups* was formally announced. In addition, auditing and authorization work will be merged. Waste iron containers, aluminum containers, paper containers, aseptic packaging (such as Tetra Pak™ brand containers) and glass containers will be merged into a single category. Waste agricultural and special environmental agents will be added and combined into a single category and discarded cars and motorcycles will also form a single category.

### ***Scope of Industrial and Sewer Effluent Reporting Broadened***

On October 23, an amendment to the *Industrial and Sewer System Wastewater Effluent Reporting Guidelines*. The amendment brings zoos, restaurants and drinking establishments, tourist inns and hotels, recreational parks and zones, aquaculture businesses, car wash businesses and public and community sewers under the *Reporting Guidelines* and makes reporting COD in water effluent required by law.

### ***First Stage of In-Use Car Emissions Testing Begun***

On November 2, the EPA began soliciting some 30 models of cars in use to participate in car emissions tests whereby the findings would serve as the basis for recall and correction. Previous, the EPA had used infrared remote monitoring to test and select 30 models. According to regulations, in-use cars during the most durable life of the car (less than five years old and under 80,000 miles) that cannot meet air emission standards for design or installation reasons must be recalled and repaired by the manufacturer or importer within a specified period of time.

### ***EPA to Lower Subsidies for PET Bottle Recycling***

With the PET Bottle Recycling Fund overdrawn by about NT\$770 million, the EPA decided from December 1 of this year to lower the recycling fee subsidy for waste bottles to NT\$7 per kilogram to balance outgoing subsidies with incoming fees. In addition, statistics indicate that Fund revenues have risen substantially since auditing of reported bottle production volumes was strengthened in July. This should also help to keep the fund in balance.

### ***EIA Act Enforcement Rules Amended***

On November 11, an amendment to the *Environmental Impact Assessment Act Enforcement Rules* was formally announced. To promote the certification system, articles in the amendment increase and further clarify the regulations that govern the

qualifications of EIA item assessors and general assessors. Articles also stipulate that the procedure review process can be skipped in favor of the actual EIA review with either a signature from a general assessor or by a consulting firm deemed by the EPA to be in good standing.