

**105** 年

# 國家永續發展年報

**2016 ANNUAL REPORT ON NATIONAL  
SUSTAINABLE DEVELOPMENT**



行政院國家永續發展委員會 編印  
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# 2016 ANNUAL REPORT ON NATIONAL SUSTAINABLE DEVELOPMENT

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## **Preface**

Taiwan is an island-nation with a high population density, limited natural resources, numerous natural disasters, and a special international position. Under this circumstance, the necessity and urgency of pursuing sustainable development would be more important compared with other countries. In response to the global trend of sustainable development, the Executive Yuan established the National Council for Sustainable Development (hereinafter referred to as NCSD) in August 1997. In December 2002, the President promulgated the Basic Environment Act, in which Article 29 authorizes NCSD's official position.

The 2016 Annual Report compiles the main achievements by the NCSD through its efforts toward promoting activities of sustainable development in 2016. This Annual Report includes: The 2016 Annual Work Progress of Committee of the NCSD, 2015 Key Performance and Achievements of Working Groups of the NCSD, and the 2016 National Sustainable Development Award Winners, etc. For the NCSD's member-list, please refer to the appendix.

Sustainable development depends on participation of the entire citizenry. Through the "2016 Annual Report on National Sustainable Development", we expect the people in Taiwan and the international community to gain a better understanding of the processes and outcomes of sustainable development in Taiwan. We hope to thereby deepen the public's understanding of sustainable development, and their participation in national sustainable development work.



# Chapter 1 The 2016 Annual Work Progress of the NCSD

## 1. The Premier of the Executive Yuan Lin, Chuan issued the Certificate of Appointment to the reappointed members of the 17th Committee.

To implement the goal of establishing a “Nuclear-free Homeland in 2025” and because of the transfer of government as well as the reorganization of the Executive Yuan on May 20th, 2016, the NCSD proceeded with the reappointment of the non-government members based on the 4th rules in October, 2016.

The “Certificate Ceremony” took place in the Hall on the 1st floor of the Executive Yuan at 3:00 p.m. of November 3rd, 2016. The certificate was issued to each member by the Premier of the Executive Yuan Lin, Chuan in person with a group picture taken together afterwards. The goal setting and the topic of discussion of the NCSD were emphasized with the expectation that the committee can well perform the functions so the government could be more thoughtful on establishing the public policies; the government will refer to the Sustainable Development Goals of the UN and adopt the opinions of the committee to advance sustainable development; the government would make every effort to impress the people.



▲ Committee Member Lin , Wan-ken



▲ Committee Member Lin , Sheng-fong



▲ Committee Member Chou, Lien-Siang



▲ Committee Member Shih, Shin-Min



▲ Committee Member Kao, Chih-Ming



▲ Committee Member Lucy Sun



▲ Committee Member Kuo, Ching-Lin



▲ Committee Member Hsu, Tien-Pen



▲ Committee Member John C. T. Huang  
( Authorized Secretary-General Wayne W. Wu)



▲ Committee Member Angela Chang



▲ Committee Member Huang, Jin-Hung



▲ Committee Member Huang, Der-Ray



▲ Committee Member Vicky Liu



▲ Committee Member Eva Teng



▲ Committee Member Omi Wilang



▲ Committee Member Shieh, Jyh-Cherng



▲ Committee Member Huey-Jen Jenny Su



▲ Group picture of the Committee Members

## 2. Convening the 29th Council Meeting

The 29th council meeting was held on November 3rd, 2016, in the 1st Conference Room, on the second floor of Executive Yuan and presided by Premier and Chairman of the Committee Lin, Chuan. The agenda of the meeting included two focal points. The first point was the adjustment of the operation and organization chart of the committee whereas the second point was to develop the sustainable development goals of our country and the grouping of the organization.

### 1. The chairman proposed “The adjustment of the operation and organization chart of the committee”

- (1) The goal of the adjustment for the operation and organization chart of the committee is to conform with the trend of the NCSD and to implement the goal of “Nuclear-free Homeland in 2025”. The organization chart of the committee would be divided into seven working groups and two ad hoc teams from this council meeting. The seven working groups are named respectively “The health & well-being group” which was convened by the Ministry of Health and Welfare; “The life & education group” convened by the Ministry of Education; “The green economy group” convened by the National Development Council; “The green transport group” convened by the Ministry of Transportation; “The national land and urban and rural development group” convened by the Ministry of the Interior; “The sustainable agriculture and biodiversity group” convened by the Council of Agriculture, Executive Yuan; “The environmental quality group” convened by the Environmental Protection Administration, Executive Yuan; The two ad hoc teams are named respectively “The nuclear-free homeland steering team” convened by the Ministry of Economic Affairs; “The climate change and low-carbon greening team” convened by the Environmental Protection Administration, Executive Yuan. For setting the ad hoc teams, the Secretariat of the Department was asked to amend the rules of the committee.
- (2) The relevant departments of “The nuclear-free homeland steering team” would be expanded to include the Ministry of the Interior, the Council of Agriculture, Executive Yuan and the Ministry of Transportation. Each working group and ad hoc team was asked to convene the agencies to inspect the members of the involved departments; all necessary agencies to the department and all departments shall do their best to cooperate.
- (3) The council meeting should take place at least once every 6 months, whereas the working meeting should be convened anytime when necessary. The content and workload can be adjusted upon discussion anytime; according to the spirit of one government. The participation of each team should be considered flexibly based on the job requirement of each convener.

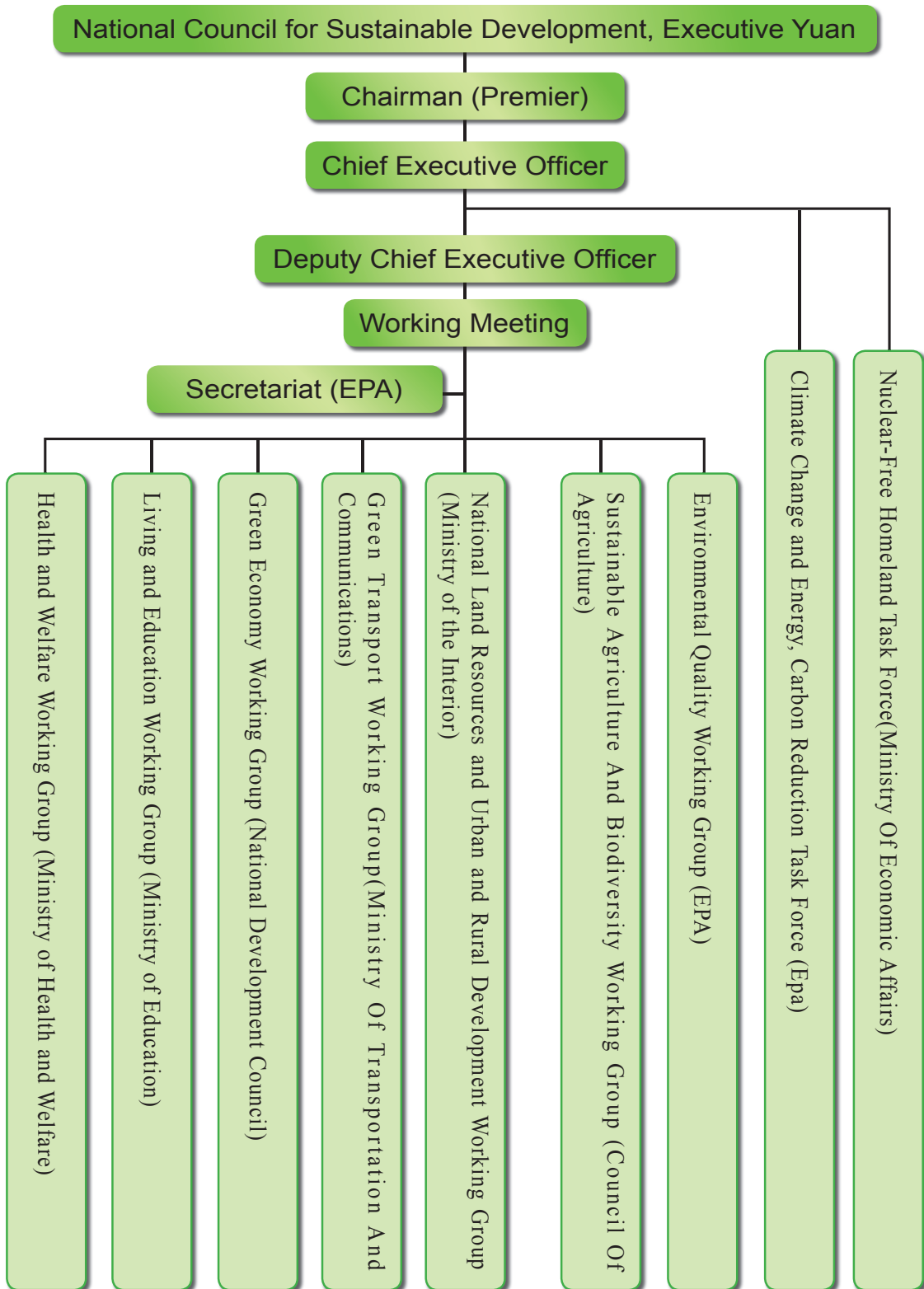
### 2. The chairman proposed “The development of the sustainable development goals of our country and the grouping of the organization”.

- (1) The sustainable development of our country should be set with goals at different phases which includes the achievement of the core target in 2030 and the specific goals to be reached within four years (2020).
- (2) To set the sustainable development goals of our country, please convene each group to share the work based on the goal of each subject recommended by the Secretariat of the Department, and have the non-government members to join 1~3 working groups voluntarily. Setting the specific goals to be reached in four years (2020) and drawing up the core target to be achieved in 2030 according to the specific goals, to present the most core value with easy to understand wording.
- (3) In assistance with the setting of the sustainable development goals of our country, each working group and team should convene the meeting for discussion and set the goals with reference to the Sustainable Development Goals of the UN to finalize the draft of the core goals and specific target as soon as possible in order to propose for discussion for the next committee meeting. One non-government member is to be nominated as the spokes’ person on each team and reach an agreement towards the core goals in advance before the next convention. The Secretariat of the Department should organize the outcomes for the relevant goal setting of the Sustainable Development in the past 19 years as the background information for the committee members as reference for discussion.

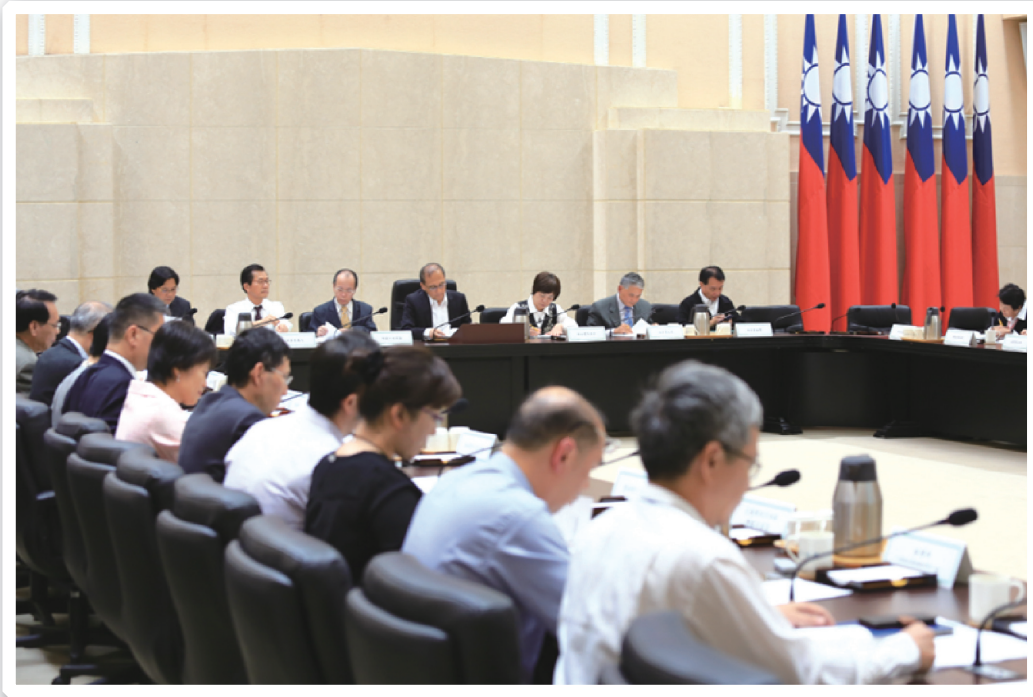
(4) The core goals and specific target for the Sustainable Development of our country should be set within 6 months, and the Secretariat of the Department is asked to control the schedule. One working meeting is to be held to discuss the agreement before the next council meeting, and the council meeting is to be convened within the term to confirm the Sustainable Development goals of our country.

## Organizational Structure of the NCSD

(approved on 11/3/2016)







▲ The 29th council meeting of the NCSD



▲ The 29th council meeting of the NCSD

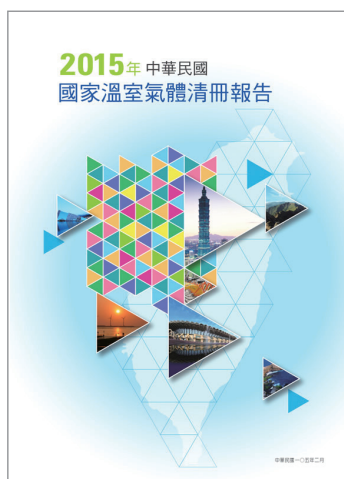
# Chapter 2 The highlights and achievements of the annual meeting

## I. Climate change and carbon reduction energy saving

The Environmental Protection Administration (EPA) co-ordinated and is responsible for negotiating and promoting energy saving, greenhouse gas reduction, impact assessment and corresponding action planning of climate change, and international cooperation of climate change coordination. The annual work results are listed below:

### 1. Construction of greenhouse management mechanism

- (1) The 'Greenhouse Gas Reduction and Management Act' was promulgated on July 1st, 2015. It stipulates the long-term goal of the reduction in 2050 with five-year phases. The management mechanism would be developed, and the seven sub-laws and supporting measures will be completed; collocating economic incentives management measures, gradually set up the total amount management and trading system from distributing for free to allocating prices.
- (2) 'Report of the National Greenhouse Gas (GHG) Inventories of the Republic of China in 2015' was published, to master the GHG emission baseline.



