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## **THE INDUSTRY VIEWS ON THE POLICY AND DEVELOPMENT OF CARBON LABELING IN TAIWAN**

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### **ABSTRACT**

In Taiwan, in order to mitigate the environmental impacts of the related carbon emission issues, the central government has established the guideline for carbon footprint calculation and the carbon labeling scheme. Chasing green has become an international trend especially for consumer products. Enterprises have gradually participated in the carbon footprint of product (CFP) inventory and applied for the carbon labels to disclose GHG emissions associated with product manufacturing to the stakeholders. The Taiwan carbon labeling scheme was established by the Environmental Protection Agency (EPA) in 2010. Out of the 103 products issued with the carbon labels, 41 products are beverages and amongst the beverages, 22 are tea drinks. Therefore, this study selected a tea product as a case study.

### **DEVELOPMENT OF TAIWAN CARBON LABEL SCHEME**

On June 5, 2008, the Energy Saving and Carbon Reduction Goals of Taiwan's Sustainable Energy Policy Framework to mitigate 1 kg CO<sub>2e</sub> of greenhouse gas emission per person per day was passed by the Administrative Yuan. In order to achieve the goal by means of building a sustainable production and consumption, the Taiwan EPA Administration began drafting a Carbon Label System in 2009 and organized a Carbon Label Graphic Design Contest to raise public awareness and participation (Yuan et al., 2012). The final official Taiwan carbon label is shown as Figure 1 below.



Figure 1. The Taiwan Carbon Label, Taiwan EPA (2010)

In 2010, the Carbon Label implementation framework as shown in Figure 2 was established with the publication of several Guidelines in assisting the industries on CFP calculation, PCR drafting and carbon label application. EPA organized a Carbon Label Review Committee to aid the promotion and deliberation of carbon label application and management of carbon label usage. Members of the committee include relevant professionals from both the EPA and Central Government, experts from the private sectors, industries, associations and scholars.

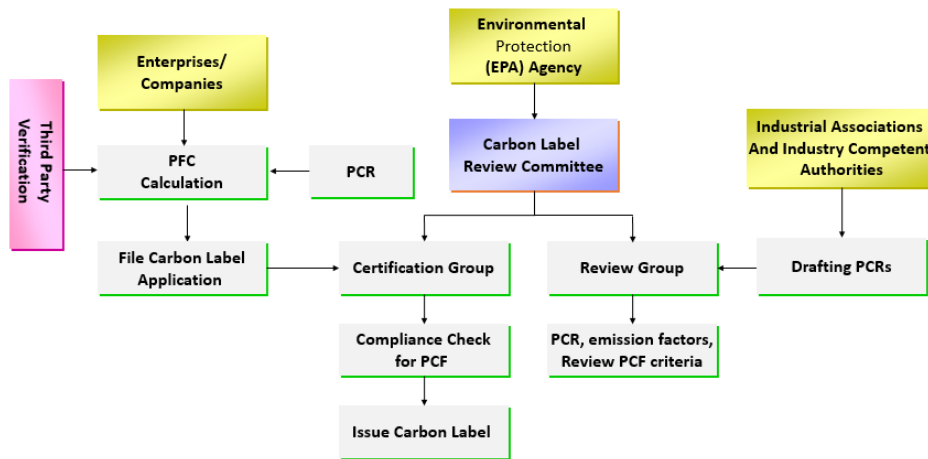


Figure 2. Implementation Framework, Taiwan EPA (2010)

### CURRENT STATUS OF TAIWAN CARBON LABEL SCHEME

Since the implementation of Taiwan Carbon Label Scheme, there are 103 products of 44 companies issued with the Carbon Footprint of Product Label Certificate by October 2012 (Taiwan Environment Protection Agency [Taiwan EPA], 2010). The product categories include 3C products, processed foods, beverages, hygiene products, plastics and rubber products, animal and agricultural products and etc. According to Taiwan Environment Protection Agency (2010), there are 41 labeled products in the beverages category, 20 in processed foods, 14 in



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3C products, 5 in plastics and rubber products, 13 in animal and agricultural products and 10 in others.

