

104 年 國家永續發展年報

*2015 Annual Report on
National Sustainable
Development*



行政院國家永續發展委員會秘書處 編印

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前言

台灣因地狹人稠、自然資源有限、天然災害頻繁、國際地位特殊等因素，致對永續發展的追求，較其他國家更具需要性與迫切性。為因應全球永續發展趨勢，行政院於 86 年 8 月以台八十六環字第 33137 號函核定成立「行政院國家永續發展委員會」（以下簡稱永續會）；91 年 12 月總統頒布實施「環境基本法」，該法第 29 條賦予永續會法定位階。

本年報彙整永續會及民間 104 年推動永續發展的重要成果，包括 104 年永續會年度工作概況（第一章）、永續會各分組年度工作重點與成果（第二章）、永續發展國際論壇（第三章）、104 年國家永續發展獎得獎單位介紹（第四章）、及永續會民間委員專訪（第五章）等。永續會組織架構及委員名單，詳列於年報附錄。

永續發展貴在全民共同參與，藉由「國家永續發展年報」之發行，期望國人及國際人士能更了解我國推動永續發展的過程及成果，並希望能藉此提升全民對永續發展的認知，進而共同參與國家永續發展的工作。



第一章 104 年國家永續發展委員會年度工作概況

壹、召開相關會議

104 年行政院國家永續發展委員會 (以下簡稱永續會) 召開 2 次委員會議及 2 次工作會議，研商永續發展相關議題，會議概況及議案如下：

一、第 27 次委員會議

會議於 104 年 6 月 9 日在行政院 2 樓第 1 會議室召開，由行政院毛治國院長兼永續會主任委員主持，會議議程共計 3 項報告案：

- (一) 有效推動公共污水處理廠放流水回收再利用
- (二) 推動綠色經濟
- (三) 檢視及研訂我國永續發展目標



▲ 行政院國家永續發展委員會第 27 次委員會議

二、第 28 次委員會議

會議於 104 年 12 月 18 日在行政院 2 樓第 1 會議室召開，由行政院毛治國院長兼永續會主任委員主持，會議議程共計 4 項報告案：

- (一) 「溫室氣體減量及管理法」說明暨「國家自定預期貢獻」
- (二) 「行政院國土保育專案小組階段性成果報告」
- (三) 永續會永續發展目標 (草案)
- (四) 永續會永續發展政策綱領策略部分修正



▲ 行政院國家永續發展委員會第 28 次工作會議

三、第 39 次工作會議

會議於 104 年 4 月 24 日在行政院貴賓室舉行，由永續會葉欣誠執行長主持，會議議程共計 1 項報告案及 4 項討論案：

- (一) 促進國民健康國家單等計畫
- (二) 永續會第 26 次委員會議決議事項執行與檢討
- (三) 永續會標誌選定事宜
- (四) 推動綠色經濟政策綱領 (草案)
- (五) 如何有效推動公共污水處理廠放流水回收再利用



▲ 行政院國家永續發展委員會第 39 次工作會議

四、第 40 次工作會議

會議於 104 年 12 月 3 日在行政院貴賓室召開，由永續會葉欣誠執行長主持，會議議程共計 1 項報告案及 2 項討論案：

- (一) 行政院國土保育專案小組執行情形
- (二) 永續會永續發展目標 (草案)
- (三) 永續會永續發展政策綱領策略部分修正



▲ 行政院國家永續發展委員會第 40 次工作會議

貳、永續發展政策行銷推廣 -- 發行 電子報

永續會為強化社會大眾對永續發展理念的正確理解，鼓勵全民參與永續發展行動，於 102 年 11 月的第 37 次工作會議決議「永續發展政策行銷推廣專案」。發行永續發展電子報，是其中重要工作事項之一。內容以介紹國際永續發展趨勢與現況、我國永續發展推動情形、永續會推動情形、國內永續發展資訊及地方永續發展情形等為主。

刊物自 103 年 7 月開始發行，採雙月刊方式出刊。104 年發行了第 6~10 期。就第 10 期而言，內容包括了聯合國 2030 永續發展議程：全球行動的起始、桃園市綠色城市運作推動情形、永續會近期工作、永續會分組重點工作成果－氣候變遷與節能減碳分組、永續會蔣本基委員、駱尚廉委員專訪，以及近期國內外永續發展相關新聞等。



▲ 行政院國家永續發展委員會永續發展電子報第 10 期

參、2014 年永續發展指標系統之評量

永續發展指標系統制定目的係為評量及檢視永續發展推動成效，聯合國於西元 1996 年發表第 1 版永續發展指標系統，鼓勵各國參考聯合國指標系統架構，依國情研訂其永續發展指標系統，以檢視各該國永續發展推動成效。後續聯合國檢討其指標系統適宜性後，分別於西元 2002 年及 2007 年發表第 2 版及第 3 版永續發展指標系統。

行政院國家永續發展委員會於 91 年參考聯合國永續發展指標系統與架構，進行永續發展指標系統之研擬，並於 92 年發表永續會第 1 版指標系統，後續每年公布前一年度之指標系統評量結果。此外，為與世界趨勢接軌，永續會於 97 年 12 月決議參照聯合國第 3 版永續發展指標系統架構，以永續會第 1 版指標為基礎，研訂第 2 版指標系統，並於 98 年 12 月討論通過。永續會第 2 版指標系統架構與聯合國第 3 版指標架構同為「面向」、「議題」、「指標」三層次。

2014 年永續發展指標系統評量作業

(一) 永續會秘書處於 104 年 8 月 3 日辦理「2014 年永續發展指標數據填報研商會議」，邀請永續會民間委員及指標主政機關研商，確定 2014 年須填報之指標名稱、定義、計算及數目等；並請各指標主政機關至永續會資訊網站「個別指標資訊管理系統」填報年度數據。此外，秘書處於同年 10 月中旬函請各指標主政機關，撰寫 2014 年指標評量報告內容。

(二) 永續會秘書處於 12 月 4 日邀請永續會民間委員及各指標主政機關，辦理「2014 年永續發展指標數據確認及研商會議」，以確定 2014 年評量報告之各項指標年度數據及報告撰寫內容。

(三) 永續會秘書處於 104 年 12 月 30 日公布「2014 年永續發展指標系統評量結果」於永續會全球資訊網 (<http://nsdn.epa.gov.tw/>)，周知社會各界。

肆、舉辦 2015 永續發展國際論壇

行政院國家永續會，為了解國際永續發展政策最新趨勢及聯合國 2015 年 9 月 25 日永續發展高峰會後之動向，並向國人推廣永續發展之意涵，特於 104 年 11 月 4 日在國家圖書館國際會議廳，舉辦為期一天的「2015 永續發展國際論壇」。會中邀請日本、歐洲及美洲等國際推動永續發展績效卓越之學者專家，以及國內永續會委員、政府機關代表、學者專家，進行研討及經驗交流，同時與國人分享永續發展最新進展。

本次論壇討論的主題，包括「聯合國永續發展高峰會」後的國際永續發展政策展望與因應、Rio+20 後各國綠色經濟之推動進展，以及近年國內外永續韌性城市推動情形等。由行政院國家永續發展委員會葉欣誠執行長，親自致開幕詞並擔任閉幕論壇主席。執行長葉欣誠強調，永續發展貴在共同參與，為了讓人民了解永續發展的真諦，特將永續城市的推動列為研討重點，旨在展現中央與地方政府合力，落實臺灣永續發展。

永續發展國際論壇詳細討論內容與成果，請參閱本年報第三章。



▲ 2015 永續發展國際論壇

伍、辦理年度國家永續發展獎評選及表揚

我國相當重視永續發展的推展，民國 86 年 8 月即成立「行政院國家永續發展委員會」。為順應全球永續發展趨勢，鼓勵社會各界參與永續發展行動，永續會自民國 93 年起辦理「國家永續發展獎」選拔，選出永續發展推動績效卓著單位。藉由得獎單位的經驗分享，將永續發展的精神深植於社會，並落實於國民日常生活中。

今年所辦理的「104 年國家永續發展獎」已邁入第 12 屆，包括教育永續發展獎、企業永續發展獎、社團永續發展獎及永續發展行動計畫績優獎等 4 大獎項。表揚對象為推動永續發展表現優異之學校、企業、社會團體及政府部門。依往例在 5~7 月，由各負責之工作分組先進行「書面初審」，再將初選名單提交永續會秘書處。由秘書處統籌邀請民間永續會委員，在 8~10 月間進行「實地複評」、10 月底進行「決選」工作。本年度最後得獎名單於 11 月下旬公布，共選出 10 個得獎單位，並於 12 月下旬於行政院辦理表揚。永續發展獎獲獎單位之介紹，詳見本年報第四章。



▲ 永續發展獎實地複評

第二章 永續會各分組年度工作重點與成果

永續會成立以來，其下之工作分組配合實際需求，有多次更動。自民國 97 年 11 月起，永續會共設置九個工作分組，104 年度工作重點與成果分別說明如下：

壹、氣候變遷與節能減碳分組

本分組以環保署為召集單位，負責協調推動能源節約、溫室氣體減量、氣候變遷衝擊評估及調適行動規劃，並協調推展氣候變遷相關國際合作事務。其年度工作成果如下：

一、建構溫室氣體管理機制

- (一)「溫室氣體減量及管理法」於 104 年 6 月 15 日經立法院三讀通過，7 月 1 日總統令公布施行。
- (二)環保署於 104 年 1 月 15 日發布「2014 年中華民國國家溫室氣體清冊報告」，說明溫室氣體清冊統計的範圍、概況與整體排放趨勢，揭示各部門不同溫室氣體排放源與吸收匯的統計方法、數據、結果與各部門排放趨勢等內容。
- (三)環保署於 104 年 4 月 22 日發布「溫室氣體認證機構及查驗機構稽查作業要點」，並自即日生效。

06



▲ 2014 年中華民國國家溫室氣體清冊報告

- (四)環保署於 104 年 9 月 17 日於行政院第 3466 次院會報告我國溫室氣體減量承諾「國家自定預期貢獻」(INDC) 草案。

二、部門別因應氣候變遷行動

- (一)國發會 4 月 20 日核定補助桃園市、雲林縣、嘉義縣(市)、臺南市及高雄市共 6 個地方政府，辦理「第二階段地方氣候變遷調適計畫」。
- (二)內政部建築研究所預定於 105 年度辦理建築技術規則綠建築基準專章檢討修正之研究，內政部營建署將依研究成果辦理後續修法事宜。
- (三)經濟部能源局分別於 1 月 1 日、9 月 21 日公告「電熱水瓶」及「冰溫熱型及溫熱型開飲機」容許耗用能源基準與能源效率分級標示事項、方法及檢查方式，並分別自 104 年 1 月 1 日及 105 年 12 月 1 日起，陳列銷售該項產品應張貼能源效率分級標示。

三、推動實質參與氣候公約

- (一)104 年 11 月 30 日至 12 月 11 日參與法國巴黎召開聯合國氣候變化綱要公約第 21 次締約國大會暨京都議定書第 11 次締約國會議 (UNFCCC COP21/CMP11)，由環保署負責籌組代表與會。

- (二)環保署於 104 年 10 月 18 至 20 日假越南河內召開「泛太平洋氣候變遷調適夥伴國際工坊」，分別就各國國家自定預期貢獻 (INDC)、氣候變遷公眾意識等議題進行討論。

四、擴大公民參與

為使各界瞭解溫管法整體架構，及將現行減量機制順利接軌，環保署特於 104 年 9 月 25 日舉辦「溫室氣體減量及管理法專案會議」，並廣邀各界代表參加，俾利收集意見。

五、輔導產業低碳綠化

經濟部工業局推動產業節能減碳，104 年度參與經濟部溫室氣體自願減量協議之鋼鐵、石化、造紙、水泥、人纖、棉布印染、絲綢印染、複合材料等 11 行業共執行 1,040 件減量措施，總計二氧化碳減量 81.7 萬公噸，衍生之節能經濟效益約新台幣 32 億元。

六、宣導綠色樂活 推動低碳運輸

(一) 交通部觀光局推動國家風景區建築物採用綠建築工法，花東縱谷「羅山遊客中心」、馬祖「南竿遊客中心」、參山「獅頭山風景區南庄遊客中心」及阿里山「觸口遊客服務中心暨行政管理中心」已分別獲內政部頒發「綠建築標章」認證。

(二) 金門縣議會於 7 月 27 日審議通過「金門縣低碳島自治條例」，進一步落實低碳永續建設工作。

貳、國土資源分組

本分組之召集單位為內政部營建署，主要任務在於確保國土安全，並依國土功能分區，建立國土保育利用及管理計畫，推動相關機制法制化，以實現國土資源之永續發展。其年度工作成果如下：

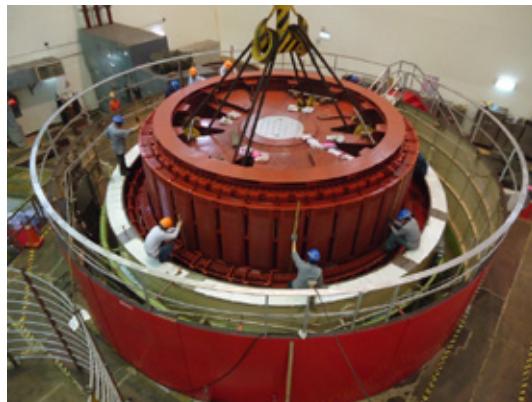
一、水資源開發、利用、管理及保育

(台北市翡翠水庫管理局、農田水利會、水利署)

(一) 翡翠水庫永續水環境綠色水庫行動計畫，建構低碳綠能生態化水庫。為確保翡翠電廠長期運轉效能與安全，104 年 3 月 2 日停機辦理電廠定期大修，104 年 5 月 3 日恢復機組運轉發電。同年 1 至 9 月累計綠能售電為 159,450,375 度，減碳量達 8 萬 682 公噸二氧化碳當量。再者，翡翠水庫肩負大臺北地區目前及未來的供水重任，做好水源涵養工作等於是水庫永續經營的保障，為涵養水源而積極植樹造林，104 年造林 3.238 公頃，新植肖楠、楓香、臺灣櫸及相思樹等台灣原生樹種共計 5,181 株。

(二) 翡翠水庫供應質優量足原水，104 年 1 月至 9 月供應臺北自來水事業處自來水原水量達 2 億 645 萬餘立方公尺，支援台灣自來水公司達 1 億 1,361 萬餘立方公尺。

(三) 改善大壩安全監測系統，實際辦理大壩各項儀器監測、評析及現場檢查。104 年 1 月至 9 月底止共計辦理大壩現場檢查 405 人次，大壩儀器自動監測 89,425 筆及人工量測 17,911 筆，確認了大壩結構及基礎均保持安全穩定。



▲ 104 年 4 月 22 日翡翠電廠機組大修 (轉子吊裝)



▲ 循環水養殖設備



二、地下水資源之保育與管理（農委會漁業署）

雲彰地區地層下陷具體解決方案暨行動計畫，雲林縣下崙養殖漁業生產區海水統籌供應系統正常運作中（供水面積 122 公頃）；100 至 103 年底，規劃節水 200 萬噸，實際節水 280 萬 6,000 噸。該縣水井養殖漁業生產區海水進水系統（供水面積 79.92 公頃）、下湖口養殖漁業生產區供排水系統（供水面積為 280 公頃）及相關養殖漁業生產區或魚塭集中區海水進排水路，各設施正常運作中；100 至 103 年底，規劃節水 200 萬噸，實際節水 302 萬 9,000 噸。

三、海洋資源之永續經營（內政部營建署）

- (一) 配合行政院核定並於 102 年 10 月 17 日公告實施之「全國區域計畫」，依區域計畫法第 15 條規定於 104 年 5 月完成全國 17 縣（市）「海域區」劃定之核備作業。
- (二) 依據 104 年 2 月 4 日公布施行之海岸管理法，於 104 年 8 月 4 日劃定公告海岸地區範圍。

四、國土規劃與管理（內政部營建署、經濟部中央地質調查所、林務局、農委會企劃處）

- (一) 落實空間計畫指導土地適宜開發政策，依 102 年 10 月 17 日公告實施之「全國區域計畫」，已於該區域計畫中研訂「得申請設施型使用分區變更區位」劃設原則，於直轄市、縣（市）區域計畫，要求以環境承載限制為前提，依據產業政策及其發展需求，予以指定「得申請設施型使用分區變更區位」。配合全國區域計畫「得申請設施型使用分區變更區位」原則，已於 104 年 8 月 17 日修正發布非都市土地開發審議作業規範規定。

- (二) 辦理全國地質敏感區劃定、審議及公告作業

全國地質敏感區規劃分五批完成劃定、審議及公告（截至民國 105 年止）。第一批及第二批，計 19 項已於 103 年度完成公告。104 年度正進行第三批及第四批，計 4 類 23 項地質敏感區之劃定公告作業，目前已公告 7 項。

(三) 劃設自然保護（留）區及加強經營管理持續進行自然保護區域劃設與管理：建立完善自然保護區域體系，分別劃設自然保留區 22 處；野生動物保護區 20 處及野生動物重要棲息環境 37 處；自然保護區 6 處，面積總計 412,906.15 公頃（已扣除重複部分），約占臺灣陸域面積 11.40%，連結中央山脈保育廊道，以完整保育臺灣核心生態系統。

(四) 推動農地資源空間規劃並建立農地合理利用機制，透過深化應用農地資源空間規劃成果，完成 15 個直轄市或縣政府轄內產業及其價值鏈發展之空間配置構想。持續辦理農地資源空間規劃分類分級檢核及標繪作業，提供農業單位充分掌握農地資源分布等資訊。為利國土規劃及資源配置，提供農地分類分級結果，納入全國區域計畫。

五、國土保育（農委會水保局）

對於全國山保條例所列之山坡地，運用衛星進行山坡地變異監測（一年 6 次），有效輔助山坡地管理。

六、推廣永續及節能減碳公共工程概念

（行政院公共工程委員會）

辦理數位學習課程，介紹公共工程在全生命週期（包括可行性評估、規劃、設計、施工、維護管理等階段），推廣永續經營環境政策及理念，減輕公共建設對於環境的衝擊。

參、生物多樣性分組

本分組之召集單位為農業委員會漁業署，工作內容係延續行政院 90 年通過的「生物多樣性推動方案」，整合政府部門，推動「生物多樣性永續發展行動計畫」；辦理廣宣或相關活動，讓公私部門形成共識，建立夥伴關係，共同維護生物多樣性，以達本土生物多樣性保育及永續利用之目標。其年度工作成果如下：

一、陸域及海域生物多樣性可能的熱點進行調查並確認

行政院農業委員會特有生物研究保育中心與美國康乃爾鳥類研究室合作，成立 ebird Taiwan 網站 (<http://ebird.org/content/tw/>)，蒐集臺灣鳥類分布資料，完成 378 處熱點清單。

二、加強分類學能力建設，逐年完成台灣各類動物、植物與微生物誌之編撰與修訂

農業委員會特有生物研究保育中心與社團法人中華民國野鳥學會完成臺灣鳥類名錄之修訂並公開「2015 鳥類紀錄委員會報告」一篇。該中心也於 10 月出版了「臺灣新年數鳥年華 2015 年度報告」。而林業試驗所，從 5 個國際害蟲資料庫，篩選近年入侵危害嚴重的入侵種，並建立景觀林外來種害蟲名錄。

三、重大林木病蟲害之入侵風險評估與資訊平台建構維護

針對國際間新增之林木病蟲害類入侵種 20 種，經資料收集後，進行風險評估，建立資料庫，並邀請國內相關專家協助完成風險性評估表書面報告（農業委員會林業試驗所）。

完成臺灣北部地區（宜蘭縣、臺北市、新北市、基隆市、桃園市、新竹縣）歸化植物的調查，建立地理分布資料庫，出版臺灣北部地區歸化植物圖鑑，提供給一般民眾及研究參考之用（農業委員會林業試驗所）。



▲ 活動名稱：樣區調查環境照片：大雪山國家森林遊樂區

圖片來源：廖士睿攝

四、擬定擬復育劣化環境之優先順序與優先擬定之復育方式

農地污染改善工作由環保署督導地方環保機關執行。截至 104 年 9 月底止，歷年累計調查公告列管污染農地共 5,299 筆面積 897 公頃，累計 2,723 筆 545 公頃完成改善，2,576 筆 352 公頃整治中。目前由地方環保機關規劃進行污染農地改善工作，並持續進行農田土壤污染調查作業。

五、相關政策的公告與施行

(一) 金門縣政府 3 月 19 日公告「金門縣古寧頭鰲水產動植物繁殖保育區」

(二) 農業委員會農糧署 1 月 7 日訂定「仙客來品種試驗檢定方法」，並委任農業委員會種苗改良繁殖場為仙客來品種性狀檢定及追蹤檢定之檢定機構，並自即日生效。

(三) 農業委員會農糧署 4 月 1 日訂定「仙履蘭、香菇為適用植物品種及種苗法之植物種類」，並自即日生效。

(四) 農業委員會農糧署 4 月 10 日公告許可「基因轉殖白花文心蘭蜜雪一號遺傳特性調查及生物安全評估田間試驗」計畫。

(五) 澎湖縣政府 5 月 4 日修正「白棘三列海膽（馬糞海膽）漁業資源管理有關限制事宜」。

(六) 農業委員會 6 月 5 日以農牧字 1040042808 號函，同意其所屬畜產試驗所「墾丁山羊」新品種登記，為未來在地養羊產業發展提供抗逆境品種來源。

(七) 農業委員會農糧署 9 月 10 日訂定「彩葉芋品種試驗檢定方法」，並自即日生效。

(八) 農業委員會水產試驗所 10 月修正「基因轉殖水產動植物田間試驗管理規則」第 14 條，未來基因轉殖觀賞魚之田間試驗，得向中央主管機關申請合併執行遺傳特性調查及生物安全評估，簡化行政流程，協助國內觀賞魚產業多元發展。

肆、能源與生產分組

本分組以經濟部工業局為召集單位，業務以發展永續能源、促進綠色生產為主軸。包括確保能源安全、提高能源生產力；推動產業結構綠化發展、提高國際競爭力。其年度工作成果如下：

一、推動綠色工廠 (經濟部工業局)

截至 104 年 9 月已核發 26 張綠色工廠標章及通過 61 家廠商清潔生產評估系統符合性判定，並陸續辦理審查中。獲證廠商相關綠建築及清潔生產推動作為合計每年可減碳 59.7 萬噸，節省成本達新台幣 33 億元。

二、輔導中小企業推動節能減碳

(經濟部中小企業處)

104 年度協助 105 家中小企業進行生產設備節能效率諮詢診斷、碳足跡 / 水足跡盤查與查證或能源管理系統建置與驗證輔導等節能減碳相關工作。完成中小企業綠色節能環保、節能技術等節能減碳人員培訓，共計 500 人次，節能減碳與節水觀念宣導 80,000 人次以上。

三、建置檢測實驗項目 (經濟部標準檢驗局)

完成建置「太陽光電斷層掃瞄系統測試設備」1 套，發展逆向工程研析能源科技產品（太陽光電模組、冷凍空調、中小型風力機組件及燃料電池等）事故案件發生原因，有助提升廠商產品品質，並提供修正檢測標準參考依據。完成美國 NVLAP 二級光學校正實驗室認證作業，取得國際驗證資格，提供臺灣廠商更及時在地的國際性合格校正服務。

四、推動「綠色電價制度」辦理情形

(經濟部能源局)

能源局自 103 年 7 月起，執行為期三年的「綠色電價制度試辦計畫」，鼓勵民眾、企業自願性認購綠電。104 年度自 2 月 16 日開放認購，附加費率為 1.06 元/度，開放認購上限為 7 億 8,400 萬度。至 10 月 15 日，已認購量達 1 億 5,594 萬 100 度，約為去年的 36 倍。



▲ 104 年 8 月 28 日，鄧部長、林局長至新竹拜會台積電，並致贈銀杏樹苗，象徵發展綠能將「迎來幸福」。



▲ 綠電標章，依照用戶認購度數多寡區分成三個級距

五、執行「主要能源密集產業節約能源及使用能源效率規定」(經濟部能源局)

104 年 3 月 4 日公告「電子業節約能源及使用能源效率規定」，對於電子業主要使用能源設備（如：冰水主機群組、風機、吸附式乾燥機及壓縮空氣系統）訂定操作規範，預估每年總節能量達 12.7 萬公秉油當量。同時也公告「紡織業節約能源及使用能源效率規定」，對於紡織業主要使用能源設備（如：冰水主機群組及熱媒鍋爐）訂定操作規範，預估每年總節能量達 3.9 萬公秉油當量。

六、推動「低收入戶及中低收入戶就業促進之服務」(勞動部)

配合「改善所得分配具體方案」，勞動部推動「100-105 年低收入戶及中低收入戶就業促進實施計畫」，積極協助低收入戶及中低收入戶就業。提供職業訓練服務、補助參加技術士技能檢定、參與職場體驗機會、辦理民間團體及政府部門就業機會及個案管理個別化專業服務。



▲ 辦理促進中低收入戶及低收入戶就業研討會，分享業務經驗

七、辦理多元就業導向之職前訓練（勞動部）

為協助失業者再就業，以自辦、委辦、補助等方式，辦理多元就業導向職前訓練課程，以提升就業技能，促進就業，並導入所需新技術與概念，加強辦理符合產業所需之訓練課程。104 年截至 9 月底計訓練 4 萬 1,077 人。

八、結合大專校院辦理就業服務（勞動部）

推動「結合大專校院辦理就業服務補助計畫」，補助大專校院辦理校園徵才、職涯講座與參訪等就業促進活動，以協助大專畢業生順利進入就業市場。



▲ 辦理校園徵才博覽會

九、鼓勵農民終身學習，強化農民專業知能

（農業委員會）

農民學院於 100 年正式揭幕，成為有意從農者精進為菁英的訓練基地，並結合農業研究、教育、推廣資源，建構完整之農業教育訓練制度，針對不同之對象，規劃辦理系統性之農業體驗、入門、初階、進階及高階訓練，提供農業終身學習之管道。

十、推動農業經營專區，促進農地有效利用 （農業委員會）

為維護優良農地，發展安全農業生產基地，農委會建置農業經營專區。同時專區以集中施政資源投入優質農業生產區域方式，改善農業經營環境，提高農地利用效率，進而提升農民收益。

五、交通與生活分組

本分組的召集單位為交通部運輸研究所，業務定位在永續運輸、人本交通、智慧運輸，以及綠色生活與綠色消費等四大範疇，並制定相關行動計畫。其年度工作成果如下：

一、持續推動軌道運輸建設及提升服務效能 （交通部）

積極推動軌道運輸之相關建設，包括執行都會鐵路立體化、捷運化之軌道運輸工程，提升軌道運輸服務，打造節能車站，持續推動大都會區大眾捷運系統，加速推動高速鐵路在苗栗、彰化及雲林設站，以促進都市更新發展，滿足旅客需求，減少旅行時間及節省成本。



▲ 高鐵苗栗、彰化、雲林站車站外觀

二、建構全臺智慧型運輸系統（交通部）

為提供全面「智慧化交通運輸服務」，以使用路人在上路前或是行進間均能夠充分掌握即時交通路況資訊及交通運輸的便利，達成降低旅行時間、減少運輸能源消耗與污染排放，除由交通部運輸研究所及臺灣區國道高速公路局分別辦理交通服務e網通計畫及建置高快速公路整體路網交通管理系統外，另臺灣鐵路管理局亦推行「臺鐵多卡通電子票證」服務。

三、推動全國自行車友善環境路網整體規劃及交通部自行車路網建置計畫（交通部）

自103年9月起，交通部即開始邀集各地方政府、內政部營建署、教育部體育署及部屬各單位，辦理9場路線勘查，利用地方既有自行車道及省道公路，規劃出1條環島主幹線及13條支、環線，預計於104年底前可完成相關導引標誌標線、導覽牌、補給設施、車站電梯、牽引道及自行車車棚及停車架等自行車環島使用服務設施。

配合政府推動節能減碳零污染之自行車騎乘活動，特結合臺鐵、鐵馬雙運具，自97年起持續推動「兩鐵環保列車」提供民眾以鐵路為交通運具載乘人、車同時抵達目的地，並於關山、臺東及頭城站設置自行車補給站服務旅客。



▲ 頭城站自行車補給站

四、推廣生態旅遊、環境教育及友善旅遊環境

（內政部營建署及交通部觀光局）

為推廣環境教育及友善旅遊環境，內政部營建署各國家（自然）公園管理（籌備）處、都會公園管理站，以及交通部觀光局各風景區管理處，除規劃自然景觀、人文史蹟等友善旅遊空間場域供國民育樂遊憩外，並依各旅遊區環境特性，配合推動環境教育，將活動寓教於樂，提高國民環境教育之認知與內涵。

五、提升氣象預報及地震測報能力（交通部）

執行「災害性天氣監測與預報作業建置計畫」，完成氣候監測預報作業系統之臺灣極端氣候指標查詢功能擴充分分析；新版天氣研究與預報模式（WRF）及颱風雨量（ETQPF）/風速（ETWIND）上線作業；官網海流軌跡資訊服務及海象暴潮監測燈號顯示功能強化；各縣市及鄉鎮紫外線預報上線作業；完成新增行動裝置應用軟體（APP）生活氣象天氣警特報分區推播功能，以及天氣警特報與地震消息line分享功能，加強天氣警特報傳播效能等。另外，新增全球資訊網長浪即時訊息，一般民眾可瀏覽網站或下載「生活氣象APP」獲得相關資訊，並利用手機簡訊與劇烈天氣監測系統將訊息傳送至中央及地方政府防救災單位、學研單位與媒體。



▲ 行動裝置應用軟體（APP）生活氣象天氣警特報

六、推動我國航空業站導入環境管理系統及節能減碳設備 (交通部)

交通部民用航空局為擴大機場各單位參與並積極邁向 ACA Level 3 等級認證，104 年高雄國際航空站除取得前開環境、溫室氣體與能源之延續認證，10 月亦推動駐站單位加入共同減碳計畫，朝溫室氣體排放碳中和之綠色機場目標邁進。

七、推動全民綠色消費 (行政院環境保護署)

為促使消費者在日常生活中實踐環保理念，行政院環境保護署積極倡導綠色消費，主要措施有：1. 建立具公信力之綠色產品驗證制度；2. 健全環境保護產品銷售通路，便利消費者購買綠色產品；3. 宣導綠色消費觀念，改變消費者消費型態。

陸、科技與評估分組

本分組之召集單位，為國科會自然科學及永續研究發展司。工作內容在於將現有科學基礎研究及技術創新能力，應用於地球生態及各類環境系統評估；藉由評估資訊整合，輔助決策；培育科技人才，強化技術交流與國際合作，以科技的力量來緩解人類追求發展所產生之重大威脅。其年度工作成果如下：

一、臺灣氣候變遷推估與資訊平台建置計畫

- (一) 完成 IPCC 第五次評估統整報告 (Synthesis Report) 影片中文字幕製作，並置於 TCCIP 資訊平台供外界參考應用。
- (二) 因應防災應用需求，完成 5km 解析度推估資料的時雨量偏差校正、不同降雨延時排序之極端颱風事件推估、最大 24 小時累積雨量颱風事件排序，並利用相關資料完成高屏溪極端颱風降雨事件之淹水模擬。
- (三) 因應農糧及公衛衝擊研究需求，發展氣候變遷資料應用技術；完成臺灣世紀末颱風事件對水稻農損評估及溫度變化對全死亡率與心臟血管死亡率之影響分析。
- (四) 完成臺灣地區高解析度降水與溫度極端指標的建立，以及三個未來情境下 11 種降水與 9 種溫度極端指標變化之分析，有助於極端事件衝擊研究。

(五) 建立極端降雨標準化分析方法，可應用於不同測站與不同模式間的相互比較。

(六) 完成 CMIP3 與 CMIP5 流量比較，可應用於氣候變遷衝擊研究及調適評估。

(七) 建立臺灣乾旱與青康藏高原地表加熱及春季大尺度環流關係，可作為 CMIP5 模式評估未來乾旱趨勢之重要氣象參考因子。



二、整合臺灣生物多樣性資訊國家入口網 (TaiBIF) 及與 GBIF 接軌

- (一) 科技部與農委會補助中研院生物多樣性研究中心建置「臺灣生物多樣性資訊網 (TaiBIF)」、「臺灣物種名錄 (TaiCOL)」及「臺灣生命大百科 (TaiEOL)」等，以推動跨部會生物多樣性資料的蒐集與整合，並加強宣導與落實開放資料政策。(科技部)
- (二) 持續運行野生動植物資料庫、生物多樣性資料分享平台「臺灣生物多樣性網絡」(Taiwan Biodiversity Network, TBN) 和「臺灣繁殖鳥類大調查 (BBS Taiwan)」。(農委會特生中心)
- (三) 持續委託相關研究及學術單位，進行臺灣周邊海域的人工魚礁區、漁業資源保育區及北方三島海域之生物多樣性調查，並將資料彙整後納入「臺灣周邊海域海洋生物多樣性資料庫」。(農委會漁業署)
- (四) 配合內政部營建署建置之「國家公園生物多樣性地理資訊系統」，各國家公園管理處定期維護與更新資料。(內政部)