▲ Report of the National Greenhouse Gas Inventories of the Republic of China in 2015

- (3) Promoting voluntary reduction mechanism to enhance green economic growth and reduce societal costs, the investing money for deduction case are about 8.46 billion NT,

which increased the overall economy by about 12.61 billion GDP and reduce the societal costs by about 5.76 billion NT.

### 2. The actions of each department for climate change

- (1) The Energy Bureau of the Ministry of Economic Affairs promoted the policy, 'One Thousand Sea-Land Wind Turbine Project', which set up 341 land-based wind turbine with an annual energy generation of 1.52 billion kWh; promoted 'Award Scheme for Wind Power Offshore System Demonstration' and constructed four offshore demonstration units.
- (2) In conjunction with the World Meteorological Organization (WMO) Climate Services Issues and Objectives, the Central Meteorological Bureau of the Ministry of Communications organized the 'First Taiwan and Pacific Northwest Global Forecasting System Development Seminar', 'International Symposium on Climate Services and Health', and 'Meteorological Information and Environmental Applications Forum' to promote cross-cutting climate applications services.
- (3) The Taiwan Area National Freeway Bureau, MOTC promotes the highway electronic toll system and plans the national green road network, resulting in the utilization rate of electronic charging system of about 92%, the reduction of carbon emission by about 13,792 metric tons from January to June in 2016.

### 3. Promote substantive participation in the United Nations Framework Convention on Climate Change (UNFCCC)

- (1) Environmental Protection Administration (EPA) is responsible for preparing and organizing national relevant industry, administration, and academia to participate in the 22nd session of the Conference of the Parties (COP22) to the UNFCCC and the 12th session of the Conference of the Parties (CMP12) serving as the meeting of the Parties to the Kyoto Protocol to the UNFCCC, UNFCCC COP22/CMP12, in order to receive

firsthand dynamic information for global carbon reduction management development and communicate with international representatives, experts and scholars, also suitably promote the results of Taiwan's energy saving and carbon reduction to show the effort our country put in and the firm stand we have to preserve the global environment; to increase international recognition and to build the foundation for future carbon reduction responsibility negotiation of our country.

(2) Promote international cooperation on climate change

① Environmental Protection Administration (EPA) and European Economic and Trade Office (EETO) organized the 'International Symposium on Climate Change in 2016 - Capacity Building in Regional Carbon Markets' and invited European Union (EU), Germany, South Korea, Thailand, Vietnam and major market leaders and chief officers of international organization of climate change and carbon market, to share experiences of constructing a carbon market for climate change, to increase the cooperation opportunities with other countries and non-governmental organizations (NGO) for climate change.



▲ International Symposium on Climate Change in 2016 - Capacity Building in Regional Carbon Markets

② The EPA promotes the Pacific Greenhouse Gas Observational Research Program with the EU, maritime industry, aviation industry, and research institutes in order to master the three-dimensional distribution of greenhouse gas and atmospheric pollutants of the Asia Pacific area. It shows our attitude and determination to observe greenhouse gas actively; we hope to observe and research global warming and climate change with other countries

and assess the impact of climate change together.

③ The Central Weather Bureau of the Ministry of Communications participated in the '2016 Taiwan Geosciences Assembly (TGA)', '2016 Asia Oceania Geosciences Society (AOGS) annual meeting', 'Asia-Pacific Economic Cooperation (APEC) the seventh Policy Partnership on Science Technology and innovation (PPSTI-7) meeting', 'APEC Climate Symposium (APCS) 2016, and Intergovernmental Panel on Climate Change (IPCC) Working Group (WG) Meeting', and UNFCCC COP22/CMP12.

#### 4. Expand citizen participation

The EPA, Taoyuan City Government, Council of Agriculture (COA) and Water Supplies Department jointly held the "2016 World Environment Day Theme Activity" to strengthen the promotion of the day and combined the cooperation between central and local governments and cross department cooperation, to build Taiwan into a peaceful low-carbon home.

#### 5. Guiding industry to be low-carbon and green

(1) The Industrial Development Bureau of the Ministry of Economic Affairs promotes carbon reduction in industries, like steel, petrochemical, paper, cement, fiber, cotton printing and dyeing, silk printing and dyeing, and composite materials. Greenhouse gas reduction can save about 3 billion NT and carbon dioxide reduction of 600,000 metric tons will save about 3 billion NT in economic benefits. The releasing heat, energy, scrap and wastes are recycled and reused, which are about 3.83 million metric tons/year, and reduce industrial production costs and benefits of steam for sale reaches 3.31 billion NT/year; this will reduce the use of high polluting boilers by 152 which will reduce 851,000 tons of carbon dioxide emissions.

(2) State-run institute carbon reduction

① Taiwan Power Company completed the data entry of greenhouse gas emission of 10 thermal power plants, which has about 85.25 million tons of emission. Climate change adaptation assessments for 2 electric power facilities with The Energy Bureau of the Ministry of Economic Affairs, with 3 climate change adaption relevant reports

will be completed separately.

- ② Taiwan Sugar Company received reasonable assurance levels to verify carbon footprint verification statements and Carbon labeling applications as the first refined edible vegetable oil and blending oil company; they also generate about 300 million kWh from heat of burning waste. All citizens afforest and build environmental protection forest park landscape. About 12 thousand hectares can reduce about 184,000 tons of carbon dioxide.
- ③ CPC Corporation has continuously monitored the subsidence of the oil sump area in the investigation and analysis of the potential geological hazard of oil tank areas of oil supply centers; the sinking prevention work, data management of equipment foundation sinking, and data management of storage tank foundation sinking of working zone control area are completed.

## 6. Promoting living green and happy

- (1) At the “2016 Taipei International Spring Festival”, “Low Carbon New Life Treasure Island” theme pavilion promoted low-carbon living ideas and actions to display low-carbon diet and low-carbon tourism.
- (2) The Low-carbon living happily and adaptation campaign will be promoted, “climate change information integration platform” will be completed for knowledge and education dissemination channel; “Low Carbon Sustainable Home Certification”, community planner and property management training will be promoted.
- (3) According to 2016 “application principles of compensating local governments to promote low carbon sustainable home land projects”, there are 37 projects and 2,812 million NT passed; continuous subsidy and assist local government for maintenance and operation of “low carbon sustainable home operation system” and implement specific actions and community low-carbon construction work guidance to promote low carbon city as demonstration.
- (4) Kinmen island low carbon plan was established as the communication platform with “Kinmen Low Carbon Island Project Promotion Group” to manage and test the operating effectiveness; two meetings were held to discuss “Green transport-electric

vehicle promotion” and “Kinmen renewable energy max capacity of device evaluation” with technologies, laws and regulations, and cost-effect relevant issues.

## II. Land and Resources phase

The recruiting unit of this phase is The Ministry of the Interior construction, and the major task is to ensure homeland security and distribute homeland with its function, to establish homeland use conservation and management plans to promote the legalization of related mechanisms in order to achieve the sustainable development of land. Its annual work results are listed below.

### 1. Water resources development, utilization, management and conservation

- (1) Feitsui Dam sustainable water environment green dam action plan, which construct low carbon green energy ecological dam. In order to ensure the long-term operation efficiency and safety of Feitsui power plant, turbine generator unit were shut down for routine repair work between March 7th and 17th, 2016. According to statistics between January and August 2016, Feitsui Power Plant produce total clean energy 156.69 million 6,244 kWh, which is equivalent to 8,386 metric tons of carbon dioxide reduction efficiency. In addition, Feitsui Dam is responsible for the present and future water supply of Taipei area, so taking care of water resource guarantees the dam’s sustainable management. For protecting water resources we are actively recovering forests, by 2016 there were 3.3 hectares of forest recovered, which will prevent land from harvests and strengthen the land and water conservation of water gathering area.
- (2) Feitsui Dam is responsible for supplying high quality water. From January to August 2016, Taiwan Water Supply Department has supplied 8.175 million cubic meters of tap water, which supplied 74.34 million cubic meters of water to Taiwan Water Supply Company.
- (3) In order to improve the Dam safety monitoring system, all the equipment in Dam are processing monitoring, evaluation, and on-site inspection. From January to August 2016, there are 361 staff involved in on-site inspection, 119,560 dam equipment auto-inspected and 15,798 manual-inspected to ensure the structure and foundations of the Dam are safe and stable.

## 2. Conservation and management of underground water resources

The specific solution and action of land subsidence of Yunlin and Changhua area are that the operation of water supply system of Yunlin County downstream are working well. There are 3.53 million tons water less according to the analysis of underground water pumping from 2011 to 2016.

This county has seawater inlet system in wells aquaculture fisheries production area, aquaculture fisheries production area drainage system in downstream lake, and promoting recycle water aquaculture technology, which counseling 13.8 hectares of aquaculture industry to water-saving development; under estimation there are about 3 million tons saving water annually.

## 3. The sustainable development of marine resources

According to the Coastal Administration Law announced on February 4th, 2015, coastal area shall be demarcated on Aug 4th, 2015. In accordance with this law the detail five sub-law will be announced and operated on Feb 1st, 2016; after discussing and setting the "overall coastal management plan" (draft), municipality, cities and counties government will be invited to attend a public hearing on Aug 19th 2016, hosted at North, Central, South, East region on Aug 29th and 30, Sep 2nd and 5th 2016.



▲ The upper shiding area small lattice section lion head pit afforestation



▲ Feitsui Power plant repairing (internal turbine inspection)

## 4. Land Planning and Management

- (1) Legislation of the Land Planning Law: Due to climate change, in order to ensure homeland security, protect the natural environment and cultural assets, the rational allocation of resources and industries are promoted, the management mechanism of territorial integration are strengthened, and environmentally sensitive and homeland-damaged areas restored, so the country can have sustainable development; The Ministry of the Interior directed by Executive Yuan promotes the legislative work of the "Land Planning Law", which was passed by the Legislative Yuan on December 18th 2015, announced on Jan 6th 2016, and implemented on May 1st 2016.
- (2) National geologically sensitive areas delineation, review and announcement: The delineation, review and announcement of national geologically sensitive areas are completed in five stages. There are 40 geologically sensitive areas and announcing tasks until end of 2015 from first to fourth stages; in 2016 we expect to complete the fifth stage which is the demarcation and notice of 14 geologically sensitive areas.
- (3) For strengthening the experience of nature trail and environmental education, there are 30 activities and training projects for promoting trackless forest movements, trail working holiday, environment education and explanation, recreation until Aug 2016; for promoting forest recreation area and natural education center relevant ecological travel, environmental explanation, there are 116 education training activities hosted, in order to promote the maintenance of the quality of the ecology and environment of state-owned forest eco-tourism areas; for withdrawing the rental state-owned forest to recover the forest, in 2016 there are 253.8 hectares of forest land withdrawing and recovering; according to the situation of the withdrawing forest trees there are reforestation plans to recover or improve the look of the forest in order to strengthen the homeland security.
- (4) To promote agricultural land spatial arrangement and establish a rational mechanism for agricultural land, also for allocating land according to their function, there are 20 counties (cities) government assisted in order to control and more specific use the land from the grade of the farm; the function and allocation of each area are

divided from their agricultural grade, the result of the agricultural land and resources classification will be the reference of agricultural development and management.



▲ Combining with the trail adoption and mountain cleaning activity non-governmental organizations promote trackless forest movement



▲ The look of the forest after completing the withdrawing and recovering afforestation

### 5.National Land protection and preservation

The review, discuss, and update of the debris flow warning benchmark value and rainfall reference: According to the alert value of the target affected MINO earthquake area on Feb 6th 2016, after evaluation we suggest 5 counties (cities) and 10 towns to modify their alert value; in 2016 there were 14 new potential streams and river areas set warning values and warning zones.

### 6.Promote the concept of sustainable and energy-saving carbon reduction public works

Digital learning courses and platforms will be created, to introduce the life cycle of public works (including feasibility assessment, planning, design, construction, maintenance and management) to promote environmental policies and concepts of sustainable management, in order to reduce the environmental impact of public works. As of

the first half of 2016 , there are 2,502 people receiving online digital course certifications.

## III.Biological diversity

This meeting is convened by the Council of Agriculture, which integrates government departments to protect biodiversity and achieve the goal of conservation and sustainable use of native biodiversity. The key and important results are listed in below.

### 1.Continuing to promote habitat conservation

(1)The hotspots of biodiversity of our land, wetland, and sea areas were identified and the recovering of bats population dynamics and health risks of bird population in lotus pond, conservation species, Taiwanese cicadas, and vicious round crabs ecology were measured and remotely monitored. In addition, at the outlet of number three nuclear power plant artificial algal corals are sampled, to analyze the thermal response of the coral host, and the result shows that the *Platygyra Verweyi* at the water-temperature stable region are the most sensitive coral.

(2)The existing systems and management strategies of current protected areas were reviewed and improved. The municipalities and counties (cities) complete the 27 nature reserve management plans in accordance with the “The Revising Periodical Plan for the Management of Natural Conservation Areas” book.

(3)Each county (city) government, community and fishery union develop marine protected areas and self-management reward system. Keelung city government has announced “WanghaiShon Bay conservation area and relevant restriction” also form a patrol team with local coast guard unit, volunteers, and divers; counseling Gongliao fishermen union to set “Mao-o cultivation of fisheries demonstration area”, which will be guided by volunteer patrol team.

### 2.Development of species conservation and biotechnology

(1)Continued to promote the disclosure of information of biodiversity and its revisions, and integrated with the database of other related fields such as environment, ocean, land information, as well as connected to global networks (GBIF, IUCN, OBIS, EOL

GEOSS and GEO-BON). A total of 63,085 distribution records were collected from the open data set of the alien plant distribution sampling survey through TaiBIF IPT.

The screenshot shows the GBIF website interface. At the top, there is a navigation bar with 'Data', 'News', 'Community', and 'About' links. The main heading is 'Alien plant presence dataset from th...' with a sub-heading 'Sampling event dataset published by Taiwan Forestry Research Institute'. A prominent box indicates '63,085 Occurrences' with a 'View occurrences' button. Below this, there are tabs for 'Information', 'Stats', and 'Activity'. The 'Summary' section includes a 'FULL TITLE' and a 'DESCRIPTION' of the dataset, which details the collection of 63,085 occurrence records of alien vascular plants from 4,879 sampling plots in Taiwan between 2010 and 2015. It also lists the publisher as the Taiwan Forestry Research Institute, the publication date as 2016/02/23, and the registration date.

