# Chapter 15
# Participation Framework to Sustainability:
## The Undercurrents in Bottled-Water Production and Consumption

**Taksina Chai-Ittipornwong**
*Muban Chombueng Rajabhat University, Thailand*

## ABSTRACT

*The topic of bottled water is particularly timely since water crisis and waste plastics are shifting from one of problem-framing to what is much more concerned to climate agenda. As plastics are everywhere to make life possible for a faster and convenient pace of society, bottled water has become one of the most disposable products to be consumed and disposed of, on a regular basis, both at and away from home. These eventually translate to consumer wastes causing a profound impact to the environment. The more bottles mean more greenhouse gases from production, transportation, waste bottles management, including fresh water supply. These adverse impacts are compounding a framework to justify as to how producer and consumer apply, individually and within the whole product life cycle, to sustainable consumption and production practice (SCP).*

## INTRODUCTION

The world has been pushing the planet away from sustainability. Humanities are shaped their lives on materially intensive economies and consumerist lifestyle regardless of living in a finite world. Many disposable products are developed to make life possible for a faster and convenient pace of society. Bottled water has become one of the most common plastic products to be consumed and disposed of, on a regular basis, both at and away from home. These bottles eventually translate to consumer wastes (Amano & Ness, 2004; Chamornmarn, 2008; Huber, 2010). Water and plastics are two major materials of bottled water. More bottles mean more greenhouse gases from production, transportation and waste management, including continued risk of ecological vulnerability and water conflict with commercializing

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a public resource. Without greater understanding of how to produce and how to consume bottled water in sustainable ways, it may even worsen the most disagreeable impacts to the planet and future livelihoods.

Thailand was ranked near the top in bottled-water consumption in Southeast Asia and is among the top 9 consumers globally (Rodwan, 2010) In global context, bottled water has been the top end-used application of Polyethylene terephthalate (PET) plastic since its introduction into beverage packaging (Willett, 2003) According to the survey during 2008-2010, bottled-water business in Thailand maintains annual growth by 15 percent in total volume terms, with the consumption of 40,000 tons of PET plastic and 2.4 billion liters of water (Chamornmarn, 2008; Euromonitor International, 2010; Ratthanin, 2010).

The bottles can constitute various pollutions to air, water and soil quality as carbon substance is the key element of PET resin formulation. Increasingly, the ways to capture surface water supplies and underground sources are compounding the problem of water inadequacy into environmental degradation. Precisely, this chapter deals with an evidence-based case of sustainable consumption and production (SCP) implementation for PET-bottled water. Consumers' environmental awareness is evaluated whereas an input-output approach to bottling system is included to address the role of bottlers in an SCP. The undercurrents of bottled-water production and consumption are therefore closely examined for filling the gaps between socio-economic development and environmental protection.

The presumption is that if enough bottlers implement sustainable production whereas more and more consumers are aware of sustainable consumption, they can drive change towards a sustainable consumption and production of PET-bottled water. The guiding research questions are as to

1. Whether the bottled-water businesses and the consumers perform the SCP for PET-bottled water?
2. How the practice is? and
3. What the differences are in terms of resource efficiency and impact reduction?
4. How is an LCM approach contributed to the SCP success?
5. What is the most practice for bottling drinking water done in Thailand?
6. What are the environmental and health consequences occurred from PET bottles?
7. Is there any different impact compared between virgin and recycled bottles?

## BACKGROUND

### Sustainable Consumption and Production

In 2002, all the nations facing the climate crisis agreed not only to develop a 10-year framework of the SCP programs (the Marrakech Process)[1], but also had the SCP addressed as a prerequisite for sustainable development. The vision of sustainability was first referred to in *Our Common Future* in Bruntland Report defining sustainable development as a pathway to meet the present needs without compromising the ability of future generations to meet their own needs (Elliott, 2006).When environment lost capacity to continuously support the overexploitation placed upon it, a stronger and sensitive linkage between sustainability and socio-economic growth is truly required (Akenji & Bengtsson, 2009). Hence, sustainable practices in resource efficiency from less material consumption and less pollution have been universally addressed to handle the consequences of economic globalization and bring about sustainable development (Jones, Hillier, & Comfort, 2014).