三、推動「氣候變遷調適科技整合研究計畫」

- (一) 建立臺灣海峽因應寒潮之養殖漁業調適模式及沙塵與颱風監測系統，掌握大尺度海氣交互作用對臺灣區域降雨的特徵，分析歷年全臺各乾旱事件類型，以評估其乾旱發生次數、乾旱平均延時、乾旱平均嚴重度等之乾旱特性以及年際和年代際變化。
- (二) 藉由颱風所引起波高與暴潮模擬分析，推測未來颱風引起暴潮及波高變化趨勢，建立臺南海岸現階段及未來潟湖沙洲消失後的安全性評估。
- (三) 分析曾文溪流域之山崩機率，面積與體積預測以及岩屑崩滑潛勢，並進一步推估強降雨下土砂量，分析極端降雨狀況下的山崩土石流災害暨流域地形演變。
- (四) 建立生態系統與生態保護區之基本圖層，搭配環境因子資料庫進行生物預測分布模式計算，解明山區與海岸濕地生物多樣性變化。
- (五) 建置臺灣氣候變遷調適科技服務平台，提供評量工具與專業指引等科技服務資訊。
- (六) 完成氣候變遷調適決策步驟(技術指引)、支援調適決策工具(AdaptCAB工具)與跨領域系統動力模式(CSDModel模式)，並強化TaiWAP模式，成為具有TCCIP-AR5情境之氣候變遷整合評估模式。
- (七) 建立社區(小尺度)的調適能力指標，評估社區韌性。已完成沿岸型、都市型與鄉村型社區評估(共計21個)，整合空間調適指標至What-if模型，模擬未來不同調適策略下的土地適宜性。

柒、城鄉發展分組

本分組召集單位為內政部營建署，工作內容主要在於推動城鄉發展、促進都市更新再生、落實居住正義、執行住宅政策、加速下水道建設、整合車道(都市道路、自行車道)、建置人行環境無障礙空間、營建都市綠色景觀人本環境空間、推廣環保再生透水鋪面。藉由都市環境改造，提升國民生活品質，確保國土永續發展。其年度工作成果如下：

一、水資源開發、利用、管理及保育

(台灣自來水公司)

積極辦理「降低漏水率計畫(102至111年)」，104年底預計汰換舊、漏管線693公里，建置完成420個分區計量管網。

二、污水下水道發展(內政部營建署)

103年度提出「污水下水道第五期建設計畫」，104年度中央編列114.4億元，由內政部營建署及各縣市政府積極推動用戶接管建設，提升污水下水道普及率，並擴大辦理公共污水處理廠放流水回收再利用，達到永續下水資源利用的目標。

三、城鄉永續發展

(內政部營建署、農委會水保局)

(一) 推動政府主導都市更新案

自94年起已勘選235處都市更新示範地區，其中63處目前刻正辦理先期規劃作業、32處辦理招商前置作業及公告招商、26處已引進廠商投資施作、10處由政府自行投資施作中。

(二) 輔導民間都市更新案件核定實施

自87年都市更新條例發布實施以來，民間申辦都市更新事業計畫(含權利變換計畫)計1,699案，其中527案已核定公布實施。

(三) 補助民間自主更新案件

自100年開辦中央都市更新基金補助辦理自行實施更新辦法補助作業迄今，業已核定補助59件(包括重建規劃設計12案、整建維護規劃設計43案，其中含耐震評估2案及整建維護實施工程4案)。

四、生態城市綠建築

(內政部建築研究所、內政部營建署)

(一) 推動綠建築標章評定，104年度截至9月底通過494案綠建築標章及候選綠建築證書，預估每年約可省電1億4,490萬度、省水696萬噸及減碳8.04萬噸。

(二) 推動綠建材標章評定，104年度截至9月底通過綠建材標章163件(118件健康、12件再生、與33件高性能)，產品種類涵蓋774餘種。

五、推動社會住宅（內政部營建署）

(一) 依據行政院 100 年 6 月 16 日核定之「社會住宅短期實施方案」，推動臺北市及新北市之五處試辦基地（含臺北市萬華青年段、松山寶清段，及新北市三重大同南段、三重大安段、中和秀峰段），規劃興建 1,919 戶。

(二) 依據行政院 103 年 1 月 6 日核定之「社會住宅中長期推動方案」，自 103 年至 112 年匡列 67 億餘元，補助地方政府興辦社會住宅之先期規劃費、工程費或用地有償撥用費，預計至民國 112 年社會住宅將可達到 3 萬 4 千戶。

捌、健康與福祉分組

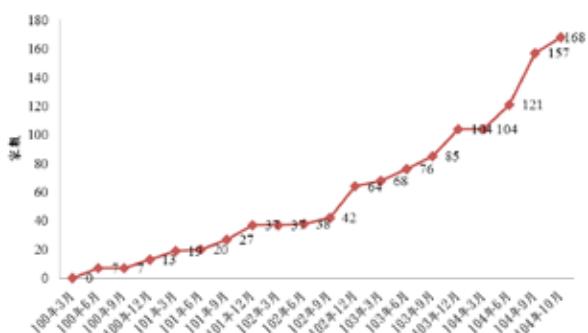
本分組係由勞動部、內政部入出國及移民署、經濟部水利署、環保署、農業委員會、原住民族委員會及衛生福利部等組成，共同執行健康風險管理及社會福祉等工作，而由衛生福利部國民健康署負責召集。具體工作事項，包括人口動態關注、健康環境營造、社會保障強化、弱勢照護及婦女權益保障等。其年度工作成果如下：

一、營造高齡友善的健康照護環境與服務

(衛生福利部國民健康署)

99 年綜整 WHO 高齡友善照護三大原則及 WHO 之健康促進醫院標準，發展「臺灣高齡友善健康照護導入架構」，100 年優先於醫院導入。101 年已擴展推動至診所（醫療群）、長期照護機構等其他健康照護機構。至 104 年 10 月 20 日，已有 168 家健康照護機構（128 家醫院、20 家衛生所、20 家長期照護機構）通過高齡友善健康照護機構認證。

高齡友善健康照護機構成長圖



▲ 通過高齡友善健康照護機構認證之數量不斷增加

二、健全食品衛生安全管理法規環境

(衛生福利部食品藥物管理署)

適時增修我國食品相關法規及管理措施，促使食品業者達成食品安全自主管理食品相關規定。104 年 2 月 4 日總統令公布修正「食品安全衛生管理法」部分條文，除已加重罰則，納入多項精進食品安全管理制度。

三、辦理原住民全民健保及就醫補助業務

(原住民族委員會)

補助因經濟困難致無法參加全民健保之原住民健保費，並維護其就醫權益。同時針對原鄉區域特性所造成的就醫交通障礙，補助原住民轉診、就醫之交通費用。兩者執行率皆達 99% 目標值。

四、辦理全國新住民火炬計畫及外籍配偶生活適應輔導（內政部移民署）

為提升婚姻移民在臺生活適應能力，104 年 6 月 30 日函頒「外籍與大陸配偶生活適應輔導實施計畫」。自 104 年 8 月起至 104 年 9 月，已辦理 22 場次，受益人次約 500 人次。

五、營造兼顧工作與家庭照顧責任之友善職場環境

(勞動部)

為推動雇主營造友善職場育兒環境，本部於 104 年 2 月 10 日修正發布「哺集乳室與托兒設施措施設置標準及經費補助辦法」，將雇主提供員工哺（集）乳室納入補助範圍，提供最高新臺幣 2 萬元經費補助，同年 6 月 8 日再修正發布該辦法，將托兒措施補助額度上限由每年新臺幣 30 萬元提高至 60 萬元。

六、推動稻米產銷專業區、優質茶集團產區及優質穩定果樹安全生產供應鏈（行政院農業委員會）

推廣有機農業，迄 104 年 9 月通過有機驗證面積共 6,333 公頃，有機農戶數 2,647 戶。輔導生產，設置有機農業集團栽培區 17 處，面積 677 公頃，配合活化休耕農地利用，獎勵轉作有機作物，提供多元化獎勵輔導措施。拓展现行銷通路，輔導成立有機農夫市集 19 處，設置有機電子網路商店並輔導 152 家農場參與販售，設置有機專櫃 103 處，舉辦有機展售（示）活動等。加強有機農產品品質監控，訂定年度有機農糧產品抽檢計畫，加強田間及市售產品抽驗。

七、檢討增修訂相關環境管理法規 (行政院環境保護署)

持續檢討乾電池重金屬管制內容，104 年 3 月 2 日修正「限制乾電池製造、輸入及販賣」公告，自 105 年起，將現行管制之筒狀電池（非鈕扣型一次電池）汞含量限值由 5 ppm 加嚴為 1 ppm，並增訂鎘含量限值為 20 ppm；自 106 年起，管制鈕扣型電池之重金屬含量（汞、鎘）。我國的乾電池重金屬含量限值，將與歐盟同步。

玖、教育與宣導分組

本分組召集單位，為教育部資訊及科技教育司。工作內容主要在於增進全民永續發展之知識與認知；整合政府、民間、企業及學校資源推動永續發展；加強相關研究與國際合作；擴大全民參與。其年度工作成果如下：

一、增進全民永續發展之知識與認知

(一) 透過常設展、臨特展、其他廣宣媒介及相關教育活動提供民眾臺灣陸域及海域豐富的生物多樣性資訊及宣導保育觀念並充分應用社會教育資源提供適合各學習階段之永續教育學習資源以推廣永續發展之概念（教育部）。

(二) 國民中小學九年一貫課程綱要已將「環境教育」列為重大議題並融入各學習領域中實施，其課程目標包含相關永續教育知識及全球暖化、氣候變遷議題相關知識，教導學生瞭解環境概念知識、環境價值觀與態度（國教署）。

(三) 針對節約用水、防災防汛等攸關水資源永續發展之議題，製作電視廣告、廣播帶、平面、網路及戶外等廣告，經由各式通路進行水資源保育知識及理念傳達（水利署）。

(四) 提升企業社會責任理念及綠色企業環境教育概念，辦理企業社會責任研習活動，並獎勵具企業社會責任之廠商（環保署）。

(五) 完成 30 秒「自己的電自己省 - 省點用篇」能源政策宣導短片：傳達民眾「節電需從自身做起，大家共同為下一代來努力」的概念，藉由短片號召全民一同翻轉用電習慣、積極落實自己的電自己省（能源局）。

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▲ 活動名稱：苗栗梅園國小土石流防災教育宣導
圖片來源：行政院農業委員會水土保持局



▲ 水土保持酷學校 - 水土保持知識教材（具）推廣活動
圖片來源：行政院農業委員會水土保持局

二、整合政府、民間、企業及學校資源推動永續發展

(一) 補助成立 2 個能源科技教育區域中心及 19 個中小學能源科技教育推動學校，整合地方縣市政府資源，共同推動能源科技推廣計畫（教育部）。

(二) 為提高國人對於水土資源保育之認識與重視，於 104 年辦理水土保持宣導 140 場及土石流防災宣導 50 場，強化「水土保持人人有責」之觀念，將水土保持教育向下紮根，進而推廣落實水土保持與土石流防災工作（農委會）。

三、進行永續發展教育相關研究與國際合作

(一) 辦理「補助青年實踐國際壯舉計畫」及「補助青年參與國際（含兩岸）發聲及行動計畫」，共補助 67 件計畫，受惠人數達 7,949 人（青年署）。

(二) 補助科普活動計畫 11 件，辦理對象包含學齡前兒童、各年齡層在校學生、社會人士、教師，活動總人數逾 3,300 人。科學主題展「看見地球的吶喊」開放所有年齡層的民眾參觀，104 年預估超過 1 萬人參與（科技部）。

四、擴大全民參與，提升公民環境素養

(一) 104 年核定補助公、私立博物館推動文化平權計畫，針對弱勢團體、偏鄉地區、文化資源缺乏、原住民等規劃辦理活動或計畫共 5 案，補助高雄市立美術館、高雄市政府勞工博物館、屏東縣政府文化處臺灣排灣族雕刻館等 5 個單位，針對原住民、視障者或偏鄉兒童，進行人才培育、相關展覽以及教育推廣等活動（文化部）。

(二) 辦理 2015 人權種子教師研習營，透過專題演講、與受難者座談及人權史蹟參訪，培養具人權知能的教師，將人權觀念融入教學課程中，透過教學實踐臺灣能誠實的面對歷史，落實人權於生活中（文化部）。

(三) 補助各身心障礙團體、機構等，辦理定向行動訓練計畫、中途障礙者關懷支持計畫、身心障礙者體適能活動、才藝展演、無障礙網頁增修及一般性活動等，104 年截至 9 月底止合計補助 501 案，補助經費 1,536 萬餘元（社家署）。

(四) 補助地方縣市政府辦理推動原住民族語言振興補助計畫，共辦理族語學習家庭 105 戶，教會族語扎根 35 間，沉浸式族語學習體驗活動 19 場次，族語戲劇競賽及族語單詞競賽 14 場次初賽及各 1 場次全國賽，受惠人數約 10,000 人（原民會）。



▲ 活動名稱：土石流防災教育宣導
圖片來源：行政院農業委員會水土保持局



▲ 活動名稱：「臺灣土壤調查 115 年回顧暨農業資源資料庫應用」研討會
圖片來源：行政院農業委員會農業試驗所

第三章 2015 永續發展國際論壇



▲ 行政院國家永續發展委員會葉欣誠執行長開幕致詞並與與會貴賓合影 (曾君儒拍攝)

壹、辦理緣起

行政院永續會，為了解國際永續發展政策最新動向，並向國人推廣永續發展之意涵，以蒐集社會各界之建言，做為我國永續發展政策推展之參考，特於 104 年 11 月 4 日在國家圖書館國際會議廳，舉辦為期一天的「2015 永續發展國際論壇」。會中邀請美洲、歐洲及亞洲等國際推動永續發展績效卓著之學者專家，以及國內永續委員會委員及政府單位代表、學者專家，進行研討及經驗交流，與國人分享永續發展最新發展動態。

本次論壇討論的主題，包括聯合國今 (2015) 年 9 月 25 至 27 日於紐約總部召開「聯合國永續發展高峰會」後的國際永續發展政策之展望與因應、Rio+20 後各國綠色經濟之推動進展，以及近年國內外永續韌性城市推動情形等。論壇由行政院

政務委員兼永續會執行長葉欣誠開幕致詞，邀請國內外主講人及永續會委員，針對「永續發展趨勢與綠色經濟」進行專題報告，並於下午最後場次，再次邀請各主持人及講者，進行論壇研討，與台下聽眾互動。

永續會執行長葉欣誠在開幕致詞中表示，政府相當重視永續發展的追求，早於 1997 年 8 月成立「行政院國家永續發展委員會」。為強化執行力，永續會分別完成「永續發展政策綱領」、「永續發展行動計畫」、「臺灣永續發展宣言」、「臺灣 21 世紀議程」等重要文件，做為國家推動永續發展之依據。

此外，我國亦注重與國際同步，推展全球永續發展。例如，在 2012 年 6 月率團前往巴西里約參加「聯合國永續發展大會 (Rio+20)」，同年 11

月成立「綠色經濟專案小組」以因應此一國際情勢，並邀集永續會員委及專家，開始研據「臺灣綠色經濟政策綱領」。在去(2014)年底聯合國第68屆大會通過永續發展目標(SDGs)後，我國也開始著手臺灣永續發展目標研訂工作，目前各分組已研擬完成中期及長期Goals及Targets草案，並將於永續會第40次工作會議做整體討論，全程作業將於明(2016)年2月前完成。

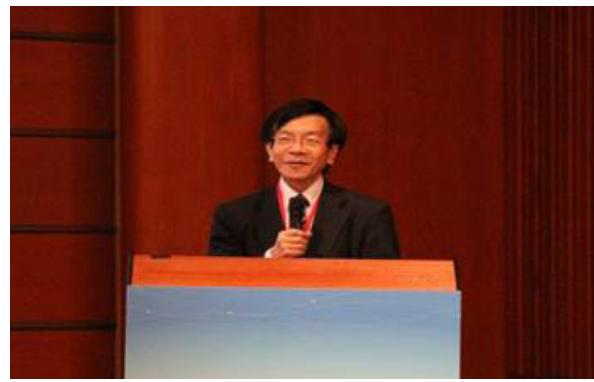
永續發展貴在共同參與，為了讓人民了解永續發展的真締，政府也加強推動永續發展政策相關宣導。本次國際論壇，特將永續城市的推動列為研討重點，旨在展現中央與地方政府合力，落實臺灣永續發展。

貳、各場次演講內容重點

一、聯合國永續發展的最新動向

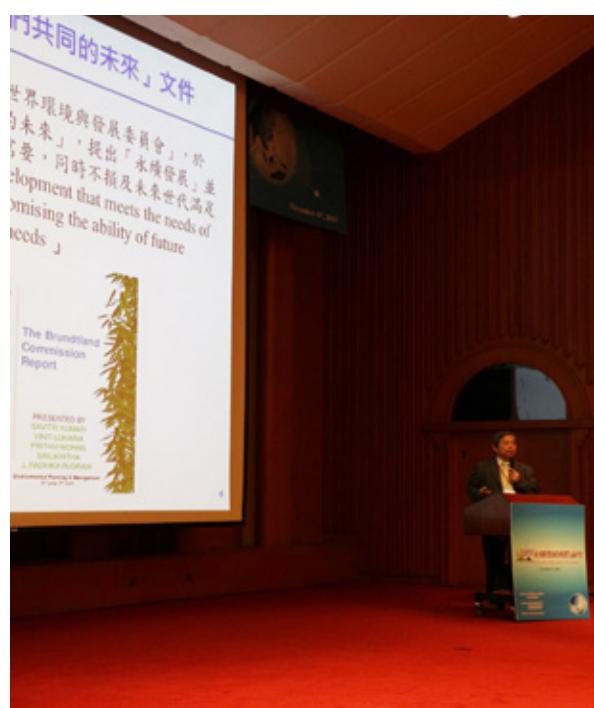
在「聯合國永續發展高峰會」後的國際展望與因應場次中，由日本地球環境戰略研究機構(IGES)主任研究員石井哲也及台灣經濟研究院研究五所所長楊豐碩擔任主講人。

石井哲也在「如何有效達到聯合國永續發展目標(SDGs)」的演講中指出，聯合國9月底通過的最終版2030議程，共有17個主題、100多個目標。永續發展的目標在於將已開發或開發中等全球所有國家，都納入永續發展倡議，並具備普及性(所有國家都適用)、轉型性(社會、經濟、環境等三個層面皆有永續發展概念)及包容性(無人被排除在外，所有群體皆加入)的精神。演講聚焦在對於SDG的執行，由於在推動過程中，面對能力不足、管理不善和財政缺乏等各種挑戰，不同國家需要不同的解決方法，建議運用目標之間的協同合作。在跨部門或部門間整合能力建構下，國際社會的財政結合將是重要關鍵。IGES今年7月在日本積極參與推行永續發展解決方案網絡(SDSN)。下一輪亞洲太平洋永續國際論壇，將於2016年7月由IGES主辦。題目暫定為「為永續而動用知識：面對2030」，將會廣邀各國專家與會，共同為亞洲乃至於世界永續發展盡心盡力。



▲ 日本地球環境戰略研究機構(IGES)主任研究員石井哲也
(曾君儒拍攝)

楊豐碩所長的演講題目是「聯合國2030永續發展議程」，說明了2015年9月在聯合國總部大會通過的2030年永續發展議程，主要提出未來15年(2015至2030)的三項目標，在於消除極端貧窮、戰勝不平等與不公正、因應氣候變遷。該議程對永續發展目標設定與建置有很大篇幅的討論，並強調全球夥伴關係的重要性。在推動永續發展時，更應落實人、地球、繁榮、和平、夥伴之間的關係(此即所謂的5p)。目前我國推動永續發展目標與量化指標，將於明年2月完成改版，後續永續發展的重點，將會是提出臺灣版的永續發展議程，以納入各部會的施政內涵。



▲ 台灣經濟研究院研究五所所長楊豐碩(曾君儒拍攝)

二、綠色經濟的現況與展望

上午第二場次由加拿大先進能源中心總經理 Ron Dizy 及行政院國家永續會委員蕭代基博士主講。Mr. Ron Dizy 以「全球綠色經濟推動現況與展望」為題，討論綠色經濟中創新最關鍵的元素，包括政策和技術創新等驅動力。

Mr. Dizy 比較美國加州和德國推行綠色經濟的案例，得出市場最有效促進創新的方法，是透過調整關鍵行動者、建構能力、發展政策和採用科技的解決方案。例如加州能源委員會，對於綠色經濟先採取設定目標、再提出創新的方案。而德國的綠色能源革命，不但以高費率收購太陽能發電，也提供優先上電網的權利，使電網上有許多太陽能發電。Dizy 建議對於綠色經濟的規劃，應從政府政策、解決方案及結合新技術的能力進行改變，同時也應尊重市場機制，提供市場發展空間，不堅持單一運作模式，以整體思維規劃解決方案。



▲ 加拿大先進能源中心總經理 Ron Dizy 回答與會者問題
(曾君儒拍攝)

我國永續會委員蕭代基博士，以「臺灣綠色經濟政策推動現況」為題發表演說，並分享臺灣綠色經濟的案例。例如固體廢棄物減量與回收，我國固態廢棄物量每人每天 0.38 公斤，為全球最低，回收率從一開始的 5% 提升到 55%，這歸功於 1987 年推出強制性延伸式生產者責任制，讓製造、銷售的生產者，有責任回收銷售商品產生的廢棄物；另推出強制性垃圾分類回收政策，回收車輛、電子產品廢棄物、

電池、燈泡等，還有垃圾處理費隨袋或隨水費徵收，而達到減量回收的效果。但並不是每一項政策都是成功的，例如政府為了提升產品國際競爭力、累積更多外匯、造福國內企業及降低人民生活成本，使得我國水、電、油價相較其他國家都偏低，不利於節能減碳。



▲ 行政院國家永續會委員蕭代基博士 (曾君儒拍攝)

過去永續發展政策無法順利成功，係因忽略了世代間不平等的問題及過度注重經濟成長。如今的綠色經濟，就是尊重地球、重視跨世代平等正義與外部性、講究世代公平及改善人類生活與永續生活品質。其政策架構應涵蓋人類、社會、機構、自然及人為等五大資本。蕭代基博士建議，在機構資本方面，建立能夠促進保障下一代權益的機制、健康的國家財政；在自然資本方面，延伸生產者責任從搖籃到搖籃；在社會資本方面，推廣綠色消費、綠色生產；在人類資本與創新部分，提倡企業社會責任概念，需有良好基礎做研發創新。

三、永續韌性城市案例

下午場次由荷蘭代爾夫特理工大學講師 Nico Tillie、臺北市環保局副局長蔡玲儀及新北市環保局副局長王文美主講。Mr. Nico Tillie 演講「荷蘭鹿特丹市的韌性與永續性」，介紹鹿特丹如何本著韌性的宗旨規劃防洪，以及將用水當作資產進行管理，以改善公園、街道、房屋，甚至交通系統的品質。運用鹿特丹各種案例，說明這些策略如何在都市計畫中推展。在鹿特丹，能源的重要性僅次於水，鹿特丹運用工業區廢熱，提高都市的能源效率。當地和全球各城市的數據資料庫，是荷蘭進行明智決策的重要參考，此可推升城市執行績效。



▲ Mr. Nico Tillie 演講「荷蘭鹿特丹市的韌性與永續性」
(曾君儒拍攝)

臺北市環保局蔡玲儀副局長的演講題目是「臺北市永續城市推動情形」，主要說明配合中央節能減碳政策，建造節能低碳臺北市的歷程。自 2008 年開始，臺北市以低碳城市為市政目標，制定了臺北市綠建築自治條例、北市工商業節能減碳輔導管理自治條例，目前再度規劃制定《臺北市光害管制自治條例》及《臺北市氣候變遷調適自治條例》，相信未來對城市永續發展更加有保障。另為使臺北市成為安全舒適的防洪、生態城市，公園綠地以保水滯洪理念進行設計，設置透水陰井、草地、水池等保水設施；同時增加路面透水鋪面及基地保水，讓城市呼吸。



▲ 臺北市環保局副局長蔡玲儀 (曾君儒拍攝)

新北市環保局王文美副局長則以「永續低碳新北市」為題，說明新北市因應全球氣候變遷所衍生對環境的衝擊，極力推動人工濕地防洪、透水城市、簡易都更等相關計畫；同時，提出綠建築、綠色交通、綠色能源、資源循環及永續生活環境等五

大策略，打造新北市成為低碳城市。未來仍將持續以這五大策略為主軸，推動新北市永續發展，以達到「促進綠色循環經濟」、「打造低碳生態城市」、「追求幸福安全社會」、「營造樂活慢活環境」之總目標。



▲ 王文美副局長分享新北市永續的五大策略，打造成為低碳城市 (曾君儒拍攝)

四、專家論壇

本次會議最後進行的專家論壇，以「永續發展趨勢與綠色經濟」為題，由永續會執行長葉欣誠擔任主持人，邀請永續會楊鏡堂博士、林建元博士兩位民間委員以及 3 位國外講者共同與談，並接受現場聽眾提問，直接互動交流。本次國際論壇計有政府機關、縣市政府代表、研究機構、民間團體及一般民眾等約 200 人與會，本次會議結束後，已將相關會議資料及現場實錄，置於行政院國家永續發展委員會全球資訊網，讓無法與會的社會大眾可以下載相關資訊。



▲ 「2015 永續發展國際論壇」中「專家論壇」討論情況
(曾君儒拍攝)

第四章 104 年國家永續發展獎得獎單位介紹

壹、104 年國家永續發展獎評選結果

「104 年國家永續發展獎」經永續會相關工作分組的「書面初審」，永續會民間委員的「實地複評」及全體複評委員參與的「決選」等 3 階段評選後，共選出 10 個得獎單位：教育類為成福國民小學、有木國民小學及蘇澳國民中學；企業類為台灣電力股份有限公司 -- 大甲溪發電廠、友達光電股份有限公司 -- 台中廠；社團類為中華民國社區營造學會、財團法人勵馨社會福利事業基金會；永續發展行動計畫類為行政院農業委員會林務局之「推動森林保護與發揮森林公益功能行動計畫」、交通部觀光局北海岸及觀音山國家風景區管理處之「友善旅遊環境建構計畫」及經濟部能源局之「營造高效能效率用電環境 - 推動產品能源效率分級標示計畫」。



▲ 104 年國家永續發展獎 - 頒獎典禮

貳、各得獎單位介紹

一、教育類

(一) 新北市三峽區成福國民小學

1.單位簡介

成福國小位處三峽山區河谷中，鄰近河流的山坡地形，使得校內地下水位較高，「到處滲水、溼答答長滿青苔」曾經是成福國小困擾不已的問題。但在師生們生態觀念建立與想法導正之後，巧妙運用成福「多水的」環境特色來營造校園溼地，發展溼地生態課程，環境劣勢反而成為成福國小在生態教育發展上的一大優勢。

2. 永續發展工作推動現況

校園環境永續發展方面，因應基地保水度高，將校園生態化。自 94 年開始著手打造永續校園，逐步打開硬鋪面，使得校內空地綠覆率由 33% 提高至 70%，透水率由 36% 提高至 88%。校園棲地化，以保育原生物種。引進學校後山原生植物，建構校園生態廊道。目前在校內保育中的原生種喬木與灌木有 64 種、水生植物 131 種、魚類 4 種；記錄到鳥類 45 種、蛙類 11 種、昆蟲 85 種、蟹類 1 種、爬蟲類 3 種、蝶類 20 種、蛇類 3 種。落實節能減碳，綠色生活。100%汰換校內高效率省電燈具、省水龍頭；設置太陽光電系統 3kw；水資源再利用，年平均自來水替代率 10%；做好垃圾減量等，獲得新北市低碳校園金熊級認證。

持續推動環境教育，發行「永續成福」環境教育月刊。自 94 年創刊迄今，主題涵蓋環境議題討論、校園及社區環境探索、環境教育實施成果等，深化環境覺知。發展多元環境教育課程，包括食育課程 - 食農四時曆、溼地課程 - 草塘映柔波 · 溼地動手做、山林課程 - 四時尋野趣 · 山林樂活遊、低碳課程 - 校園新生活運動、海洋課程 - 海洋萬花筒等，二度獲得教育部教學卓越獎肯定。生態攝影社，自 96 年成立以來，社員大多以弱勢生為主（經濟弱勢、學業弱勢、特教學生）。藉

▼ 成就夢想的方法無他 「動手做」就對了



由關懷其學習成長。解除其學習恐懼，培養自信。

經驗資源分享共榮，建置「成福水草塘」部落格，將師生觀察記錄、自製課程教材在網路上公開，提供全國教師教學使用。瀏覽量已突破 60 萬人次，獲得教育部 98 年教育部落格大賽教師組第一名。長期參與校園諾亞方舟計畫，將成福水草塘建置為原生水生植物、原生埤塘淡水魚的復育基地及種源庫。已提供新北市百多所學校原生物種，進行符合在地環境的校園棲地營造。

3. 未來發展願景藍圖

善加利用現有的自然環境，進行校園生態化與棲地營造，建構出兼具保育與教育功能的「生態廊道」，是成福國小對校園環境永續發展的核心概念。再透過擁有共同理念的社群組織運作，以及發展符合環境特色的學校本位課程等手法，突破傳統校園封閉的環境與制式管理，由下而上，整合學校及社區共同意識，營造減量、友善的生態環境，使校園成為永續發展的公共學習空間。

感謝評審委員們對成福國小的肯定，未來將繼續秉持著「尊重自然 · 友善共存」的校園永續發展理念，以更加堅定的步伐，邁向下一個百年。

(二) 新北市有木國民小學

1. 單位簡介

有木國小以永續發展環境教育為目標，透過分析豐富的社區環境資源，結合教師專業發展，融入「探索教學 Inquiry Teaching」、「戶外教學 Outdoor Teaching」、「體驗教學 Experiential Teaching」、「動手做教學 Doing Teaching」等創新教學，帶好每個學生。

2. 永續發展工作推動現況

水岸、山城、星光、生態的有木國小透過政策擬定與空間管理，結合自然生態、地方產業、人文知識的特色課程，期許永續發展環境教學，為努力標的。透過專業社群討論，全體師生傾全力灌溉這片園地。在永續環境教育深入耕耘，並有具體成果。

在永續校園環境政策與深耕經營方面，97~99 年獲教育部特色學校特優、101 年獲教育部教學卓越金質獎、101 年~103 年連續 3 年獲教育部整合空間資源暨發展特色標竿學校、103 年獲教育部戶外教育計畫學校、103 年獲新北市山林永續之星、90 年起為護螢護蝶學校、童稻學校等，肯定學校在永續校園的努力。

從環境的建構，進入環教專業社群的成形，搭配社區資源導入，形塑出優質環境特色課程。包括戀戀生態：螢飛蝶舞、生態步道溼地、魚菜共生、蜜蜂世界、童稻。探索體驗：溯溪、高空探索、攀岩、鐵馬騎。陶染藝氣：彩繪石頭貓頭鷹、木工房、藍染。迎向國際：特色遊學參訪表演、校際交流、小小解說員。

此外，也致力於永續人文關懷及社區參與。第一、與甘樂文創合作，利用環境資源，照護弱勢的絲瓜生態小隊，100 年 11 天自行車環島、102 年三峽鐵馬騎、至南投泳渡日月潭，搭建成就舞台。第二、與社區

共同建置安全地圖、災害潛勢圖、地區災害收容中心、校園 24 小時開放等，確保民眾生命安全場所、活絡社區與校友好關係。第三、推行垃圾源頭減量、雨水、廚餘與資源回收、截油設備、太陽能、省水閥、環保餐具、魚菜共生，培育環境永續的種子。

在促進社區環境、經濟、社會等融合發展方面，結合社區滿月園、蜜蜂世界、千戶傳奇、藍染工坊等合作發展永續環境課程，提供環境特色遊學，達成「共學、共享、共好」環境教育體驗；帶動社區的發展與地方經濟繁榮。平時是學生上課教學場域，假日則提供租借，包含宿營及露營活動。一方面活化空間利用，另一方面經費收入支援學校環境永續經營，營造雙贏局面。