- ▲ Open data set of sampling and survey of distribution of foreign plants
- (2) Strengthened to create the capacity of taxonomy, employed talents in different fields, specimen collection (including genetic material, tissue specimens), biology compilation and revision, species diversity survey and cataloging. The compilation of Taiwan aphids was completed. The study shows that Taiwan breeds a large wasp diversity, which provides the basis for follow-up development in the biological diversity, evolutionary ecology and agronomic applications due to its unique terrain and climate.
- (3) Strengthened the capacity of inspection for GM products, and established and implemented R & D of biotechnology as well as the assessment capacity and management systems that the food give rise to the impact of biodiversity, including marking and investigation on soybeans and corn foods commercial availability, checking if they are GM soy and corn products that have been approved for inspection and registration; and 30 samplings of genetically modified products of papaya seedlings were conducted to monitor the outflow of GMOs.
- (4) Strengthened the research on the indicative animals, plants and population change of microbial species based on the main research platform of forest dynamics plot of 25 hectares of forest dynamics in Fushan. By the center of distribution of the species, reproductive phenology, regeneration rate of trees, functional differentiation and the correlation analysis of ecological

environment factors, explored the impact of global warming on Fushan forest ecosystem. Evaluated and analyzed the conservation of important habitat of leopard cats, studied the breeding population of greater crested terns dynamically in the Matsu region, created a plan for long-term monitoring system for Jacana Ecology Education Park and the population of eastern *Tyto capensis* in Taiwan.

### 3. Promotion of community conservation and habitat rehabilitation

- (1) Built a sustainable community with production, ecology, and living qualifies, implemented “the working project on strengthening forest conservation combined with the Community”, invited 19 communities and tribes to participate in the project (including 18 aboriginal communities). The implementation of forest compartment inspection tour totalled 1,188 times totally. Implemented forest protection together, and reduced the degree of forest damage.
- (2) The investigation and collation of the existing aborigines and the traditional biodiversity in communities were completed, and a database was created to connect to the global network. The traditional data and knowledge of biodiversity through field investigation are completed to upload 5,555 survey data.
- (3) Established a communication platform and cooperative relationship to ensure that there is sufficient resources in Taiwan to assist and encourage private enterprises, communities and conservation groups to participate in biodiversity and biodiversity conservation work. There were 11 cases of plan that subsidized non-governmental organizations to participate in biodiversity dissemination and conservation of biological diversity of habitat, of which "Attend the class! Biodiversity 4: Happiness for Green Economy" won the 40th Golden Tripod Awards for Government Publications in the book category.



▲ Attend the class! Biodiversity 4: Happiness for Green Economy

(4) Investigate the existing degraded ecosystem of the location, area, degree of degradation and draw up a strategy of restoration of the degraded ecosystem. The Regarding landslides, the entire investigation and planning is conducted, of priority to the order of implementation is set up, the rehabilitation of about 10 hectares is completed; slope variation is monitored using satellite to effectively help control slopes with six times the cases completed and 4,000 cases of detecting variation points in total. The area of variation of slope land is about 1,600 hectares. Continue to assess national freeway and roads improves the effectiveness of animal passageways and confirm friendly facilities – bridges across gullies can provide relief from animal traps. The monitoring results showed that anti-grass cloth could effectively control the sprouting of seeds and sprouting of *Leucaena leucocephala*, and set up a "national alien invasive plant *Campylobacter leucocephala* control program".

#### 4. Strengthen the prevention and monitoring of alien invasive species

(1) Establish a mechanism for import and export of alien species (including import and export management of species and quarantine measures), build a joint operation platform for customs clearance, and continuously adjust review of checklist databases with the high risk, unknown risk, the conservation of species in Article 4 of the Washington Convention, and lower risk on the joint operation platform for customs clearance, intensify and expand the structure, content and effectiveness of joint operation platform for customs clearance to facilitate to intensify the management mechanisms for the endangered, high intrusiveness or other management mechanisms that affect the survival of native species.

(2) Establish the risk assessment of alien species imported and introduced that can influence the ecology and draw up strategy for monitoring (detection) and prevention according to assessment results. Using amphibians and reptiles as the object of analysis, implement and use the life history data to assess the analysis and application plans of the impact of alien invasive animals.

(3) Establish the monitoring (detection), identification of the alien species and early warning mechanism, including of the follow-up tracking management for the import of the alien species. Implement the monitoring plan of the alien species for the population of Spot-legged tree frog and the assessment of the impact and the invasive conditions of alien species for Gekko monarchus with the estimate of a population of more than 1,300 in Taiwan.

(4) Strengthen the investigation and seizure of smuggled alien species. A total 45 cases, 76,279 kilograms and 257 live animals of smuggling of agricultural and fishery products was seized. Introduce quarantine dogs to intensify the detection of inbound passengers' luggage and parcels, prevent outbound important diseases and pests from the animals and plants and their products brought illegally into the country. Animals and plants or their products with more than 34 thousand cases, about 36 tons were seized from the inbound passengers' luggage, courier goods and international parcels.



▲ Joint operation platform for sign up for custom clearance





▲ on-duty detection dogs

## IV. Energy and production

Industrial Development Bureau, Ministry of Economic Affairs coordinates and is responsible for developing sustainable energy and promoting green production, including the assurance of energy safety, improvement of energy productivity; Promoting the development of green industrial structure, and enhancing international competitiveness. Its achievements are as follows:

### 1. The promotion of the integration of regional energy and resources and green factories

Went through 22 key industrial parks to advance the integration of energy and resources and completed 360 linked plans of energy and resources such as steam, inorganic sludge, organic sludge, waste insulation materials, waste solvents, and contributed to 104 real links, reaching the linked amount with about 3.82 million tons per year and reducing CO<sub>2</sub> emissions of 851,000 tons per year. In addition, 40 green plant marks have been issued and the compliance determination of 78 manufacturers' Cleaner Production Assessment System is certified. Green building manufacturer award was awarded and the promotion of cleaner production can reduce total carbon emissions by 678,000 tons and save 3.36 billion NT.

### 2. Guidance on the promotion of energy conservation and carbon reduction of enterprises

Assist in the diagnosis of five life service chain enterprises for efficiency of energy conservation, explore the overall business of energy-saving space, and propose the report for the overall improvement and suggestions to provide references for the store in stallations or setting

up a new store. Help to diagnose the energy-saving efficiency of production equipment, carbon footprint inventory, the establishment of energy management system for 105 small and medium enterprises, and complete training such as on green energy conservation and environmental protection, energy-saving technology and work such as energy conservation and carbon reduction as well as publicizing water-saving concepts.

### 3. The establishment of testing experimental projects

Completed the establishment of "DC circuit breaker test equipment used for photovoltaic system" to provide the model and the experiment as well as the test for the circuit breakers that protect the energy technology products provided with DC power to help enhance the safety of power supply systems. The completion of 2 drafts for solar photovoltaic national standards are for reference for the formulation of CNS of national standards. Promoted the LED testing and calibration services, laboratory certification services and research related to optical technology.

### 4. Promotion of clean energy development

- (1) Promote solar photovoltaic policy. Planning for the target amount of solar photo voltage up to 20 GW in 2025 with the annual generating capacity of 25 billion kWh of electricity, whose target of rooftop type will reach 3 GW in 2025. Promote public roof PV-ESCO model, accumulate 19 counties and cities to invest in the rent of public roof for setting up solar photo voltage with a total of about 200 MW, the completion of 17 GW target of ground-mounted in 2025. Promoted to take advantage of land subsidence, unfavorable tillage and contaminated land to install.
- (2) Promoted the "Construction of Penghu Low Carbon Island Project", the preliminary results include 1.56 MW of solar power, 2,493 m<sup>2</sup> of solar water heaters, 5,309 LED lights, 12,028 energy-saving appliances (energy-saving refrigerators and air conditioners), 1,105 smart meters (High-voltage users with 105 households and low-voltage users with 1,000 households), 2,500 tons of rainwater recycling, 50 tons of garbage sorting plants, leakage rate dropped to 23.09%, 212 hectares of afforestation, 3,874 electric scooters and 612 charging pillars, etc. In order to achieve the target of low carbon island to lay a good foundation, the relevant competent authorities

have packages to launch continuously for the projects that have to wait for active handling.

- (3) Promote the "Green power pricing system", The users of temporary power in 2016 will be selected as one of the targets of the project, and increase two identification systems such as the purchase certificate and green electricity badge to help the subscribed users highlight their support and contribution to renewable energy development. The annual subscription amount has reached 267,272,100 kWh with a total of 6,814 subscriptions.
- (4) Set up the "Feed-in tariffs for Renewable Energy Electricity and Its Calculating Formula" in 2017, and added the feed-in category of solar photovoltaic water surface type to facilitate diversified choices for installation. Improve incentives such as: solar high-performance modules and the northern region to set the purchase rate addition, the island rate award, the offshore wind power of the ladder rate mechanism.



▲ Premier Lin Chuan visited the Penghu Zhongtun Wind Park on June 18th 2016

### 5. Promote diversified employment, startup services and vocational training

- (1) According to "Regulations on the implementation of employment promotion of employment insurance", implemented the measures for a variety of employment promotion to reach the target that makes the unemployed people obtain employment immediately. Promoted "the plan of the employment of low-income households and low and middle income families. 16,631 people are subsidized to participate in Technician Skills Certification, and 3,812 people are provided with professional services for cases of job-related assistance. 4,107 firms were invited to promote "Projects on subsidies of employment with universities", providing

opportunities for 227,916 employment, 183,474 people are serviced in total. Promote "Project on youth employment", implement "class of expert of youth employment" to help 4,224 people obtain employment and provide "Enhancing the Employment preparation project for the Senior High School" for the service of 13,427 people. The Employment Promotion subsidy is provided for short-term employment opportunities or referrals to the Multi-Employment Development Program, assisting in obtaining employment for targeted and social vulnerable groups, registering 262,373 job seekers and 184,604 employment referrals.



▲ Hold the lecture for Employment Promotion Program for Senior High School

- (2) Establish a startup counseling mechanism to provide startup loans for women, residents living in the offshore islands and middle-aged and elderly people; to establish a Phoenix Micro Start-up website to provide information related to start-ups such as activities and courses, with the start-up assistance for 1,100 people and creating 2,800 employment opportunities.
- (3) Implement a diversified employment-oriented pre-employment training program to enhance the employability of the unemployed, with a total of 26,923 people trained. Provide diversified and practice-oriented in-service training to labor, and encourage enterprises to continue to invest in staff through subsidized training fees or provision of guide and training services, with a total of 147,703 people trained.

## 6. Development of industrial characteristics, maintenance ecological sustainability

- (1) Promote the upgrading of livestock and poultry industry, register and inspect 1,500 livestock farms and other farms as well as guide them to employ veterinarians. Promote the contract system for poultry farming. The proportion of broiler chicken reaches 95%, 85% is for free-range chickens, 80% is for duck, 8 percent, 50% is for goose. Through the agricultural survey, allocation of supply and sale, meeting for judging the information of production and sale, the error of each month between the actual numbers of domestic pig supply and pre-supply amount is less than 5%. Promoted the mode of high efficient production according to off-site, age, batch and automated feeding system to improve production efficiency.
- (2) Promoted badges for best agricultural products, four certification bodies, 645 main items (5,420 particulars) products in 255 production plants through the CAS verification and launched the traceability, guided four poultry farms and poultry slaughtering and processing factories to pass the certification, with 567 tons of livestock products.
- (3) Protect the agricultural water and soil resources, create Geographic database for irrigation management in Irrigation Association and, including 17 channels of Irrigation Association in Taiwan with total length of about 68,000 km. The checklist items with priority for completion on the processing platform of geographic space map data has a total of about 285,000 plots, with an area of about 28,000 hectares and a production environment database enabling more diverse analysis in the future.
- (4) Continue to promote fishery monitoring, control and investigation. The offshore fisheries observers follow ships to observe them 80 times. The far sea fisheries observers followed ships to observe them 70 times and conducted 70 visual inspections and more than 210 boarding inspections to deter illegal fishing behavior, and manage fishery resources effectively.



▲ Offshore fisheries personnel collecting fishery data

- (5) Launched the "Strategy Plan for revitalizing Forest Product economy" to carry out comprehensive inventory of planted forests, and planned the reasonable and stable supply strategy for domestic timber production. Guided 245,970 hectares of agricultural operation area to develop regional core industries and establish safe, high-quality production bases.

## V. Transportation and life

Transportation and life is the action plan related to the issues of mainly implementation and sustainability of transportation, green living and green consumption. Its focus and achievements are as follows:

### 1. Launch public transport upgrade program for highways

Launch "public transport upgrade program for highways (2013-2016)". The passenger capacity increased from 1.039 billion in 2009 to 1.26 billion in 2016, a growth of 21.27%.

- (1) Subsidize 1,094 remote routes for urban and road passenger transport, totaling 1.176 billion NT dollars to maintain basic transport for the public without interruption; and replace 278 low-floor buses and subsidize 81 universal barrier-free buses to strengthen the transport service of barrier-free universal design.
- (2) Help Ten counties with low public transport coverage give priority to push forward Demand Response Transit Service (DRTS) to upgrade public transport services.

- (3) Subsidized 7 counties (cities) governments and the Taiwan High Speed Rail Corporation to develop equipment compatible with different stored value cards to improve the national electronic value-card system. Promote the establishment of a "Real Time Bus information System" to raise the willingness of taking public transport and enhance quality and operational efficiency of bus operators.

## 2. Continued to promote the construction of rail transport and enhance service effectiveness

Actively promoted the construction of rail transport, improved rail transport services to meet passengers' demand and reduce travel time as well as save costs.

- (1) Implemented metropolitan railway grade separation and railway rapid transit systematization. The elevated railway and the railway rapid transit systematization in the Taichung Metropolitan Area has completed the first phase of the project. After completion, a green corridor may be created with up to an area of 42 hectares, providing the public in Taichung with low carbon travel and friendly public space. The electrification engineering from Shoufeng to Fongtian was completed to enhance the transport capacity of the Eastern Line railway. The TRA purchased 296 buses and put into operation the plan of overall purchase and replacement of vehicles to enhance efficient services of the metropolitan railway rapid transit systematization and to shorten the average journey time.
- (2) Continued to promote the Mass Rapid Transit System in the Metropolitan Municipality. The civil engineering works, automatic toll collection system and flight display system for the projects on Taoyuan International Airport MRT system has completed. Taipei Metropolitan MRT network has been approved, whose lines operated are the Taiwan Taoyuan International Airport Line of Sanchong to Taipei section, the first phase of the ring line, the East Extension of the Lutheran Line, million - and in - Forest Phase I and the new Zhuangzhuang Line (Xin Zhuang Machine Factory) with a total length of about 30.7 kilometers. The case of the Ankeng Line and the SanYing Line of the MRT Project have been commenced.

