

## Suggestions to Taiwan Government on "Sustainable Resource Management" issue

Taiwan is highly populated and has heavy environmental burden and scarce resources. It also relies greatly on imports for energies, raw materials and various resources. Therefore, the resource productivity needs to be more efficient and the promotion of sustainable resource management (SRM) is urgent and important. Integrating material flow management concepts in economic activities and the production supply chain can enhance efficient uses of limited resources and benefit Taiwan's key industrial developments and related policy-making. In 2009, CTCI Foundation (China Technical Consultants, Inc.), Graduate Institute of Environmental Engineering (GIFE) of National Taiwan University and Chung-Hua Institution for Economic Research (CIER) initiated jointly establishment of "the Promotion Center for Sustainable Resource Management" to actively promote related issues. The workshops were held in October with invited representatives from industrial, academic and governmental sectors. SRM experts also included: Dr. Stefan Bringezu from Germany, Dr. Yuichi Moriguchi from Japan, and Dr. Paul Brunner from Austria, as our special speakers for the workshop to provide suggestions regarding current international trends, latest promotion of SRM, the Government role and function, and industrial strategies and actions for adoption. Three leading experts' suggestions are listed below for your reference:

### **1. Promotion of sustainable resource management should begin with the Ministry of Economic Affairs and manufacturing sectors.**

Sustainable resource management is closely related with the improvement of resources productivity, which is also the key to economic development and eventually improving the economic competitiveness of industries. It is suggested the Ministry of Economic Affairs should be responsible for promoting and implementing sustainable resource management. Efficient uses of energy and resources can also contribute to the environmental conservation and protection. In comparison with traditional environmental policy strategies, this is definitely a win-win theoretical standpoint.

### **2. Government should appoint supervising organization with sole responsibility and support related projects. This will serve as the communication channel between government decision-making unit, academic and research institutes, and industries.**

To promote sustainable resource management, an efficient unit with sole responsibility or

special projects should be set up to support academic and research institution, assist industries to conduct material flow analysis (MFA) and support international cooperation projects. Research results and related experiences will help all parties to make appropriate decisions and interact with other nations and encourage positive international cooperation.

### **3. To value the material flow analytical tools; to raise MFA awareness and its standardization; and to be prepared for international competition of MFA practice**

Government should provide MFA methodology, which can help enterprises solve problems, as a major way to raise awareness of MFA. In the future, countries will be required to prove products' resource productivity based on material flow analysis. Therefore, it is imperative to standardize MFA for the purpose of international practice of MFA.

To consider the facts that there is a lack of international database currently and material flow analysis requires massive amount of information and data. It is suggested that authorities should request related industries to provide material ingredients, product and production emission data so as to increase the credibility of MFA, and serve as the basis for international cooperation.

### **4. To establish carbon footprint with MFA tools and set up reasonable account of CO2 emission on production and consumer ends.**

To promote of CO2 reduction and carbon footprint is becoming an international trend. Taiwan government and industries have been actively responding by monitoring and recording carbon emissions. MFA can help track the carbon flow in different systems and reasonable account of greenhouse gas emission.

### **5. Material flow analysis is the hub of life-cycle assessment (LCA); it helps to clarify the social value of materials**

MFA is about the balance in material level, which obeys the law of conservation of mass. It is the hub of LCA. First, MFA should be set up for steel, aluminum, paper, plastic or any material to understand material flow or energy flow. Then LCA evaluation can be applied to understand the social value of materials. The so-called social value of material includes environmental impact, scarcity, effectiveness and economy-orientation. All the information should be implemented with MFA first, then follow by LCA.