3. 未來發展願景藍圖

期許營造人文關懷、溫馨的優質環境，帶動社區家長熱心參與，引進與充分運用資源辦學、接軌國際化，期許打造成「賞星閱木、有木共讀」的森林小學，建立「健康」、「活力」、「創新」、「卓越」的願景。

感謝「行政院國家永續發展獎」的辦理，參加與獲獎是對有木教育團隊長期著力於環境永續經營的肯定與榮耀，同時也提供了我們不斷學習與成長的機會。未來將以自然永續為師，向大地學習，親師生攜手打造「共享、共學、共好」的永續發展學園理念，讓有木家族共同接續努力的前輩與後進，成為環境永續守護行銷的代言人！



▲ 螢火蟲復育有成 數量範圍逐年增加

(三) 宜蘭縣蘇澳國民中學

1. 單位簡介

蘇澳國中這幾年來在能源教育、環境教育、生命教育、永續校園、防災教育及成人教育方面均有優良的成績。學校以推廣全縣環境教育為目標，從課程及教學模組開發，到建置校內設備以成為示範觀摩學校為努力方向。規劃一系列的全縣 12 鄉鎮營隊及教師工作坊，從人才培訓開始，深耕在地能源教育。

2. 永續發展工作推動現況

學校團隊致力於資源整合、各領域課程統整、校內外專業師資與服務群教師、進行全縣性師生專業成長規劃與宣導及進行宜蘭在地特色方案推動，其目標包括：1、整合本縣（校）行政與教學團隊資源，共同型塑以生命力教育為核心之在地教育典範文化。2、透過正式課程、非正式課程及潛在課程，協助學生探索與認識生長的環境。3、強化全縣（校）師生重視在地認同與服務，使師生具備生命力教育之理念與素養。4、透過在地的教育資源整合與推廣，強化各界對學校願景之認同。5、強化科際整合及創新作法，提升在地教育與國際接軌與經驗交流。

學校更在近年內榮獲全國學校經營與教學創新 KDP 國際認證優等獎、教育部生命教育特色學校、農委會水土保持酷學校、經濟部推動能源教育績優學校、國家環境教育獎優等、教育部防災教育績優學校、教育部教育 111 學校認證、第 6 屆台灣健康城市暨高齡友善城市獎等殊榮。

3. 未來發展願景藍圖

打造蘇澳生命力教育是蘇澳國中一直以來的教育願景，校內的每一份子積極的在校園永續規劃上展現生命力、在教學課程上創造生命力、在學生多元學習上展現年輕學子的生命力、在與社區連結上呈現出蓬勃的生命力。運用資源整合及系統再生的模式，啟

動一個個夢想的實現。結合環境教育、藝術教育、生命教育、科學教育、健康促進、終身學習等課程板塊，緊密建構師生的學習鷹架及友善的學習空間，帶動蘇澳全民學習的永續學園。感謝評審委員給予蘇澳國中的鼓勵，未來除了持續參與各項專案計畫規劃與執行，並將主動擔任宜蘭縣推動生命力教育的重點學校。



▲ 圖 1 與自己的對話 - 辦理全縣 生命鬥士巡迴演講(102-104 年)



圖 2



圖 3



圖 4



圖 4

二、企業類

(一) 台灣電力股份有限公司—大甲溪發電廠

1. 單位簡介

走過百年的歲月，大甲溪發電廠除了透過水庫的水位調控來提高水利用率，更是全臺灣電力系統頻率控制與緊急備轉容量的重要來源。而經歷過地震、颱風及洪水的無情洗禮之後，大甲溪發電廠更加了解水與電的互利共生，因而順應自然、融入自然，並發展生態電廠，開啟了與地方共榮之門。

2. 永續發展工作推動現況

為使營運與國際水準接軌，大甲溪發電廠分別於88、97及99年先後獲得ISO9001(品質)、14001(環境)及OHSAS 18001/TOSHMS(職安衛)三大管理系統驗證通過。也率先導入全公司之溫室氣體盤查制度並建置資訊管理系統，掌握溫室氣體排放量。更自104年起取得ISO 14046：103年水足跡盤查工作第三方單位查證確認，是台電公司第一座以ISO水足跡標準查證之電廠。

響應政府推動綠色採購及建置環境會計制度，降低各級單位於採購/使用行為中之環境負荷，並瞭解及統計營運活動中有關工安、環保及衛生之支出及收益。近年來綠色採購執行率迭創新高(102年達96.81%、103年達99.8%)，環安衛支出金額近年皆逾7仟餘萬。

大甲溪發電廠持續辦理庫區清淤作業，平均每年清運量達42萬立方公尺。並配合汛期颱洪進行水力排砂，103~104年德基水庫排砂共達百萬立方公尺，有效降低機械清淤排碳量及國庫支出達15億元，對於水庫之永續使用、下游砂源補充及生態食物鏈等有莫大的助益。力行廢棄物減量，並致力提高事業廢棄物回收再利用率，近年回收再利用率幾近100%。對於庫區漂流木及報廢之輸電礙子，亦回收作為香菇培育包及環境造景用。

近三年(101~103)發電量合計達57.11億度，相當於約可節省245萬噸煤的燃燒耗

用，亦即減少約587萬噸溫室氣體排放，對節能減碳具重大貢獻。此外，也落實性別主流化，並按一定比例進用身心障礙人士及原住民，以維護弱勢團體之合法權益及生活。

跳脫傳統規劃思維，以兼顧自然、環境及社會效益之氣候調適作為完成谷關、青山分廠復建計畫，其中前者更獲「公共工程設施類金質獎特優」。大甲溪發電廠積極研析歷年水文資料，搭配中央氣象局發布資訊進行判讀，有效及早進行水位及庫容之調節，以減少災害並增加發電量，也讓臺中地區在今(104)年遭逢68年一遇之大旱中避免第三階段之限水困境。

成立大甲溪生態園區，並向大甲溪上游延伸提倡生態走廊。以企業之力帶動地區生態知性旅遊風氣，開啟森林、水資源、電力科技完美結合嶄新的一頁。充分落實活絡地方經濟、啟發人文底蘊及扎根環境教育等，企業社會責任多元面向。

3. 未來發展願景藍圖

感謝主辦單位及諸位評審委員的肯定與支持，才能讓一座秉持「誠信、關懷、創新、服務」信念之企業，可以繼續立足融合科技生態、帶動地區經濟人文，並用凝煉久達百年之營運維護經驗，繼續為國家永續發展及放眼全世界人類永續福祉貢獻一己之力。相信此項殊榮，爾後愈發激勵台灣電力公司成長茁壯、追求卓越的渴望，也更能帶動其他企業負起社會公民的責任及義務，為社會、國家及後代子孫留下良好典範與優質環境。



▲ 台電公司大甲溪發電廠生態園區

(二) 友達光電股份有限公司—臺中廠

1. 單位簡介

身為世界領先的 TFT-LCD 面板製造公司，友達光電因為致力於經濟、環保及社會三大構面之平衡發展，103 年獲利較 102 年成長 324.7%，並獲得證交所第一屆公司治理評鑑排名前 5 % 之企業。此外，也獲外界肯定，連續六年入選「道瓊永續指數世界榜 (DJSI World \Index)」，其中三年為同組榜首。同時節能面板，高解析度 (4K2K) 曲面電視等技術與專利肯定 (Ocean Tomo 300® 專利指數 _2013/2014)，穩固了技術領先地位。

2. 永續發展工作推動現況

友達光電各廠皆已導入 ISO14001 與 OHSAS18001，更於 100 年率先導入能源管理平台，成為全球第一家榮獲 ISO 50001 能源管理系統驗證的業者。自行開發 ISO 50001 能源管理系統電子化平台，總節能成效為單位投片面積從 86 度 / m² 降至 77.2 度 / m² (99~103 年)，改善幅度達 10 %。自 92 年開始每年進行溫室氣體盤查，並於 94 年起導入 ISO 14064-1 第三者外部查證，使各項生態效益指標能妥善被追蹤管理。針對高溫室效應潛勢之 PFCs 排放，主動安裝破壞去除設備，安裝率達 100%。歷年合計氟係氣體之溫室氣體減量達 10.6 百萬噸，臺中廠減量約 6.25 百萬噸。再者，臺中廠榮獲國家職業安全衛生獎、節約用水績優單位優良獎等，肯定職業安全與環保方面之努力。

103 年友達以榮獲美國綠色建築協會頒發 LEED 金質認證的綠色環保廠房「中科廠區 8.5 代廠」，以及位於友達中科廠區「屋頂型太陽能電廠」之特色課程，通過行政院行政院環保署環境教育設施場所認證，成為節能綠建築及再生能源的最佳示範場所。自 100 年起與臺中福科國中合作，設計出一系列適合國小高年級生的環境教育課程，透過益智遊戲與實作競賽，以生動有趣的方式帶給學童永續家園的觀念。



▲ 友達領先創新 太陽能電廠

友達光電積極創能，104 年友達所建置之森勁太陽能電廠，自全臺中大型太陽能系統中脫穎而出，並以優異的發電效益和維運品質獲得「2015 光鐸獎」殊榮。

在社會人文關懷貢獻上，以「培養老實聰明人」、「關懷社會公益」及「愛護綠色大地」，為企業社會責任三大主軸。除既有志工服務、老實聰明人獎學金及支持臺灣農產品外，亦在文化教育面，保留文化遺址「西大墩窯」，並納入環境教育課程中，延續其歷史價值，扮演讓外界認識製造與環保平衡發展，創造永續家園之重要橋樑。

友達自 103 年 11 月起將法定工時雙周 84 小時，主動縮減為 80 小時，為全臺製造業率先推動工時縮減的公司。自 97 年即積極進用身心障礙員工，考量各類障別同仁所需要的逃生輔助措施，針對工作位置、逃生動線、餐廳、公共走道、宿舍等區域，全面檢視是否有安全疑慮，並限期改善；針對視障、聽障、下肢障者也安排一對一的避難引導員及設置「聽障應變系統」，解決聽障同仁無法接收到警報訊息的困擾，營造適合的工作環境。

3. 未來發展願景藍圖

友達光電擁有健全永續委員會，以友達人的核心價值觀「熱情務本、追求卓越、關懷社會」，實現「亮麗創新，曼妙生活」的願景，達到「成為頂尖的綠色解決方案企業」使命。本次獲獎殊榮，將使友達光電成為臺灣產業邁向永續發展之領頭羊。

三、社團類

(一) 中華民國社區營造學會

1. 單位簡介

社區營造學會本著「社會可以改變，而改革唯有從基層開始才是永續」的理念，成立於 85 年 10 月。由李遠哲博士出任首屆理事長，希望以學會作為一個基地，為社區營造引入更大的活力。88 年 921 大地震重創臺灣，社區營造所強調的「共同面對、共同參與、共同解決及至共同提升」的核心價值獲得實踐與彰顯。92 年由陳錦煌醫師榮任理事長，提出「新故鄉營造－社區行動力宣言」，開啟社區永續發展的努力。96 年曾旭正博士與 100 年李永展博士，先後為社區營造學會理事長，秉持學會一貫的精神，持續為臺灣社會服務。

2. 永續發展工作推動現況

社區營造學會即將邁入 20 年，這 20 年來，累積了公民社會的能量、社會創意思考的網絡、信任互助合作的基礎，引動民間動能、趨勢，從點的社區營造，邁向社群網絡合作。持續引發社區的動力，自發的解決環境與社會的問題，以及創造文化的能力。

具體事蹟，包括過去這 20 年來專注於人的永續成長，養成與培訓社區公民意識，以使其有力量與能力參與公共事務；永續經營社區組織，從社區意識的形成→動員社區組織→尋找資源→組織團體；永續營造環境文化，從事不同生活面向的議題討論、改變及解決，將負面的問題轉化為正面的資產；永續推展政府政策，釐清政策上公私協力與夥伴關係的可能性，創造信任關係，引導社區營造最新趨勢，如社區營造法治及制度等政策倡議。

再者，也著手建構永續經營機制，以臺北市社區營造中心為基地，發展下一階段臺灣社區營造的新模式；推廣、深化社造之理念與實踐，包括群體關係的經營、議題社群協助地緣社區；同時也進行國際交流，每年增加社造經驗國際交流活動之品質與密度，提升國際能見度，促進學習與合作；更值得

一提的是經驗出版傳承，印製《落地生根》(社造讀本第一冊)、《雨後天藍》等書。

3. 未來發展願景藍圖

希望未來腳踏實地地耕耘這片土地，讓臺灣成為新故鄉、美好的社會，成就「下一個，20 年」的永續生活！社區營造學會能夠獲得「行政院國家永續發展獎」這份殊榮，不僅是對本會近 20 年來所付出的努力及用心給予最高的肯定，也為往後推動社區營造的工作上，帶來更多的鼓舞及力量。學會為非營利組織，有著相對於公部門、營利組織的靈活性與公信力，成為交流平台。未來將更著重三生(生活、生態、生產)、一體(體制)，致力於行政社造化，借由由下而上的公民力量，讓臺灣每個地區都是新住民與在地居民的新故鄉。



▲ 社造是溫柔又持續的社會改革運動

(二) 財團法人勵馨社會福利事業基金會

1. 單位簡介

傳教士及一群基督徒於民國 75 年創設中途之家「勵馨園」，首開國內民間機構收容不幸少女的先鋒。77 年創設台北市財團法人勵馨社會福利事業基金會，90 年正式登記升級為全國性組織。該基金會本著基督精神，以追求公義與愛的決心和勇氣，預防及消弭性侵害、性剝削及家庭暴力對婦女與兒少的傷害。

2. 永續發展工作推動現況

力行服務與倡議同行，跳脫在下游承接受害者的服務模式，從服務中倡議結構性問題，陸續透過立法倡議，將服務拉到最前線。以近年為例，96 年完成家庭暴力防治法修正；97 年發現性侵遊戲軟體之政府管理漏洞，監督及促成政府成立跨部會管理機制；98 年推動犯罪被害人保護法增列性侵害被害人補償金；同年也倡議修正民法親屬篇以及刑法遭棄罪部分條文，並於 99 年修法三讀通過。勵馨期許終結社會中所有暴力行為，率先倡議性別公義的社會，首創「臺灣女兒節」、「陰道獨白」演出、「V-Men 慢跑」等 V- 系列行動。在陪伴的過程中，勵馨充分感受到案主內在的話語，是無法由外人發聲取代，打開心窗、引導自述、鋪陳環境、站上舞台這條路。陸續協助成立臺北「光腳愛麗絲劇團」、高雄「少女葛珞思劇團」、夢想騎士雷雷娜(曾為臺中安置服務少女)、出版一位被性侵女軍官的手記，扶植其成立自助、助人的團體。

另一方面，也認為對於弱勢少女與婦女，只提供安置、經濟補助與個別輔導是不夠的，長遠之計，需培力其獨立自主開展新生活的能力。勵馨基金會自 93 年起，不斷嘗試結合政府與民間的資源，開發各種少女職業探索與婦女就業方案。每年推估協助婦女就業、創業可產生薪資高達 3 千餘萬元，降低社福依賴，達成雙贏。

勵馨基金會除深耕臺灣，也放眼世界。臺灣在世界上的面積雖然不大，但對弱勢的關懷卻源源不絕，帶著臺灣經驗走向世界。104 年日內瓦國際評比全球 500 大非政府組織排名，勵馨基金會榮獲全球第 16 名。

| 年度 | 國際發展 |
|-----|------------------|
| 93 | 籌設紐約勵馨分會迄今 |
| 99 | 成立柬埔寨『豐榮女兒之家』 |
| 101 | 開辦南非服務方案迄今 |
| 101 | 催生亞洲女孩人權運動與網絡迄今 |
| 102 | 響應國際反暴力 OBR 運動迄今 |
| 102 | 開展亞洲婦女安置網絡迄今 |

3. 未來發展願景藍圖

繼 94 年初次獲獎，睽違 10 年很榮幸再次獲得這項殊榮，對勵馨是一個十足的肯定，也是激勵前進的動力。期許並且呼籲民間力量擴大對公共事務的參與，對非營利組織的運作共同監督與響應。社會需要集體的力量發揮最大的影響力，營造公義的環境、執行公益的使命，產生正面能量來幫助社會進步與成長，勵馨在這個過程也不會缺席。這是一段路走來不易卻點滴在心頭的路程，勵馨對自己期許下一個階段繼續沉潛蓄力，朝永續的路前行！



▲ 104 年台灣女孩日女孩力量大團結

四、行動計畫類

(一) 行政院農業委員會林務局「推動森林保護與發揮森林公益功能行動計畫」

1. 單位簡介

林務局轄管 153.4 萬公頃國有林地，範圍廣袤，其內蘊藏豐富且珍貴的動植物資源，也因此成為山老鼠覬覦的對象。林務局的職責，在於打擊非法伐採林木，避免森林環境遭受破壞，維護森林公益功能，永續森林經營，實踐國際公約義務。自 96 年起，林務局 8 個林區管理處組成森林巡護任務編組特遣隊，就特定地區不定時組隊，落實並加強林地巡視、資源調查及生態保育等工作，強化深山地區之查察取締強度及森林保護工作。

2. 永續發展工作推動現況

林務局目前配置 927 名森林護管員負責巡護國有林地，平均每人巡護面積達 1,769 公頃，相當於 68 個大安森林公園的面積。101~103 年計辦理 302 次之森林巡護任務編組特遣隊清查工作，深山行程 5~7 天，參與巡護人員計 2,698 人次，每年的步行巡護距離累計均達國道 1 號長度之 8 倍以上，有效強化國有森林之資源保護。巡護期間詳實調查記錄及複查貴重木、動植物等資源，提供森林經營管理之動態資料。在長期監測下，未來除可供學術單位研究外，亦可作為經營決策訂定之參考，達森林永續經營之目的。

啟動檢警林合作共同查緝並破獲重大收贓或銷贓集團案件，保護國家森林資源。103 年計查獲 235 件竊取森林主、副產物案件，人贓俱獲並移送法辦者 140 件共 233 人，相較於 102 年查緝 290 件，人贓俱獲 241 件，查獲嫌疑犯 459 人，發生件數減少 55 件，查獲之嫌疑犯亦減少 226 人；自 101 年起就查獲案件數與嫌疑犯人數方面，連續 2 年呈現下降之趨勢，已逐步發揮遏止之效。

101~103 年計勘查 64 處造林地，主要針對造林地取樣，調查林木生長現況及是否有病蟲害情形。藉由逐年增加之調查數量，累積造林地林木生長資料。另調查全島不同林型與海拔高度之森林永久樣區，瞭解目

前樣區內林木消長之情形，101~103 年計複查 51 處永久樣區，相關複查結果有利於森林永久樣區之掌握及累積林木生長調查資料。

101~103 年計有 33 個社區部落參與「結合社區加強森林保護工作計畫」，藉由擴大公眾參與及增加山區居民就業機會，共同落實森林保護工作。另與登山團體簽署 MOU(合作備忘錄)，藉由登山團體協助通報「竊取森林主、副產物案件」、「通報進出國有林地之可疑人員」及「登山步道環境遭破壞或設施毀損事件」等，共同打擊不法。

透過各類文宣廣告及活動，進行森林防火及防範盜伐宣導。同時藉由鼓勵民眾主動通報，建立緊急應變處理措施，強化森林資源的全面防護機制。修正森林法第 50 條及 52 條提高刑責，有效遏止竊取及銷贓等不法行為；修正森林保護辦法，提高民眾舉發盜伐之意願，讓全民一起守護森林生態環境。

3. 未來發展願景藍圖

每個人心中都擁有一片森林，期許每個人都能體認森林對生活的重要性。林務局承諾臺灣森林永續經營，讓後代子子孫孫，能夠繼續享有這片屬於寶島的珍貴資產。

感謝協助實地查訪的臺東縣卑南鄉利嘉社區發展協會，對森林資源保育之用心與認同，讓林務局努力更顯有意義。也感謝行政院國家永續發展委員會肯定林務局，林務人仍將秉持堅苦卓絕之精神，繼續為守護森林資源努力。





▲ 結合當地社區維護白沙灣環境景觀 提供遊客最優質的旅遊環境

(二) 交通部觀光局北海岸及觀音山國家風景區管理處「友善旅遊環境建構計畫」

1. 單位簡介

北海岸及觀音山國家風景區以人文、生態、地質及海岸景觀等特殊風貌著稱，蘊含臺灣特質與魅力，長久以來即為臺灣著名的觀光勝地。區內自然與景觀資源豐富而多元，但也因早期過度開發，衍生許多不良的影響。北海岸及觀音山國家風景區管理處優先卸去過多人工設施的濃妝豔抹恢復自然地景外，亦透過在地特色規劃與永續理念的溝通，歷經 13 年深耕與長期經營，不僅讓在地呈現令人驚艷的地景風貌，亦兼顧觀光建設與地景保育，同時促進在地產業與經濟發展。

2. 永續發展工作推動現況

執行各項基礎建設時，秉持環境優先設施減量原則，包括臺二線道路景觀改善及區內不當人工設施拆除，以及景點整體特色營造等，開拓出連續性的觀海景觀，營造北臺灣最具特色的海濱咖啡商圈，並讓核心景觀區完全回到自然面貌。總計拆除違建與廣告物達 377 件，景點改造 20 處，電桿地下化 12 公里 (移除電桿約 150 支)，為本轄區創造約 15 公頃之景觀綠化面積。

創新提出「我愛淨灘」活動，以公帶私並融入公益旅遊風潮，除了解決海岸清理問題，同時讓民眾瞭解海洋垃圾多來自人類的不當棄置。爰邀請民間社區協會及里辦公室號召社區民眾參與淨灘，讓更多熱心民眾體驗為公益付出的充實感，至 103 年私人團體淨灘計 265 場，參與人數 15,514 人，節省公

帑清理沙灘垃圾，經常維護海岸環境清潔，帶來質與量的具體成效。

利用國家風景區的環境特色，推動環境教育場域認證，強化環境教育。本處野柳地質公園於 101 年 11 月申請環境教育場域認證通過，成為第一個獲得認證的國家風景區。

結合救生團體與當地社區，從安全與庶民經濟出發，規劃可讓民眾安心活動之水域。推動無障礙旅遊環境，提供身障者更友善安全的旅遊服務。已完成無障礙野柳地質公園步道、觀音山林梢步道、三芝淺水灣步道建置，並規劃白沙灣一日遊無障礙遊程，為全國風景區無障礙旅遊路線首推示範路線。

為促進民眾參與，本處在進行各項基礎建設時，辦理地方說明會與地方居民業者充分溝通協調，廣納各方意見，攜手為發展觀光產業共同努力。

擴大觀光行銷的深度及廣度，提供正確資訊供新聞媒體報導，不定期發佈新聞稿於觀光局、北觀處網站及粉絲專頁，製作海報等，加強行銷與宣傳。

3. 未來發展願景藍圖

「一步一腳印，恆久終有成」，可說是本處努力於北海岸及觀音山國家風景區永續發展過程中的最佳寫照，經歷了篳路藍縷的辛苦歲月，終於逐漸得到當地居民與遊客的認同與肯定。感謝行政院國家永續發展委員會及評審委員們，給予本處的鼓勵與肯定。未來將不忘初心，依然堅持「觀光永續發展」的核心價值，兼顧自然景觀、環境教育與觀光發展，擴大影響力，持續累積成果。

(三) 經濟部能源局「營造高效能效率用電環境 - 推動產品能源效率分級標示計畫」

1. 單位簡介

經濟部能源局推動能源效率分級標示，主要在強制揭露產品能源效率資訊，提供簡易的效率等級辨識方式，方便民眾選購參考；提供創意整合服務，確保民眾知的權利與資訊使用權，創造市場誘因，鼓勵民眾樂於選購，廠商也積極投入生產高效率產品，形成良性循環，並達到減緩用電成長的效果。

2. 永續發展工作推動現況

能源局已成功推動 10 類產品能源效率分級制度，此制度的推動也使我国能源效率管理政策與國際體制並駕齊驅，且在冷氣機與電冰箱能源效率基準之訂定上超越國際水準。以市售標示能力 3.6kW 之分離式冷氣機而言，平均能源效率比值由推動 99 年之 3.14 提升至 103 年之 4.02，能源效率大幅提升 28%。以 500~600 公升冰箱為而言，平均能源效率 EF 值由 99 年之 11.7 提升到 103 年 19.06，提升幅度達 63%。推動綠色政策，大有進展。

冷氣機 1、2 級產品 99 年市占率為 32.3%，101 年節能補助措施後提高至 64.1%，103 年持續成長至 71.9%。電冰箱 1、2 級產品 99 年市占率為 18.3%，101 年補助措施後提高至 48.2%，103 年持續成長至 88.7%。101 年瓦斯爐 1、2 級產品市占率為 21.4%，102 年補助措施後市占率提高至 45%。101 年瓦斯熱水器 1、2 級產品市占率為 56.9%，102 年市占率提高至 84.8%，103 年仍維持成長趨勢。顯示能源效率分級標示之推動，有效促進廠商持續投入研發預算，並生產高效率機種，市場能源效率結構發生巨大之改變。

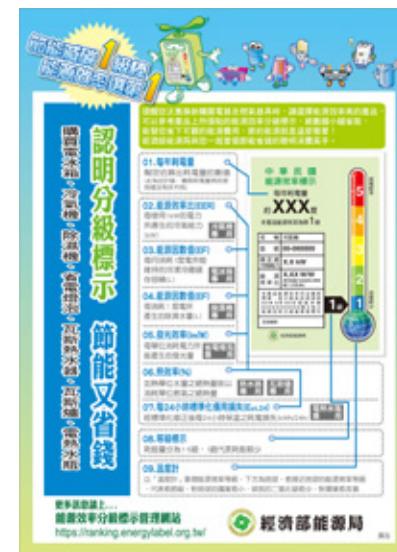
近三年針對新五都民眾所做之「能源效率分級標示」認知度調查結果顯示，101 年民眾認知度為 47.6%、102 年為 54.2%，至 103 年認知度已達 63.5%，呈現逐步提升趨勢。能源效率分級標示制度的推動模式，從「政府」、「產業」與「民眾」三個面向觀之，將廠商視為重要的合作夥伴，於各階段皆透過利害關係人會議，與產業鏈

中上游零件與物料供應商、中游製造商、下游銷售通路商等，建立協調機制進行良性互動，既可達成提升產品能源效率之目的，又兼顧產業得以存續，創造多贏的局面，本計畫可說是政府樹立公共私營合作 (Public-Private-Partnership) 模式的典範。

以「效率分級、節能升級、幸福跳級」為題，參加行政院第七屆政府服務品質獎，獲得服務規劃類機關獎項，並於 104 年 6 月 30 日由吳副總統親頒獎座。

3. 未來發展願景藍圖

臺灣自然資源不足，環境承載有限，很榮幸本局能在本屆國家永續發展獎之永續發展行動計畫類脫穎而出，除感謝評審委員的辛勞之外，能源局將秉持初衷持續永續能源政策，將有限資源作有「效」的使用，開發對環境友善的「潔淨」能源，與確保持續「穩定」的能源供應，以創造跨世代能源、環保與經濟三贏願景。



參、實地複評活動集錦

一、教育類



▲ 新北市三峽區成福國民小學



▲ 新北市三峽區有木國民小學



▲ 宜蘭縣蘇澳國民中學

二、企業類



▲ 台灣電力股份有限公司 - 大甲溪發電廠



▲ 友達光電股份有限公司 - 台中廠

三、社團類



▲ 中華民國社區營造學會



▲ 財團法人勵馨社會福利事業基金會

四、行動計畫類



▲ 「推動森林保護與發揮森林公益功能

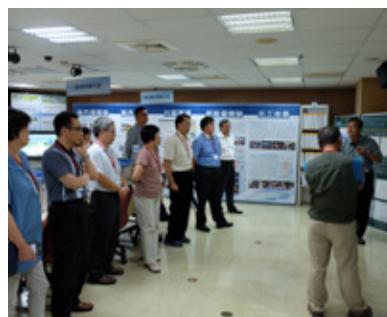
行動計畫」

行政院農業委員會林務局



▲ 「友善旅遊環境建構計畫」

交通部觀光局北海岸及觀音山國家風
景區管理處



▲ 「營造高效能效率用電環境 - 推動產

品能源效率分級標示計畫」

經濟部能源局

第五章 永續會民間委員專訪



生物多樣性是永續發展未來的核心之一 永續會李玲玲委員專訪



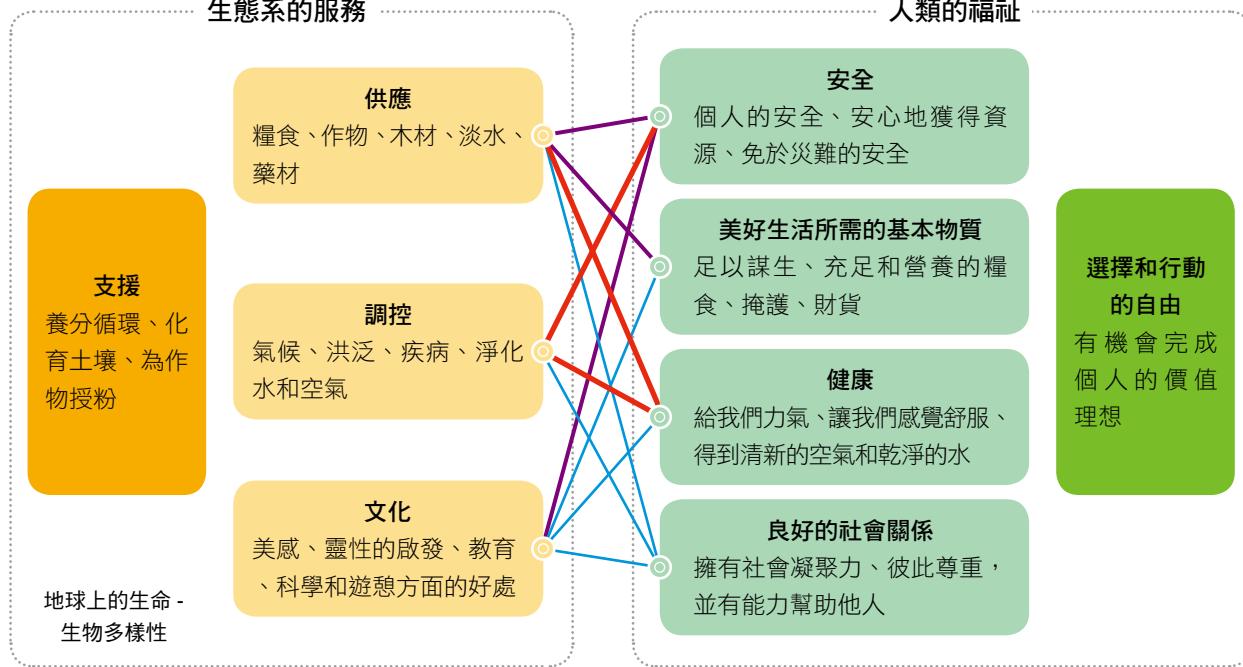
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生物多樣性指的是地球上所有形式的生命，包括陸地、海洋的各種野生動植物、微生物、人類種植的作物、畜養的禽畜，以及生物體內的基因和各類的生態系，範圍之廣可說是包羅萬象。國立臺灣大學生態暨演化研究所的李玲玲教授長期從事生物多樣性研究、推廣，目前兼任國立臺灣大學生物多樣性研究中心主任，並擔任行政院國家永續發展委員會的委員多年。以下的專訪中，李委員簡明扼要地闡釋生物多樣性與人類福祉及其與永續發展的關係，並對我國的永續發展提出建言。

生物多樣性與永續發展息息相關

生物多樣性與永續發展之關係始於 1992 年，當年六月在巴西里約熱內盧舉行了極其重要的「聯合國環境與開發大會 (UN Conference on Environment and Development，又稱第一屆地球高峰會 (Earth Summit)，會議期間開放《氣候變化綱要公約》、《生物多樣性公約》及《抗沙漠化公約》供與會一百多個國家的政治領袖簽署，會議結束又發表《里約環境與發展宣言 (Rio Declaration on Environment and Development，簡稱里約宣言)》、《二十一世紀議程 (Agenda 21)》及《森林原則 (Forest Principles)》等指導性