## 3. Construction of Taiwan's intelligent transportation system

Provide "intelligent transport services" to enable pedestrians to fully grasp the real-time traffic information and the convenience of transportation to reduce travel time and reduce transportation energy consumption and pollution emissions.

- (1) Institute of Transportation, MOTC launched the project on e-IOT to integrate information and provide open access to information on real-time road traffic for 50 companies. The application for each county and city of roadside facilities is 44, and the application for public transport information is 48.



▲ Website of e-IOT

- (2) The services of "Electronic stored-value card for TRA" for Taiwan Railways Administration, MOTC has completed connection. In addition, the equipment for electronic stored-value cards for the urban area in Taiwan, and the bus, TRA, Taipei Gate MRT and Kaohsiung MRT station has been completed to facilitate the public to take public transport.

## 4. Promoted plans for bicycle friendly road network

- (1) Set up exclusive signs, marking lines and related friendly facilities by connecting the main route based on bicycles ridden around the island; promoted the "two kinds of environment-friendly vehicles" with TRA and bicycles to carry out the installation for bicycle riders in Shin Cheng station, Guangfu Station, Yuli Station Bicycle-friendly facilities.
- (2) Carried out the construction of bicycle routes and improvement of peripheral service facilities in the National Scenic Area, including nine National Scenic Area Management Offices such as the northeast and Yilan coasts, the east coast, Penghu, Dapeng Bay, Huadong Rift Valley, Sanshan,

North Coast and Guanyinshan, Sun Moon Lake and Yulin, Chiayi, and Tainan Coastal Park .

### 5. Launch the "Kinmen Meteorological Observatory and Characteristics Study Program"

Anemometers, tide stations, wave gauges, hazemeters has been installed in 20 areas in Kinmen Port, the first and the third port to gather information of real-time observation, integrating the information on the schedule of the bus and the ship and providing the demo information such as tide, visibility, wind speed for the tourists in harbor waiting room and Jiugong travel service center; In addition, integrated the information of coastal forecast simulation, blue road, port real-time images and real-time information of ships around the waters around Taiwan, establish "Jin Sha e dragon show links" APP to Provide comprehensive, value-added and convenient information services.

### 6. Promotion of road safety education

In the framework of "Road Traffic Order and Traffic Safety Improvement Program", the national road safety system is adopted to strengthen various measures to invite the bureau and the department of central government and local governments to invest. Promotion the road safety behavior such as the road test, traffic safety education for primary and secondary school, policy for the University of Motor Safety, as well as the suppression of drunk driving

### 7. Promotion of eco-tourism, environmental education and friendly tourism environment

Actively manage the environment in National Park and National Scenic Area, and make use of rich and diversified environmental characteristics to promote environmental education. Through 9 spots where are certified by the environmental education equipment, the National Scenic Area Management Office has achieved green building badge with a total of 7 pieces.

### 8. Enhance the ability of weather forecasting and earthquake forecasting

The new version of high-resolution weather research and forecasting model of on-line operations are completed. Developed

the technology and infrastructure such as East Asian radar echo data integration with neighboring countries, Japan, Philippine, Hong Kong and South Korea. Completed the applications such as forecasting for aquaculture, apparent temperature forecasting, UV index forecasting and earthquake forecast APP.



▲ Application software for seismic forecast on mobile device

### 9. Enhance the seismic retrofit standards for freeway and bridges

“The seismic retrofit for freeway and bridge of the second phase engineering (No. 1 Prioritized Road)” and a total of 343 bridges in the Tianliao Yan Chao section on the National Freeway No. 3 and Kaohsiung Sub-line of National Freeway No. 10 was completed to be consistent with the National Earthquake Disaster Prevention Program

### 10. Introduction of civil airport into the sustainable development mechanism and flight safety and passenger services

(1)Kaohsiung International Airport of Civil Aeronautics Administration, Ministry of Transportation and Communications passed the certification for Corporate Social Responsibility (CSR) and promote the GHG emissions, being awarded the ACA Level 3 Carbon Certification Mark, the first international airport in Taiwan to obtain the certification.



▲ 2016 International Airport Association Australia Conference for certification for carbon trust

- (2) Updated the meteorological automatic observation system at Kaohsiung and Hengchun Airport, and provided high-quality forecasting data for the staff in charge of air traffic control and meteorological observation. Replaced Tower Terminal Information Automatic Broadcasting System at Taichung Chingchuankang Airport to provide more accurate and fast information on the airport flight service broadcast. Aviation Information Service Network expanded flight announcement services for new airport to improve the service level.
- (3) Established joint waiting registration system for domestic flights of Kinmen, Magong and Taipei airports. To the joint waiting registration system for domestic routes of Songshan Airport was added a waiting system for military aircraft and the function of operation additionally, provided for operational real-time feedback system. Replaced and upgraded the Hualien Airport Flight Information Display System with innovative technology to shape it into a smart airport.
- (4) Seek business operators to develop remote routes for the offshore islands. The fleet has been fully updated to provide people living in remote areas of offshore islands with more stable, high-quality air services.

### 11. Promotion of green consumption

- (1) Established a credibility of the green product certification system. The application for 152 products with specification standards has been approved, with more than 13,000 products approved to use of green mark.
- (2) Conduct marketing promotion activities for green consumption and green procurement training courses and lectures. Recognized 17 government agencies with best green procurement, 70 private enterprises and organizations and 19 dealers whose green shops promoted green consumption with outstanding performance; The amount of green procurement declared by government agencies, private enterprises and organizations totaled more than 2.55 billion NT dollars.

## VI. Technology and assessment

The convening unit is the Department of Natural Sciences and Sustainable Development, Ministry of Science and Technology. The content of the work lies in the application of the existing basic scientific research and technological innovation capacity to the assessment of the earth's ecology and various environmental systems. By the integration of assessing the information, assist in decision-making, fostering scientific and technological talents, intensifying technical exchanges and international cooperation to reduce the major threats that human beings face in development. Its achievement are as follows:

### 1. Projection of Taiwan's climate change and establishment of plan for information platform

- (1) Service for data on climate change and promotion of application
- ① Build an English-language information platform to provide information such as introduction of plan (About US), past change of Taiwan's climate (Past Climate) and projection in the future (Projection), historical activities (Activities) and publishing.
  - ② Continuously provide climate change knowledge translation services; update "knowledge column" page weekly.
- (2) The development of application technology and research & development of climate change information
- ① Use weather derivatives and regression models built based on observed data to produce daily meteorological data such as daily maximum temperature, daily minimum temperature, daily rainfall amount and daily radiation amount in future scenarios of AR5; the verification results show that the data characteristics are in line with the expectations of AR5 scenario files.
  - ② The simulation model for sequence and rate of rainstorms and the empirical model of hydrological parameters are established as the basis of hourly rainfall simulation. The hourly rainfall simulation module is completed and the preliminary verification is carried out.
  - ③ Use TCCIP to analyze and simulate the productivity of crops by the maximum temperature, daily minimum temperature and daily radiation.

- ④The cardiovascular health effect function was calculated by using the threshold and the relative risk value.
  - ⑤Considered the distribution of *Aedes Aegypti* under temperature variation using the historical observing data in the station.
  - ⑥Disaster risk assessment in the whole basin
- (3)Development of climate change downscaling technology and production of data.
- ①Established a statistical downscaling method for data on regional rainfall in Taiwan. It can be compared with the results of Team3 monthly data inversion to speed up the process of database establishment.
  - ②Completed the dynamic downscaling estimated by the three different sets of estimated sea temperature and climatological changes in the future of the MRI-AGCM, and the dynamic downscaling of the simulated typhoon events hit Taiwan simulated by four ensembles of HiRAM is completed.
  - ③Completed the analysis of seasonal rainfall, temperature and typhoon rainfall in the Taiwan area estimated by the ensemble climate simulation.
  - ④Completed the spring rain and summer afternoon rainfall and its analysis of environmental characteristics of rainfall, the numbers of typhoons reaching Taiwan, characteristics of intensity and environmental characteristics to be helpful to the application of disaster impact.
- (4)Observations of climate change in Taiwan and analysis of model data
- ①Mesh data of daily rainfall using the new terrain data and methods of Penghu area to combine the daily rainfall data with three sets of grid temperature data such as the average temperature, daily maximum temperature and daily minimum temperature data in the second half of the year of 2015 in order to provide the data to benefit agriculture, public health, water resources applications.
  - ②Complete the performance evaluation scale for the model of front simulation and the analysis of estimation of the circulation field characteristics in the future, which can be applied to extreme rainfall and water resources related research.

## 2.Integration of Taiwan Biodiversity Information Facility (TaiBIF) with GBIF

- (1)The Ministry of Science and Technology and the COA subsidize the Biodiversity Research Center, Academia Sinica to establish " Taiwan Biodiversity Information Facility (TaiBIF)", "Catalogue of Life in Taiwan (TaiCOL)" and "Taiwan Encyclopedia of Life (TaiEOL) " to promote the collection and the integration of biodiversity information across the ministries and strengthen the dissemination and implement the Open Information Policy.
- (2)Continued to maintain and update the information on Taiwan native plant and animal species explained in the " Biota Taiwanica " (<http://biota.taibif.tw/>).
- (3)Invited to participate in the ASEAN Biodiversity Conference and the 7th Asia-Pacific Biodiversity Observation Network (AP BON) meeting from February 15 to 20, 2016
- (4)Accepted the subsidy from GBIF Biodiversity Information Fund for Asia (BIFA), and planned for the implementation of the training and the study of Biodiversity Information for Asia in 2016.

## 3.Promotion of the integration of space information science with humanities and socio-economics under the cross-research and urbanization on water, food and energy safety (Water-Energy-Food Nexus; WEF Nexus).

In September 2015, we began to ask for the 2016-year plan and completed the concept proposal to review in February, and completed the acceptance plan in April.

## VII.Development of urban and rural

Construction and Planning Agency Ministry of the Interior coordinates and is responsible for promotion of development of urban and rural areas, promoting urban renewal and regeneration, implementing residential justice and housing policy, speeding up sewer construction, integrating lanes (urban roads, bicycle lanes), and building a barrier-free environment for pedestrians, constructing urban green landscapes with human environmental space, promoting environmental regeneration permeable pavement. By the improvement of urban environment,

enhancing the quality of life and ensuring the sustainable development of land. Its achievements are as follows:

### 1. Water resources development, utilization, management and conservation

Replace the old leak pipeline about 679 km, the construction of about 360 partition metering pipe network.

### 2. sewage sewer development

The Ministry of the Interior, in accordance with the "Sewage and Sewer Construction Plan 5" approved by the Executive Yuan, Construction and Planning Agency the Ministry of the Interior and the municipal government actively promoted the user to do pipework and upgrade the sewage sewer connection rate with 12.6 billion NT dollars appropriated by the central government in 2016. Public sewage treatment plants will start water recycling, to achieve the goal of sustainable use of water resources.

### 3. Urban and rural sustainable development

(1) Promote government-led urban renewal case  
Since 2005, 244 urban renewal demonstration areas have been selected. Currently, 27 projects are being planned for preliminary planning, 66 for pre-investment projects and 26 for investment promotion, and 10 by government investment.

(2) Counseling civil urban renewal cases approved implementation  
Since the promulgation and implementation of the Urban Renewal Ordinance in 1998, 1,703 private urban renewal project plans have been approved, of which 565 have been approved for implementation.

3. Subsidize the case of civil autonomous renewal

Since the establishment of the Central Urban Renewal Fund in 2011, the subsidy has been approved by the Central Government for the implementation of the subsidy for self-renewal. The subsidy has been approved in 66 cases (including reconstruction planning and designing 12 cases, 46 cases of construction, maintenance, planning and design, among which include 3 earthquake assessment cases and 8 maintenance and implementation Project cases).

### 4. Eco - city green building

(1) To promote green building badge assessment, 456 cases of green building badge and candidates of green building certificate passed, annual energy savings of about 151.62 million kWh, 7.25 million tons of water and carbon reduction of 83,900 tons are expected.

(2) Promote the assessment for badge of green building materials, pass 141 cases of green building materials badge (105 cases related to health, 14 cases related to regeneration, and 22 cases related to high-performance), covering more than 902 product categories.

### 5. Promotion of social housing

(1) Based on the "Short-term Implementation Plan for Social Housing" approved by the Executive Yuan on 16 June 2011, five pilot sites for Taipei City and New Taipei City (including Taipei Wanhua Youth Section, Songshan Baoqing Section, The northern part of the city, the northern section of the southern section of the Three Great Harmony, the San'an section, the Zhonghexiufeng section) and 1,923 households were planned to be built.

(2) According to the "Medium and Long-term Social Housing Promotion Program" approved by the Executive Yuan on 6 January 2014, a total of 6.7 billion NT dollars has been set aside for 2014 to 2023. Subsidized the local government to set up the early planning fees, construction costs or land use fees for social housing, which will be expected to reach 34,000 households up to 2023.

## VIII. Health and well-being

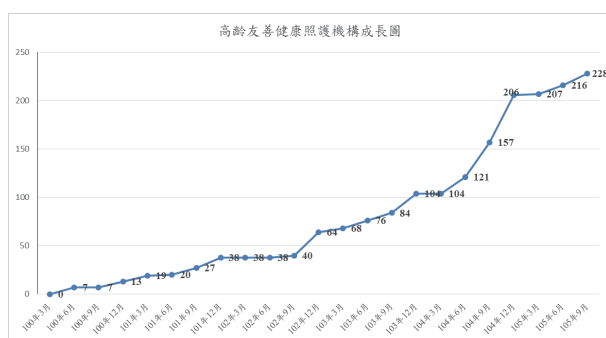
Composed of the Ministry of Labor, the Ministry of the Interior, the Ministry of Water Resources, the Environmental Protection Agency, the Agriculture Commission, the Indigenous Peoples' Committee, the National Institutes of Health and the Ministry of Health and Welfare, which jointly implement health risk management and social welfare. The Ministry of Health and Welfare National Health Department is responsible for convening specific work items including the dynamic attention of the population, the creation of health environment, the intensification of the social security, care of vulnerable groups and protection of women's rights. Its achievement is as follows:



## 1. Finalize the elderly care system, build an age-friendly environment

(1) The introduced structure for the elderly friendly health care in Taiwan was developed in accordance with the 3 WHO principles for the elderly-friendly health care and WHO standards for Health Promotion in Hospitals. Until the end of August 2016, 228 health care institutions (156 hospitals, 20 health centers and 29 long-term care institutions) have obtained the accreditation as elderly-friendly health care institutions.