## **CASE STUDY**

### *CFP Assessment Process*

Out of the products issued with Carbon Label, 21% are tea products; therefore, this study focuses on one tea beverage manufacturer as a case study (Taiwan EPA, 2010). According to Taiwan EPA Carbon Label Scheme, in order for the company to file an application, it needs to conduct a CFP assessment followed by a third party verification.

From the formation of the assessing group to the outcome of a CFP assessment report, it takes at least 6 months at the cost of 20 – 30 thousand USD (Taiwan EPA, 2010).

Depending on the type of product involved, most companies carrying out a CFP assessment have to go through many internal CFP education and data collection processes. Most of the CFP assessments require supply chain participation. In this study, for the purpose of a CFP with a LCA perspective, the first stage of the CFP inventory was to draw a process map that contained not only the tea manufacturer's own internal processes, but also the materials and services from its suppliers.

### *Obstacles in collecting supply chain data*

In this study, the supplier participated in the CFP assessment of the target product were mostly SMEs with employee number of 30 and below. Providing complete activity data that were allocated correctly to the supplying materials was a difficult task for most suppliers. The failure to collect supplier data would have affected the level of assurance during third party verification which would lead to disqualification in Taiwan Carbon Label application. In this study, the time spent in assisting suppliers with competent data collection was around 2.5 months.

### *Taiwan CFP calculation standard*

The international CFP calculation standard ISO 14067 "Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication" is still under communication and negotiation from all stakeholders (Taiwan EPA, 2010). In the meantime, countries around the globe have developed own CFP calculation standards according to different methodologies that are suitable for each distinguished nations. The Taiwan Carbon Label scheme adopted the UK standard of PAS 2050 "Specification for the assessment of the life cycle greenhouse gas emissions of goods and services" and the draft of ISO 14067 with fine tunes to Taiwanese cultures and published "Guide to assess the carbon footprint of products and services". Companies applying for the Taiwan Carbon Label are to carry out the assessments accordingly.

### *Assessment scope definition*

Countries around the world have different guidelines regarding the Product Category Rules (PCR) development for purposes like environmental declaration, eco labels, CFP calculations and etc. A PCR is a scope setting tool that enables transparency for the LCA based CFP assessments and provides comparability between products in the same category from different manufacturers. Before 2010, Japan was the only country having a specific PCR for CFP calculation, CF-PCR in short. Taiwan followed Japan's footstep and published a "Guide on

carbon footprint product category rules” for enterprises in the preparation of Carbon Label application. In this study, the company initiated the process of CF-PCR development according to the Taiwan EPA guide. Having to involve the beverage association and stakeholders along supply chain and waiting for the verdicts from the Taiwan EPA review group, the process took another 2 months to finalize.

#### *Lack of local LCA database*

During the CFP assessment, enterprises often encounter the problem of primary data for GHG emission calculations thus selecting an appropriate emission factor from the LCA database become crucial to the final quantification of CFP. Due to the fact that emission factors from different locations of one material results in different numbers, the final CFP would vary accordingly. Therefore, the lack of public LCA database providing local emission factors in Taiwan becomes another obstacle for enterprises.

## **DISCUSSION**

Due to the fact that most big Taiwanese enterprises relocated factories to mainland China, India, or other South East Asian countries for lower labor costs. Manufacturing companies that remain in Taiwan are small and medium enterprises (SMEs). Throughout the supply chain of tea beverages, large number of raw material suppliers are SMEs. Most of these SMEs exhibit the tendency of lacking green awareness.

Based on the experiences of assisting at least 20% of beverages issued with Taiwan Carbon Label and many Taiwanese enterprises with CFP assessments, this paper discovered and summarized obstacles Taiwanese enterprises face while conducting CFP assessments. These obstacles includes, inability of CFP standard integration, complicated process in CF-PCR development, and the lack of local database. However, Taiwan Carbon Label Scheme provides an example for countries trying to implement a future Carbon Label system.

## **CONCLUSION**

Ever since late 2012, Taiwan EPA has reinforced the communication between several government agencies for the assistance in local GHG emission factor database development. This paper also raise a suggestion to Taiwan EPA in the hope to reach mutual agreements with other national Carbon Label bodies to enhance the integration of assessment standards and label recognitions for the promotion of carbon labelled products internationally.

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