文件。同年十二月，聯合國大會通過成立「聯合國永續發展委員會 (Commission on Sustainable Development)」，監督、追蹤地球高峰會決議事項的執行進度、制定政策指導、促進永續發展夥伴間的對話。自此以後，永續發展委員會的歷次會議，經過 2012 年的「聯合國永續發展大會，里約 20 年 (United Nations Conference on Sustainable Development, Rio+20)」，以至今 (2015) 年九月即將舉行的「聯合國永續發展高峰會 (UN Sustainable Development Summit)」，生物多樣性的現況與未來趨勢都是永續發展的主要關切與議題。



▲ 聯合國「千禧年生態系評估 (Millennium Ecosystem Assessment, MEA)」歸納出生物多樣性提供的各類生態系服務及其與人類福祉的關係

生物多樣性影響人類生活的各個層面，從食衣住行育樂所需之原物料到生態系服務，包括光合作用、水土涵養，到保護海岸、降低海嘯衝擊（珊瑚礁、紅樹林）等，人類福祉必須仰賴生物多樣性。然而全球的生物多樣性卻遭受重大威脅：基因流失、物種滅絕，而生態系的品質也日益劣化，極不利於人類的永續發展。所以《生物多樣性公約》掲載的三大目標，就是保育生物多樣性、永續使用生物多樣性，以及公平、合理分享遺傳資源所帶來的惠益，希望透過國際的協力，扭轉生物多樣性不斷喪失的頹勢。因為生態系的劣化一旦越過臨界點 (tipping point)，勢必快速崩盤、萬劫不復，也將嚴重衝擊人類的存續。

生物多樣性是聯合國永續發展目標重點之一

聯合國推動永續發展 20 餘年，曾於 2000 年設定八項「千禧年發展目標 (Millennium Development Goals, MDGs)」，這些目標的執行將於 2015 年告一段落，取而代之的將是尚在研擬中的 17 項永續發展目標 (Sustainable Development Goals, SDGs)，它們大都與生物多

樣性有關。生物多樣性對永續發展目標所要達成的消滅貧窮與飢餓、確保健康、確保生活品質，乃至面對未來環境的不確定性，都能提出重大貢獻，並因應未來的氣候變遷。不過，如何將這些目標轉化為具體的國家政策，顯然還有待觀察。以我國為例，河道的寬窄彎曲原本有其地質、地理的背景，但現在為了人類的便利，將河道截彎取直，反而造成沖蝕，每隔一段時間就需要加以維護，大幅增加成本，同時破壞了原有的自然模式，產生更多的環境與社會問題。再以水資源為例，以現在氣候變遷的趨勢看來，民生用水、工業用水、灌溉用水的供應量不但不可能無限增加，甚至有可能下降或大幅波動，我們要如何因應用水供應量的減少？如何從生態系的角度了解水資源的承載量，以便合理配置水資源？這些都應該有整體、長遠的規劃，並具體表達在相關政策中。

生物多樣性已持續落實於部會政策規畫

生物多樣性分組是我行政院永續發展委員會九大分組之一，該組工作推動所依據的生物多樣性推動方案，是以《生物多樣性公約》為參據。該公

約每隔十年就會依照過去的執行成效，滾動式地修正其策略目標。生物多樣性分組也適時參酌該策略目標，同時斟酌我國推動方案的內容，檢討是否有需要加強之處。如果發現有待加強的地方，就會納入更新的行動計畫。《生物多樣性公約》雖然和《氣候變化綱要公約》一樣，擁有 196 個締約方，但是它還沒有被行政院視為優先參與的公約，所受到的重視程度遠遠不如《氣候變化綱要公約》。雖然如此，在農委會為分組主要召集部會、林務局擔任秘書與協調工作，以及 22 個相關部會的推動執行下，生物多樣性工作仍有相當的進展，包括串連各類保護區，建立中央山脈保育廊道，並持續增加各類海陸域保護區的數量與面積，保護重要的棲地及自然資產。此外，在濕地保育法立法之前，先依據生物多樣性推動方案，由內政部運用既有區域計畫法規進行規劃，邀集各界彙整相關資訊確認國家重要濕地，以增加國民對重要濕地的認識與了解。濕地保育法生效之後，有正式的法規、主責機關，再滾動式規劃其後的經營管理業務。如果當時生物多樣性推動方案沒有將此業務納入，濕地保育的工作將被延誤，可以保存的濕地自然也相對有限。

生物多樣性推動方案始於 2001 年，前面六年各部會並不清楚生物多樣性與自身之關聯，但透過講習、做中學及教育廣宣，各部會承辦人員的概念與認知已有相當程度的提升，相關工作也逐年進展，只是各部會的進展並不劃一，推動工作相當辛苦。如果國家政策能更明確，對各部會的要求能更具體，不但有助於節約行政成本，成果也將更加顯著。

借鏡先進國家對永續發展政策規劃方法

國際間針對全球議題的解決方案，通常會先進行充分的討論，討論的參與者可能從不同的角度提出迥異的看法，因此必須透過協商、談判以達成共識，之後才做出結論，並設定與結論相符的工作

目標及執行的策略計畫。此外，在執行的過程中還要反覆不斷地檢視執行成效，檢討執行策略與方法的妥適性，並適時調整、修正，以期順利達成目標。這種充分討論、辯論、協商、談判以達成共識的過程，以及滾動式調整策略與方法的做法，值得我國政府借鏡。

行政院永續發展委員會應該是跨部會政策整合的最佳平台，在規劃永續發展的整體政策目標時，或可參考聯合國的永續發展目標，斟酌國情列出優先順位，由公私部門和權益攸關者(stakeholder)就環境、社會、經濟等面向充分討論、協商，尋求共識。有了這樣的機制與全面性的思考與規劃，未來即使面臨新的議題，最多也只要微調策略與方法，而非動輒將新議題納入計畫，枉費人力、時間與經費。

永續會委員扮演政策整合重要角色

永續會的非政府機關委員在協調各部會與各分組的工作上扮演相當重要的角色。原先非政府機關委員僅依各自專業針對本身所屬之分組建言，但現在委員可以跨組，協助分組之間、部會之間的溝通，以及從不同的角度提供意見，以期各項工作的規劃與執行能更臻周延。建議未來各分組制定政策時，一定要有民眾參與機制，以廣徵民眾意見。民眾參與不是以民眾意見為依歸，而是檢視民眾所提的意見是否在整個架構中被思考過。如果所設定之目標，已經充分討論過，就足以做為國家永續發展的中長程目標，毋須顧慮政黨輪替或有政治考量。最近永續會委員討論的課題，就是依據聯合國永續發展目標(17 項大目標與細項目標)，研定我國永續發展目標。期望趁此機會，將以往渾沌未明之事項明確化。若中央主管機關能透過參與式的討論，訂出更具體明確的長期目標，同時也是全民所接受之目標，則所對應的政策與部會分工就能更明確，避免工作的重複或衝突，各分組行動計畫的推動也會更容易。

國家永續發展政策宜以國際視野做長遠規劃

根據聯合國在 2005 年發布的千禧年生態系評估 (Millennium Ecosystem Assessment, MEA) 報告，自然生態系是人類存續之所繫，可提供必要的生態系服務（圖一）；然而人類活動卻對全球生態系造成程度不一的破壞，導致生物多樣性喪失、生物承載量減少、地球的環境恢復力下降，有必要從速查明並加強維護、恢復自然生態系及其服務。因此各國紛紛開始盤點該國各種生態系的變化，並檢視這些變化對國家的整體影響，再從土地利用的角度評估土地利用規劃的合理性，以維護或恢復自然生態系。我國若能盡速進行類似的盤點與分析，將會是後續規劃與推動生物多樣性相關工作最重要的依據。

永續發展不能以舊思維來考量新發生的問題，也不能在舊有的工作上不斷增加新的工作，制度必須因勢調整、保持彈性，否則就無法永續。例如以往認為有不同的意見，就是製造衝突；就今天的觀點看來，不同的意見是對沒有充分考量的事情表達關切。我們應當容許、尊重各方表述意見，並從中找出各方雖不滿意，但可以接受的最大公約數。我國永續發展的主導機關，應具有宏觀與遠見，參酌國際發展趨勢與議題，思考我國環境社會經濟的狀況，整合各方意見，明確規劃出國家永續發展的願景、長期政策目標與藍圖，確實執行，以期邁向永續。



節能減碳綠建築札根之旅

永續會張楊乾委員專訪



節能減碳一直是永續發展的核心，也是民眾關切的議題。如何落實節能減碳其實很簡單，以下透過節能減碳達人—永續會張楊乾委員分享其台達電子文教基金會（以下簡稱：基金會）多年來推行環保、創新與教育之努力成果。

永續會是跨部會推動永續發展政策溝通協調平台

各政府機關通常都分別執行委託研究案，彼此無法得知所執行之研究內容。但透過永續會，可分享相關政策作法或整合共同執行之業務。以企業社會責任報告書為例，金管會要求上市櫃企業基於社會責任，應研提並公開；但經濟部中小企業處長期以來輔導中小企業編撰，這兩者其實可以做整合串聯。再如最近通過的溫室氣體減量及管理法，主管機關是環保署，但是受理企業申購綠電的權責機關是經濟部能源局，綠電抵換是否可以回歸碳足跡，此時可能產生不一致的困擾。或許永續會可以如同國發會發揮跨部會協調功能，對國家永續發展做出最大貢獻。

推動國家永續發展應以產業生根為目標

目前永續會在制訂永續發展目標 (SDGs)，期望著重在節能目標。目標導向是非常重要的，因為當政策總以補貼、鼓勵為考量時，較不可能成為產業。一旦無法形成產業，各種光怪陸離的問題就會產生。例如南部對太陽能種電補助，就產生與農民爭地、假菇寮等狀況。如果把它當成是產業，則會思考發揮創意，才能真正形成產業。

對政府而言，在綠能科技產業化時，可以將相關標準規定越來越嚴，以趕上國際標準，讓臺灣廠商具有競爭力。臺灣市場不大，先在國內有效練兵後，再成為綠色技術之輸出國。而不是被國際標準所迫，只能去購買其技術，進而成為相關設備進口消費國，無助於產業化。

運用民眾參與方式推廣節能減碳

節能、氣候變遷及綠建築，是基金會業務的核心。與臺灣其他環保團體或企業型基金會不同之處，在於向來注重節能，不以節能予人就是隨手關燈等老生常談的方式，而是運用活潑的、文創化方式推廣，以使其更具指標性與代表性，甚至能與國際接軌。基金會希望走在節能的前面，帶領的不只是企業本身，而是整體社會能朝向低碳化。

基金會藉由民眾參與的方式，介紹國際關切的議題，讓大家知道國際動向。除了節能減碳外，其他與環境相關的議題也是宣導的重點，例如水逐跡，很多人不但沒有概念，也不知與自己有何關聯？如果不確實揭露，如飲料大廠在印度某個地方開發水源，導致當地的人無乾淨水源喝，但製造的飲料卻銷往全世界，這就產生社會環境正義課題。基金會以展覽的方式，與民眾互動，係

因展覽接觸的民眾多、層面廣。即使看展會有民眾的差異或語言的不同，但其效果仍相當不錯。

節能減碳從綠建築做起

考量所有用電設備的能源效率，都是以建築物做為載體，如能將建築物內所有用電設備用電量、排碳量量化，則建築師、業主自然會去做判斷與選擇。過去曾與國內有關單位討論，能否推動類似能源護照的概念，除能源相關資訊記載之外，也包括碳。一般而言，以建築物使用年限 40 年來看，建築物排碳量約 7 成來自能源，建材本身相對較少。例如，德國在房屋買賣交易、或房屋租賃，就有能源護照做評比。如果效能較佳，就可享稅務上優惠；在貸款方面，也有相關獎勵作法，頗值得參考。

被動式建築設計可有效降低能耗

今年 6 月基金會協助那瑪夏鄉民權國小重建，經過一整年實測，已經達到淨零耗能，也就是說一整年的發電量（太陽能板發電）多於建築物用電量。這在臺灣是第一棟，但放在國際趨勢下就顯得並不是太特別，因為美國加州規劃在 2017 年將會有 1 萬棟淨零耗能住宅，2020 年所有住宅都必須是淨零耗能。



▲ 那瑪夏民權國小落成（台達電子文教基金會提供）

另外，古蹟改建雖不屬於綠建築項目，但是今年5月1日剛完成的台中一中校史館，也是屬於負排碳建築，這校史館與民權國小兩個建築物的太陽能板（民權國小太陽能板只裝22kW，規模並不很大），發電只占用電的一小部分，主要是靠建築省電，因採用被動式建築設計。原本每平方公尺年耗電量(EUI)7度，只要用一點點太陽能即可超越過去。這個就是建築師的巧思，也是運用物理特性達到節能效果。

現在建築規則要求開窗率，但這會受地理環境（緯度）限制，一旦開窗熱氣就進來。其解決的辦法就是採用深遮簷，已廣泛運用於各建築物，例如大巨蛋附近華視大樓。但深遮簷有時會影響光照，適時放置導光板即可改善。其次，利用熱浮力通風原理，讓風能在建築物裡流動，一有風，熱就會被帶走，最有名的例子就是台達電子公司捐贈的成大孫運璿綠建築研究大樓。

綠建築有9個要件，但我們認為應該最重視節能，因為建築物有很高的節能潛力。聯合國政府間氣候變遷小組(IPCC)在2014年發布的報告指出，既有建築物約有50~90%節能潛力。經過基金會驗證，透過建築設計將廢熱、廢水、廢氣回收再利用，即可輕易提升其能源使用效率，證實該報告數據的正確性。



▲ 台中一中百年校慶（台達電子文教基金會提供）

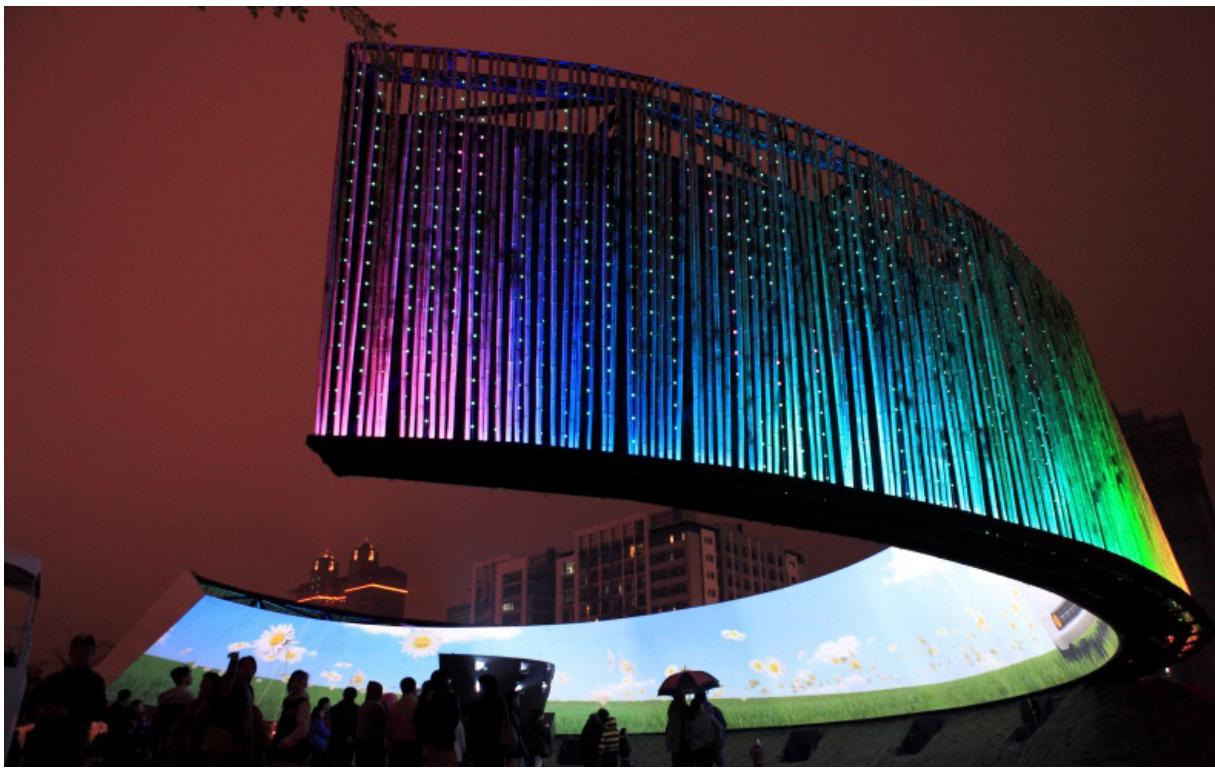
我國建築外殼與內部設備節能，分別屬內政部營建署與經濟部能源局管轄，政府應該是訂定相關法規及節能規範，其執行可由民間做起。例如美國雖然有國家專門針對綠建築制定的標準評鑑制度能源之星（與電子產品一樣），也有民間發起並推廣的能源與環境先導設計（Leadership in Energy and Environmental Design；簡稱LEED）、生態建築挑戰（Living Building Challenge）兩種不同類別的評鑑方式，但發展起來都是產業。基金會目前的作法，一方面是作對社會有意義的事，降低建築能耗，另一方面是社會可永續發展。

借重民間力量推動節能綠建築認證

在政府相關政策尚未完善規劃前，基金會扮演智庫的角色，現正與成功大學建築研究所共同推廣低碳建築的碳足跡認證，可做為政府相關政策推動之先導示範配套。最早的案例是2013年新竹燈會，基金會完整計算了「永續之環」的二氧化碳排放量，結果發現展覽15天的排碳量較台北101煙火（不只煙火，也包括前往觀賞民眾搭乘交通之排碳量），居然少80%。但煙火不到5分鐘，而「永續之環」展覽長達15天，且其鋼構等所有物品皆回收再利用。



▲ 台灣綠建築標章



▲ 永續之環 (台達電子文教基金會提供)

發展磨課師投資未來，建立節能種子

最有價值的鋼構資材，用於大溪國小做為籃球場的頂棚。而其 70 公尺長、10 公尺高的投影布幕，是由寶特瓶再生而來，在展覽結束自展場卸下後，製作成 800 個環保袋供志工使用。竹子送到臺東，作為教室的牆壁；LED 燈用於臺中科博館的雨林照明裝飾，每天晚上 7 點 ~9 點配合音樂運轉，全部燈體 100% 再利用。

其實在設計與架設永續之環時，即考量混凝土耗碳量很高，而儘量減少使用，使其漂浮在地面上，連接點採用鋼構，再用覆土覆上去。鋼本身是個可回收的材質，再加上使用材質 40% 為回收鋼材，再利用等於又再次延長其物命。過去是用猜測的方式來斷定其是否為綠建築，但現在可以計算量化。

我們知道未來全球將面臨工業 4.0 的挑戰，該計畫一方面是解藥一方面也是衝擊。解藥是全球人口快速老化，未來勢必與機器人一起工作。智能化的生產，人與機器、機器與機器、機器與主管等之間如何溝通，絕對需要物聯網 (IOT) 的技術。另一方面衝擊指的是臺灣、東亞、中國大陸等地的工資持續上漲，且正面臨缺工問題，因此機器人勢必不可或缺。如果臺灣未來仍以製造業或工業為重點的話，如何在這第四次工業革命中取得先機，工業 4.0 是必須正視的問題。

基金會這一兩年自己開發磨課師 (MOOC)，也與國教署合作推動線上教育課程。未來更將以工業 4.0 的挑戰為課程，邀請學校教師討論自動化，讓學生先瞭解工業 3.0 自動化，再進入 IOT，以為未來預做準備。相信由綠建築的節能減碳，再到工業 4.0 的物聯網，可搭上環境、經濟、社會永續的國家長遠目標。



理想的永續發展委員會運作藍圖 永續會楊鏡堂委員專訪



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永續會旨在整合政府部門在經濟、社會、環境不同構面的各項政策推動，透過部會首長及民間專家學者之參與，可有效推展國家永續發展相關業務。楊鏡堂委員專長，在機械與能源工程領域。過去一年來，同時擔任永續會氣候變遷與節能減碳、能源與生產、科技與評估、教育與宣導等分組委員，對於永續會的功能尚在了解當中。以下專訪，楊委員以技術研發學者的立場，對於永續會之運作方式與願景，提出個人見解。

永續會迄今的努力值得肯定

永續會成立至今逾 18 年，相關政策推動成果值得肯定，特別是環境的改善。我小時候生長的故鄉新竹，河水清可見底，魚、泥鰌悠游其中；高中時候河流受到汙染，混濁不堪；其後卻又慢慢恢復清澈。這是環保人的功勞，也是永續會努力的成果。

永續發展就是當代人使用資源，不會對下一代產生巨大損害。事實上，只要有人就會消耗物質，地球物質就會改變，只是此一改變效果必須非常微小才能稱為永續的發展。每個人在使用資源之前，應要思考「有否必要？是否產生廢棄物？」而

不是用完再回收。如能在使用之前就能做這樣的思考，或許就會認為「不需要使用它了」，更何況有些廢棄物是回收不了的。

永續會的定位及願景係在實務運作中貫徹

永續發展委員會的位階相當高，屬於「國家」層級。該組織有其必要性，因為國家需要具宏觀、前瞻性人士參與決策。不過，實務運作時，因事情太多、太瑣碎、綜整不易，以致該位階應有之功能無法完全發揮。國家發展目標，應確實由上而下傳達至中低階公務人員，也就是上下的溝通必須暢通無阻，永續發展也需要落實到基層公務人員身上。

目前的永續發展所有行動方案都強調環境，但經濟也很重要。環保專家主張零標準、絕對標準，這對高國民所得 3.5 萬美元以上國家或許適合，但我國目前只有 2 萬美元，仍應注重環境與產業之間的均衡發展。永續應以國家發展為目標，再融合各項因素，而不是只偏重單一目標。

關於永續發展之討論與實踐，是長遠的規劃，政務官也許有此概念，但實務執行的公務員對永續發展之概念較為淡薄。以調漲電價為例，民眾不清楚我國對於電價有補貼，電價補貼的財源是來自民眾繳的稅，補貼的方式是採齊頭式原則，也就是用電愈多獲得的補貼愈高。用電極少的貧戶或一般民家得到的補貼，較用電量大的高收入戶為少；同理，住宅家庭用電量較企業為少，獲得的補貼也就較企業為少。電價調漲其實是落實使用者付費原則，再加上對於弱勢的照顧，對社會是有益的。又如颱風假，學生及社會大眾覺得高興，但企業會有 GDP 減少的負面效應，對國家經濟競爭力有害。以個人考量的小確幸，放大到全社會可能就欠缺宏觀與長遠的思慮。

永續會工作分組外宜設有工作小組

不容否認國家層級的永續發展，牽涉到國家發展前途與命脈，確實很重要。當初受邀擔任永

續會委員，以為可從較高的位階看到全國能源與環境的問題。但是實際上不容易，永續會處理的問題非常廣泛，加上永續會委員來自各個不同領域，包括民間團體。與部會不一樣，委員專業知識有限，若只以其個人力量而無工作小組，其實難以整理出各部會所提送之問題。目前雖有工作分組，但也應有幾個工作小組，消化與整理資料。

另外，在與部會溝通，也應有工作小組，而不是只有委員一個人，如此較有持續性。再者，現行運作方式，開會時聆聽委員看法與經驗，以作為日後改善依據，但如果有工作小組再深入做追蹤，將會更好。

永續會應強化彙整與自我定位之能力

最近聯合國發表了永續發展目標，各部會相關業務人員戰戰兢兢，分別研究如何將其在地化，但如何彙整各部會執行內容，並不是易事。聯合國所公布的永續發展目標是針對全世界，我國將其在地化時，應考量國情，不能全數採用聯合國一般目標。應自我定位（設定目標），釐清需要加強之處及優勢。而不是主辦機關一交辦，每一項都做得鉅細靡遺，應只針對需要加強之處去執行即可。





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目前國內各級政府部門，應從宏觀的角度進行評估後再行事。長程的定位、或策略的定位宜設定出來，才較有方向感。再如師資培訓，假設 2030 年師資需求 8 萬 5 千人，教育單位可能就規劃每年訓練 5000 人，10 年後多了 5 萬人，2030 年增為 8 萬 5 千人。但是這是以目前的思維做推估，可能沒有考量我國人口在 2030 年應該會減少，若減少後還需這麼多師資嗎？因此，應先研習 2030 年的社會發展的定位或情境，再行規劃才是較有效的方式。

國外經驗借鏡應考慮與深入分析國情

在推動永續發展過程中，有必要去觀察國際現況，其現況與我國的差異、該經驗是否適用於我國，更應有進一步的分析。包括該國採用該項措施之原因理由、其是否適用於我國等。國外有些好措施（例如能源稅），因為國情的不同，可能無法完全引進臺灣。此時即應分門別類，過濾出適合我國者。如經過研究與討論後，認為並無適合我國之措施，再以此為基礎，創造新的想法、新的措施。這已是老生常談的觀點了，相信許多機關都已有相當深入的考量。

在設定國家長遠的永續發展目標時，應該參考先進的歐美國家。因其較我國先進，足以做為我國未來理想社會的典範。但是在規劃短期政策措施時，就應參考國力相近國家經驗，

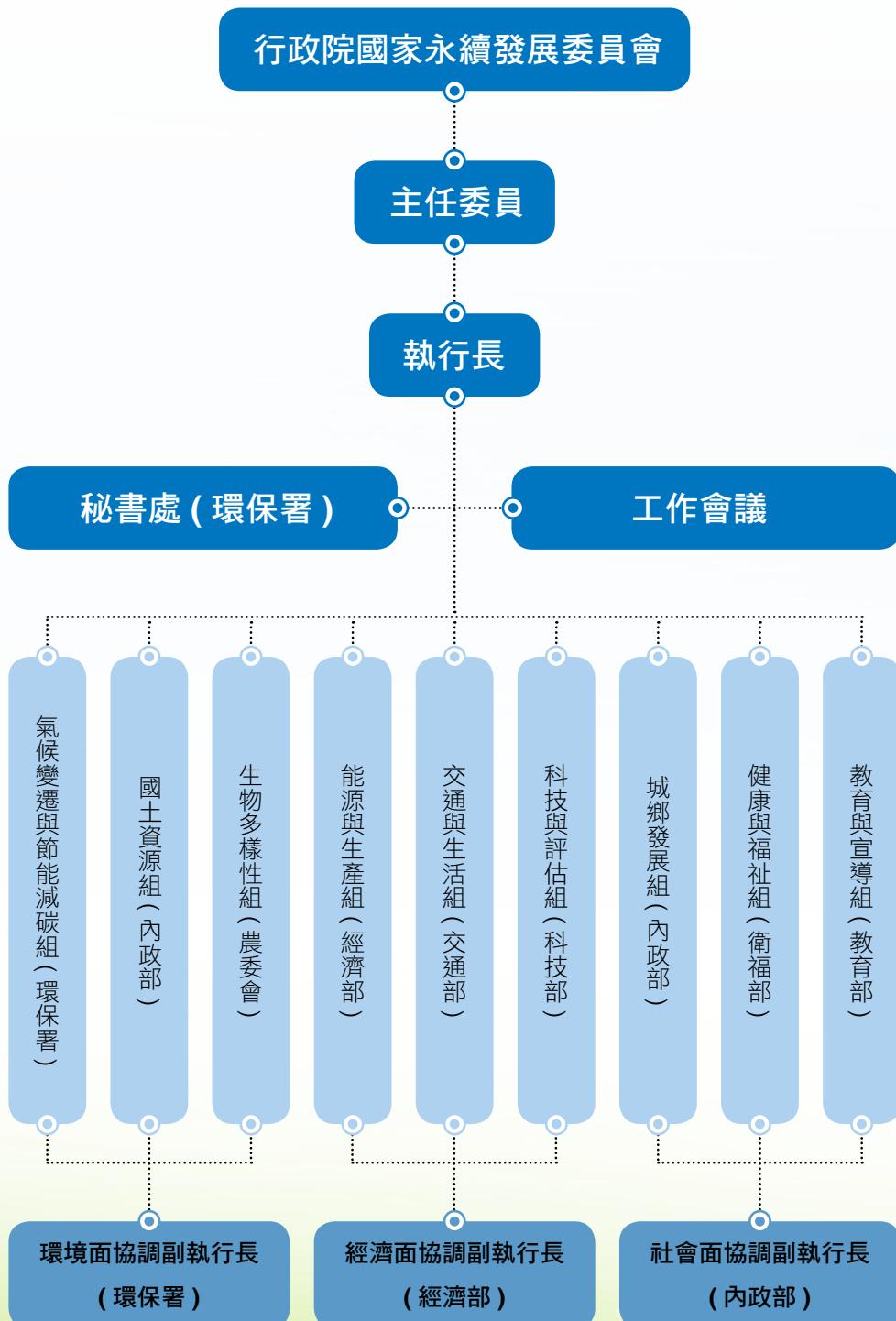
主要是考量政策措施付諸執行之能力。如果不經這些評量，直接參考非常先進的國家，終究將因社會背景不同而無法落實，只能作為未來方向預測之依據；短期實務運作，仍需觀察與我國開發程度相近的國家，以評斷本身進展是否領先，而且要有回授機制做滾動式修正。

整合才是永續發展的基石

我國永續發展持續在進步中，以往環保、經濟政策分別發展，但發展到某種程度後應整合，並思考如何整合對社會最好。環保有環保的優點、經濟有經濟的好處，但整合時可能經濟必須犧牲一點、也或許環保必須退讓一點。退讓並不是永遠，只是階段性，因此需要設定期程與發展目標。

永續發展的明確目標為最上層，其下分支為社會（國家）、人民，再下一層有種種專業，例如經濟、環保、社會公益等，區分專業使更易專精而不是分裂。這就如機械系課程，分固體力學、流體力學、材料等。分開來較容易傳授知識、較好傳承。但傳授結果若只知單一的知識，那也只是整體學問的一部分而已，所以大學四年級的課程，屬於整合性。同樣地，永續發展分工是為了整體的發展，最後必須整合起來。一加一加一等於三，不具意義。一加一加一必須等於很大數字，使其產生新的相乘效果，所以永續發展的視野應具整體性與全國性。

附錄一 行政院國家永續發展委員會組織圖



附錄二 行政院國家永續發展委員會第16屆委員名單

政府部門委員

| 姓名 | 職稱 |
|------------|---------------|
| 毛主任委員 治國 | 行政院院長 |
| 葉委員兼執行長 欣誠 | 行政院政務委員 |
| 鄧委員 振中 | 經濟部部長 |
| 陳委員 建宇 | 交通部部長 |
| 洪委員 孟啟 | 文化部部長 |
| 杜委員 紫軍 | 國家發展委員會主任委員 |
| 陳委員 保基 | 行政院農業委員會主任委員 |
| 曾委員 銘宗 | 金融監督管理委員會主任委員 |
| 魏委員 國彥 | 行政院環境保護署署長 |
| 林委員 慈玲 | 內政部次長 |
| 陳委員 德華 | 教育部次長 |
| 邱委員 淑嫻 | 衛生福利部國民健康署署長 |

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民間委員 - 專家學者

民間委員 - 社會團體代表

| 姓名 | 職稱 |
|-----|----------------------------------|
| 李玲玲 | 台大生態學暨演化生物學研究所教授 |
| 邵廣昭 | 中央研究院生物多樣性研究中心研究員 |
| 吳再益 | 臺灣綜合研究院 院長 |
| 林建元 | 中國文化大學環境設計學院教授 |
| 林郁真 | 國立臺灣大學環境工程學研究所教授 |
| 孫璐西 | 台灣大學食品科技研究所終身特聘教授 |
| 馮正民 | 交通大學交通運輸研究所教授 |
| 楊鏡堂 | 台大機械系終身特聘教授 |
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| 蕭代基 | 中央研究院經濟研究所研究員、 台灣環境與資源經濟學會理事長 |
| 鄭守夏 | 台灣大學健康政策與管理研究所教授兼所長 |

| 姓名 | 職稱 |
|-----|--|
| 余範英 | 余紀忠文教基金會董事長 |
| 李棟樑 | 中華民國企業永續發展協會理事長 |
| 林俊興 | 祐生研究基金會董事長 |
| 林志森 | 財團法人台灣綠色生產力基金會董事長 |
| 周春娣 | 財團法人環保媽媽環境保護基金會創辦人及董事長 |
| 周蓮香 | 中華鯨豚協會常務理事、 國立台灣大學生態與演化生物學研究所教授 |
| 宮榮敏 | 中華民國化學工業責任照顧協會常務理事 |
| 陳士章 | 台灣原住民族人文關懷協會理事長 |
| 張楊乾 | 台達電子基金會副執行長 |
| 劉麗珠 | 自行車新文化基金會 執行長 |
| 賴榮孝 | 中華民國荒野保護協會理事長 |
| 駱尚廉 | 台灣環境管理協會榮譽理事長、 國立台灣大學環境工程學研究所特聘教授、 環境污染預防與控制科技研究中心主任 |

Preface

Taiwan is an island-nation with 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 has 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 the Article 29 authorizes NCSD's official position.