(2) The Ministry of Health and Welfare pushed forward the plan for the long-term 10-year care, giving priority to the development of home and community-based services, providing diversified care services such as home care, day care, transportation pick-up for the elderly, with 185,241 people obtaining the services in 2016.



▲ The number of accredited health-care providers is increasing

## 2. Deepen the new residents counseling and building a multi-cultural society

Provided 22 counties and cities for new residents to adapt to life counseling matters in 2016 with NT 4,124,000 NT dollars in subsidies. The subsidy will cover remedial classes for new residents, seed workshops, promotion of multicultural activities, and promotion of living and other matters. Also for language learning and multicultural parent-child raising.

## 3. Improved medical services for mountain, ous outlying islands and remote areas

(1) In order to strengthen and complement the medical staff of the Aboriginal and outlying islands, the Government has continued to develop programs for Aboriginal and Outlying Islands medical personnel, and has so far trained 910 public health students. 42 students were admitted this year. After graduation, nearly 70% of the students will continue to provide services in these areas and provide local good medical services. In addition, 232 new medical and related equipment will be provided to the Aboriginal and Outlying Islands Health Centers

(2) Completed the establishment of health medical Information (HIS) for 6 Departments in aboriginal Regional Health Center, in order to allow people in the rural areas to enjoy the same interpretation quality and real-time services. Interpretation of images is provided by the Ministry of Health. The support interpretation had about 7,000 cases in 2016.

## 4. The implementation of epidemic preparedness

(1) Subsidize the Taiwan Pediatric Society, the Taiwan Emergency Medical Association and the Taiwan Family Medicine Association to provide “training on clinical diagnosis, treatment and vaccination of enteroviruses”, “seminars on prevention and treatment of highly communicable diseases in the community”, and “education training for major adult acute infectious diseases”. A total of 13 education trainings related to infectious diseases for enterovirus, Poliomyelitis, Congenital Rubella Syndrome, Neonatal Tetanus and Measles with about 3,000 people attended.

(2) CDC held “the 13th seminar for both Taiwan and Japan” with the National Institute of Infectious Diseases (NIID) from September 6th to September 7th. Both parties exchanged opinions and communicated issues concerning Drug Resistance, Acute Respiratory Infection, Tuberculosis and Epidemic Disease investigation.



▲ The 13<sup>th</sup> seminar for both Taiwan and Japan

### 5. Promotion of the professional zone for the rice production and sale, the group production zone of good quality tea and safe production and supply chain for good and stable fruit trees

Sampled 786 pieces of the annual best fruit for tea pesticide residues, with 96% qualified rate; strengthened the sampling of pesticide residues for tea. Set the sample plan for annual tea field, cargo yard of seaban (dry) to strengthen the sample for the field and market products, with 402 sampling, sampling 402 and a pass rate of 98.7%.

### 6. Creation of a career-friendly environment to balance the responsibility between job and home care

- (1) "Measures for Granting Breast-feeding Facilities and Nursery Facilities" were amended and revised on July 28, 2016. Applying for child-care measures of the subsidy requirements was relaxed and was not limited to contracts with child-care service institutions. Employers providing employees with the subsidies of child card for child care of under 12-years-old. These child care workers can apply for grants each year, with the maximum subsidy of 600 thousand NT dollars, and additional funding grants applied for once per year becoming 2 times per year.

### 7. Improve the welfare service system, give priority to the socially vulnerable groups

Supervised local governments to implement the supply of the related assistance such as emergency life support, child subsistence allowances, child care allowance, injury medicaid, legal aid for encountering special circumstances such as single-parent families,

separated from family, families with domestic violence, unmarried pregnant women and major family changes, with a total of 15,933 families supported and 62,656 people supported until the end of June 2016, with subsidies over 211 million and 160 thousand NT dollars (Social and Family Affairs Administration Ministry of Health and Welfare).

### 8. Promotion of food safety

- (1) Continuously review and timely amend the relevant laws and regulations on food in Taiwan. 8,187 pesticide residues, animal drug residues and food additive standards have completed the review or revision.
- (2) According to the results of sampling inspections, the key points of administration, the issues of public opinion and concern about the risks and the characteristics of product risks over the years, the implementation of commercially available food sampling inspection is implemented by the central and local governments in a systematic way, with 24,216 samples sampled, of which 23,440 samples met standards in 2016. (96.8% pass rate).

### 9. Sustainable development of national health insurance system to protect medical equality

- (1) The annual general health insurance premium rate in 2016 was reduced to 4.69% according to the "National Health Insurance Financial Balance and Revenue and Expenditure Linkage Mechanism" stipulated by the National Health Insurance Association in 2016. The supplementary premium rate was lowered to 1.91%. The accumulated balance of income and expenditure amounted to 231.4 billion NT dollars.
- (2) Since implementation of the "health insurance arrears and medical treatment rights decoupling (comprehensive card) case" was implemented on June 7, 2016, comprehensive health card solutions have been promoted to give people the right of equitable protection. As long as people conduct the insurance procedures, they can feel at ease for medical treatment.

### 10. Review and amend the relevant environmental protection laws and regulations and carry out environmental monitoring

- (1) Continued to investigate and detect dioxin emissions from the fixed sources of pollutants and oxygen data at the air quality monitoring stations, and made public the relevant information on websites such as the Environmental Protection Administration of the Executive Yuan (<http://prtr.epa.gov.tw/>) and the Pollution Release and Transfer Register (<http://prtr.epa.gov.tw/>); Environment Resources Database website (<http://erdb.epa.gov.tw/>) to allow people to freely browse and query.
- (2) The Environmental Protection Administration of the Executive Yuan cooperated with local governments to promote control over the total amount of heavy metals emitted from farmland water bodies that are protected by the government, and shall impose strict control over the total amount of copper, zinc and total chromium, nickel, cadmium, hexavalent chromium in effluents discharged into areas where total control is announced by a local government.
- (3) Amended Standards for Discharged Water, the Standard for Discharge of Water from Wafer Fabrication and Semiconductor Manufacturing, amended the Administrative Measures on Water Pollution Control Measures and the Examination and Approval of Permit Applications, set up Water quality standards for water injection into underground water bodies and the types and limits of harmful substances; amended the water quality standards and harmful substances injected into the underground water body types, limits; established Measures for the Establishment and Management of Special Units or Personnel for Wastewater Treatment and the Waste (sewage) water treatment personnel in violation of Water Pollution Prevention Act for the amount of fines penalty criteria, implemented management properly to reduce pollution.

## IX. Education and Promotion

This unit was convened by the Department of the Information and Technology, Education of the Ministry of Education, whose major tasks are to increase public knowledge and awareness of sustainable development, integrate government, civic, enterprise and school resources to promote sustainable development, strengthen related research and international cooperation and expand civic participation. Its achievements are as follows:

### 1. Increased the public knowledge and awareness of sustainable development

- (1) Offered the public information about the rich biodiversity in the land and sea of Taiwan through permanent expositions, relevant meetings, other press media and related educational activities; to promote the concept of environmental protection and to apply social educational resources to sustainable education and learning resources in different educational stages to promote the concept of sustainable development.
- (2) In line with the policy of the Council of Agriculture (COA), ingredients are made of high-quality agricultural products (Organic, Garden, Sales and Marketing, CAS) and QR-code.
- (3) Implemented the integration of sustainable development issues such as global warming and climate change into the curriculum. The Grade 1-9 Curriculum Guidelines include environmental education as a major issue and integrates it into different teaching fields for implementation. The course objectives include related knowledge on sustainable education and issues like global warming and climate change, to educate students to understand the knowledge behind environmental concepts, values and attitudes. (Such as nuclear-free homeland, sustainable development, global climate change, biodiversity, etc.).
- (4) The Youth Community Participation Program, which encourages the youth of self-organizing teams to expand their alliance with communities, tertiary institutions and non-profit organizations to develop creative action programs that meet the needs of the communities, to invest in community creativity, local industry, and care of vulnerable people for the community to help activate and develop.
- (5) Made TV commercials, broadcast tapes, print, on-line and outdoor ads on issues related to the sustainable development of water resources such as water conservation, disaster prevention, flood prevention; to transmit the knowledge and concepts of the water resource protection through different channels.
- (6) Elevated the concepts of corporate social responsibility and of green enterprise environmental education, to celebrate the seminar about the corporate social

responsibility and to reward the enterprise owners for corporate social responsibility.

- (7) Conducted seminar on Corporate Social Responsibility Reporting and Environmental Management System (ISO 14001) to assist enterprises in establishing knowledge and understanding of environmental management methods and to improve the quality of environmental disclosure.
- (8) To share the results of smart energy-saving projects, to publicize energy-saving activities, to commemorate energy conservation and to complete the energy policy announcement, to call on all people to become energy-saving activists, and to increase public participation in energy conservation to reduce household electricity and expand efficiency of energy saving.

## **2. Integrate public, civic, enterprise and school resources to promote sustainable development**

- (1) In line with the "Four Provincial Projects" program of the Government and schools, the National School of the Ministry of Education has also been incorporated into the guidance routine on energy-saving and provided guidance manuals in 2016 to facilitate the school's follow-up work on energy conservation and carbon reduction.
- (2) Go through with the Local Government Environmental Education Support Team to assist local governments in setting up an Environmental Education Guide Group to assist local governments to plan appropriate and local environmental education programs for different target groups, subsidizing about 200 sub-projects in 22 cities and counties. In addition, subsidized 53 schools to replace high energy-consuming equipment. After replacement, 146.47 million kWh will be saved per year with potential savings of about 0.6%.
- (3) Completed the green network communication process to simplify and enhance the green network with the friendly operation of mobile phone APPs, significantly reduced the operating time of environmental inspection and notification, and carried out education, training and publicity activities for the green network platform go as to effectively strengthen the willingness of the public to act green and care for the environment.

## **3. Carried out related research and international cooperation on sustainable development**

- (1) Twenty-five research projects were subsidized, including the integration of 12-year compulsory education into research on environmental education, the development of environmental literacy teaching strategies, effective teaching strategies and methods for environmental education, and the development of package courses.
- (2) Subsidized a total of 8 cases with 1,454 young people participated in international conferences and activities domestically. Subsidized a total of 12 teams with 49 young people to participate in major conferences and activities of overseas organizations and non-governmental organizations. A total of 2 teams with 12 young people participated in international youth programs were subsidized.
- (3) Participating in the Global Environmental Education Partnership in Madison, Wisconsin from October 16th to 17th, about 15 national environmental education related experts, scholars or officials attended the meeting to promote the cooperation and experience exchange of global environmental education. On 21 October, the Global Environmental Education Partnership of Northern America (NAEP) was launched in North America to invite environmental experts and officials from Northern America to participate in the promotion of environmental education and sustainable development.

## **4. Expanded civic participation to elevate civic environmental consciousness**

- (1) Set up a Digital Opportunity Center in remote urban areas to provide a computer and internet learning environment for the rural population, provided information courses, and subsidized about 500 field trips. More than 400 primary and secondary schools participated in field trips and encouraged Community University to offer environmental sustainability education curriculum and activities (Ministry of Education).
- (2) Approved to subsidies for high schools (vocational high school) and special education schools and for primary and middle schools in 21 municipalities and counties (cities) totaling 186 million, 514 thousand NT dollars (Education Administration).

- (3)Planned for youth part-time work programs in communities. Matched 500 young people to 273 non-profit organizations for part-time work. In addition, promoted the public sector training program for tertiary institutions with a total of 376 student trainees (Youth Department Administration) in the first and second stages.
- (4)Encouraged or coached public and private museums to promote cultural affirmative programs with 31 subsidized cases. Granted subsidies and assistance to organizations and organizations for people with disabilities, provided funds, subsidies and other related activities with subsidies amounting to about 5.1 million NT dollars.
- (5)Procured a webcast of documentary films on energy conservation and environmental issues to be broadcast on the "Environmental Communication Network" for free public viewing and aroused public concern to take actions for the environment. About 400,000 people watched during the year.
- (6)Lectured on energy conservation and promotion activities with 999 rounds in conjunction with the National Energy Conservation Volunteers. 25,405 people participated. In addition, Taipower Company held the energy-saving demonstration of Taipower for its 70th anniversary to demonstrate the interactive teaching aids to let the public understand the skills of energy conservation through interactive experiences, entertaining modes and expanded energy-saving publicity benefits, with more than 200,000 people.
- (7)The Taiwan Soil Museum provided the public with visits with more than 23 rounds and more than 1,050 visits to enhance the consciousness of environmental sustainability and convey the importance of soil functional diversity and soil sustainable use through physical soil samples and educational films .



# Chapter 3 The 2016 National Sustainable Development Award Winners

## I. The 2015 National Sustainable Development Awards

The 2015 National Sustainable Development Award campaign was a 3-stage process: preliminary document review, field visits and assessments by the Committee's civilian members, and then the final objective appraisal by the entire Committee members, in that order. By this process, the 12 winners of 4 categories were recognized. They are: (1) 3 educational institutions—Da-Tun Elementary School, Beitou District, Taipei City; Puqian Elementary School, Banqiao District, New Taipei City; and Luo-Yang Elementary School, Beidou Township, Changhua County; (2) 3 enterprises—AU Optronics Corporation, Masterhold Int'l Co., Ltd. and ASUSTeK Computer Inc.; (3) 3 NGOs—Taiwan Nature Trail Society, Bifeng Community Development Association, Caotun Township, Nantou County and Paulai Association of Culture and Humanity, Kaohsiung City; (4) 3 sustainable development programs—The project of ecological conservation introduced into soil and water conservation (Soil and Water Conservation Bureau, Council of Agriculture, Executive Yuan), The project for Recovering the Formosan Landlocked Salmon and Monitoring its Habitat (Shei-Pa National Park Headquarters), and Taiwan Climate Change Projection and Information Platform (National Science and Technology Center for Disaster Reduction).