The 2015 Annual Report compiles the main achievements by both NCSD and civil sectors through their efforts on promotion activities of sustainable development in 2015.

This Annual Report includes Chapter 1: The 2015 Annual Work Progress of Committee of the NCSD, Chapter 2: 2014 Key Performance and Achievements of Working Groups of the NCSD, Chapter 3: The 2015 International Forum on Sustainable Development, Chapter 4: The 2015 National Sustainable Development Award Winners, Chapter 5 : interviews with the Non-Government Members of the NCSD, etc. For the NCSD's Organizational Structure and member-list, please refer to the appendix.

Sustainable development depends on corporate participation. Through the "2015 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 enhance the public's understanding of sustainable development, and participate in national sustainable development work.

Chapter 1 The 2015 Annual Work Progress of Committee of the NCSD

I. Convening Meetings

This year, 2015, the Committee of National Council for Sustainable Development (hereinafter referred to as the Committee) convened 2 council meetings and 2 working conferences to discuss topics related to sustainable development. The summary and proposals are as follows:

1. The 27th Council Meeting

The meeting was held on June 9th, 2015, in the 1st Conference Room, on the second floor of Executive Yuan and presided by Premier and Chairman of the Committee Zhi-Guo Mao. The agenda of the meeting included three draft reports, namely:

- (1) Effectively promote the recycling and reuse of the drained water from public wastewater treatment plant
- (2) Promote green economy
- (3) Review and draft our sustainable development objectives



▲ The 27th Committee Council Meeting

2. The 28th Council Meeting

The meeting was held on December 18th, 2015, in the 1st Conference Room on the second floor of Executive Yuan and presided by Premier and Chairman of the Committee Zhi-Guo Mao. The agenda of the meeting included four draft reports, namely:

- (1) Instructions for “Greenhouse Gas Emission Reduction and Management Act” and “National Expected Contribution”
- (2) “Executive Yuan National Land Conservation Project Group Performance by Stage Report”
- (3) Sustainable Development Objectives of the committee (draft)
- (4) Partial correction on the Sustainable Development Policy Guidelines of the Committee



▲ The 28th Committee Council Meeting

3. The 39th Working conference

The conference was held on April 24th, 2015 in the VIP Room of Executive Yuan. Presided by Xin-Cheng Ye, CEO of the Committee, the agenda of the meeting covered one draft report and four discussions:

- (1) Promote National Health Programs
- (2) Execution and review of matters resolved at the 26th of the committee council meeting
- (3) Selection of committee logo
- (4) Promote Green Economy Policy Guidelines (draft)
- (5) How to effectively promote the recycling and reuse of the drained water from public wastewater treatment plant



▲ The 39th Committee Council Meeting

4. The 40th Working Conference

The conference was held on December 3rd, 2015 in the VIP Room of Executive Yuan. Presided by Xin-Cheng Ye, CEO of the Committee, the agenda of the meeting covered one draft report and two discussions:

- (1) Execution of Executive Yuan National Land Conservation Project Group
- (2) Sustainable Development Objectives of the committee (draft)
- (3) Partial correction on the Sustainable Development Policy Guidelines of the committee



▲ The 40th Committee Council Meeting

II. Sustainable Development Policy Promotion – Electronic Newsletter

To educate people on sustainable development, the Committee encourages everyone to participate in related actions. In November 2013, the 37th working conference decided on the Sustainable Development Policy Promotion Program. Electronic newsletter is one of the key work items. The content mostly introduces global sustainable development trends, Taiwan's current promotion, the Committee's current promotion affairs, domestic sustainable development information, and local situations.

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The publication began in July 2014, and is published bi-monthly. Issues 6~10 were published in 2015. Issue 10 covers the drafting of UN 2030 sustainable development agenda: initiative of global action, promotion of Taoyuan City Green City Operation, recent works of the committee, key work performance of the committee sub-groups, climate change and energy conservation and carbon reduction groups, the committee premier Beng-Ji Jiang and Shan-Lian Luo, and recent news related to domestic and international sustainability development.



▲ Issue 10 of the Committee's Electronic Newsletter

III. The Evaluation of Sustainable Development Indicator System in 2014

In order to effectively evaluate and review the outcome of the promotion of global sustainable development, the UN announced their first edition of the sustainable development indicator system (SDIs) in 1996, and encouraged nations to use the framework of the system as a reference to construct their own indicator systems in accordance with the specific conditions of each nation. After reviewing the suitability of the first edition of the indicator system, UN announced their second and the third versions of SDIs in 2002 and 2007, respectively. Each system framework drastically differs to the next.

The National Council for Sustainable Development (NCSD) of Taiwan used UN's sustainable development indicator system (1st edition) and its framework as a reference and started to draft NCSD's own indicator system in 2002. The first edition was announced in 2003. Every year subsequently, NCSD published the results of the indicator system evaluation of the previous year. Furthermore, in order to work collaboratively with the global trend, in December 2009, NCSD developed its second edition, based on UN's third edition of sustainable development indicator system and NCSD's own first edition. Both the framework of NCSD's second edition and UN's third edition consist of three levels: "themes," "subthemes," and "indicators."

Work relating to the evaluation of sustainable development indicator system in 2014

(1) The Secretariat of the NCSD held the "2014 Sustainable Development Indicators Data Reporting Session" on August 3, 2015. Civic Sustainable Development Committee members and the government agencies in charge of the indicator information were invited to discuss and to determine each indicator's name,

definition, calculation and quantity for the year 2014; the authorities in charge of each indicator were also asked to fill in the annual data on the “Individual Indicator Information System for Sustainable Development in Taiwan” website. Additionally, the Secretariat made a written request in mid-October the same year to ask each indicator authority or agency to compose the report on the evaluation of sustainable development indicators in 2014.

(2) The Secretariat of the NCSD invited Civic Sustainable Development Committee members and the agencies responsible for each indicator on December 4 and organized the “2014 Sustainable Development Indicators Data Reporting Session” so as to confirm the annual data of each indicator and the report content of the Evaluation for the year 2014.

(3) The Secretariat of the NCSD published “the Evaluation Results of Sustainable Development Indicators in 2014” on the NCSD’s official website (<http://nsdn.epa.gov.tw/>) to make all sectors of society informed.



▲ The 2015 International Forum on Sustainable Development

IV. Hosting the 2015 International Forum on Sustainable Development

To understand global trends and UN’s actions after the Summit on Sustainable Development in 2015, the Committee hosted a one-day 2015 International Forum on Sustainable Development in September 2015 to promote this concept to the people of Taiwan. Renowned academics and experts were invited to join in discussion and share with the Committee members, Taiwan’s government officials, academics, and experts.

The topics of this forum include the prospects and responses of UN’s World Summit on Sustainable Development, green economy promotion around the globe after Rio+20, and the promotion of sustainable resilient cities. Committee CEO Shin-Cheng Yeh highlights the value of public participation. In order to show partnership between central and local governments to implement Taiwan’s sustainable development, we have selected sustainable cities as a discussion point.

Please see Chapter 3 for the details of the forum.

V. Selection and Recognition of the National Sustainable Development Award

Taiwan places great importance on sustainable development and created the Committee of National Council for Sustainable Development in 1997. To follow the global trends and encourage our society to act on sustainable development, the Committee created the National Sustainable Development Award in 2004 to recognize institutions with remarkable promotion results. Through sharing their experience, we hope the spirit of sustainable development can take root and become a part of everyday life.

This year’s National Sustainable Development Award is the 12th, including four categories: Educational Sustainable Development Award, Enterprise Sustainable Development Award, NGO Sustainable Development Award, and the Best Sustainable Development Action Plan Award to recognize schools, companies, NGOs, and government agencies with extraordinary achievements in this field. Between May~July of each year, documents are first reviewed, and the preliminary list is submitted to the Committee’s secretariat which then invites civilian Committee members. Between August~October, on-site assessment is conducted to select finalists at the end of October. The final winners are announced in late November, and a total of 10 winners are then recognized by the Executive Yuan at the end of the year. Please see Chapter 4 for the introduction of the award winners.

Chapter 2 2014 Key Performance and Achievements of Working Groups of the NCSD

The work units of the NCSD have been reorganized several times to adapt its practices since its establishment. There are 9 working groups in the NCSD since November 2008 and the key functions and achievements are as follows:

I. Working Group on Climate Change, Energy Conservation and Carbon Reduction

This working group is convened by the Environmental Protection Administration (EPA), responsible for the coordination and promotion of energy conservation, greenhouse gas reduction, climate change influence assessment, adaptation programming and issues related to international cooperation on climate change. Its achievements in 2014 were:

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1. Setting up the greenhouse gas administration mechanism

- (1) The Greenhouse Gas Reduction and Management Act was passed by the Legislative Yuan on June 15th 2015 and promulgated on July 1st.
- (2) The EPA proclaimed the “2014 Republic of China (Taiwan) Greenhouse Gas Inventory Report” on January 15th 2015. to indicate the calculation scope, profile, overall emission trends in the mentioned report and disclose contents such as calculating methods, statistics, data on the different greenhouse gas emission origins and collection in various sectors and their emission trends.
- (3) The EPA proclaimed the Inspection Standards for the Greenhouse Gas Authentication and Verification Organization on April 22nd 2015, to be effective immediately.
- (4) On September 17th, 2015, the EPA reported the draft “Intended Nationally Determined Contributions (INDCs Taiwan)” in the Executive Yuan’s 3466th Assembly.



▲ Picture description: 2014 Republic of China (Taiwan) Greenhouse Gas Inventory Report

2. Actions taken by the various different sectors departments to adapt to climate change

- (1) On April 20th, The National Development Council approved subsidization to the six local Governments, including Taoyuan City, Yunlin County, Chiayi Jiayi County, Chiayi (City), Tainan City and Kaohsiung City to implement the “Second Stage for the Local Climate Change Impacts and Adaption Plan”.
- (2) The Architecture and Building Research Institute of the Ministry of the Interior planned to conduct the research to study and amend the chapter of green building standards in the Building Act and Regulations in 2016 and the Construction Planning Agency of the Ministry of the Interior would do the follow- up amendment in accordance with its research outcome.
- (3) The Bureau of Energy of the Ministry of Economic Affairs proclaimed energy consumption standards and inspection methods, and also the energy efficiency effectiveness labelling system for electric appliances on January 1st and September 21st respectively. The appliances should be labelled with energy efficiency indications on goods demonstrated or to be sold starting January 1st 2015.

3. Dispatched Delegations to participate in UNFCCC activities

- (1) The EPA organized a delegation to the UNFCCC COP21/CMP11 held in Paris, France from November 31st to December 11th 2015
- (2) The EPA organized internationally the “2015 Pan Pacific Partnership on Climate Change Adaptation Conference” in Hanoi, Vietnam between October 18th and 20th 2015. The main topics were countries’ INDCs, public consciousness of climate change, among others.

4. Expansion of public involvement

The EPA held a hearing meeting on the Greenhouse Gas Reduction and Management Act on September 25th 2015, and invited representatives from various sectors to contribute their valuable opinions and comments for the public to recognize the whole framework of the said Act and for the integration between existing and new mechanisms.

5. Guidance on low carbon and greening of industry

The Industrial Development Bureau of the Ministry of Economic Affairs (IDB) has been promoting industrial energy conservation and carbon reduction. In 2015, the steel, petro-chemical, pulp & paper, cement, synthetic fiber, cotton dyeing, silk dyeing and polymer materials a total of 11 industries, signed agreements with the IDB on Industrial GHG Voluntary Reductions. There were 1,040 reduction measurements taken which reduced 817 thousand tons of CO². The economic benefit derived from this programmed was about NT\$3.2 billion (US\$100 million).

6. Promotion of green LOHAS and low carbon transportation

- (1) The Tourism Bureau of the Ministry of Transportation and Communications promoted green building engineering in national parks. Tourist Center Buildings such as Luoshang of the Hualien-Taitung Valley, Nangan of Mazu, Nanzhuang of Shotosan and the Administration Center in Fanlu of Alisan Mountain, were certified with the green building badge by the Ministry of the Interior.
- (2) The Kinmen County Council passed its “Low Carbon Island self-government ordinance” on July 27th to further implement the low carbon and sustainable development.

II. National Land and Resources Working Group

This working group is convened by the Construction and Planning Agency of the Ministry of the Interior. Its main mission is to assure national land security, to plan national land conservation, application and management, and to legalize the related mechanisms for implementing sustainable development of national land resources. Its achievements in 2014 are as follows.

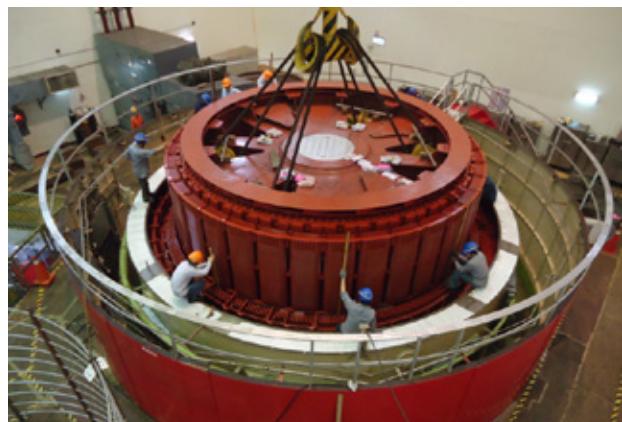
1. Exploration, use, administration and conservation of water resources (Taipei Feitsui Reservoir Administration, Irrigation Association and Water Resources Agency)

- (1) The Sustainable Water Environment and Green Reservoir Action Plan of the Feitsui Reservoir is to conduct low carbon, green and eco-management and operations. To assure long-run performance and safe operations of the Feitsui Hydro Power Plant, a shutdown for periodic overhaul maintenance was executed on March 2nd 2015 and it restarted on May 3rd 2015. A total of approximately 160 million kwh of green electricity was sold in the first 3Qs of 2015, reducing an equivalent 80,682 tons of CO².

Moreover, the Feitsui Reservoir is heavily responsible for the water supply of the Taipei Metropolitan Area, so well-implemented conservation of water resources guarantees the sustainability of the reservoir. The actions taken, like forest planting, are on the way. In 2015, forest planting covered about 3.2 thousand hectares with 5 thousand kinds of Taiwan’s endemic trees.

(2) The Feitsui Reservoir offers water with sufficient quantity and excellent quality. The reservoir supplied raw water to the Taipei Water Department totaling about 206.5 million cubic meters and 113.6 million cubic meters to the Taiwan Water Corporation in the first 3Qs of 2015

(3) To improve the dam's security monitoring system, instrumental monitoring, assessment and on-site inspection of the dam were carried out. There were 405 on-site inspections for the dam, 89,425 automated monitoring data points collected, and 17,911 field checks for the dam in the first 3Qs of 2015. By using these data, inspections, checks, and expert assessments, the dam had its construction structures approved as safe and stable.



▲ Overall machine maintenance in the Feitsui Electric Power Plant on April 22nd 2015(suspending rotar)



▲ Circulating Water Fish farming equipment

2. Conservation and management of underground water resources (Fisheries Agency of the Council of Agriculture)

There is a concrete solution and action plan for land subsidence in the central / southern coasts of Taiwan. The sea water supply coordinating system of the pisciculture production area in Xialuen, Yunlin County works normally with a water supply for 122 hectares, which was planned to save 2 million tons of water, but in fact the saved water totaled 2,806,000 tons from 2011 to the end of 2014. The sea water input system of the well pisciculture production area in Yunlin County with a water supply for 79.92 hectares, the supply and drainage system of the pisciculture production area of Xiahuko with a water supply for 280 hectares, and the sea water input and output waterways for the related pisciculture production areas or the fish farm concentration areas all work normally, which were planned to save 2 million tons of water but in fact the saved water totaling 3,029,000 tons from 2011 to the end of 2014.

3. Marine Resource Sustainable Operation (Construction and Planning Agency of the Ministry of the Interior)

- (1) The agency finalized non-urban land-use zoning and registration for the delimitation of marine areas for 17 local governments in accordance with Article 15 of the Regional Planning Act and the Executive Yuan's National Land Utilization Plan, which was proclaimed and effective on October 17th 2013.
- (2) The delimitation of coastal zoning was proclaimed on August 4th 2015 in accordance with the Coastal Zone Management Act, proclaimed and effective on February 4th 2015.



4. National land planning and management (Construction and Planning Agency of the Ministry of the Interior, Central Geological Survey of the Ministry of the Economic Affairs, Forest Bureau and Department of Planning of the Council of Agriculture)

(1) Implementation of the space plan and guidance of the proper land development policy- According to the Regional Plan Act, proclaimed to be effective on October 17th 2013, the construction principle of the required application for the facility- use location change was set in the mentioned act and it was required to assign the required application for the facility- use location change in the regional plan of the municipalities and counties (cities) in accordance with the industrial policy and its development requirement and under the principle of environmental carrying capacity. The procedure regulations for the verification and decision of non- urban land development was amended and proclaimed on August 17th 2015.

(2) Implementation of the national geological sensitive zone delimitation, verification, decision and proclamation.

The national geological sensitive zones were divided in 5 parts with their delimitation, verification, decision and proclamation to be finished by 2016. The 19 items of the first and second parts were proclaimed in 2014. The 3rd and 4th parts are under process in 2015. In these 23 items of 4 categories of the geological sensitive zones for delimitation and proclamation, at the moment, 7 items have been proclaimed.

(3) Programming and establishment of the natural protection (preservation) zone and reinforcement of the operation management.

Continuous on-going programming, establishment and operation management of natural protection zones: To set up a complete natural protection zone system, 22 natural preservation zones, 20 wild animal protection zones, 37 important habitats for wild animals and 6 natural protection

zones are programmed and set, whose area totals 412,906.15 hectares (the repeated part was excluded.) This occupies 11.40% of the land area of Taiwan, which connects the protection and preservation areas of the Central Mountains to protect and preserve the core ecological system of Taiwan.

(4) Promotion of farmland resource space programming and establishment of the reasonable use mechanism of farmland: The space installation ideas of the industry and its value chain development under the 15 municipalities or county governments are completed through intensified application to farmland resource space programming results. The classification, classified verification and ratification of the farmland resource space programming and its marking and drawing work continue to offer the agricultural administrative unit sufficient information about the farmland resource distribution so that it can include the offered farmland classification and grading in the national regional plan to facilitate the national territory programming and resource distribution.

5. National land protection and preservation (Soil and Water Conservation Bureau of the Council of Agriculture)

For the mountainsides, listed in the National Mountain Protection and Preservation Ordinance, the application of satellites to monitor topographical changes of mountainside (6 times a year) is effectively applies to mountainside management.

6. Promotion of the sustainability and carbon reduction concepts public construction (Public Construction Commission of the Executive Yuan)

An e-learning course is given to introduce the life cycle of public construction, which includes phases such as feasibility assessment, programming, design, construction, maintenance and management, to promote the policy and ideology of the sustainable operation environment and to reduce the environmental impact caused by public construction work.

III. Biodiversity Working Group

The working group is convened by the Fisheries Agency of the Council of Agriculture. Its job is to implement the Biodiversity Promotion Plan, approved by the Executive Yuan in 2001, integrate the governmental departments to promote the Biodiversity Sustainable Development Action Plan and to hold promotions or related activities for the public and private sectors to reach consensus and set up a partnership to work together and achieve the goals of the biodiversity protection, preservation and sustainable use. Its achievements in 2014 can be as follows:

1. Investigated and assured possible biodiversity hotspots on land and in the sea

The Endemic Species Research Institute of the Council of Agriculture of the Executive Yuan is cooperating with the Cornell Lab of Ornithology in the United States to set up the e-bird Taiwan website (<http://ebird.org/content/tw/>) to collect data for distribution mapping of birds in Taiwan, with a list of 378 hot spots.

2. To strengthen taxonomical abilities and to gradually finish the compilation and revision of taxonomic knowledge of the fauna, flora and microorganisms in Taiwan

The Endemic Species Research Institute of the Council of Agriculture and the Chinese Wild Bird Federation have worked cooperatively and finished the revision of the Checklist of Birds of Taiwan and published the “2015 report of the ornithological record commission”. In October, the Institute also published the “Taiwan New Year Bird Count 2015 Annual Report The Taiwan Forest Research Institute selected introduced species which have caused serious damage in recent years from 5 international destructive insect databases to set up a non-native species pest directory for forests.

3. Introduced risk assessment of major forest pest diseases and damage, and established and maintained an information platform

For 20 common introduced pest species which have recently brought disease and caused damage to forests around the world, the Taiwan Forest Research Institute assessed risks and set up a database after collecting the information and

inviting national experts to help complete the written report on risk assessment.

The Taiwan Forest Research Institute finished an investigation of biocontrolled plants in northern Taiwan (Yilan County, Taipei City, New Taipei City, Keelung City, Taoyuan City and Hsinchu County), set up a distribution mapping database and published the Atlas of biocontrolled plants in northern Taiwan for the public's reference and for research use.



▲ Activity name: Investigated environment sample photo
Dasyueshan Forest Recreation Areas
Picture Taken by Mr. Liao, Shi-re

4. Draft of the restoration priority of the deteriorated environment and of the prior restoration method

The recovery works of land pollution were executed by the local environmental protection agencies, under the supervision of the Environmental Protection Administration. Until the end of September 2015, 5,299 polluted plots of farmland with an area of 897 hectares were proclaimed and listed for control 2,723 plots of farmland with an area of 545 hectares completed the restoration and 2,576 plots of farmland with an area of 352 hectares were recovering.

Currently the local environmental protection agencies are responsible for the programming of the polluted farmland recovery and carrying out the investigation of the polluted soil on the farmland.

5. Proclamation and implementation of the related policies

(1) The Kinmen County Government proclaimed the Horseshoe Crab, Aquatic Plant and

Animal Breeding, Protection and Preservation Area in Guningtou, Kinmen County on March 19.

- (2) The Agriculture and Food Agency of the Council of Agriculture (COA) set up the Cyclamen Species Experiment and Verification Measurement on January 7 and commissioned the Taiwan Seed Improvement and Propagation Station of the Council of Agriculture to be the verification organization to verify and trace the Cyclamen species phenotypic trait, which became valid upon the proclaimed date.
- (3) The Agriculture and Food Agency of the Council of Agriculture set up the "Paphiopedilum and black mushroom as the suitable plant species for the plant and seed" plan on April 1, which became valid upon the proclaimed date.
- (4) The Agriculture and Food Agency of the Council of Agriculture proclaimed and admitted the plan of the heredity character investigation and bio-safety assessment field experiment of the transgenic White Flower Oncidium, Michelle No. 1 on April 10.
- (5) The Penghu County amended the Sea Urchin Fishery Resource Management on May 4.
- (6) The COA's Livestock Research Institute reared a new goat species, named Kenting Goat, with a stress resistance property. The Council of Agriculture agreed to the new species' registration with the official document no. 1040042808 on June 5.
- (7) The Agriculture and Food Agency of COA set up the Caladium × hortulanum Bi rdsey Species Experiment and Verification Method on September 10, which became valid upon the proclaimed date.
- (8) In October, the Fisheries Research Institute of COA amended Item 14 of the The Aquatic GMO (genetically modified organism) Field Experiment Administration Regulations, indicating the field experiment of the genetically modified recreation fishery should apply for the incorporated implementation of the heredity character investigation and bio-risk assessment, simplifying the administrative procedure and support diversified development of the national fishery industry.

IV. Energy and Production Working Group

This working group is convened by the Industrial Development Bureau of the Ministry of Economic Affairs and takes sustainable energy development and green production promotion as the axis of its task, which includes the assurance of energy safety, booster of energy production, promotion of green industrial development and strengthening of international competitiveness. The group's achievements in 2014 can be referred to as follows:

1. Promotion of the green factory (Industrial Development Bureau of the Ministry of Economic Affairs)

Until September 2015, 26 green factory badges had been certificated and 61 factories passed the cleaning production assessment and systematic conformity identification. These green certificated buildings and cleaning production factories contributed carbon reduction of 597,000 tons per year equivalently, with a cost-down of NT\$3.3 billion (US\$103 million approximately).

2. Guidance of the small and medium sized enterprises to promote energy conservation and carbon reduction (Small and Medium Enterprise Administration of the Ministry of Economic Affairs, MOEA)

In 2015, SMEA assisted 105 small and medium sized enterprises in implementing related energy conservation and carbon reduction, such as the ECOS's services verification of the carbon/ water footprint and the establishment of the energy management system and related activities. The job training programmers on green energy, environmental protection or energy conservation techniques had 500 participants. The energy conservation, carbon reduction and water saving promotion were carried out with more than 80,000 participants.

3. Establishment of the verification and experimental system (Bureau of Standards, Metrology and Inspection of the Ministry of Economic Affairs)

BSMI completed the installation of the solar photovoltaic tomography system testing equipment, developed the reversible engineering to identify

and analyze the defectives occurred from energy technological products such as solar photovoltaic modules, refrigeration, air conditioners, small and medium sized wind turbine components and fuel cells...etc. thus, facilitating amendment of standards BSMI has passed NVLAP Lab (USA)'s qualification and accreditation on the secondary grade optical correction providing Taiwan's manufacturers a timelier, international and qualified correction service.

4. Promotion of the Green Electric Pricing System (Bureau of Energy of the Ministry of Economic Affairs)

The Bureau of Energy has been implementing a 3-year pilot plan for the green power tariff system since July 2014 to encourage the public and enterprises to purchase green power voluntarily. The activity was opened on February 16, 2015 with additional rate of NT\$1.06 (US\$0.03)/ kwh and a upper limit of 784million kwh. Up to October 15, the purchased amount had been 156 million kwh.



▲ Mr. John Chen- chung Deng, Minister of Economic Affairs and Mr. Chuan- neng Lin, Director General of the Bureau of Energy visited TSMC on August 28, 2015 and presented the sapling of ginkgo (maidenhair tree) as symbol that the development of the green energy means a welcome to happiness.



▲ Green Electricity Badge, which is divided into 3 levels in accordance with the degrees subscribed by the users.

5. Implementation of the Stipulation of Energy Conservation in the energy-intensive Industries and Used Energy Efficiency (Bureau of Energy of the Ministry of Economic Affairs) Regulated the energy-intensive industries to save energy with energy efficiency

On 4 March, 2015, BOE proclaimed "Electronics Industry Energy Conservation and Used Energy Efficiency" to set up the operation standards for the main energy-use equipment in the electronics industry, such as water chiller units, blower units, adsorptive dryers and compressed air systems, which estimated saved 127,000 KI. In the mean while, "Textile Industry Energy Conservation and Used Energy Efficiency" was also proclaimed to set up the operation standards for the main energy-use equipment in the textile industry, such as water chiller units and heat transfer boilers, which is estimated to have saved 39,000 KI in totals.

6. Promotion of the services hiring low or middle income households (Ministry of Labor)

In coordination of the concrete project to improve the income distribution, the Ministry of Labor implemented a 5-year assistance and supporting project for hiring low or middle income households, offering them with vocational training, subsidized to earn technical skill certification, or opportunities to visit job fields. A vocational management system was implemented for job services among private and public sectors.



▲ Celebration of the seminar to encourage middle-low or low income households to get employed and share experiences

7. Celebration of the diversified employment orientation (Ministry of Labor)

The multi-dimension employment orientation training programs were held to help the unemployed to be rehired by internal training, or commission and subsidy. The Ministry of Labor also strengthened to hold the training required by the industry to elevate their vocational skills, encourage employment and introduce the necessary updated skills and concepts. Until the end of September 2015, 41,077 persons had completed the training programs.

8. Cooperation with universities and colleges to offer employment services (Ministry of Labor)

The subsidy plan to work with universities and colleges to offer employment services was promoted to sponsor the universities and colleges to hold career promotion activities such as campus recruitment, career lecture, enterprise visit...etc. to help their graduates get employed successfully.



▲ Celebration of the campus recruitment

9. Encouraging life- long study to famers and strengthening the professional knowledge and skills of the famers (Council of Agriculture)

The farmer academy was established in 2011 as the training base for farmers who wished to be professional and to establish a complete training system to the agricultural education in combination with the agricultural study, education and resource promotion and to program the systematic agricultural training from the experience, entry, primary, secondary to the advanced course for the different objects, offering a life-long study channel in agriculture.

10. Promotion of the agricultural operation zone and effective use of farmland (Council of Agriculture)

The Council of Agriculture set up the agricultural operation zone to preserve good farmland and develop a safe productive base for the agriculture and concentrated the related resources on the excellent agricultural production in the zone to improve the agricultural operation environment, elevate the use efficiency of the farmland and increase the income of the farmers.

V. Transportation and Life Working Group

This working group is convened by the Institute of Transportation of the Ministry of Transportation and Communications whose tasks focus on four categories: sustainable transport, human-oriented traffic, smart transport, green life and consumption, and the establishment of the relevant action plans. Its achievements in 2015 can be referred to as follows:

1. Continuous promotion of the track transport construction and elevation of service efficiency (Ministry of the Transportation and Communications)

It actively promoted the related constructions of the track transport, which include the grade separation of the metropolitan railroads, acceleration of the track transport like the mass rapid transit elevation of the track transport services, establishment of energy conservation stations, continuous promotion of the metropolitan mass rapid transit system, accelerated promotion of the establishment of the high-speed rail stations in Miaoli, Zhanghua and Yunlin to advance the urban renewal development, satisfy the need of the passengers, to reduce the travelling time and save the cost.



▲ Exterior of the high-speed rail stations in Miaoli, Zhanghua and Yunlin

2. Construction of the smart transport system in Taiwan (Ministry of Transportation and Communications)

In addition to the traffic & trans services offered by the Institute of Transportation of the Ministry of Transportation and Communications and the overall freeway and expressway network traffic management system run by the Taiwan Area National Freeway Bureau, the Taiwan Railway Administration also promoted the Taiwan railway multi-use E-ticket service to offer an overall smart transport service so that the users can get timely traffic information and enjoy the convenience brought by the transport before the start of the trip or during the trip to reduce the travelling time, the transport energy spent during the trip and the exhaust pollution.

3. Promotion of the overall programming of the national bicycle rider- friendly environment network and the establishment plan of the bicycle network by the Ministry of Transportation and Communications itself (Ministry of Transportation and Communications)

The Ministry of Transportation and Communications has convened local governments, Construction and Building Agency of the Ministry of the Interior, Sports Administration of the Ministry of Education and their relevant units to investigate nine routes, using the local existing cycle ways and provincial roads to plan one main line around the island and 13 spurs and would complete the related use services and facilities like the guiding signals and lines, guiding indicators, supply facilities, elevators in stations, guiding roads, bicycle ports and racks. before the end of 2015.

In coordination with the zero pollution bike-riding activity promoted by the government to save energy and reduce carbon, the Ministry of Transportation and Communications, combining the two kinds of transport, railway and bicycle, has kept on promoting the environmental protection train for both railroad and bicycle for the public to make use of the railway as means to transport people and bicycles to arrive at the destination at the same time since 2008 and set up the depot for bikes in Kuanshan, Taidong and Toucheng to serve the tourists.



▲ Depot for bike in Toucheng Train Station

4. Promotion of ecotourism, environmental education and tourist- friendly environment (Construction and Building Agency of the Ministry of the Interior and Ministry of Transportation and Communications)

To promote environmental education and a tourist-friendly environment, the Construction and Building Agency of the Ministry of the Interior, national (natural) park administrations, city park administrations and scenic area administrations under the Tourist Bureau of the Ministry of Transportation and Communications, in addition to programming the tourist-friendly environment such as natural scenery, human historical sites for the public to visit, have cooperated to promote the environmental education in accordance with the environmental characters of each tourist area to elevate the consciousness and content of the civil environmental education, making the event edutainment.

5. Improving the weather and earthquake forecast ability (Ministry of Transportation and Communications)

The plan to establish the monitoring and forecast work of the destructive weather was implemented. The expansion and analysis of the search functions in the Taiwan extreme weather index of the weather monitoring and forecast operating system were completed. The new version of the model of the weather research and forecast (WRF), Ensemble Typhoon Quantitative Precipitation Forecast (ETQPF)/ Ensemble Typhoon Wind (ETWIND) was put online for operation. The ocean current track information service and index

of the sea surface condition and surge monitoring signal on the official website were strengthened. The ultraviolet forecast in each county, city and town was put online. The app for the division of the weather forecast and warning was added and the early warning and forecast of the weather and the earthquake information were shared through LINE. The broadcast function of the weather warning and forecast was strengthened. Moreover, the simultaneous rough wave information was added to the official website. The public can browse the website or download the daily weather app to get the related information and pass the message to the central and local government emergency operation centers, academic institutes and press media through the mobile text message and extreme weather monitoring system.



▲ Live Weather app for weather warning and forecast

6. Introduction of the environmental management system and facilities of the energy conservation and carbon reduction in the airports (Ministry of Transportation and Communications)

The Civil Aeronautics Administration of the Ministry of Transportation and Communications has pushed the related units of the airports to expand the participation in the accreditation of the ACA Level 3. In addition to obtaining the continuous accreditation to the mentioned environment, greenhouse gas and energy, the Kaohsiung International Airport also encouraged its related units to participate in the joint carbon reduction plan, taking green airport of the greenhouse gas emission and carbon neutrality as goal.

7. Promotion of the civic green consumption (Environmental Protection Administration)

To encourage consumers to put into practice the environmental protection concept in their daily life, the Environmental Protection Administration has promoted the green consumption actively with major measurements as follows:

- ① To establish the credible system of the green product accreditation
- ② To integrate the selling channels of the environmental protection products to facilitate the purchase of green products for consumers
- ③ To promote the concept of green consumption to change the consumption pattern of the consumers

VI. Technology and Evaluation Working Group

This working group is convened by the Department of Natural Science and Sustainable Development of the Ministry of Science and Technology whose tasks are to apply the existing scientific fundamental research and technological creative ability to the global ecological and environmental system assessment, to facilitate policy making by integrating the assessed information, to cultivate the technological talents, strengthen technical and international exchanges in order to reduce the major risks caused due to the development and the pursuit of science power by the people. Its achievements in 2015 can be referred to as follows:

1. Plan to establish the Taiwan Climate Change Projection and Information Platform

- (1) The Chinese subtitles for the movie of the 5th IPCC assessment synthesis report were completed and put in the TCCIP for the external reference and application.
- (2) To satisfy the need and application to prevent the disaster, the mentioned department completed the deviation correction of the hourly precipitation with the estimated data of 5km dpi, estimated the different rainfall duration and order of the extreme typhoons, sorted the maximum accumulated precipitation within 24 hours during the typhoon and made use of the related data to finish the inundation simulation of the Kao-ping River during the typhoon.

(3) In response to the impact research of the agricultural food provision and public hygiene, the applied technology for the climate change data was developed. The assessment of the damage to rice farmers caused by the typhoons of the end of the century in Taiwan and the analysis of the impact, caused by the temperature change to the overall mortality rate, and the mortality rate of cardiovascular diseases were also completed.

(4) The establishment of the extreme index of the high-resolution precipitation and temperature in Taiwan and the analysis of the extreme index change of the 11 kinds of precipitation and nine temperature values under the three scenarios were completed to facilitate the impact study of the extreme events.

(5) The establishment of the standardized analysis of the extreme precipitation could be applied to the mutual comparison among different observatories and patterns.

(6) The completed flow comparison between CMIP3 and CMIP5 could be applied to the climate change impact study and adaption assessment.

(7) The establishment of the relationship between the drought of Taiwan and the land surface heating of the Tibetan Plateau and the relationship of the spring big scale circulation could be an important weather reference to the CMIP5 assessment for the future drought trend.



2. Integration of TaiBIF and connection to GBI

(1) The Ministry of Science and Technology and the Council of Agriculture sponsored the Biodiversity Research Center of the Academia Sinica to set up TaiBIF, TaiCOL, TaiEOL to promote the collection and integration of the cross-

ministry biodiversity information and to strengthen the promotion and implementation of the open information policy. (Ministry of Science and Technology)

(2) Continuous operation of the wild animal and plant database and biodiversity information sharing platform, Taiwan Biodiversity Network (TBN) and Breeding Bird Survey Taiwan (BBS Taiwan) (Endemic Species Research Institute of the Council of Agriculture)

(3) The implementation of the biodiversity investigation in the artificial reef zones of the surrounding sea area of Taiwan, fishery resource conservation zone and the sea area of the three islands in the north of Taiwan has been a continuous commission to the related institutes and academic units and the compiled data was included in the Taiwan Surrounding Sea Area Marine Biodiversity Database. (Fisheries Agency of the Council of Agriculture)

(4) Each national park administration has maintained and renewed information regularly in coordination with the National Park Biodiversity Geographic Information System, set up by the Construction and Planning Agency of the Ministry of the Interior. (Ministry of the Interior)

3. Promotion of the research plan of the climate change adaptation and technology integration

(1) To establish the pisciculture adaptation pattern in the Taiwan Strait in conformity with the cold wave and the monitoring system of the dust and typhoons, to control the characters of the large scale sea-air interaction to the precipitation in the region of Taiwan, to analyze every drought event in Taiwan in these years to assess the drought characters such as the drought occurrence, average duration, average severance and the change in each year and decade.

(2) To predict the change trend of the surge and wave height, caused by typhoons in the future through the simulation analysis of the wave height and surge, caused by the typhoon and to establish the safety assessment after the current and future disappearance of the lagoons and shoals.

(3) To analyze the landslide probability in the drainage basin of Tsengwen River, forecast the landslide dimension, volume and the possible trend of the debris slide to have further prediction about the quantity of soil and gravel under the heavy rainfall and to analyze the disaster of the landslide and debris flow and the geological land form change of the drainage basin under the extreme rainfall.

(4) To establish the basic diagram of eco-system and ecological conservation zone, coordinate with the environmental factor database to forecast and calculate the creature distribution model and to explain the bio-diversity change in mountain areas and coastal wetlands.

(5) To establish the technological service platform for Taiwan climate change adaptation to offer technological service information such as the assessment tools and professional guidance.

(6) To complete the policy-making procedures for the climate change adaptation (technical guidelines), support the adaptation policy making tool, adptCAB and CSDModel and strengthen the TaiWAP model to be the climate change integration and assessment model with the TCCIP-AR5 scenario.

(7) The community (small scale) adaptation ability index was set to assess the community durability. The coastal, urban and rural community assessments (21 in total) had been completed. The space adaptation index was integrated to the model What-if to simulate the land adaptation under the future different adaptation strategies.

VII. Urban and Rural Development Working Group

This working group was convened by the Construction and Planning Agency of the Interior ministry whose tasks are to promote urban and rural development, advance urban renewal and rebirth, fulfill residential justice, implement residential policy, accelerate sewer construction, integrate vehicle paths (urban roads, bicycle paths), construct the zero obstacle space in the pavement, build up the urban green view and human-oriented environment and space and promote environmental

protection, recycled and permeable pavement to elevate the civil life quality and assure the sustainable development within the national land through the urban environmental transformation. Its achievements in 2015 can be referred to as follows:

1. Water resource exploration, use, management and conservation (Taiwan Water Corporation)

To implement actively the plan to reduce the leakage from 2013 to 2022: In the end of the year 2015, 634 kilometers of old and leaking pipelines were estimated to be replaced and 420 district meter pipe networks were to be completed.

2. Sewerage development (Construction and Planning Agency of the Ministry of the Interior)

The 5th phrase construction plan for the sewerage was made in 2014. In 2015, the central government budgeted NT\$11.44 billion (US\$357.5 million) for the Construction and Planning Agency of the Ministry of the Interior and the local county and city governments to encourage user's to actively construct the pipe to increase the popularity of the sewerage, expanding the recycling and reuse of the effluent from the public wastewater treatment plant for the sustainable use of the underwater resource.

3. Urban and rural sustainable development (Construction and Planning Agency of the Interior and the Soil and Water Conservation Bureau of the Council of Agriculture)

(1) Promotion of urban renewal, conducted by the government 235 urban renewal exemplary zones have been selected since 2005 among which currently 63 were under the preliminary planning, 32 were under the preparation and announcement of the investment recruitment, 26 were introduced to the investors for investment and construction and 10 were invested by the government itself and under construction.

(2) Guidance of the approval and implementation of the private urban renewal. There have been 1,699 private applications for the urban renewal plan (the plan to change rights included) since the proclaimed implementation of the Urban Renewal Act in 1998 among which 527 had been approved for renewal.

(3) Subsidy for the private voluntary renewal 59 renewals have been appraised and ratified with subsidy since the implementation of the Subsidy Works of the Central Urban Renewal Fund Subsidy for the Implementation of the Self-Renewal Regulations in 2001, which included 12 cases for the plan and design of reconstruction, 43 for the plan and design of the restoration and maintenance, 2 for earthquake resistance assessment and 4 for the construction of renovation, maintenance.

4. Ecological city and green building (Architecture and Building Research Institute and Construction and Planning Agency of the Ministry of the Interior)

(1) To promote the green building badge appraisal: Until the end of September 2015, 494 green building badges had been rewarded with the green building certificates, which estimated to save about 144,490,000 kwh of electricity and 6,960,000 tons of water and reduced 80,400 tons of carbon.

(2) To promote the green building material badge appraisal: until the end of September 2015, 163 green building badges were rewarded among which 118 were for health, 12 for rebirth and 33 for high function, which covered more than 774 kinds of products.

5. Promotion of the social housing (Construction and Planning Agency of the Ministry of the Interior)

(1) Five trial bases in Taipei City and New Taipei City, which include the section of Chingnien, Wanhua and Baoching, Songshan in Taipei City and Datong South and Daan, Sanchong and Shifong, Zhonghe in New Taipei City were promoted with plans to construct 1,919 households in accordance with the Short-term Implementation Project of the Social Housing, ratified by the Executive Yuan on June 16, 2011.

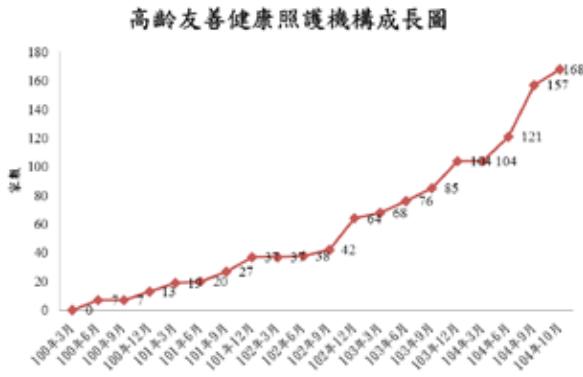
(2) From 2014 to 2023, NT\$6.7 billion(US\$209.375 million) were budgeted to sponsor the local governments as costs for the construction of the social housings such as the preliminary planning fee, construction fee or appropriation for the land in accordance with the Middle-long Term Promotional Project of the Social Housing ratified by the Executive Yuan on January 6, 2014. Till 2023, there would be 34,000 social housings.

VIII. Health and Welfare Working Group

This working group is composed of Ministry of Labor, National Immigration Agency of the Ministry of the Interior, Water Resource Agency of the Ministry of Economic Affairs, Environmental Protection Administration, Council of Agriculture, Council of Aboriginal Affairs, and Ministry of Health and Welfare to implement together tasks like the health risk management and social welfare, which is convened by the Health Promotion Administration of the Ministry of Health and Welfare with specific tasks like attention to the population dynamics, construction of a healthy environment, enforcement of social welfare, attention to the disadvantaged and guarantee of female right. Its achievements in 2015 can be referred to as follows:

1. Establishment of the elderly-friendly health care environment and services (Health Promotion Administration of the Ministry of Health and Welfare)

The introduced structure for the elderly-friendly health care in Taiwan, compiled in 2010 was developed in accordance with the 3 WHO principles for the elderly-friendly health care and WHO standards for Health Promotion in Hospitals. Such structure was introduced in hospitals with priority in 2011 and expanded to other health care institutions like the clinics (medical groups) and long-term care institutions. Until October 20, 2015, 168 health care institutions (128 hospitals, 20 health centers and 20 long-term care institutions) have obtained the accreditation to the elderly-friendly health care institution.



▲ The number of the passed accreditations to the elderly-friendly health care institutions continues to increase.

2. Promotion of the long-term care service system (Social and Family Affairs Administration of the Ministry of Health and Welfare)

To respond to the care need caused by the aging society, the 10 year plan for the long-term care in Taiwan was promoted to give priority to the residence and community care, offering the disabled elderly multi-care services like the residence service, daily care, pick-ups/ drop-offs from which there have been 163,926 beneficiaries from January to August 2015. Moreover, the meeting to expand the communication for the multi-day care services is called annually to examine the current situation and to urge the county (city) governments for the massive expansion to achieve the goal set by the Executive Yuan for the 2016 care service plan in 368 towns of Taiwan. Until August 2015, 191 diversified care service units were installed, which included 161 day-care centers and 30 day-care sites.

3. To complete the regulatory environment for the food sanitation and safety management (Food and Drug Administration of the Ministry of Health and Welfare)

The related food rule and management measurements were amended adequately to encourage the food industry to fulfill the related food regulations about the autonomous management of food safety and sanitation. Partial articles of the Act Governing Food Safety and Sanitation were amended and proclaimed on February 4, 2015, which in addition to aggravating the penalty, include many items to advance the food safety and sanitation management system.

4. Implementation of the national insurance and medical subsidy services for the aborigines (Council of Aboriginal Affairs)

The aborigines who were unable to join the national insurance due to economic difficulties were sponsored with the insurance fee to protect their right to receive medical treatment. While the aborigines were sponsored for the medical transfer and medical treatment due to the transport difficulty in going to the hospital, caused by the regional characters of the aboriginal areas. The implementation efficiency of these two tasks was up to 99%.

5. Implementation of the torch plan for the national new immigrants and the life adaptation guidance for the foreign spouses (National Immigration Agency of the Ministry of the Interior)

To elevate the ability of married immigrants to adapt to life in Taiwan, Guidelines for the Foreign and Chinese Spouses to fit in to the life were proclaimed on June 30, 2015, for which 22 rallies were convened from August to September 2015 with 500 beneficiaries.

6. Creation of a career-friendly environment to balance the responsibility between job and home care (Ministry of Labor)

To encourage employers to create a career-friendly environment to raise children, on 10 February 2015, the Labor ministry proclaimed the amended rules about Regulations on Subsidy and Standards for Establishing Breastfeeding (Breast Milk Collection) Room, Childcare Facilities and Measures, which included the offer of breastfeeding room for employees by the employers in the sponsored scope with a subsidy of NT\$20,000 (US\$625) as maximum. Such regulations were amended and proclaimed again on 8th June of the same year to increase the maximum subsidy to the children care measurement from NT\$300,000 (US\$9,375) to NT\$600,000 (US\$18,750).

7. 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 (Council of Agriculture)

For the promotion of organic agriculture, until September 2015, the dimension of the farms, which passed organic verification, totaled 6,333 hectares with 2,647 organic agricultural households. To guide the production, there were 17 installed group cultivation zones of organic agriculture with dimensions of 677 hectares and in coordination with the activation of the fallow farmlands and to reward the change of organic cultivation, multi measurements of award and guidance were available. To expand the marketing channels, 19 organic farmers' markets were established under the guidance. There were organic e-shops with participation of 152 ranches and installation of 103 organic stalls. The celebration of organic agricultural product sales and expositions were also available. The annual plan for the random inspection of agricultural product was set to strengthen the quality control of agricultural products and the random inspection of products in farms and markets.

IX. Education and Promotion Working Group

This working group was convened by the Department of the Information and Technology, Education of the Ministry of Education, whose major tasks are to increase the 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 in 2015 can be referred 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, temporary exhibitions, 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 (Ministry of Education).

(2) 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. (K-12 Education Administration of the Ministry of Education).

(3) 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 (Water Resources Agency).

(4) 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 (Environmental Protection Administration).

(5) Completed the 30-second promotional video, entitled "Save your own electricity-Saving Chapter" to convey to the public the concept that electricity conservation should start from oneself and each one should work hard for the next generation and to call the public to change the habit of using electricity, through a short film to actively implement the idea of saving one's own electricity. (Bureau of Energy).

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

(1) Sponsored the establishment of 2 regional centers on energy and technology education and 19 middle and elementary schools to promote energy and technology education and integrated the local county (city) governmental resources for the joint popularization of the energy and technology promotional plan (Ministry of Education).

(2) Advanced public knowledge and valuation of water and soil resource conservation, 140 promotional workshops for water and soil conservation and 50 for the prevention of landslides were held in 2015 to strengthen the concept that water and soil preservation is the responsibility of all people; deepened the education of the water and soil conservation of the next generation and promoted and implemented the work of conserving the soil and water and preventing debris flow. (Council of Agriculture).

3. Carry out related research and international cooperation on the sustainable development

(1) Implemented the subsidy plan for youth to take an international grand tour and to join the international (China included) voices and actions. The sponsored plans totaled 67 with participation of 7,949 persons (Youth Development Administration).

(2) The sponsored popular science activities totaled 11 with participation of preschool children, students of different academic grades, adults and teachers, 3,300 persons in total. The scientific theme exposition, titled "See the screaming of the Earth" was open to the public without age limits, whose estimated participation was over 10,000 persons in 2015. (Ministry of Science and Technology).

4. Expanded civic participation to elevate civic environmental consciousness

(1) There were 5 approved plans to promote culture in public and private museums for the disadvantaged, for habitants in the remote areas or areas which lacked cultural resources and for aborigines, which got subsidies in 2015. These were Kaohsiung Museum of Fine Arts, Kaohsiung Museum of Labor, Taiwan Paiwan Sculpture Museum of the Cultural Affairs Department of the Pingdong County Government, which held activities related to human resource training, exposition, promotion and education for aborigines, visual disabled or children from the remote areas. (Ministry of Culture).

(2) The 2015 human rights seminar for preparing teachers was held to cultivate teachers with human rights knowledge and skills through keynote speeches, forums with victims and visits to historic human rights sites for them to integrate human rights with their teaching so that the people of Taiwan could face history honestly through the learning and implementation of human rights in real life. (Ministry of Culture).

(3) Sponsored different associations or institutions for physically and mentally handicapped to implement the training plan of orientation and mobility, the supportive care plan for the disabled, occurring during the lifetime. Physical fitness activities for the physical and mentally disabled, talent shows and performances, zero obstacle webpage additions and correction and common activities. There were 501 sponsored cases up to the end of September 2015 with a sponsorship of NT\$ 15,360,000 (US\$480,000) (US\$1=NT32) (Social and Family Affairs Administration).

(4) Sponsored local county (city) governments to implement subsidy plans for the promotion and restoration of aboriginal languages. In total, there were 105 families, learning the tribal languages; 35 missions, which taught the tribal languages to the next generations; 19 experience activities for immersion learning of the tribal languages; 14 preliminary and 1 national tribal language theater and vocabulary contests with 10,000 beneficiaries. (Council of Aboriginal Affairs).



▲ Cool school for the Water and Soil Conservation- "Secret Holidays for the Small Fish" , Activity to promote the knowledge and teaching material about the water and soil conservation



▲ Cool School for the Water and Soil Conservation- activity to promote the knowledge and teaching material about the water and soil conservation



▲ Educational Promotion about the Prevention of mudslides



▲ Seminar of the 115 Years in Retrospect of the Taiwan Soil Investigation and Application of the Agricultural Resource Database

Chapter 3 The 2015 International Forum on Sustainable Development



▲ Taichung First Senior High School's Centennial Celebration

I. Background

The Executive Yuan's National Council for Sustainable Development (hereafter referred to as NCSD) held its 2015 International Forum on Sustainable Development on November 4, 2015. The goals were to understand the latest prospects of international sustainable developmental policies, in order to gather multi-faceted suggestions from the different parts of society and to serve as a reference in promoting sustainable development in Taiwan. Academics and experts with remarkable achievements in sustainable development from North and South America, Europe, and Asia, representatives from Taiwan governmental agencies and the NCSD, as well as Taiwan's academics and experts were invited to undergo discussions and experience-exchanges, sharing with the participants the latest sustainable development topics.

The theme of the Forum included the visions and responses to global sustainable development after the United Nations Conference on Sustainable Development on September 25~27, 2015, and also the progress of green economies in different countries after the UN's Rio+20, and the current promotion status of Taiwan and global sustainable, resilient cities, etc. Dr. Shin-Cheng Yeh, Minister without Portfolio and NCSD CEO, gave the opening speech, with presentations on Sustainable Development Trends and Green Economy by Taiwanese and oversea lecturers as well as NCSD members. A Forum discussion was undertaken among the speakers and the audiences.

In the opening speech, Dr. Shin-Cheng Yeh mentioned that our government placed significant importance on pursuit of sustainable development, and had established the NCSD as early as in August 1997. To reinforce the implementation capabilities, the NCSD completed key documents such as the Energy Sustainability Policy Guideline, Sustainable Development Action Plan, Taiwan Declaration on Sustainable Development, and Taiwan Agenda 21, etc. to serve as the basis of promoting sustainable development.

Moreover, Taiwan is matching international progress to promote global sustainable development. For example, a delegation was assembled to participate in the United Nations Conference on Sustainable Development (Rio +20) in Rio de Janeiro, Brazil in June 2012. In November of the same year, the Green Energy Task Force was created in response, and NCSD members as well as experts were invited to draft Taiwan's Green Economy Policy Guideline. Last year (2014), UN's 68th General Assembly passed the Sustainable Development Goals (SDGs), and Taiwan has also begun to formulate our own sustainable development goals. Currently, each division has completed drafting the mid and long-term goals and targets. These will be put to comprehensive discussion in NCSD's 40th work meeting. The entire process will be finished before February next year (2016).

Sustainable development depends on corporate-participation, in order to let people understand the truth of sustainable development

many promotion programs on the topics "sustainable development policies "took place, including (1) a 3 minute TV advertisement on environmental sustainability, economic sustainability, and social sustainability, were broadcasted 100 times; (2) held the Sustainable Development International Forum; (3) praised successful sustainable development cases; (4) established a website for sustainable development information.

The International Forum, which focused on promotion of sustainable cities, would achieve the cooperative efforts between the central and local governments to implement the sustainable development in Taiwan.

II. Key Points of Each Lecture

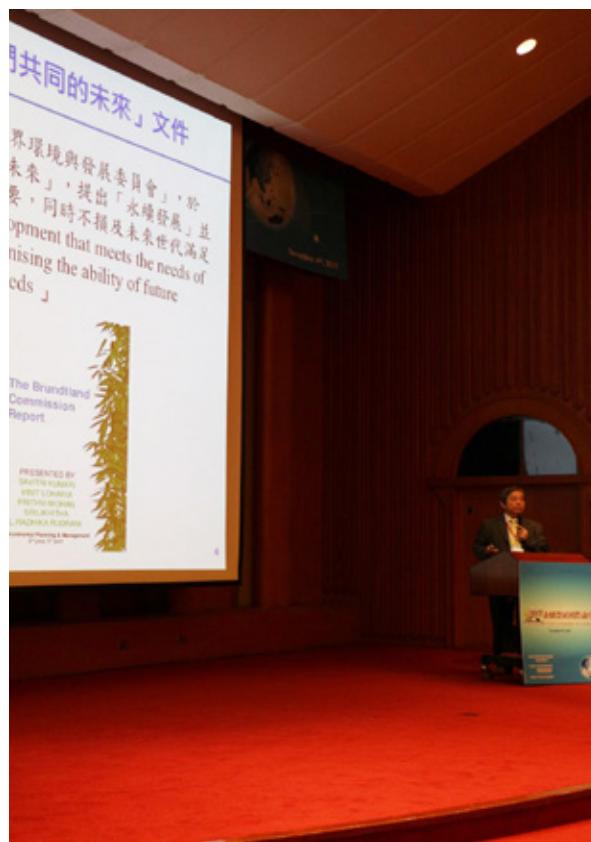
(1) Latest Trends in UN Sustainable Development

After the United Nations Conference on Sustainable Development, we invited Dr. Tetsuya Ishii and pointed out that UN's recently passed agenda for 2030 has 17 topics and more than 100 objectives. The purpose of sustainable development is to include every country in this cause, and therefore, it must be universal (applicable to all nations), transformational (social, economic, and environmental sustainable development), and inclusive (no one is excluded). The lectures focused on the execution of the SDGs and recommend synergistic, collaborative relationship among the goals to compensate for issues such as insufficient ability, poor management, and financial constraint, etc. To integrate different sectors, consolidating finances with politics in the international community will be critical. IGES actively pushed for Sustainable Development Solutions Network (SDSN) in Japan in July of this year. The next Asia-Pacific Sustainable Development International Forum will be hosted by IGES in July 2016. The tentative topic is Utilizing Knowledge for Sustainability: Facing 2030. They will invite all the experts from different nations to work together for Asia and the world's sustainable development.



▲ Mr. Tetsuya Ishii from Japan's IGES TIER's Dr. Yang, Feng-Shuo as the speakers on topics of global prospects and responses.

Dr. Feng-Shuo Yang's topic was UN 2030 Sustainable Development Agenda which elaborates on the agenda passed in UN General Assembly in September 2015. It mainly entails 3 objectives in the next 15 years (2015~2030) to eradicate extreme poverty, rectify injustice, and respond to climate change. The agenda has a large volume of discussion on setting SDGs and emphasizes the importance of global partnership. When promoting sustainable development, the relationship among people, Earth, prosperity, peace, and partners should be highlighted. Currently, the revision of Taiwan's sustainable development goals and quantifying indicators will be completed in February next year. The key will be including the Taiwanese version of Sustainable Development Agenda in the administration.



▲ TIER's Dr. Feng-Shuo Yang.

(2) Green Economy's Current State and Prospect

Advanced Energy Centre's General Manager Mr. Ron Dizy and Committee member Dr. Shaw, Daigee gave lectures in the morning's second session.

Speaking on the topic of Global Green Economy Promotion and Prospect, Mr. Ron Dizy talked about the most critical elements in green economy innovation, including policy and technical innovation, etc.

Mr. Ron Dizy compared California and Germany's green economy promotions and arrived at the most effective way to facilitate innovation, which are solutions via adjusting the key actors, construction ability, developmental policies, and adopting technologies. For instance, California Energy Commission first set goals for green economy and then raised innovative projects. However, the German green energy revolution not only buys solar energy with high pay rates, it also offers priority to be on the power grid. This places much solar energy on the power grid. Mr. Ron Dizy suggested green economy planning should begin with government policies, solution plans, and the ability to integrate new technologies to change. At the same time, market mechanisms should be respected to provide room for market development, not insisting on a single operating model but using holistic thinking to formulate solution plans.



▲ General Manager Ron Dizy of Canada's IGES

NCSD member Dr. Shaw, Daigee spoke on the topic Taiwan's Promotion of Green Economic Policies and shared several Taiwanese cases. For example, the solid waste reduction is 0.38 kg per day per person, the lowest in the world. Recycling began from 5% and rose to 55%. This is due to the mandatory extended producer responsibility system launched in 1987. This makes manufacturers and sellers responsible for recycling the waste generated by their products. The government also has a mandatory garbage sorting and recycling policy, recycling automobiles, electronic wastes

batteries, and light bulbs, etc. Moreover, garbage handling fee is levied along with collecting bags to achieve reduction and recycling. However, not every policy is a success. For example, to improve products' international competitiveness, increase foreign exchange reserves, help Taiwanese companies, and lower the cost of living, Taiwanese utilities and gasoline prices are lower than other countries, which is bad for energy saving.



▲ Council Members Dr. Shaw, Daigee

The past sustainable development policies were not successful because they neglected inter-generational inequality and over-emphasis on economic growth. Today's green economy is respecting Earth, inter-generational fairness, economic externality, improving quality of life, and sustainable lifestyle. The policy should cover humanity, society, institutions, nature, and other anthropic factors. Dr. Shaw, Daigee suggested that in terms of institutional capital, we need to create a mechanism that can protect the next generation's rights and facilitate the nation's finance. In terms of nature, producer's responsibilities are extended from cradle to cradle. In terms of society capital, we need to promote green consumption and production. In terms of human capital and innovation, we need to promote that enterprises' social responsibility requires a sound foundation for R&D.

(3) Sustainable Resilient City Cases

Delft University of Technology's Mr. Nico Tillie, Ms. Tsai, Ling-yi, Department of Environmental Protection's Assistant Commissioner, Taipei City Government and Ms. Wen-Mei Wang, City's Assistant Commissioner, New Taipei City Government, gave talks in the afternoon session.

Mr. Nico Tillie gave a talk on Rotterdam's Resilience and Sustainability. He introduced how the city planned flood prevention based on the resilience principle and managed water as a resource to improve parks, streets, buildings, and even traffic systems. He used various case studies

from Rotterdam and illustrated how these strategies were realized in city planning. In Rotterdam, energy's importance is only next to water, and the city used industrial waste heat to improve the city's energy efficiency. The databases from Rotterdam and other cities in the world are an important reference in the Dutch government's decision-making to improve the implementation result.



▲ Mr. Nico Tillie Speaking on Rotterdam's Resilience and Sustainability.

Assistant Commissioner, Ms. Ling-yi Tsai spoke on Promoting Taipei City as a Sustainable City, mainly highlighting the process of working with Central Government's carbon-reducing and energy-saving policy to build a brand new Taipei City. Since 2008, Taipei has set low carbon city as a goal and stipulated a variety of relevant regulations. Taipei City is now drafting regulations on light pollution and managing climate change to add another layer of protection to the city's sustainable development. Also, to make Taipei a safe, habitable city with flood prevention and eco-friendliness, parks are designed based on water conservation and flood detention. Water permeable pits, lawns, and pools are installed for water conservation. At the same time, they added water permeable pavement and soil water conservation to allow the city to breathe.



▼ Taipei City Department of Environmental Protection's Assistant Commissioner Ling-yi Tsai.

Assistant Commissioner, Ms. Wen-Mei Wang of New Taipei City's Department of Environmental Protection, lectured on the topic A Sustainable Low-Carbon New Taipei City to illustrate how to respond

the environmental impacts of global climate change, the city government promoted artificial wetlands for flood prevention, water-permeable city, and simplified urban renewal, etc. At the same time, five major strategies of green buildings, green transportations, green energy, resource recycling, and sustainable living environment are raised to promote sustainable development in New Taipei City, to achieve the ultimate goals of facilitating a green circulating economy, forge a low-carbon eco-friendly city, pursue a safe and happy society, and create a LOHAS environment.



▲ Assistant Commissioner Wen-Mei Wang Sharing New Taipei City's 5 Strategies for a Low-Carbon City.

(4) Experts' Forum

The finale was Experts' Forum on the theme of Sustainable Development Trends and Green Economy. The NCSD CEO, Dr. Shin-Cheng Yeh chaired with NCSD's 2 civilian members Dr. Jing-Tang Yang and Dr. Chien-Yuan Lin and 3 foreign speakers participating. Questions from the audience were accepted for direct exchange. This international forum was attended by government agencies, municipal and county representatives, research institutions, private organizations, and individual citizens, totaling 200 people. After its closing, related conference information and records were displayed on the website of National Council Sustainable Development for the public to visit.



▲ Experts' Forum in the 2015 International Forum on Sustainable Development

Chapter 4 The 2015 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 10 winners of 4 categories were recognized. They are: (1) 2 NGOs --the Community Empowering Society R.O.C. and the Garden of Hope Foundation; (2) 2 enterprises-- Taiwan Power Company's Dajia River HydroPower Plant and AU Optronics Corporation's Taichung Plant; (3) 3 educational institutions—New Taipei City's Chengfu Elementary School , Yomu Elementary School, and I-lan County's Suao Junior High School; (4) 3 sustainable development programs – the Council of Agriculture's Forest Protection and Forest Functions Promotion Program, Ministry of Transportation and Communications' Environment-Friendly Tourism Program, and the Bureau of Energy's Energy Efficiency Labeling Program.

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▲ The 2015 National Sustainable Development Awards ceremony

II. Introductions to the Winners

1. Education

(1) Chengfu Elementary School

a. Introduction

Chengfu Elementary School is located in the Sansia valley, near a river and a mountain slope. This makes the groundwater level high, and water seepage, and dripping have been Chengfu's major problem. But teachers and students ingeniously applied ecological concepts and used the moist environment to create a campus wetland, developing wetland ecology courses, turning a major disadvantage into a big advantage.

b. Sustainable Development Promotion

In terms of campus environment and sustainable development, due to the high water retention, the campus ground was made into a natural eco-system. Beginning in 2005, they began to build a sustainable campus, and gradually replaced the hard pavement, making the campus green coverage increase from 33% to 70%, and water permeability from 36% to 88%. The campus became a habitat to conserve native species. Mountain native plants were imported from behind the school to construct a campus ecological corridor. Currently, there are 64 native tree and shrub species, 131 aquatic plant species, and four types of fish. They recorded an astonishing variety of wildlife. To realize carbon reduction and green living, 100% of school lights were replaced by high-efficiency energy-saving lights. A solar photovoltaic system capable of 3kw was set up. Water is now reused, and on average, the replacement rate was 10%. Waste reduction was also enforced, winning the New Taipei City Golden Bear certification for low-carbon campus.