▲ The 2016 National Sustainable Development Awards ceremony

## II. Description of the Winners

### 1. Education Category

#### (1) Da-Tun Elementary School, Beitou District, Taipei City

##### a. Introduction

Da-Tun Elementary School, located on the west side of Yangmingshan National Park, Datun mountain, is built on a mountainside. It is rich in flora and fauna, and devoted to maintain the ecological environment. Its ecological environment is varied and its scenery is fascinating. It overlooks the Taipei Basin and Taipei City as well as Tamsui river, Keelung River confluence and Guandu Plain with a panoramic view. Look forward to developing students to have open-minded spirits though unlimited school learning

##### b. Sustainable Development Promotion

###### • Inter-school Strategic Alliance Exchange:

Three schools, Hushan, Chuen Yuan and Datun conduct mutual visits to understand their campus environments and share teaching results. A surprise trip every semester will continue among the schools and other schools to share and enjoy teaching and learning.

###### • Field trips supplement learning:

"It is better to travel far than to read voluminously." Trips helps students to understand the environment, love the land, make new friends and realize their own learning direction. Graduates travel to Hualien Taitung Tribe to experience the original life or all land transport without electricity.

###### • Life has dreams, build a dream at ease:

I CAN program guides students how to learning by themselves and set learning goals, focusing on the course, and sharing and learning no matter if it is successful. Swim across the Sun Moon Lake, cycle around the island, solve magic box, compose a songs, jump rope, play the piano. I CARE is our care time, expressing gratitude and blessing, cultivating a compassionate heart, care for people to the surrounding people and things.

###### • Each is a guide:

From the fourth grade, each child participates as a guide, preparing narrative materials by themselves. The child is the teacher with the ecological care from the beginning.

###### • Vegetable farming education celebrates harvest:

In the beginning of the semester, the class decides which plants will grow with careful care of cabbage, radish, cucumber, corn until the harvest is celebrated at the end of the semester. Have a gratitude from the heart.

###### • Hundred years old trees protect the schools and love:

4 hundred year old trees and 12 old trees in the community are the curriculum of living materials. Teach and cross-field collaboration, weaving childhood memories together under the tree.

###### • Four kings learn on their own:

Manage to encourage children to go toward "good moral child", "Expert understanding health", "Reading master", "talent master" four dimensions in weekdays class, with nickname "four kings".

###### • It is not easy to graduate:

Graduates climb up the main peak of Datun Xifeng, the art exhibition inside and outside the school, graduation trip, feast for thanking for the teacher (talent show), 5000 meters chase, 60 km cycling, which are the tailor-made graduation ceremony for each child.

###### • The domestic most beautiful school tree:

The fallen flower is seen on the ladder under big camphor trees with beauty, which won the selection by Futian Trees Protection Foundation for the most beautiful school tree selection.

###### • Otus lettia comes back:

Teachers and students are very angry at the event where a baby bird fed by Otus lettia has been taken photo by unscrupulous photographers using improper shooting. A year later, the three baby birds fed by Otus lettia has grown up and fly away.

###### • Eagle want to fly and meet Terry Gou:

After students watch "Eagle want to fly", take the initiative to write to Terry Gou to ask him to save the eagle. It is unbelievable that in early January in 2016, Mr. Terry Gou personally met these children, and obtain "Eagle to fly" public broadcast version of the film for the national primary and secondary schools.

##### C. Vision for Future Development

Teachers teaching wonderfully is not better than students learning wonderfully. How to implement learning specifically and operate sustainably to have both tradition and innovation is to make mountain primary school fulfil the quota when enrolling year after year.

We thank the members of the judging panel for their recognition of Datun Elementary School. We will continue to maintain the spirit of "Respect for Life and a Friendly Environment".

## 2. Puqian Elementary School, Banqiao District, New Taipei City

### a. Introduction

The school, located in New Taipei City, is a large city within a city. We look forward to using the hardware and software courses to familiarize children with the natural pulse and practice environmental awareness and action.

"Health, vitality, humanity, and progress" comes from the image of the new generation of urban children. Under the leadership of the principal, we will consider the individual differences of the students and achieve the appropriate teaching, leading the community and parents to participate in the project using the school resources and community characteristics. Turn the concept of "old buildings, new life" into teaching by using the axis of "science, literature, aesthetics, ecology and practice", so as to build a campus with sustainable human resources and a sustainable resources and culture.

### B. Sustainable Development Promotion

We plan to develop an 8-year development program to create a low-carbon eco-campus and activate vacant spaces to provide a learning, visiting and experiencing teaching field with excellent teaching awards by New Taipei City in 2012, an award to promote the outstanding performance of the school energy by the Ministry of Economic Affairs Energy Bureau in 2013, an award with low-carbon school silver goose badge by New Taipei City in 2013, an bronze medal award with primary and secondary schools in the old toilet renovation in 2015, an award of school of sustainable stars by the new Taipei City in 2015.

In the aspect of the hardware, there are two aspects of "Eco-environment Recovery and Maintenance" and "Sustainable Low-carbon Building". The school has replaced the lamp circuit and T5 lamp with the replacement rate up to 98%; actively engaging in the construction of green buildings, building a thin green roof and turning the old toilet into an energy saving toilets, improving the water resources system. After the library is rebuilt, it will have low energy consumption and eco-friendly education. The power in old buildings is planned to improve, reinforce the school buildings. During the process of improvement the process, the school has become a teaching field so that teachers and students can participate in and experience.

Teachers set up teachers' community independently (teacher science popularization meeting, food and agriculture community, health promotion community, natural burning community, etc.), compiling the supplementary

material for the environmental education, flexibly exercising the diverse teaching methods to cultivate students to understand the relationship between human and the environment

The school is a community center. Open campus and provide platform such as every Thursday afternoon community Japanese classes for the elderly, every Wednesday night Hakka dance, health martial arts classes from Monday to Friday morning and community residents to share, which can see the public of the community carrying out multiple activities and learning in the campus. At the same time pay attention to humanistic care, multi-inclusive and respect for the various ethnic groups of teachers and students; to be in consistent with the festivals for activities (Teacher's Day activities, New Year's Eve, Thanksgiving activities in May, etc.), to cultivate the students to have the attitude of appreciation of life.

### C. Vision for Future Development

From participation to winning an award, it is not only an affirmation and glory from a long way for the team, but also provides us with a broader view of the theme of sustainable and different point of view. Thank the Ministry of Education for guidance led by the continuous transformation of local campus team for many years, thank Education Department, New Taipei City government for the recommendation and the guidance, thank the chief of village of community and volunteer team of parent teaching association for the support in human power and material resources.

Talent heritage, resource sustainability and cultural continuity are our daily work every day. Tomorrow, we uphold the sustainable spirit in the hardware building improvement and software curriculum research and development in front of the podium, in the playground so that the sustainable seedlings are deeply rooted in child's life of Puqian .....



▲ Creation of fallen leaves



### (3)Luo-Yang Elementary School, Beidou Township, Changhua County

#### a. Introduction

Luo-Yang Elementary School (the school with the characteristics of butterfly and rice), a primary school located in the agricultural area of the plain forest, whose area is 3.3 hectares with up to 200 kinds of native plants and the chirps and whirrs of insects and birds can be heard everywhere. Overgrown with butterflies herbivores, nectar, butterflies can be seen everywhere dance, flowers. Teachers and students grow organic rice and organic crops for learning activities in the "children farm" set by themselves with more simple and honest resources of the arts and humanities. Learn from nature to create a natural habitat and practice natural agricultural method in order to build the "five five-force learning base" for the sustainable development goals.

#### b. Sustainable Development Promotion

Team upholds the "top-notch, consolidate and support the weak" spirit of education to create a team with flat-style "five five" in a manner of effective communication and dialogue. Integrate the educational resources inside and outside the school, establish the "five-five-force" sustainable development of kinetic energy, build a "engineering, curriculum, courses, courses, run" network-based sustainable development of teaching field, embodies the achievements of each child so that Luo-Yang become the children's learning paradise.

The sustainable development of the characteristics of the local school is rooted deeply by "five five", which won an award of teaching excellence gold by Ministry of Education from 2014, awarded the 1st place of space aesthetics

characteristics of the school by the Ministry of Education from 2014 to 2015, awarded aesthetic characteristics of the school benchmark, by Ministry of Education in 2016, awarded life education characteristics of the school by the Ministry of Education in 2106, which certainly get recognition that Luo-Yang made an effort for sustainable campus with blessing (butterfly) characteristics

The five-for-five system is obtained from local life and teaches children learn from implementation and experienced learning to become their own knowledge and abilities as well as abstract the children through multi-teaching materials, implementation curriculum to. Through the implementation of multiple innovation courses, understand themselves from the exploration and experience and create the value of life from the services to further love life, concern ecology, learn happily.

#### c. Vision for Future Development

From the core concept of "environmental protection, ecology, art and humanities", Luoyang Elementary School builds a teaching pattern of life, production, ecology, life and survival in conformity with the 12 year compulsory education and the trend of international education to develop students with the five power to go - vitality, learning, innovation, and adaptability and communication skills. To cultivate the recognition and love for the environment through the "Five Five Strengths", respect for the life and holistic education with the care. Immerse the children with the love of education and professionalism so that each child will grow up with miracle in their own land.



## 2. Business Category

### (1) AU Optronics Corporation (AUO)

#### a. Introduction

AUO devotes to the balanced development of three dimensions such as economy, environmental protection and society, and regarding governance and evaluation has been in the top 5% places of enterprises selected for 2 consecutive years by the Taiwan Stock Exchange. AUO performs excellently regarding the implementation of management such as governance system, attention to shareholder rights, transparency, risk management, real-time information disclosure. Under the operation of the Council for Sustainable Development and the supervision of Board of Directors, the company makes an effort towards "sustainable development" efforts, and works together with all walks of life towards the sustainable road, and has also been recognized by the outside world and has been selected as the DJSI World Index for 7 consecutive years, of which four years is leading in the group.

#### b. Sustainable Development Promotion

The rate at which AUO replaces the destructive PFCs equipment for the high-temperature potential reached 100%, which is the only panel manufacturing industry in the world to do so. Its accumulated greenhouse gas reductions reached 12.1 million tons by 2016, equivalent to carbon dioxide uptake of about 31,000 Daan Forest Parks per year.

The AUO's global recycling capacity in 2016 reached 1,209 million tons with a recovery rate of 88%. By the end of 2016, the company declared reaching the goal of reducing water, creating water, water and Water Neutral by 2020, of which "Water reduction" aims to reduce the intensity of production water by 30%. Reduce water for production efficiently through R & D of process technology and the improved performance of water treatment equipment. The goal to "create water" is to produce 10,000 tons of recycled water per day from the Taichung plant. Increase the usability of water substantially while responding to the national water policy. The goal of "Water Neutral" is further use after the Longtan plant recycles the water for manufacturing fully. Through the reduction and the services that provides supply chains with water-saving technology services, integrate to save water with supply chain and become Taiwan's first enterprise achieve water neutral in Taiwan.

AUO built a green factory building in Taichung and uses renewable energy, becoming Taiwan's first manufacturing enterprise to pass certification of "facilities and places for environment and

education" granted by Environmental Protection Administration in 2014. In addition, the company shares and disseminates the professional engineering technology and the concept of cherishing water resources through the "AUO Green Ark Water Education Center" built in the Longtan plant and the completed first self-designed water recycling system in 2015 in Taiwan, expecting to do our part for water resource education.

In the contribution of social humane care, AUO has set up four major programs for charitable events: "cultivating honest and intelligent people", "charitable caring / promoting original culture", "promoting science and technology education in optoelectronics" and "Getting close to earth eco-energy conservation and environmental protection" to let the employees participate in volunteers, realize self-fulfillment and make an effort for a better society. AUO sets up six service clubs. The colleagues go to the neighboring social welfare agencies regularly for services, including the accompanying service, environmental cleanup, touring for the targets of the social bureau emergency placement of children, the children with physical and mental disorders in the hospital and the dropouts. There were 150 services, more than 2,000 volunteers in 2016.

#### c. Vision for Future Development

As a professional supplier of liquid crystal displays and solar energy solutions, AUO not only devotes to product innovation, but also to has the determination of the core values of the three pillars of "passion for this, the pursuit of excellence, caring society" to implement the "sustainable development". After the completion of the three emphasis, the Company will realize the vision of a bright and innovative "graceful life" and a mission of "becoming a top green solution company." We hope to make AUO a "sustainable excellent enterprise" through a high-quality corporate culture.



▲ AUO Green Ark Water Education Center

## (2) Masterhold Int'l Co., Ltd.

### a. Introduction

Masterhold Int'l Co., Ltd. was founded in November 2005. Its product research and development not only won recognition by domestic manufacturers, but also obtained a number of patents. In its corporate philosophy, the Company holds a sincere and pragmatic attitude to develop and design, research and develop the green energy industry, as well as actively participate in investment in R & D and agents of lithium iron phosphate. The products developed break through in the characteristics that the traditional lead-acid batteries do not have the characteristics for environmental protection, safety, energy saving, carbon reduction, which are in line with international environmental norms RoHS standards. In the future we will not only continue to develop green energy technology as the goal, but also do our part for the global village through environmental protection and sustainable development.

### b. Sustainable Development Promotion

The R & D team in Masterhold Int'l Co., Ltd. studied the lithium iron phosphate feasibility for 10 years, which is the only industry to master material technology and the innovative application of its end-product. All the technology and products are developed and researched and manufactured by the company. In the field of lithium-iron battery research for several years, develop protection board with a low current to control high current (patent) first, and possess several revolutionary patents with automotive battery in the world, including the patents such as battery board with high-current, car battery with the function of rescue, car battery with anti-theft features. These car battery can let each car reduce emissions of carbon monoxide by 26%, hydrocarbon toxic substances by 8% according the test report, and the invention of rescue function do not need to rescue vehicles so that it can save more fuel consumption and human waste. Therefore, it has a great contribution to energy conservation.

In the aspect of innovation and research and development, the problem that the traditional electric vehicles is not easy to promote lies in the heaviest battery, which take too long to charge and shortest trip. However, fast-recharge batteries can solve these problems. Masterhold Int'l Co., Ltd. fast rechargeable battery reduces battery usage, quickly recharges using fast-charge features, and extends the trip in a way of segments. It enables the green transport to achieve practicality, and enables mobile power to reach the goal of simplification.