Moreover, Chengfu continues to promote environmental education and publishes an environmental education magazine. Since its founding in 2005, the topics have covered environmental issues, exploring the campus and community environment, and environmental education achievements. They

also developed a diversified environmental education program, including food education courses.

Resources and experiences are shared and a Chengfu Pond blog was created to present observations and self-made teaching materials by teachers and students, for the entire nation's teachers to use. The website visitors have exceeded 600,000, winning first prize in the Ministry of Education's 2009 Teacher Education Blogs Competition. Chengfu also has a longterm involvement with Campus Noah's Ark, transforming Chengfu into a restoration base for native aquatic plants and freshwater fish resource center. New Taipei City has provided more than one hundred schools with native species to create a suitable campus habitat. Chengfu Wetland Workshop is a teaching community. In addition to jointly building Chengfu into an educational venue, it actively organizes training of teachers in the entire city, so they can grow professionally.

c. Vision for Future Development

Making the best use of the existing natural environment to create an "ecological corridor" is the core concept of Chengfu Elementary School. The school, through community organizations, breaks through the traditional closed campus environment and standardized management and integrates school and community to create waste reduction and an eco-friendly environment to make the campus a public learning space for sustainable development. They are filled with gratitude to their predecessors in education and NGOs' professional guidance and companionship.

The prize winner are filled with gratitude to their predecessors in education and for NGO professional guidance and companionship. They are also grateful to school team members, parents, and school children for the support and encouragement. Chengfu will continue to uphold the respectful and friendly coexistence with the natural campus concept of sustainable development.

▼ Just Do It!



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(2) Youmu Elementary School**a. Introduction**

Youmu Elementary School focuses on environmental education and sustainable development as the goal. Through analysis of the rich environment and community resources, it consolidates teachers' professional development by integrating inquiry teaching, outdoor education, experiential teaching, hands-on learning, and other innovative teaching methods to teach students. From the firefly and butterfly corridor to the forests and fields, wetland education, and from river ecology to stream education to aquaponics, they try to have the children experience the environment through the five senses for better learning, planting the seeds of a sustainable environment and ecology in the next generation.

b. Sustainable Development Promotion

Possessing waterfront, mountain, starlight, and rich ecology, Youmu combines natural ecology, local industry, and cultural knowledge to create special courses through policy development and space management. They strive for environmental education and sustainable development. Through professional community discussion, Youmu teachers and students do their best to develop this place, working for sustainable environmental education work and having concrete results.

In terms of campus environmental policy and management, between 2008~2010, it won the Ministry of Education's Excellent Specialty School; in 2012, it won the Ministry of Education Excellence Gold Medal; between 2012~2014, Chengfu won for three consecutive years the Ministry of Education's Featured Benchmark School for Consolidating Spatial Resources; in 2014, it was listed as the Ministry of Education's Outdoor Education Star School. Beginning in 2001, Chengfu has been a firefly and butterfly caring school, etc. as recognition of the school's effort.

Environmental construction, formation of the environmental education professional community, and community resources together forge a quality environmental curriculum, with many interesting courses.

In addition, the school is committed to sustainable humanistic care and community involvement. First, it partners with The Can and uses environmental resources to care for the underprivileged. Second, it partners with communities to build safety maps, potential hazard maps, and regional disaster shelters. It also has a campus open 24 hours to ensure the safety of the public and to provide a community gathering venue. Third, it implemented garbage reduction, and rainwater, leftover food, and resource recycling. Solar power, water-saving valves, eco-tableware, and aquaponics are highlighted to plant the seeds for a sustainable environment.

In promoting the developmental integration of community environment, economy, and society, the school partnered with the community to develop sustainable environmental courses. Four sets of courses are available that allow school exchanges, field trips, etc. On weekdays, the school is where students learn. On weekends, it is available for rent. The profit supports the school's sustainable development, creating a win-win situation.

c. Vision for Future Development

The school hopes to create a humanistic, caring, warm, quality environment, promote community parents' participation, import and fully use resources to educate, and follow international standards. They hope to create a forest school, with the visions of health, vitality, innovation, and excellence.

They are grateful to have this award, and winning it is a recognition of Youmu's longterm effort in sustainable management. It also provides them with the opportunity to continue to learn and grow. A sustainable future will be like a teacher, allowing us to learn from earth. Teachers and students work together to create a sharing, learning environment. The Youmu family will continue to safeguard the environment and promote sustainability.



▲ Successful firefly restoration increases their numbers every year.

(3) Suao Junior High School

a. Introduction

Suao Junior High School in recent years has had good results in energy, environment, daily life, sustainable campus, disaster prevention, and adult education. The school aims to promote environmental education to the entire county, from the development of curriculum and teaching modules, to building school facilities in order to become a model school.

b. Sustainable Development Promotion

The school team is committed to the integration of resources and curricula in different areas, having professional teachers plan for teachers' and students' professional growth. They also carry out advocacy programs promoting Ilan local characteristics. The objectives include: 1. Integration of the county (school) administrative and teaching resources, together shaping life education as the core of local cultural education. 2. They use formal and informal curricula, as well as potential courses to help students explore and recognize the environment where they grow up. 3. They reinforce the county (school) teachers and students to pay attention to the recognition and services that endow them with related



▲ Dialogue for self- organizing the county's Warriors of Life speaking tour (2013~2015)

beliefs. 4. They strengthen society's approval of the school's visions via local education resource consolidation. 5. They reinforce interdisciplinary and innovative approaches to improve educational exchanges with international practices and experiences.

The school was awarded the National School Management and Teaching Innovation KDP International Certificate of Excellence. In addition, it won the Ministry of Education's Life Education Specialty School, the Council of Agriculture's Soil and Water Conservation School, the Ministry of Economic Affairs' Energy Education Excellence School, the National Award for Excellence in Environmental Education, the Ministry of Education's Disaster Education Excellence, the Ministry of Education's 111 School Certification, the Sixth Taiwan Healthy City Award, as well as other awards.

c. Vision for Future Development

Forging Suao's own life education has been a key vision of Suao Junior High School. Every member of the school strives to have a sustainable campus to create vitality in the curriculum, bring out the vitality in the students' learning, and use renewable resources and system integration models to combine environmental, art, life, science, and health education. We thank the judges for the encouragement of our participation in the future and the continuing developmental program's planning and implementation. We will take the initiative to promote the vitality of Ilan County as the focus of school education.



▲ Dialogue with others for organizing service learning and teamwork



▲ Dialogue with future - organizing the Dream Project (to realize others' dreams, and also their own dreams)



▲ Dialogue with home - organizing the county's environmental exploration activities (group explorers discovering hometown and exploring nature)

2. Business Category

(1) Taiwan Power Co., Ltd. - Dajia River Hydro Power Plant

a. Introduction

For almost 100 years, the Dajia Hydro Power Plant has been improving water use efficiency through regulating reservoir water levels; in addition, the plant is an important electricity supply control and an emergency operating reserve of electrical power. After many devastating earthquakes, typhoons, and floods, Dajia Hydro Plant understands better the symbiotic nature between water and electric power. Thus, to be in harmony with nature, an eco-friendly power plant is developed.

b. Sustainable Development Promotion

To meet international standards, the Dajia Hydro Power Plant obtained ISO 9001 (quality), 14001 (environment), and OHSAS 18001/TOSHMS (occupational safety and health) certifications in 1999, 2008, and 2010, respectively. It was also the first to introduce the GHG inventory system to Taipower and GHG management systems to control greenhouse gas emissions. Moreover, the plant obtained ISO 14046 certification in 2015; in 2014, a water footprint inventory work was certified by a third-party agency. It is Taiwan Power Company's first power plant to be certified by ISO water footprint standard.

Dajia Hydro Power Plant works in concert with government's promotion of green procurement and implements an environmental accounting system in all levels to reduce the purchase and usage impacts on the environment. It also recognizes and compiles the expenditure and profit statistics from operations in industrial safety, environmental protection, and health care. In recent years, their green procurement has reached new heights (2013 up to 96.81%, 2014 up to 99.8%). Expenditures on environmental protection, industrial safety, and health care are NT\$70 million higher than in recent years.

The Dajia River Hydro Power Plant continues to undergo reservoir dredging works, on average removing 420,000 cubic meters per

year. It also conducts hydraulic sand discharge in typhoon or flood seasons. In 2014~2015, Deji Reservoir discharged a total of one million cubic meters of sand, effectively reducing carbon emissions from mechanical dredging and saving the Taiwanese Treasury up to NT\$1.5 billion. This is very beneficial to the sustainable usage of the reservoir, downstream sand source replenishment, and the ecological food chain. To achieve waste reduction, it is committed to improving the industrial waste recycling rate to nearly 100 %. Driftwood and scraps in the reservoir area are also recycled mushroom nurturing and landscaping materials.

In 2012-2014, the company generated power totaled 5.711 billion kWh, equivalent to about 2.45 million tons of coals combusted. That reduced approximately 5.87 million tons of GHG emissions, a significant contribution to carbon reduction. In addition, it introduced gender mainstreaming, and hires a certain percentage of aborigines and disabled people in support of their rights.

Thinking outside the traditional box, the company completed the restoration work at Guguan and Chingshan Hydro Power Plants while taking into consideration climate adaptation, natural environment, and social benefits. The Guguan Plant, in particular, was recognized with the Infrastructure Gold Award by the Taiwanese government. Dajia River Hydro Power Plant staff actively researched hydrological data over the years, which are then interpreted along with information released from the Central Weather Bureau. The aim is to effectively and instantly regulate the water level and reservoir capacity to reduce disasters and to increase generating volume. But this also allowed Taichung City to avoid severe water shortage in 2015 in a once-every-68-years drought. Hydro power generators are capable of being rapidly engaged and disengaged.

They also can recover from complete blackouts and provide other auxiliary services. They provide guarantees to maintain power system stability, and meeting the demands of national defense, medical care, disaster rescue, and other critical functions.

The establishment of Dajia River Ecological Park extends ecological corridors upstream. The enterprise drives ecological tourism and combines forestry, water resources, and power technology to begin a new era. This stimulates local economies, inspires cultural heritage, and promotes environmental education as well as corporate social responsibility.

c. Vision for Future Development

Taipower and its Dajia Hydro Power Plant are grateful for the recognition and support which reinforced their core belief that integration of science and technology drive local economies and culture. They believe this award will encourage Taiwan Power Company to grow and strive for excellence, but it will also better encourage other companies to accept their social responsibilities and be good examples for future generations. They hope this power plant will become the greatest legacy of the country's power generation.



▲ Taiwan Power Company's Dajia River Ecological Park

(2) AU Optronics Corp. - Taichung Plant

a. Introduction

As the world's leading TFT-LCD panel manufacturing company, AUO is not only committed to product innovation, but also to the core values of the three pillars enthusiastic service, pursuit of excellence, caring for society by implementing sustainable development. Because the effort to balance between economic, environmental, and social developments, earnings grew 324.7% between 2014 and 2013, and the company received from Taiwan Stock Exchange top 5% ranking in business management. In addition, it received recognition from the outside and had been chosen for Dow Jones Sustainability Index World (DJSI World Index) for six consecutive years, and as the top ranked in three years for the same group. Moreover, their energy-saving panel, high-resolution (4K2K) curved television technologies and patents (Ocean Tomo 300® Patent Index _2013 / 2014) reinforce their technology leadership.

b. Sustainable Development Promotion

AU Optronics has imported in its plants ISO14001 and OHSAS18001. Moreover, in 2011, it was the first to introduce an energy management platform, and became the world's first company awarded with ISO 50001 energy management system certification. It self-developed the ISO 50001 electronic platform for energy management systems, with the total energy savings from 86 degrees / m² down to 77.2 degrees / m² (2010 ~ 2014), an improvement of 10%. Since 2003, they have begun an annual greenhouse gas inventory, and imported ISO 14064-1 third party certification in 2005, so the eco-efficiency indicators can be tracked and properly managed. The installation rate of active removal equipment for substances with high potential of greenhouse emissions is 100%. Total fluorine-based greenhouse gas reduction over the years is 10.6 million tons, of which Taichung Plant reduced about 6.25 million tons. Furthermore, the Taichung Plant won the National Occupational Safety and Health

Award, a prize for good water conservation, recognizing efforts in occupational safety and environmental protection.

In 2014, AUO was certified by LEED Gold certification, and its rooftop solar power plant course was certified by the Environmental Protection Administration, becoming the best demonstration site for energy-saving greenbuildings and renewable energy. Since 2011, it partnered with Taichung Focus Junior High School and designed a series of environmental education curricula for grade school students, bringing the concept of sustainable homes to school children through puzzles and games.

AUO actively involves in innovative energy, building a large solar power plant that is by far the best in Taichung City. Its excellent power efficiency and maintenance and operation quality won the 2015 Light Duo Award 2015.

In humanistic cultivation, AUO revolves around developing smart but decent person, caring for public interests, and loving green earth as its corporate social responsibilities.

In humanistic cultivation, AUO revolves around developing smart but decent people, caring for public interests, and loving the green

earth as its corporate social responsibilities.

In addition to the existing volunteer service, the Smart but Decent Person Scholarships, and support for Taiwan's agricultural products, it also preserved the West Dadun Kiln on the culture and education side, incorporating environmental education curricula to create an important bridge to a sustainable home.

Beginning in November 2014, AUO reduced the work hours from the legally defined 84 hours per two weeks to 80 hours. It is the first manufacturing company in Taiwan to do so. Beginning in 2008, it actively hires mentally or physically challenged employees, taking into consideration all the barriers to colleagues with different needs.

c. Vision for Future Development

They are grateful for this recognition. AU Optronics has its own sustainable committee, and Chairman Peng pointed out that AUO will become an excellent sustainable business. In accordance with AUO's core values enthusiastic service, pursuit of excellence, and caring for society to achieve an innovative yet graceful future. Winning this award enables AU Optronics to become a Taiwanese industrial leader towards sustainable development.



▲ AUO's Innovative Solar Power Plant

3. The NGO Category

(1) Community Empowering Society R.O.C

a. Introduction

Community Empowering Society R.O.C was established in October 1985, based on the rationale of making our society sustainable by reforming the grassroots. This NGO is deeply supportive, has participated in community development, and is a driving force behind community empowerment around Taiwan. After central Taiwan's 921 Earthquake in 1999, the core value of this NGO has been increasingly significant.

b. Sustainable Development Promotion

Community Empowering Society is now reaching its 20th year. During this period, the momentum to empowerment has accumulated in Taiwan's society. This momentum has triggered social innovation, networking, mutual trust, and cooperation among the communities to solve environmental and social issues, as well as to create new social culture.

In the past two decades, the NGO's specific achievements include:

(1) Focusing on sustainable growth and developing community citizenship, so that people have the ability to participate in public affairs.



▲ Community building is a gentle and sustainable social reform movement

(2) Sustainable community-based organizations to raise community awareness, mobilization, resourcing, and organizing assemblies.

(3) Creating a sustainable environmental culture, change the shortcomings to strengths and opportunities.

(4) Promoting governmental sustainable policies, clarifying the policy of partnership between public and private sectors and the partnership's nature, creating a trusting relationship, and guiding the community to adapt to the latest trends.

Moreover, the NGO has started constructing a sustainable mechanism with Taipei Community Center as a home base to develop the next phase of community models. They promote community building, including community relations and issues to assist nearby communities. They also conduct international exchanges, increasing the quality and frequency to improve international visibility. They also conduct international exchanges, increasing quality and frequency to improve international visibility. The NGO also publishes many books on sustainable society.

c. Vision for Future Development

The NGO hopes to work hard for this land in the future, allowing Taiwan to become a home for sustainable living. Community Empowering Society winning the National Sustainable Development Award is not only an affirmation for the two decades but also the highest recognition of their efforts and intentions. Moreover, it is more important that this encouragement creates momentum in promoting community works. The Society is a non-profit organization, with perhaps more flexibility and credibility than the public sector or for-profit companies as an exchange platform for people's everyday living, environment, productivity, and public institutions. They will focus more on using community development to make Taiwan a great home for all residents.

(2) The Garden of Hope Foundation

a. Introduction

The Garden of Hope was established in 1986 in Taiwan by a group of Christian missionaries and Taiwanese Christians. Its original purpose was to create a halfway shelter to protect abused females. In 1988, the Taipei Garden of Hope Foundation was established as a social welfare foundation. In 1990, it was upgraded and officially registered as a nationwide social welfare institute. In the spirit of Christ, the Foundation pursues righteousness and love with the determination and courage to stop sexual abuse and domestic violence.

b. Sustainable Development Promotion

The NGO believes in both service and promotion, and changed the strategy from assisting victims to promoting reforming structural problems via services as well as legislative initiatives. In 2007, they pushed for amending the Domestic Violence Prevention Act; in 2008, they discovered flaws in regulating sexually abusive video games. In 2009, they pushed the government to add victim compensation in the Crime Victim's Protection Act. In the same year, they initiated to amend the Family Law of the Civil Code and the Offenses of Abandonment Articles in the Criminal Code; all of the amended chapters were passed by the Legislative Yuan in 2010.

The Garden of Hope Foundation expects to end all violence and create gender-equality in our society. It organized various activities and performances. Being with the victims throughout the process, Garden of Hope realized perhaps victims' inner voice is best to be their own, so the NGO leads them to tell their stories to audiences from a stage. So, Garden of Hope established several drama troupes and publications to help victims to become independent.

On the other hand, the NGO believes providing only shelter, financial assistance, and counseling for disadvantaged females is not enough. For the long run, it is necessary to educate and train them to have the capabilities to survive independently. The Garden of Hope Foundation has continuously tried to coordinate public and private sector resources to develop career exploration and employment programs for females. It has been

estimated that more than NT\$ 30 million worth of wages have been created from assistance to females obtaining employment or starting a business, which reduces social welfare dependence and creates a win-win situation.

The Garden of Hope Foundation, in addition to their work in Taiwan, also tries to better the world. Taiwan is not a big place, but it continues to care for the world's marginalized people using Taiwan's own experiences. The 2015 Geneva international ranking of the top global 500 NGOs has Garden of Hope Foundation at the 16th place.

| Time | International Development |
|------|--|
| 2004 | New York branch established |
| 2010 | Set up Daughters'Home in Cambodia |
| 2012 | Set up service programs in South Africa |
| 2012 | Asian girls' human rights movement and network |
| 2013 | Respond to the international antiviolence OBR campaign |
| 2013 | Asian Females resettlement network |

c. Vision for Future Development

Following the first award in 2005, the NGO is honored 10 years later. This is a great recognition for the Garden of Hope, and also inspires more motivation. The NGO expects and calls for greater involvement by civilians in public affairs. The NGO believes our society needs a collective effort to maximize their impact, create an environment for justice, and achieve their public service mission to help social progress. Garden of Hope will not be absent in this process. It will not be easy, but Garden of Hope will continue to do its best in the next stage.



▲ The 2015 Taiwanese Girls and Japanese Girls United

4. The Action Plan Category

(1) The Council of Agriculture's Forest Protection and Function Maximization Action Plan

a. Introduction

State-owned forest a under the Forestry Bureau is over 1.534 million hectares, and it contains abundant and precious flora and fauna. Thus, it has become the target of certain thieves, the so-called mountain rats. Responsibilities of the Forest Bureau are to fight against illegal logging to prevent the destruction of the forest environment, safeguard public interests served by forests, manage forests sustainably, and comply with international treaties. In 2007, the Forest Bureau's Forest Management Division created eight forest patrol teams to survey specific areas at random, implement and reinforce forest patrol, and investigate ecological conservation of resources, etc. to reinforce forest protection.

b. Sustainable Development Promotion

The forest Bureau currently has 927 rangers protecting and patrolling state-owned forest land. On average, each person patrols an area of 1,769 hectares. Between 2012~2014, 302 forest patrols had been conducted for inventory work. Mountain trips usually last 5 to 7 days, and the total number of participating rangers is 2,698. Each year, the length traversed by walking during patrols reached 8 times the length of National Highway No.1, more effectively protecting state-owned forest resources. The Bureau reviews detailed records of investigations on precious wood, and animal and plant resources from the patrols. This provides dynamic information on managing forests. Long-term monitoring allows research by academic institutions, and it can also be a reference in making business decisions to meet sustainable development purposes.

Prosecutors and police started cracking major forestry-related cases and seizing stolen goods to protect national forest resources. In 2014, 235 cases of forestry-related thefts were brought to justice. 233 suspects and

their stolen goods were caught red-handed in 140 cases. Compared to the 290 cases in 2012, the reduction is significant. Since 2012, the numbers of cases and suspects both have declined for two consecutive years, indicating an effective curbing effect.

Between 2012~2014, 64 man-made forests were surveyed, mainly for sampling, the status of forest growth, and whether there is pest infestation. With increasing investigations each year, afforestation area's tree growth data have been recorded. They also surveyed the island's different forest types and altitudes of forest permanent plots, to understand the current situation of growth and decline in forest areas. Between 2012~2014, 51 permanent plots were reviewed, and the results help in understanding the forest permanent plots.

In 2012~2014, 33 communities and tribes participated in the Communities Reinforcing Forest Protection Program. They used public participation and increasing employment opportunities for mountain residents to implement forest protection. They then signed an MOU (Memorandum of Understanding) with mountaineering groups, so that the mountaineering community can assist in reporting forestry thefts, suspicious people entering and exiting state-owned forest land, and incidents involving mountain trails or facility damage, etc.

Through a variety of promotions and activities, illegal logging and forest fire prevention is publicized. They encourage people to take the initiative to inform the authorities, and at the same time, create emergency response measures for comprehensive protection of forest resources. Articles 50 and 52 of the Forest Law were amended and raised criminal liability to effectively curb forest thefts and other illegal acts.

c. Vision for Future Development

The Bureau hopes that everyone recognizes the importance of forests to our lifestyle. The forest Bureau promises sustainable management for Taiwanese forests, so that our children and grandchildren can continue to enjoy this precious asset.

They are grateful for the assistance of Lijia Community Development Association. Their kind intentions and identifying with the conservation of forest resources made the work all the more meaningful. The National Commission on Sustainable Development would also like to thank the National Council for Sustainable Development for this recognition. The Forest Bureau will continue the effort to safeguard Taiwan's forest resources.



▲ Team members taking risks to cross landslides

(2) Tourism Bureau's Friendly Tourism Environment Construction Plan

a. Introduction

The North Coast and Guanyinshan National Scenic Area are well known for its local culture, ecology, geology, and coastal landscape with a unique Taiwanese charm. It has long been a famous tourist spot. It has abundant and diverse natural resources and landscapes, but the earlier over-exploitation caused many adverse effects. The North Coast and Guanyinshan National Scenic

Area Administration first removed excessive cosmetic artificial facilities to restore the natural landscape and then planned according to the local distinctness and communicating sustainable concepts. After 13 years of hard work, the Bureau is showcasing stunning landscapes, while building up local tourism and conservation, as well as facilitating local economic development.

b. Sustainable Development Promotion

When building the infrastructure, they adopted the principle of minimizing facilities and prioritizing environment to develop a continuous view of the sea. This creates the most unique waterfront district coffee shop in northern Taiwan by allowing the core landscape area to completely revert back to the natural look. The total demolition number for illegal buildings and advertisement constructions were 377 spots, transforming 20 scenic spots, removing 150 utility poles, and creating about 15 hectares of scenic green landscape.

The Bureau proposed the innovative I Love Clean Beach campaign to bring public and private tourists into public service, in addition to cleaning up the beach, people can also understand marine litter comes from improper garbage disposal. They invited civilian community groups and associations to call for public participation in beach cleaning, so that more people can experience a sense of fulfillment doing public service. In 2014, private citizen groups cleaned beaches 265 times, with 15,514 people. This saved public funding on cleaning up beach trash, and helped regular maintenance of a clean coastal environment.

They used the unique environmental characteristics to promote environmental education certification and reinforce environmental education. Yehliu Geopark was certified for environmental education in November 2012, becoming the first certified National Scenic Area.



- ▲ Combining local communities to maintain the highest quality in environment and landscape, and offering visitors the best tourism environment

They combined rescue groups and local communities, and based on the safety and average personal finances, they planned safe areas for water activities. They also promoted a barrier-free tourism environment and provided security for disabled people with friendly services. Yehliu Geopark Handicap-Accessible Trail, Guanyinshan Trail, Samji Trail have all been completed. The one-day handicapaccessible trip to Baishawan is the first demonstration route in Taiwan.

To encourage public participation, when the Bureau is building infrastructure, they conduct local briefings and full communication and coordination with local residents to solicit opinions from all sides, and develop the tourism industry.

They expanded the depth and breadth of tourism marketing, provided accurate information for the news media, intermittently issue press release on the Tourism Bureau and related websites, as well as making posters, etc. to strengthen the marketing and publicity.

c. Vision of Future Development

The word persistence describes perfectly their effort throughout the years. After many years, they finally won over the local residents and visitors. They would like to thank the National Council for Sustainable Development and judges for the encouragement and

affirmation. They will not forget their original intention, pursuing the sustainable tourism development core values.

(3) Ministry of Economic Affairs' Bureau of Energy

Creating a highly efficient, high-performance power consumption environment - Energy Efficiency Rating Product Labeling Program.

a. Introduction

The Bureau of Energy promotes an energy efficiency rating label, mainly to reveal product information on energy efficiency, providing a simple way to identify efficiency ratings, and give people a reference when purchasing. It provides a creative integration service to ensure the public's right to know and the right to information, creates market incentives to encourage people to buy green. Manufacturers are also actively involved in the production of high efficiency products, forming a benign cycle and lowering the use of electricity.

b. Sustainable Development Promotion

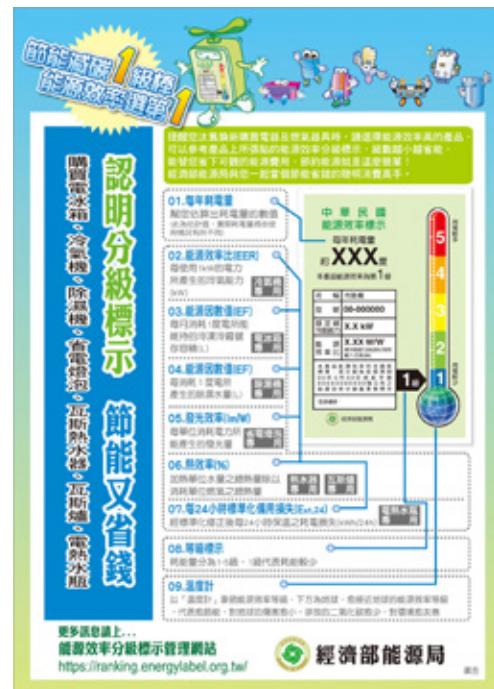
The Bureau of Energy has successfully promoted an energy efficiency grading system for 10 product categories. The promotion of this system also puts Taiwan's energy efficiency management policy on pace with international standards. Air-conditioner and refrigerator

energy efficiency standards are even above and beyond international levels. In terms of 3.6kW air-conditioners, the average energy efficiency ratio increased from 2010's 3.14 to 2014's 4.02, significantly enhancing the energy efficiency by 28%. For 500~600 L refrigerators, the average value of energy efficiency EF increased from 2010's 11.7 to 2014's 19.06, a 63% improvement.

Level 1, 2 air conditioners comprised 32.3% of the market share in 2010. This increased to 64.1% after 2012's energy-saving subsidy measures. In 2014, the growth continued to 71.9%. Level 1,2 refrigerators comprised 18.3% of the market share in 2010, and increased to 48.2% after the 2012 subsidy measures. All these demonstrate that promoting energy efficiency rating labels effectively encourages companies to invest in R & D, and produce high-efficiency models. This is a huge market structural change for energy efficiency.

For the past three years, residents of the five metropolises were surveyed on the energy efficiency rating label awareness. In 2012, the public awareness was 47.6%, and in 2013, it was 54.2%. In 2014, the awareness has reached 63.5%, showing a trend of gradual improvement. The energy efficiency rating labeling system promotion comes from the government, industry, and the public. The manufacturers are an important partner. In all stages, coordination mechanisms among industry chain upstream components and raw material suppliers, midstream manufacturers, and downstream distributors were established via stakeholder meetings. This can achieve the purpose of enhancing product energy efficiency, and utilize the existing industry to create a win-win situation. This program can be said to be the government establishing a public-private partnership model.

Revolving around the theme Efficiency Rating, Energy Upgrade, and Happiness Leap, they participated in the 7th Executive Yuan Government Services Quality Award, and were awarded by Vice-President Wu in June 2015.



▲ Energy efficiency rating label awareness among residents in five metropolises



▲ Setting an example for public-private partnership model

c. Vision and Award Acceptance Speech

Taiwan has insufficient natural resources, with limited environment capacity; we are very honored to stand out in the action plan category for sustainable development. In addition to thanking the judges, Bureau of Energy will continue to uphold the original intention of supporting sustainable energy policy. There are only limited resources, and we must use them with efficiency. We also must have development of environmentally friendly clean energy and ensure the continued stability of energy supply to create win-win scenario for intergenerational energy, environment, and economy.

Chapter 5 Interviews with the Non-Government Members of the NCSD



Biodiversity Is a Core concern of Future Sustainable Development

An Interview with Committee Member Ling-Ling Lee



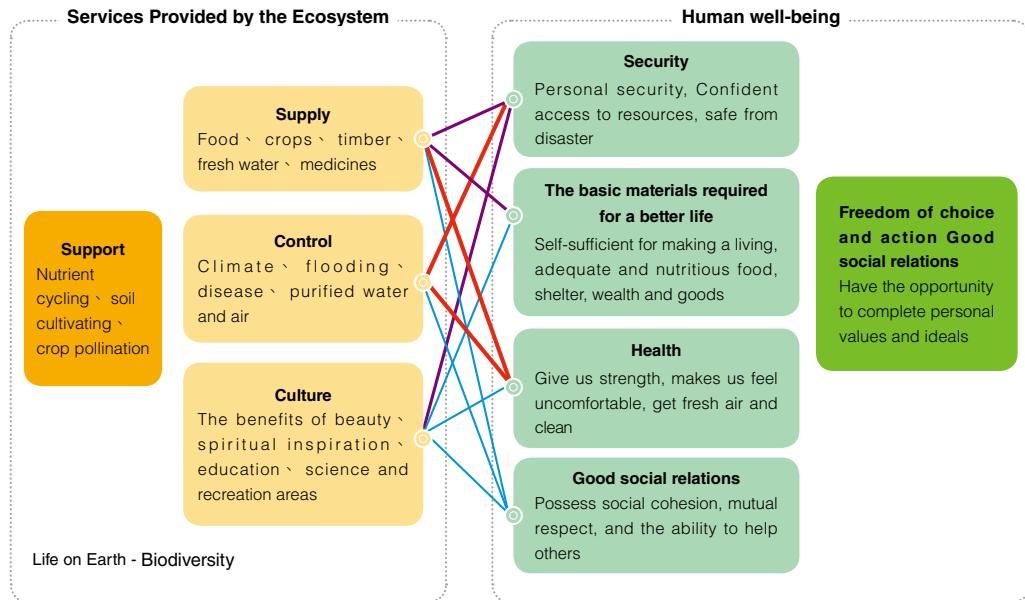
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Biodiversity refers to all forms of life on Earth, including wild plants and animals on land and in oceans, microorganisms, human farmed crops and domestic animals, as well as the genes and various eco-systems. It includes virtually everything. Professor Lee at NTU has been studying and promoting biodiversity for many years. She currently is also the director of NTU Biodiversity Research Center and has served as a member on the Committee of the National Council for Sustainable Development for many years. In the following interview, Dr. Lee briefly explained the relationship between biodiversity and human welfare as well as sustainable development, and raised suggestions for Taiwan's sustainable development.

Biodiversity and Sustainable Development Are Closely Related

The relationship between biodiversity and sustainable development gained more attention in 1992. In June of that year, a very important UN Conference on Environment and Development (aka Earth Summit) was convened in Rio de Janeiro.

During its sessions, the Framework Convention on Climate Change, the Convention on Biological Diversity, and Convention to Combat Desertification were available for the leaders from over 100 countries to sign. Moreover, the Rio Declaration on Environment and Development, Agenda 21, Forest Principles were released. In December of that year, the UN General Assembly created the Commission on Sustainable Development to supervise and follow up on the progress of the



▲ UN's Millennium Ecosystem Assessment (MEA) Organizes the Various Ecosystem Services
Provided by Biodiversity and the Relationship to Human Welfare

Earth Summit, set policy guidelines, and facilitate dialogue among sustainable development partners. Since then, in the committee's subsequent meetings, through the United Nations Conference on Sustainable Development, Rio+20, and up to the UN Sustainable Development Summit soon to be held in September 2015, biodiversity's current state and future trends are a major concern and topic in sustainable development.