Masterhold Int'l Co., Ltd. is not only responsible for customers, colleagues, shareholders, but also exercises the commitment of corporations to make a contribution to society. With the concept of "change is the beginning, the service is quietly doing good, contribution is accumulated, the dream is down to earth" concept, Masterhold Int'l Co., Ltd. will take advantage of the products to make contribution to the community, extending care to the global village, helping domestic groups and overseas remote areas to be a responsible social enterprises.

### c. Vision for Future Development

Masterhold Int'l Co., Ltd. aims at becoming a "Quality Enterprise for Sustainable Management", and implementing the vision of "Dedicated Application R & D, Leading the Green Future" to reach the mission of "Top Green Energy Innovation and Development" for enterprise.

The company expects its products can become the leading brand in green energy markets in the short-term, and built a complete service chain in the medium-term, and deepened the recognition for the customer to the product brands of Masterhold Int'l Co., Ltd.. It provides complete solutions of energy-saving and carbon reduction in the long-term goal to help each industry go forward for energy-saving carbon reduction and create a more convenient and low-polluting technology life to fulfill the corporate social responsibility.



### (3)ASUSTeK Computer Inc.

#### a. Introduction

ASUSTeK Computer Inc., founded in 1989, is the world's largest motherboard manufacturer and ranks as one of the world's top three consumer notebook brands. From a professional brand to the international 3C brand worldwide, we have achieved significant growth in this fast-changing industry due to two constant factors: our eager to create new experience for users, and our steadfast commitment to quality. These values are part of our brand promise: "Excellence in innovation, superior quality."

#### b. Sustainable Development Promotion

ASUS focuses on best quality and environment-friendly product design and R & D, introducing ISO 9001 and QC 080000 system management to keep close tabs on quality and environmental protection, and also extending the product liability to the care for the employees, introducing ISO 14001 and OHSAS 180001 to protect employees from working in unsafe environments. In response to further global warming issues, ISO 50001 is introduced to enhance energy efficiency and reduce greenhouse gas emissions.

ASUS entered a sustainable business transformation in 2009 with the establishment of the Corporate Sustainability Office, incorporating features such as green innovation, corporate sustainability performance, supply chain social responsibility management, employee care and social engagement, covering the comprehensive sustainable development such as a full range of economy, environment, and society. While adhere to the green quality of products at the same time, we also think about sustainable innovation.

In the "Digital Recycling Program" project, were-assemble the usable parts of recycled discarded computers to give new life to regenerated computers. In addition to reducing the environmental impact, it also has become the first step in promoting digital learning and reducing the digital divide. We establish a Digital Opportunity Center to promote digital learning with the help of information volunteers. Over seven years, we have set up more than 100 computer classrooms worldwide, benefiting more than 100,000 people. ASUS set its initial reduction goals in 2009. The 15% compared with 2008 reduction of greenhouse gas emissions by 2015 have been successfully reached. After the commitment expired in 2015, the second phase commitments for GHG reductions will be made further for 2025:

- (1) Reduction of greenhouse gas emissions by 50% (based on 2008).
- (2) 50% increase in energy efficiency of major products (based on 2013).

#### c. Vision for Future Development

After the pursuit of excellence and adherence to the quality of innovation, ASUS also devotes fully to environmental protection and corporate social responsibility. This privilege once recognizes ASUS operates steadily in the competitive and rapidly changing market. Sustainability is a long road. ASUS still regards sustainability as the basis of enterprise competitiveness and differentiation in the future, ranking the leading enterprise among the green high-tech leading groups. Making a real contribution of business philosophy to human society, go toward the sustainable operation.



### 3.The NGO Category

#### 1.Taiwan Nature Trail Society

##### a.Introduction

Taiwan Nature Trail Society was initiated by the nature trail steering committee of the Homemakers' United Foundation at first with the philosophy of developing the concept of the nature trail, ecological conservation and education. After continuous promotion in years, the members of the nature trail steering committee decided to set up their own organization. Therefore, they established the association on June 5th, 1999, world environment day with the philosophy of “promoting the nature trail, implementing the ecological conservation”. In the past 17 years, the nature trail society held interpretation and education activities in mountain trails and communities to promote the conservation of nature and environmental education with its original passion.

##### b.Sustainable Development Promotion

The Director, Hsu Kuei-Hsin, included the environmental education project which was designed with the environmental issues, such as, the themes of soil and water conservation, the concept of biodiversity, the effect of the exotic species, Leave no Trace principle and the interaction between people and Nature in the activities to promote the eco-environment of the trail since 2013. With different teaching elements, ex. DIY, reality simulation prototype, puppet show, story time and stage show to activate the demonstration and enhance the effect. He will also try harder on the research of the teaching in the future. The association also elaborated with the Department of Travel and Ecotourism in Tungnan University, to provide the environmental education promotion activity (including the consignment of the agencies, group tour guide

reservation, free tour guide on the holiday, environmental education promotion courses, environmental education eco camps, community university and community environmental education programs, etc.), which attracted around 18,000 to join per year.

During these years, the association not only finished many publications but also continually formed the teaching groups to offer almost 40 courses in Wenshan Dist., Shilin Dist., Zhongshan Dist., Shongshan Dist., Xinyi Dist., Zhongzheng Dist. And Wanhua Dist., in Taipei City; Shulin Dist., Xinzhuang Dist., Linkou Dist., Zhonghe Dist., Tamsui Dist., Sanying Dist. in New Taipei City and fourteen community universities as well as Sun Yat-sen Memorial Hall and Chiang Kai-shek Memorial Hall which all had great comments.

##### c.Vision for Future Development

Actually, we've been very simple, low-profiled and rarely promoted ourselves via media. However, with our continuous efforts, we keep leading people to experience the beautiful sciences and amazing ecology along the trails so people can establish the attitude to be friendly and respective to the Nature. Just like we keep our paths on the trail, slowly and yet casually, we will keep “walking”.



▲ Youth travel spot in Pingxi, Taipei



▲ The introduction and guide to the eco-environment of the trail in 2015

## (2) Bifeng Community Development Association, Caotun Township, Nantou County

### a. Introduction

Bifeng Community Development Association is in a modest valley located in Tazutuen Township of Nantou County. The association established in 1992 and it has been zealously promoting the caring for the vulnerable groups in the community, maintaining the recycling job for environment, offering the courses to enhance the cultural quality of the residents as well as establishing the neighborhood watch team to protect the safety of the residents.

### b. Sustainable Development Promotion

The community makes every effort to promote all the activation activities to help the residents continuously learn while growing. To promote the recycling work in the community not just by reducing the amount of garbage, but to make the kid's toys with the recycling items. Rice is the biggest industry in the community so the community weave the rice straw to turn the unused material into something useful.

The community has transformed into an society for the elderly and it hold all kinds of activities for the elderly, supporting services for seniors. Every week, the community will hold a caring activity at different spots and offer meals to have the residents gather together. A dietitian is employed to take care of the health and lunch for the elderly.

Offering courses to enhance the cultural quality of the residents ranged from ocarina class, dancing class, Japanese class, singing class, calligraphy class, Qi-gong class and parent-child painting class. Besides the regular classes, the ocarina class and dancing class also perform in other activities to interact with other units; at the Japanese class, the residents can learn another language and know different cultures; at the singing class, residents

who enjoy singing can have their own stage; the calligraphy class allows residents to cultivate their minds; the Qi-gong class enables the residents who want to nourish their bodies have the chance for a physical training; the parent-child painting class provides the kids an extra place for learning.

On every Lantern Festival, the community will hold a traditional activity with the Grade-3 listed historic monument- Longde Temple; the Temple for The Lins is also remained so every spring and autumn, the residents would worship together. Since Bifeng supplies rice locally, the straw culture is able to be promoted to the community for inheritance and creativity. In 2016, the community promoted the rice culture through the rural regeneration activity to inherit the traditional technique of making rice. The community successfully promotes the local industry with rice culture and creates different business opportunities to increase job openings while the local industry can be applied on different fields for better purposes.

### c. Vision for Future Development

Even if we are not the brightest star, we still do our best to shed our light with warmth to lead people home. We hope the community be full of warmth so we build it with smiles; we hope community be filled with smiles so we develop our future with harmony; with smiles and harmony, we see possibilities and future in our next generation.

The most modest community is the countryside community where you can feel the warmth and energy. There is nothing particularly special here, but we have our stories; our grass is as soft as the European carpet and our kids will smile at you without fear. The volunteers in our community are full of energy and the elderly here are like a library where you can find wisdom. Our ecology is full of amazement for you to explore.



▲ Straw weaving and environmental friendly Chinese toys

### (3)Paulai Association of Culture and Humanity, Kaohsiung City

#### a.Introduction

“Every effort counts” is the philosophy of the Baolai Humanity Association in Kaohsiung (formerly Baolai Reconstruction Association in Kaohsiung) as they believe the power to make things happen relies on the group devotion. The reconstruction progress after the destruction by Typhoon Morakot made us realize the true value of the elderly’s words. After the disaster, our association used natural building techniques to build “Shezaijiao culture shared space” and learn how to coexist with the land from the very beginning. We shared the technique and experiences of making vegetable dyes, ceramic art, eco-environment education, Kiln roasted braid and pizza to develop the second skill of the residents and resolved the problem of unemployment. The major mission is to assist the residents to find life focus through the progress and re-establish confidence.

#### b.Sustainable Development Promotion

The original intention for local sustainable operation has been internalized to the premier philosophy of our association. During the operational process, we realized only to reinforce the cultural connotations so we can refresh our hearts and regain the power to revive the economics and tourism. Therefore, we’ve been working on the below aspects to develop the above mentioned-cycle of goodness for “coexisting with the land”.

##### ①Developing the space for empowerment, cooperative studies and arts in the community.

Building the community workshop-Shezaijiao culture shared space to conduct the courses of empowerment and cooperative studies to cultivate the spirit.

##### ②Developing talents to cultivate the human capital in the community.

Developing various professionals for different fields, such as, organizational management, caring services, industrial skills and docent ability.

##### ③Developing the abilities of the elderly for caring services.

Developing the abilities of the elderly to expend the human resources in the community.

##### ④Implementing the community-based environmental education and transmit the culture.

The courses Baolai developed for the ecological investigation and records which included folklore experience, growing plants, the history of the old trees and the traditional holiday foods were published in a brochure-“Nature fun with life” as a teaching material for Baolai Elementary School to use as the regular cooperative study course with the community.

##### ⑤Exploring the industry in the community and developing diversified industries.

Being eco-friendly for developing agriculture, cultural customs and crafts with humanism to develop diversified industries.

#### c.Vision for Future Development

Sustainability for us, is to have our future generations live and work in this land. It’s a simple and small hope, but it’s difficult to accomplish. Our association was established in coping with the reconstruction from the impact of Typhoon Morakot. After that disaster, we realized only by developing talents (abilities), can we accumulate sustainable strength. From talent development, team establishment to organizational operations, these are all essential conditions to promote the local sustainable development. Human capital is the most important, and talent cultivation is a necessary investment to grow capital. Therefore, starting with people and then extending to the land, environment and community. Intervening from the three dimensions-life, ecology and production to establish a cycle of goodness for “coexisting with the land”.



▲ Love this land, start planting from childhood



▲ Love the hometown, keep company with children



▲ Shezaijiao culture shared space

## 4. Action Plan Category

### (1) The project of ecological conservation introduced into soil and water conservation (Soil and Water Conservation Bureau, Council of Agriculture, Executive Yuan)

#### a. Introduction

The Soil and Water Conservation Bureau promotes the overall watershed conservation and disaster prevention with the spirit to conserve soil and water as well as to serve society by protecting residents of rural villages from the threat and fear of landslides. It established the landslide prevention system in communities, advocates education on soil and water conservation, implements the supervision and management of hillsides, maintains hillside health and safe environment, improves traffic in rural villages, maintains road safety and transportation for agricultural products and handles the relevant affairs of the facility improvement for the farm track.

The Soil and Water Conservation Bureau started to research and develop inspection methods of the eco-engineering since 2007, with the goal of having the soil and water conservation construction based on the ecological thinking as an eco-friendly behavior in order to reduce the impact on the environment caused by construction.

#### b. Sustainable Development Promotion

In order to control the important habitats, species, environmental characteristics and ecological subjects, set different scales of environmentally sensitive area index map as the reference to determine the potential ecological effects caused by construction, and bring up counter suggestions to minimize the impact on the environment and ecology as well as to update regularly for meeting requirements and application of the current status.

Setting the ecology inspection system to help the relevant ecological assessments of the life cycle engineering, and drawing up the ecology



▲ The fifth construction of the improvement for Duen-abanang stream in Alishan Township, Chiayi County

inspection items at different phases for the ecological specialist to collect and investigate the ecological information around the construction area and propose the protected targets accordingly. To draft the eco-friendly suggestion of reducing the impact so the engineers can understand the ecological subjects to be clarified or the conservation measures to be advanced at each phase. The implementation of the ecological inspection is based on the order of the life cycle engineering phase which includes: (1) The plan approval phase is to establish the ecological value, assess the possible ecological effects from the construction, ecological cost and ecological benefits; (2) the key point of the scheming and designing phase is to assess the potential ecological subjects, confirm the ecological issues and the ecological protected targets. According to the ecological status of the construction area to set the avoidance, reduction, compensation, etc., such eco-friendly strategy and the important protected targets; (3) the majority of the constructing phase focuses on setting the ecological conservation measures before the implementation phase, and ensure the completeness of the ecological protected targets and the area of concern during the construction as well as to maintain the environmental quality; (4) the maintenance and management phase emphasizes the follow-up of the ecological protected targets at the later stage, evaluates the quality of the habitat within the control range, analyzes the ecological subjects and draft the conservation measures to validate, review and respond to the effect of the ecological inspection.

Since the ecology inspection system was established in 2007, it has been applied to watershed protection projects of the Shihmen Reservoir and Tsengwen and Nanhua Reservoirs, altogether 237 cases.

To reinforce the philosophy and implementation of ecological conservation, the Soil and Water Conservation Bureau amended the “Engineering, Procurement and Construction contract template” and increased the relevant regulations of “eco-friendly measures”, set the “Eco-friendly Measures SOP” which would consider the ecology while improving the sensitive area to cover both requirements for the conservation improvement and the ecological conservation and take it as a base for the design unit, inspection unit and contractors as reference. In the contract template, the penalty regulation was included. If the implementation of the eco-friendly measures is against the contract, the compensation program would be required or the penalty would be occurred for breaching the contract. This regulation is indeed a useful tool to reinforce the



implementation of the ecological conservation and inspection.

To further consider the opinions from the environmental and conservation organizations and the local residents, the relevant people who care about the local ecological environment will be invited to attend the site survey meeting before the basic design and construction, and take it as an information session to explain the goals and ideas of the construction in public for the residents to participate and communicate. The residents can fully understand and offer related suggestions at this information session whereas the opinions from different fields would be gathered and included for the construction reference. The concerns from all parties can be clarified to reduce the cost and misunderstanding of the policy communication.

### c. Vision for Future Development

For the factors of the vulnerable geologic conditions and the several rainfall in Taiwan, the sediment disaster often put people's lives and properties as well as the public infrastructure in danger. To conserve water and land resources and maintain the environmental safety of the hillside, construction management is necessary. However, since the ecological environment of the hillside is sensitive, adverse effects will be easily caused if there is no proper plan and appropriate assessment of the relevant techniques and measures. The Soil and Water Conservation Bureau has gradually reduced the impact on the environment with the eco-friendly behavior and decreased the negative effects from the construction in view of the ecological conservation while protecting habitat at the same time.

In the future, the Soil and Water Conservation Bureau will continuously implement and promote soil and water conservation construction and ecological conservation work, and set goals for developing the sustainable ecological environment and biodiversity conservation to follow the natural environment and design based on the local conditions. To achieve disaster prevention and ecological conservation for symbiosis between human beings and nature.

## (2) The project for recovering the Formosan Landlocked Salmon and Monitoring its Habitat (Shei-Pa National Park Headquarters)

### a. Introduction

Surrounded by various peaks and streams, such as the cirque glaciers of Xue Mountain, Dabajian Mountain, Xue Mountain Range, Pintian Mountain and abundant animals and plants, is how amazing the landscape looks in Shei-pa National Park. This is where the Tamsui River and Da'an River originate, and is one of the most

important watersheds for Dajia River. To sustain the natural beauty is the most important work in Shei-pa Headquarters.

### b. Sustainable Development Promotion

In the beginning stages when Shei-pa Headquarters was established in 1992, the amount of the formosan landlocked salmon was less than 300 which was close to extinct. The space for the group to subsist was limited to the basin of Cijiawan River only. The primary objective to conserve the formosan landlocked salmon was to improve the water quality and coordinate with Wuling Farm to stop agricultural activities in the basin of Cijiawan River as well as expropriate 8.1 hectares of farm to proceed with the ecological restoration. Also, making a public announcement to forbid the visitors to enter the basin of Cijiawan River and setting the sewage treatment plant in Wuling area to improve the impact caused by the recreation activities.

The plan to "Monitor and research the restoration of the river ecosystem at Wuling area" was continuously conducted since 2005 based on the aspects of the river ecosystem and integrated relevant research on dispersal ecology in the Wuling area to establish the basic data of the ecology system for the basin of Cijiawan River. The observation in years has built an ecology system that can predict the effects of the environmental change and human interference and further understand the environmental ecology at Wuling area.

Regarding the obstruction of the migration at the habitat of formosan landlocked salmon caused by the check dam, the improvement work of the four check dams at Cijiawan River has been finalized in 2000, and another amendment of the check dam No.1 at Cijiawan River in May, 2011. Building the river corridors at the upstream and downstream of Cijiawan River to improve the environment of the basin. The result of the monitor showed the quantity of all types of species was rapidly recovered and the formosan landlocked salmon could be traced upstream which indicated the improvement of the dam contributed to the river flow.

The local conservation work has reduced the extinction risk for the formosan landlocked salmon, and by releasing the cultured fish species to the historical rivers, the satellite genome of the formosan landlocked salmon was established so the genetic diversity was increased. Among these rivers, the released fish have established a stable group at the habitat of the Yousheng Creek tributary - Lo-Ye-Wei creek after the releasing process in 2009 and 2010 and is no longer in need of the releases. 250 formosan landlocked salmon were released to Leshan River in 2014 and have reproduced to a wild population at the summer survey in 2016. 416 formosan landlocked salmon were in the Lo-Ye-Wei creek and 286 were in Leshan River which means the population has been growing stably and reflected the local

and remote conservation outcome which has been done by the Sheipa Headquarters in years.

The ecology center of the formosan landlocked salmon and species database were established in 2007 to conserve the genes of the wild population and maintain genetic diversity as well as to provide guided services for residents to visit. The number of the visitors after the inauguration is above 100,000 per year and the conservation philosophy was rooted in the education.

Promoting local conservation including the method of “sealing off the river area for protecting fish” with the nearby tribes to preserve the formosan landlocked salmon around the park. Composing the conservation patrol team with Huan Shan Community, Nanshan community and Songmao community to protect the rivers so these aboriginal communities can participate in the important conservation work in person.

### c. Vision for Future Development

To maintain the sustainable development, the Sheipa Headquarters further understood the conservation directions with scientific research which included research on the ecology system of Cijiawan River, ecological resources of the alpine ecosystem of Xue Mountain and the inspection of the atmosphere, water quality, hydrology and physical environment to improve the environment of the habitat. Promoting local conservation with nearby tribes for the sustainable operation these years in hopes of having the eco-friendly agriculture to promote the ecology tour of the tribes and care of the conservation of the formosan landlocked salmon at the same time. The philosophy of the conservation should be rooted in the education and the partnership with the tribes should be established so everyone apart from the public sector can make the effort together since childhood.



▲ Making efforts on the conservation with the nearby tribes and releasing the formosan landlocked salmon to their historical rivers.

## (3) Taiwan Climate Change Projection and Information Platform (National Science and Technology Center for Disaster Reduction)

### a. Introduction

The Minister of Science and Technology has been promoting the estimation of local climate change and impact research to face all the challenges caused by the high risk of climate change in Taiwan over the long term. Since 2009, the Ministry of Science and Technology continuously implemented this action plan (“The plan of establishing Taiwan climate change projection and information platform”, hereinafter referred to as TCCIP plan) which included plans of three advantaged areas for the climate change to encourage the government and people to actively face the impacts caused by climate change, in the aspects of investigation on the physical mechanisms, phenomenological analysis, the advance of the estimation ability, the establishment of the information platform, data processing and analysis methods for making proper adjustments.

The TCCIP plan was the core of the overall framework for the plan of advantaged areas for the climate change towards the Ministry of Science and Technology. Being organized by the National Science and Technology Center for Disaster Reduction with the cooperation of the Central Weather Bureau, Water Resources Agency, Taiwan Agricultural Research Institute, Centers for Disease Control of the Ministry of Health and Welfare, Research Center for Environmental Changes of the Executive Yuan, National Taiwan Normal University, National Taiwan University, National Chiao Tung University, National Central University, National Cheng Kung University, University of Taipei, Chinese Culture University, Chang Jung Christian University, National Center for High-performance Computing. These units with build the exclusive scientific research platform for climate change in Taiwan.

### b. Sustainable Development Promotion

The team integrated climate observation data from both the public and private sectors and digitalized the climate observation data from earlier times. Next a thorough inspection and grid computing process established the long-term and stable climate observation data in high spatial resolution in Taiwan and the estimation data of the regional climate model in Taiwan through statistical methods (statistical downscaling) and physically based modeling (dynamical downscaling). The huge volume of the estimation of the climate change in Taiwan and the scientific data of the future estimation can be used for the phenomenological analysis and risk assessment

of the climate change, which provided the specific and substantial contribution and effects on the research of domestic disasters, hydrology, agriculture, public health, ecology and energy.

The data service system of TCCIP was officially online in March 2014 and the users could download the climate change data for free by completing the application process. By the end of June 2015, it served 5 research projects on average per month. The achievement of this plan covered the research project of the Ministry of Science and Technology, autonomous research of research units, and the related projects promoted by the central and local governments.

This plan established “Taiwan climate change projection and information platform” (TCCIP information platform <https://tccip.ncdr.nat.gov.tw>), to transform the scientific data to understandable illustration, provided climate data, information and knowledge in a simple and understandable way for users to realize. Publishing the “Scientific report on Taiwan climate change” to describe the physical phenomena and mechanisms of the climate change and clarify the meaning of the relevant scientific data; holding all types of data services and activities and providing the relevant data (including the meeting handbook, briefing and audio file) on the TCCIP information platform with agreement from speakers so people and the scientific community who were unable to participate in person could browse or download anytime. The professional analysis and scientific data could be the reference for the government to set the adaptive strategy for climate change. The illustration was the effective resource for people to obtain accurate climate change data. If people search the key words with “Taiwan, climate change” on google search engine, the homepage will show TCCIP website and “Scientific report on Taiwan climate change” directly which is easy to obtain the relevant information about this plan.

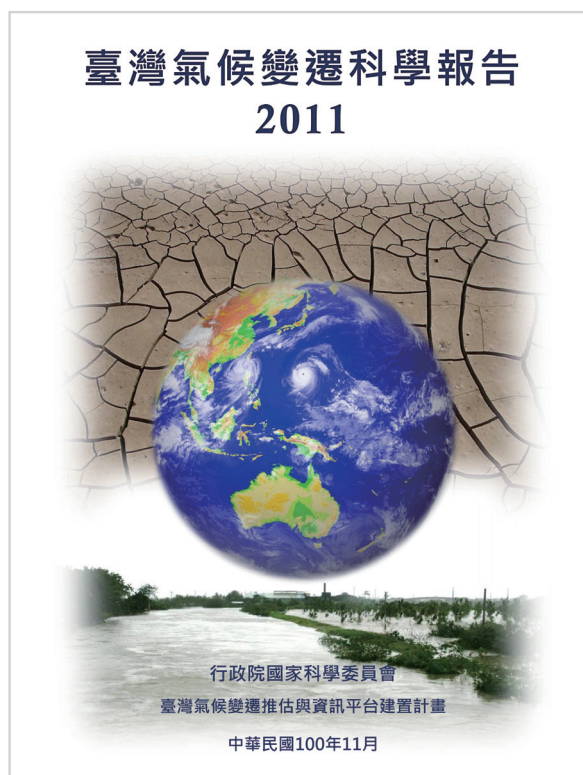
### c. Vision for Future Development

The United Nations have appealed to the governments of all countries to continuously reduce the release of the greenhouse gases in order to reduce global warming, actively face the impacts caused by climate change and make proper adjustments. The Ministry of Science and Technology is devoted to research on estimation of climate change impacts for more than 20 years and even more actively promoted the integrated research on climate change recently. The National Science and Technology Center for Disaster Reduction was honored to organize the TCCIP plan and implement it. Much appreciation to the grant funds and instruction by the Ministry of Science and Technology as well as to the above stated agencies and academic & research units for

their participation.

This plan provided the latest research data of the domestic climate change and grasped the essential knowledge and experience through the interaction, communication and feedback from the users which would be the base to continuously promote the science service of climate change in the future.

We are very pleased to connect with the business affairs of the government branches through the implement of the TCCIP plan. The award we received this time represented the encouragement and expectation from the NCSA committee; we believe the Ministry of Science and Technology, the Technology Center for Disaster Reduction and all colleagues from the relevant academic & research fields will contribute more on the national conservation sustainable development.



▲ Scientific report on Taiwan climate change 2011

## Appendix Members of the NCSD

Government Official Members		
Name	Position	Organization
Chuan Lin	Premier	The Executive Yuan of the Republic China
Jing-Sen Chang	Minister without Portfolio	The Executive Yuan of the Republic China
Jiunn-rong Yeh	Minister	Ministry of the Interior
Wen-Chung Pan	Minister	Ministry of Education
Chih-Kung Lee	Minister	Ministry of Economic Affairs
Chen- Tan HO	Minister	Ministry of Transportation and Communications
Tzou-Yien Lin	Minister	Ministry of Health and Welfare
Li-chiun Cheng	Minister	Ministry of Culture
Chi Hung Tsao	Minister	Council of Agriculture, Executive Yuan
Tain-Jy Chen	Minister	National Development Council
Ruey-Tsang Lee	Minister	Financial Supervisory Commission
Ying-Yuan Lee	Minister	Environment Protection Administration, Executive Yuan

Government Official Members		
Name	Position	Organization
Pao-Kuan Wang	Director	Research Center for Environmental Changes, Academia Sinica
Chung-Chin Lu	Professor	Institute of Electrical Engineering, National Tsing Hua University
Wang-ken Lin	Director	Taipei Urban Redevelopment Center
Sheng-Fong Lin	Professor	Institute of Architecture, Shih Chien University
Kuo-Ching Lin	Professor	Institute of Agricultural Economics, National Taiwan University
Lien-Siang Chou	Professor	Institute of Life Science, National Taiwan University
Shin-Min Shih	President	Taiwan Environmental Protection Union
Luis Ko	General manager	I-MeiFoods Co., Ltd
Lucy-Sun Hwang	Professor	Institute of Food Science and Technology, National Taiwan University
Ching-Lin Kuo	CEO	Anti-Nuclear Action Alliance of North Coast Taiwan
Angela Chang	Executive Director	Taiwan Circular Economy Network
Liang-Kung Chen	Director	Center for Geriatrics and Gerontology, Taipei Veterans General Hospital
Ai-Lin Chen	Executive Director	Fubon Cultural & Educational Foundation
SHIH-LIANG TU	Consultant	The World Bank (consultant)
Tien-Pen Hsu	Professor	Institute of Civil Engineering, National Taiwan University
Cheng-Tsung Huang	Chairman	Business Council for Sustainable Development(BCSD)
Jin-Hung Hwang	Professor	Institute of Civil Engineering, National Central University
Der-Ray Huang	Professor	Institute of Photonics, National Chiao Tung University
Vicky Yang	CEO	Cycling Life style Foundation
Eva Teng	Spokesperson	National Health Insurance Civic Surveillance Alliance
Omi Wilang	Presbyterian Church	Taiwan Indigenous Mission Committee Program secretary
Jyh-Cherng Shieh	Farmer	His Ran Foundation
Daigee Shaw	Professor	Institute of Economics, Academia Sinica
Huey-Jen Su	President	National Cheng Kung University

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