Biodiversity affects our everyday lives, from the raw materials required to ecosystem services, including photosynthesis, soil and water conservation, to coastal protection and reducing tsunami impacts (coral reef, mangrove), etc. Our welfare relies on biodiversity. However, global biodiversity is suffering from major threats: gene loss, species extinction, and ecosystems are increasingly deteriorating. This is very bad for sustainable development. So, the three goals of the Convention on Biological Diversity are conserving biodiversity, sustainable use of biodiversity, and fair and reasonable sharing of hereditary resources. We hope to reverse the continuing loss of biodiversity through international cooperation because once ecosystems deteriorate beyond the tipping point, the collapse will be very rapid and irreversible. This will severely impact human existence.

Biodiversity Is One of the UN's Sustainable Development Goals

The UN has been promoting sustainable development for over 20 years and has set 8 Millennium Development Goals (MDGs) in 2000. These goals' achievement will come to a hiatus in 2015. In their place will be the 17 sustainable development goals (SDGs) that are currently being drafted. They are mostly related to biodiversity. Biodiversity can contribute greatly to eradicating poverty and hunger, ensuring health, quality of life, and facing future uncertainty. All are to be achieved by SDGs. They are also important in responding to future climate change. However, how to convert these goals into concrete national policies is still to be seen. Take Taiwan as an example. Taiwan's river widths and curvatures are the result of original geological and geographic reasons. However, for human convenience, river courses are straightened, causing erosion and requiring maintenance periodically. This greatly increases the cost, damages original natural patterns, and generates more environment and social problems. Using water resources as an example, judging from the current trend of climate change, everyday water use, industrial water use, irrigation water use not

only cannot increase infinitely but actually can be lower or fluctuate drastically. How do we respond to water supply decrease? How to understand water resource's capacity to reasonably deploy water resources? All these should have comprehensive, long-term planning and be specifically dealt with in relevant policies.

Continuously Implemented via Government Planning

The Biodiversity Division is one of the 9 divisions in the Sustainable Development Committee. The division's biodiversity promotion is based on the Convention on Biological Diversity. That convention revises its policy goals on a rolling basis every 10 years based on past results. The Biodiversity Division also refers to the strategies and goals appropriately and at the same time takes consideration of Taiwan's promotion planning specifics to review if any reinforcement is necessary. If any area needs to be reinforced, an updated action plan will be included. Although the Convention on Biological Diversity is like the Framework Convention on Climate Change with 196 contracting parties, it has not been deemed as a priority treaty by the Executive Yuan and has received far less attention than the Framework Convention on Climate Change. Even so, with the Council of Agriculture as the convener, the Forestry Bureau as the secretary and coordinator, and promotion by the 22 relevant ministries, biodiversity related work still has had considerable progress, including connecting the various conservation areas to create a conservation corridor in the Central Mountain Range and continue to increase the number and area of various marine and land conservation areas, protecting important habitats and natural resources. Moreover, before the passing of the Wetland Conservation Act, programs are first promoted based on biodiversity and then the Ministry of Interior uses existing regional planning regulations and invites all experts to organize relevant information to confirm Taiwan's important wetlands. This helps Taiwanese people understand key wetlands. After the Wetland Conservation Act passed, the formal regulations, and competent authorities can plan for subsequent managing and operating businesses on a rolling basis. If the Biodiversity Promotion Plan did not include this matter, then wetland conservation will be delayed and the preservable wetlands are naturally limited.

Learning from Advanced Nations' Planning for Sustainable Development

The international solution for global issues is usually first to allow for sufficient discussion. The participants may raise very different views from different angles. Therefore, negotiation is needed to reach consensus, conclusion, and then set objectives that suit conclusions and the strategies to be carried out. Moreover, during execution, repeatedly reviewing results and execution policies as well as the propriety of methods are necessary. Proper adjustment, and revisions are also needed for smooth success. This type of process, with sufficient discussion, debate and negotiation to reach consensus, as well as the rolling adjustment of strategies are worthy of Taiwan to learn from.

The Sustainable Development Committee should be the best platform for cross-ministry policy consolidation. When planning sustainable development's overall policy goals, perhaps we can learn from the UN's SDGs and make a prioritized list based on Taiwan's situation. The public sector, private sector, and stakeholders can have sufficient discussions, negotiation on environment, society, and economy to reach consensus. With such mechanisms and comprehensive thinking and planning, even if new issues arise in the future, strategies and policies only need to be slightly adjusted, instead of having new issues included in the plan, wasting manpower, time, and funding.

Committee Members Play Key Roles in Policy Integration

Committee members who are not government officials play very important roles in coordinating ministries and divisions. Originally, committee members only spoke on behalf of the division of their expertise, but now members can be inter-divisional and this helps in communication among the divisions and ministries, providing opinions from different angles to allow the planning and execution to be better. I recommend when the divisions draft policies in the future, average people must also participate to gather popular opinions. People's participation is not entirely based on their opinions but to examine whether their opinions have been considered in the framework. If the goals set have been thoroughly discussed, they can be the mid and long-term goals for national sustainable

development without regard to partisanship or political motives. The recently discussed topics is to be based on the UN SDGs (17 major goals and specific goals) to draft Taiwan's sustainable development goals. It is hoped that past unclear items can now be clarified. If the central competent authorities can set out more concrete long-term goals (which are also accepted by Taiwanese people) via participatory discussion, the responding policies and ministerial division of labor will be more clear. This prevents work overlapping or conflicts, and promotion of action plans by each division will be easier.

Sustainable Development Policies Should Be Long-Term Plans with Global Perspectives

Based on the UN Millennium Ecosystem Assessment (MEA) in 2005, natural ecosystems are the key to human survival, providing necessary ecosystem services. However, human activities inflict various degrees of damage on global ecosystems, causing loss of biodiversity, reduced biotic carrying capacity, and lowered earth environmental restorative power. It is necessary to quickly check and reinforce maintenance to restore natural ecosystems and their services. Therefore, many nations began to monitor the change in their ecosystems and examine the overall impact to their country from these changes. Then, they assess the validity of land use planning via land usage to maintain or restore natural ecosystems. If Taiwan can quickly undertake similar monitoring and analysis, it can serve as the most important basis for future planning and promoting biodiversity related work.

Sustainable development cannot use old thinking to solve new problems, nor can new works be added on old work. Systems must be properly adjusted, remain flexible, or they cannot be sustainable. For example, in the past, different opinions were seen as sources of conflict. From today's views, different opinions express concerns over issues not yet thoroughly considered. We should allow and respect all parties to express opinions and reach the common denominator that everyone can accept, even if less than happy. Taiwan's main agency for sustainable development should have a macroscopic vision, studying international trends and issues, consider Taiwan's environment, society, and economy, consolidate everyone's opinion, clearly plan visions, and long-term policies, and make blue prints for national sustainable development. These should be thoroughly carried out to achieve sustainability. 





The Green Buildings for Energy-Conservation and Carbon-Reduction

An Interview with Committee Member Mr. Wim Chang



Energy conservation and carbon reduction have always been the core of sustainable development and issues that people care about. Realizing energy conservation and carbon reduction is actually quite easy. Member of Taiwan Sustainable Development Committee (TSDC, the Committee) and expert Mr. Wim Chang shares the following achievements and efforts made by his Delta Electronics Foundation (the Foundation) throughout many years in promoting environmental protection, innovation, and education.

A Communication and Coordination Platform for Sustainable Development Policies

Governmental agencies often individually carry out or outsource research cases, and are unable to know each other's specific study details. However, via the Committee, relevant policy implementations can be shared, and joint responsibilities and businesses can be consolidated. Taking corporate social responsibility (CSR) reports as an example, Financial Supervisory Commission requires all publicly listed or traded companies to submit and disclose them; however, the Small and Medium Enterprise Administration at the Ministry of Economic Affairs (MOEA) has been assisting small and medium businesses to write them for a very long time. The two can actually be integrated. Moreover, the competent authority for the recently passed Greenhouse Gas Reduction Act is the Environmental Protection Administration's, but the Bureau of Energy under the MOEA is in charge of processing enterprise applications to purchase green electricity. Whether green electricity purchases can be turned to carbon footprint offsets may create conflict here. Perhaps the Committee can serve as a cross-ministry coordinator role like the National Development Council to make a maximum contribution to our country's sustainable development.

Sustainable Development Should Have Industries Taking Roots as the Goal

Currently, the Committee's sustainable development goals (SDGs) focus on energy conservation. Goal-orientation is very important because when the policy always use subsidies and incentives, industry is less likely to be formed. If industry cannot be formed, all sorts of bizarre situations can happen, such as in southern Taiwan, subsidizing solar PV power policy created conflicts with agriculture as well as fake mushroom growing shacks, etc. If we treat it as an industry, then innovation is truly necessary.

For the government, when green technology becomes industrialized, related standards and regulations can become more stringent to catch up to the global standards and give Taiwan's companies some competitive edge. Taiwan does not have a big market. But through effective practices domestically, we should try to become an exporter of green technologies instead of being forced by international standards to purchase foreign technologies and become a mere consumer, which is not helpful to industrialization.

Encourage People to join in Promoting Energy Saving and Carbon Reduction

Energy conservation, climate change, and green construction are the Foundation's core businesses. Unlike other Taiwan environment-protection groups or corporate foundations which use the clichés such as turning off lights after use, we use a lively, culturally creative type of promotion to make this indicative and representative, even meeting the international standards. The Foundation hopes to be a leader in energy conservation and carbon reduction, leading not just corporations but the entire society.

The Foundation uses public participation to introduce international hot issues, letting people know the global trends. In addition to energy conservation and carbon reduction, other environment-related issues are also our promotion focuses, such as the Journey of Water "Run for Water, Water for Run Exhibition". Many people are not only unaware of this; but also do not know why this is relevant. If not properly revealed, such as major beverage companies' sources of water somewhere in India resulting in the locals having not clean drinking water, while the beverage manufactured is sold all over the world, this raises many social and environmental justice issues. The Foundation uses exhibitions to interact with people, in these ways, we can reach out to more people with wider scope. Even though the exhibition visitors are from different fields or speak different languages, it is still very effective.

Energy Conservation and Carbon Reduction Begins with Green Construction

Taking into account the energy efficiencies of all electrical appliances, all of us need buildings. If we can quantify all the electricity consumption, and carbon emissions from electrical appliances within buildings, then architects and owners will be able to make judgments and choices. In the past, we have discussed with Taiwan's related agencies the possibility to promoting concepts such as an energy passport to register energy-related data and records; carbon is also included. Generally, assuming a building has a 40 year life-span, about 70% of a building's carbon emissions come from its energy consumption. Building materials themselves are relatively minor. For example, in Germany, for a real estate transaction or house rental, people used an energy passport to assess transactions and be favorable for taxation. For mortgage loans, it also has relevant measures that are worthy to study.

Passive Building Design Can Effectively Reduce Energy Consumption

In June this year, the Foundation supported the remodeling work of an elementary school in Namaxia, Kaohsiung Metropolitan. After a whole year of field measurements, we found that it has reached zero balanced net energy consumption. In other words, the power generated (solar PV power generation) is greater than the power consumed for one year. This is the first excellent example in Taiwan. However, it is not very unique in light of international trends because California has planned to have 10,000 zero net energy consumption houses by 2017, then by 2020, all houses must have zero net energy consumption.

Moreover, although the restoration of historical sites is not listed as a green construction item, a high school in Taichung City had a history gallery building that was also a negative carbon emission building. These two above mentioned schools are installing solar PV. The elementary school has only 22kW solar panels, not a large installation. Solar PV power just supplies a small portion of their power used, the saving is mainly from the adoption of a passive energy design. The original design is to have Energy Usage Intensity (EUI) of 7 kWh per square meter annually which can be easily supplied with solar power. This is the architect's genius, using physical characteristics to achieve energy conservation.

Current building codes require certain window-wall ratios, but this can be constrained by geographical conditions (latitude) because opening windows means hot air will rush in. The solution is adopting deep eaves which have been widely used on many buildings, such as the CTS Building near the Taipei Dome. However, deep eaves sometimes block sunlight, which can be ameliorated by properly deploying light guide plates. Secondly, the heat buoyancy venting principle is adopted to let air flow within the building to take away the heat. The most famous example would be the NCKU Green Magic School -- Sun Yun-Suan Green Building Research Center.



▲ Completion of Namaxia's Mincyuan Elementary School Sponsored by Delta Electronics Foundation

Green building has 9 essential elements, but we think energy saving should be given the most attention because buildings have very high potential to conserve energy. A report published by the UN's IPCC in 2014 pointed out that existing buildings have 50~90% energy saving potential. After being verified by the Foundation, energy efficiency can be easily elevated via building design to recycle waste heat, water, and air, confirming the validity of the report's data.

Taiwan's energy saving regulations on building exterior and internal facilities are separately under the jurisdiction of the MOI's Construction and Planning Agency and the MOEA's Bureau of Energy. The government did set out relevant regulations and specifications, to be implemented first by the private sector. For example, the US has the Energy Star based on a green building assessment system (same as electronic products or electric appliances), and its private sector launched the Leadership in Energy and Environmental Design (LEED) and Living Building Challenge as two different ways to assess. However, they developed properly as an industry. The Foundation's current modus operandi is to do something meaningful for our society and to reduce energy waste from buildings. Thus, our society can develop in a sustainable way.



▲ Taichung First Senior High School's Centennial Celebration



▲ Taiwan's Green Building Label

Private Sector is a drive-force to Promote Energy-Saving Green Building Certification

Before the government's relevant policies be finalized, the Foundation acts as a think- tank. We currently promote carbon footprint certification system for low-carbon buildings jointly with Cheng Kung University (NCKU). This can be a pilot demo package for government's relevant policies. The first case was the 2013 Hsinchu Lantern Festival. The Foundation calculated the carbon dioxide emission of 15-days "Ring of Celestial Bliss exhibition" to be less than the fireworks of Taipei 101 (not only fireworks, but also the transportation to and from the site), which is 80% less. However, the firework lasted s 5 minutes, and the " Ring of Celestial Bliss" was a 15-days exhibition. Also, all the used steel structures can be recycled.

The most valuable steel materials became the roof of an elementary school's basketball court. The 70m long, 10m tall cloth projection screen was made of recycled plastic bottles. Been taken down after the exhibition, it was made into 800 eco-bags for volunteers. The used bamboos were sent to Taitung's schhool as classrooms' walls. LED lights were used as lighting decoration in the National Museum of Natural Science in Taichung City. Light-up with music in the evening daily. All lights were 100% recycled.

Actually, in the stage of designing and setting up the Ring of Celestial Bliss, we thought concrete material was very carbon expensive so that we tried to minimize its use, it was designed to suspend on the ground. The connecting points were are steel structure, covered with soil and sand. Steel structure is recyclable material, and the steel we used was 40% from recycled steel. We used recycled steel meant its elongation of life-cycle In the past, people judge whether a building is green with assumption methods , now, we use quantification .



▲ The Foundation Sponsored the Ring of Celestial Bliss

Developing MOOCs for the Future, build up Seeds for Energy Conservation

As we know, the globe will face the challenge of Industrial Revolution 4.0. The project is a solution on one hand and an impact on another. The solution is the rapid aging of the global population which will make working with robots unavoidable. Smart production, man-machine, machine-machine, and machine-supervisor communications will absolutely require the Internet of Things (IOT) technology. The other impact means the wages in Taiwan, East Asia, and mainland China will continue to rise, and the shortage of labor will continue. Therefore, robots will be indispensable. If Taiwan continuously to focus on manufacturing or industry, then the Fourth Industrial Revolution should be an issue that must be confronted to gain the initiative in the future. We

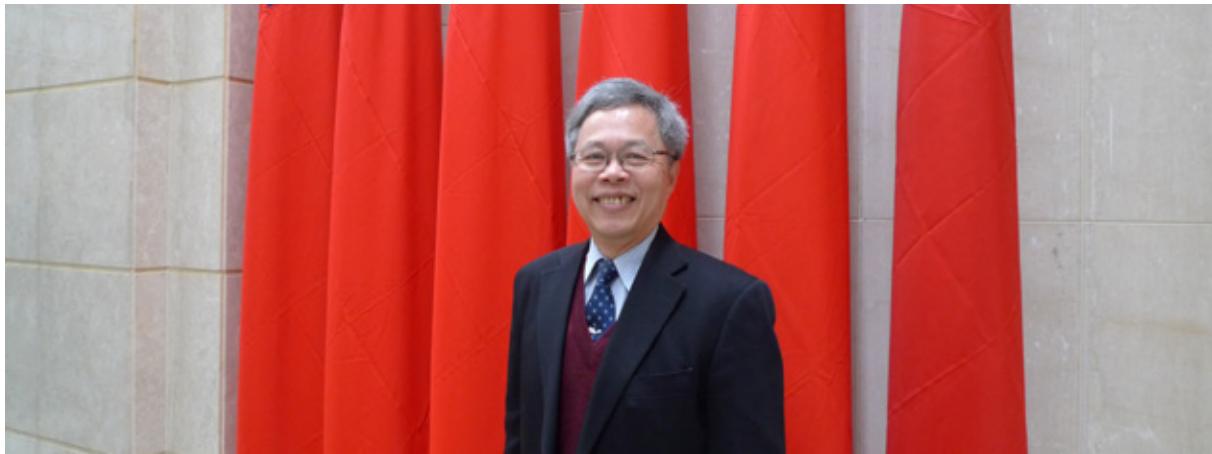
must treat the Fourth Industrial Revolution 4.0. as one big and important issue.

The Foundation has developed its own MOOCs these couple of years and worked with the K-12 Education Administration to promote online educational courses. In the future, we will have courses on Industry 4.0, inviting teachers to discuss automation. We want to let students first understand the Industry 3.0 automation, then study IOT to prepare for the future. We believe green building carbon reduction and energy saving coupled with Industry 4.0's IOT can work in concert with environmentally, economically, and socially sustainable long-term national goals. 



The Ideal Operational Blueprint for the Sustainable Development Research Committee

An Interview with Committee Member Dr. Jing-Tang Yang



The Sustainable Development Research Committee is meant to integrate government's various policy promotions in different aspects of economy, society, and environment. Via the participation from government ministers and private sector experts and academics, national sustainability related works can be effectively facilitated. Dr. Jing-Tang Yang's specialty is mechanical and energy engineering. In the past year, he also served on the committee's divisions on climate change and carbon reduction/energy conservation, energy and production, technology and assessment, as well as education and promotion, etc., and he is still in the process of fully understanding the committee's functions. Below is an interview with Dr. Yang on his personal perspective as a technical R&D academic on the committee's modus operandi and visions.

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The Efforts Made by Sustainable Development Research Committee Should Be Recognized

The committee has been established for over 20 years, and its relevant policies that facilitate the desired achievements are worthy of recognition, especially in environmental amelioration. My hometown Hsinchu where I grew up had rivers with very clear water. Fish and loach could be seen swimming with ease. When I was in high school, the rivers became polluted and were very turbid, but they later gradually became clear again. This is due to the work of environmentalists and also the committee's efforts.

Sustainable development means our consumption of resources will not result in great damage to the next generation. In fact, as long as someone consumes material, earth's physical composition will change. Such change must be very small to be called sustainable development. Before consuming resources, we must consider if this is necessary, and will it generate waste instead of being recycled after use. If we can think carefully before use, perhaps we will then realize we do not actually need it. Not to mention certain wastes are unrecyclable.

The Committee's Role and Visions Are Thoroughly Implemented in Practical Operations

The Sustainable Development Research Committee is a high-level agency at the national level. The organization is necessary because Taiwan needs people with macroscopic vision to participate in policy-making. However, in actual operations, because the tasks are too many, too tedious, and difficult to organize, this agency has not been able to fully realize its potential. The national development of its objectives should be accurately and concretely passed down to the middle and lower government workers. In other words, the vertical communication must be smooth and without obstacles. Sustainable development must also be actually implemented by the rank-and-file government workers.

All current action plans of sustainable development emphasize environment, but economy is also important. Environmental experts advocate zero standards, absolute standards. This may be suitable for countries with average income over USD\$ 35,000, but currently Taiwanese people's average income is only USD\$ 20,000. The balanced development between environment and industry is still very important. Sustainability should have national development as the ultimate goal, and then take into account various factors, not just over-emphasizing one single objective.

Discussion and implementation of sustainable development involve long-term planning. The politically appointed officials may understand this concept, but the civil servants actually in charge of implementation may not be as familiar with the idea of sustainable development. Taking electricity pricing adjustment as an example, Taiwanese people are not aware that the government subsidizes electricity pricing, and the source of funding is the taxes people pay. The subsidy adopts an absolute equality where the more electricity is consumed, the higher the subsidy. Low and average-income households, therefore, receive less than the higher-earning households which consume more. For the same reason, residential users consume less than enterprises and receive

less subsidy. The electricity pricing adjustment is, in fact, realizing the principle of users pay, plus assistance to the marginalized groups. It benefits the society. Also, for work and class cancellations due to typhoons, students and average people might feel happy, but enterprises will have to bear the negative impact of reduced GDP. This harms national competitiveness. Having small personal happiness expanded to the entire society may lack macroscopic and long-term thinking.

The Committee's Division of Labor Should Be Supported with Task Teams

It is undeniable that national level sustainable development involves the future and survival of national development, and it is critically important. When I was first invited as a committee member, I thought I would then be able to see the national energy and environment issues from a higher position. However, it is in reality difficult. The committee handles a wide range of issues. Also unlike government ministries, the committee's members came from different fields, including civic groups. With limited expertise, committee members cannot process the issues raised by the ministries single-handedly without a task team. Although the committee now has specific divisions of labor, some task teams should also be there to digest and organize information.

Moreover, when communicating with ministries, it should be through a task team, and not just that committee member himself. This allows communication to be more consistent. In addition, the current practice only takes feedback from committee members sharing perspectives and experiences during meetings for future improvement references. Having task teams in place for in-depth follow-ups will be more effective.

The Committee Should Improve the Ability to Compile Data and Define Itself

The United Nations recently announced its sustainable development objectives, and relevant personnel in the various ministries all strive to find

out how to properly localize; however, effectively compiling each ministry's implementation is not easy. The United Nations' recently announced global sustainable development objectives. Taiwan should wisely consider its circumstances when localizing these objectives and not necessarily apply them all non-discriminately. We should define our own roles (setting own goals) and clarify the weak points that require strengthening as well as the advantages, instead of having the competent authority give all the orders to be completely and thoroughly implemented. Only the areas requiring reinforcement should be reinforced.

The current Taiwanese government agencies should only proceed after assessment with macroscopic perspectives. Only long-term goal-setting or strategy-setting can provide a sense of direction. In terms of teacher training, assuming a demand of 85,000 teachers by 2030, the education agencies may want to train 5,000 teachers each year, with 50,000 more after 10 years and 85,000 by 2030. However, estimation based on this type of thought process may not have considered the fact that Taiwan's population is likely to diminish by 2030. So, will so many teachers still be needed? Thus, we should first study the roles and situations of social development in 2030 before planning to be more effective.

Experiences from Other Countries Should Be Taken into Consideration with In-Depth Analysis of Situations

During the process of promoting sustainable development, it is necessary to observe current international situations, their differences from Taiwan, and whether the experience is applicable in Taiwan. All should be further analyzed, including the country's reasons for adopting measures, their applicability in Taiwan, etc. Many excellent measures in other countries (e.g. energy tax) may not be completely implemented here because of different circumstances. This would then require classification to filter those suitable for us. If after studies and discussions, no suitable measure is found, we can then create new ideas and measures based on this premise. This has become almost a cliché, so I am sure many government agencies have already had some in-depth considerations.





When setting national long-term sustainable development objectives, we should learn from advanced Western nations. Because they tend to be more advanced, they can serve as a model of an ideal society for Taiwan. However, when planning for short-term policies and measures, we should learn from countries similar to us, mainly due to the capability to carry out these policies and measures. If directly emulating the advanced countries without these assessments, the implementation will not be possible due to different society backgrounds. This can then only serve as a reference for predicting future directions. Short-term actual operation must be based on observation of countries similar to us in development to evaluate whether we are making progress and are ahead of our peer countries. Feedback mechanisms are also needed for rolling revision.

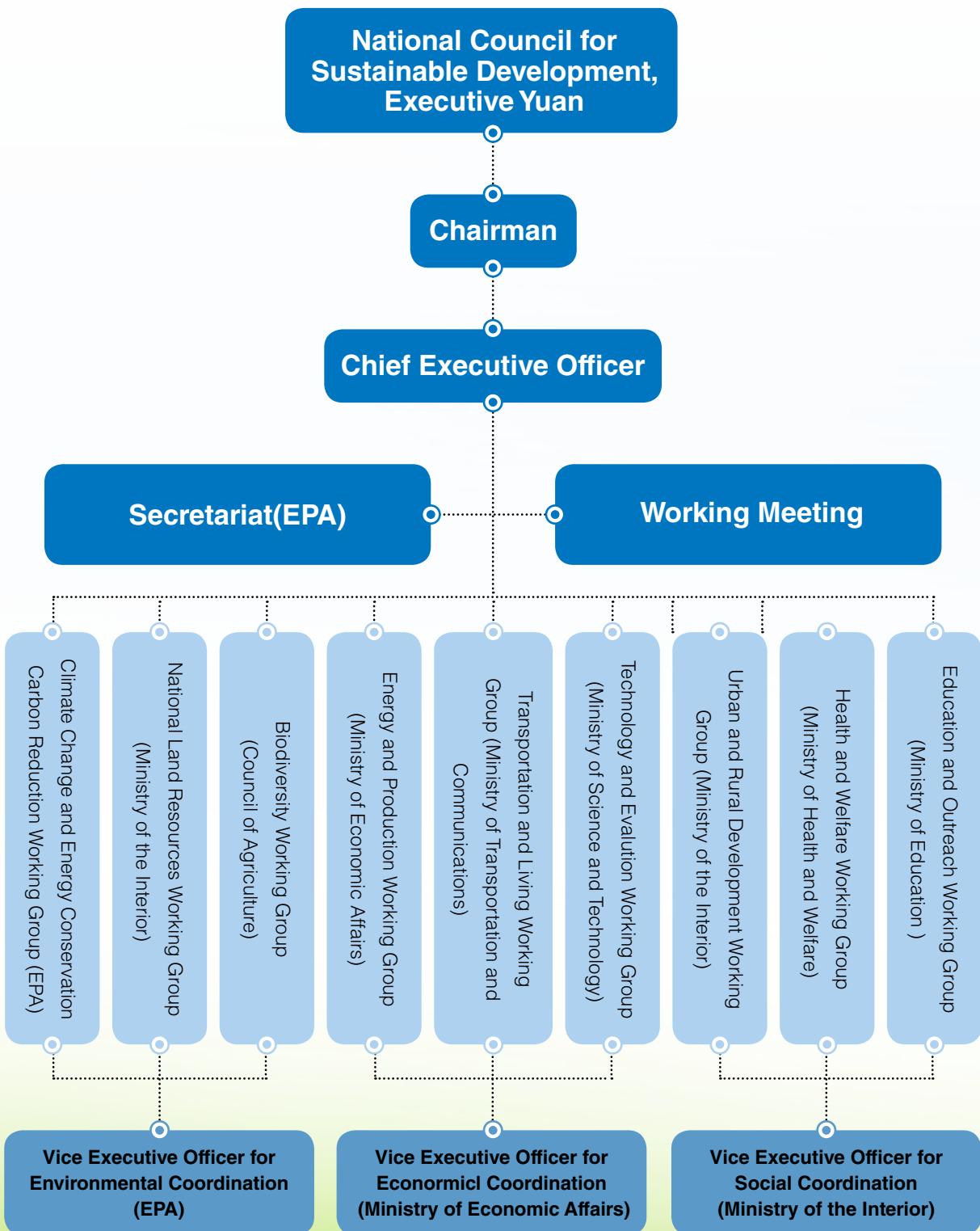
Consolidation Is the Foundation of Sustainable Development

Taiwan's sustainable development is continuously progressing. In the past, environmental protection and economic policies developed separately. However, when developments reach a certain level, they should be consolidated, and we must consider how best to consolidate to maximize the benefits to society. Environmental protection has its benefits, and so

does economic development. When consolidating, the economy may need to be sacrificed a bit, and environmental protection sometimes may need to be as well. Such sacrifices are not permanent, but only temporary phases. Therefore, we must set out schedules and development goals.

Sustainable development is the explicit top tier objective, with the society (country) and people underlying it. Underlying that is a variety of professional expertise, such as economy, environmental protection, and public interests, etc. Classifying based on professions makes them more specialized and not fragmented. This is like a mechanical engineering curriculum being divided into solid mechanics, fluid mechanics, and material science, etc. Classification makes passing down the knowledge easier. However, teaching only a very narrow discipline without other related key subjects will be only a very small part of the entire field. Consequently, the senior year in college should be integrating these fields. Similarly, the division of labor in sustainable development must be consolidated at the end. If one plus one plus one equals three, it will have little impact. One plus one plus one must equal a very large number to create a new, multiplying effect. Thus, sustainable development should have holistic and national visions. 

Appendix 1 Organizational Structure of the NCSD



Appendix 2 Members of the NCSD

Government Official Members

| Name Position | Organization |
|------------------|--|
| Chi-Kuo Mao | Premier, Executive Yuan of the Republic China |
| Shing-Cheng Yeh | Minister without Portfolio, Executive Yuan |
| Chen-Chung Deng | Minister, Ministry of Economic Affairs |
| Jian-Yu Chen | Minister, Ministry of Transportation and Communications |
| Meng-Chi Hung | Minister, Ministry of Culture |
| Tyzz-Jiun Duh | Minister, National Development Council |
| Bao-Ji Chen | Minister, Council of Agriculture, Executive Yuan |
| Ming-Chung Tseng | Chairman, Financial Supervisory Commission |
| Kuo-Yen Wei | Minister, Environmental Protection Administration, Executive Yuan |
| Tsyr-Ling Lin | Deputy Minister, Ministry of the Interior |
| Der-Hwa Chen | Deputy Minister, Ministry of Education |
| Hu-Ti Chiou | Director General, Healthy Promotion Administration, Ministry of Health and Welfare |

Non-Government Members

| Name Position | Organization |
|-----------------|---|
| Ling-Ling Lee | Professor, Institute of Ecology and Evolutionary Biology, National Taiwan University |
| Kwang-Tsao Shao | Research Fellow, Biodiversity Research Center, Academia Sinica |
| Tsai-Yi Wu | Premier, Chairman of Taiwan Research Institute |
| Chien-Yuan Lin | Professor, Graduate Institute of Building and Planning, National Taiwan University |
| Yu-Chen Lin | Professor, Graduate Institute of Environmental Engineering, National Taiwan University |
| Lucy-Sun Hwang | Adjunct Professor, Institute of Food Science and Technology, National Taiwan University |
| Cheng-Min Feng | Professor, Institute of Traffic and Transportation, National Chiao Tung University |
| Jing-Tang Yang | Distinguished Professor, Department of Mechanical and Engineering, National Taiwan University |
| Sandy Yeh | Secretary-General, Association of Chinese Police Research |
| Pen-Chi Chiang | Professor, Graduate Institute of Environmental Engineering, National Taiwan University |
| Daigee Shaw | Research Fellow, Institute of Economics, Academia Sinica |
| Shou-Hsia Cheng | Professor, Institute of Health Policy and Management, National Taiwan University |

NGO representative Members

| Name Position | Organization |
|-----------------|--|
| Alice Yu | President, China Times Culture & Education Foundation |
| Dung-Liang Lee | President, Business Council Sustainable Development, Taiwan |
| Chun-Shin Lin | President, Archilife Research Foundation |
| Chih Sen Lin | President, Taiwan Green Productivity Foundation |
| Julia Chou | President, Conservation Mothers Foundation |
| Lien-Siang Chou | Director, Taiwan Cetacean Society |
| Romy Kung | Director, Taiwan Responsible Care Association |
| Shih-Chang Chen | President, Formosan Society for Indigenous Sustainability |
| Yang-Gan Chien | Deputy Executive Director, Delta Electronics Foundation |
| Vicky Liu | Executive Director, Cycling Life Style Foundation |
| Jung-Hsiao Lai | President, The Society of Wilderness |
| Shang-Lien Lo | Chairman of Board, Taiwan Environmental Management Association |



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