Chapter 13
Challenges in Building a Green Supply Chain:
Case of Intel Malaysia

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ABSTRACT
Consumers today are focusing on products that are manufactured using sustainable, environmentally friendly methods. Profitability or even existence of an industry can be impacted by public opinion. Governments all over the world are also coming up with stricter regulations for industries to comply with on items like pollution, hazardous content, conflict minerals, child labor, exploitation, etc. A number of requirements have been set up by the semiconductor industry, and Intel worldwide is working on some of the current issues: (1) conflict-free minerals sourcing; (2) using green/sustainable energy; (3) reduction of water consumption/recycling of water; and (4) migrating to unleaded parts and halogen free parts. This chapter presents the Intel experiences and challenges in building a green supply chain at both the corporate and regional levels.

INTRODUCTION
The current environment in the semiconductor industry is influenced by governmental legislation, required industry certifications, public opinion, increasingly discerning customers and non-governmental organizations’ agenda. The industry is facing a lot of pressure to stop pollution, to use electrical energy and water in a sustainable way, use ethically sourced material and usage of environmental friendly, non-hazardous (green) materials. Many of the semiconductors that are in Malaysia have their origins in the United States and need to adhere to both the US governmental rules...
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and regulations and the local laws. In addition, the industry itself has many standards that must be adhered to. Non adherence can cause harsh actions to be taken against any company and this can include hefty fines and loss of revenue through product boycotts or plant closures. In Intel Malaysia’s case both the US and the Malaysian laws need to be adhered to – the more stringent one will apply. Intel has taken proactive steps in implementing sustainable use of natural resources and ethical sourcing from its founding. This chapter is useful for those who interested in area of green supply chain and conflict of conflict-free mineral sourcing in Semiconductor Company alike. The secondary data and information have been collected as the basis of discussion in a single case study.

GREEN SUPPLY CHAIN

A supply chain is considered sustainable or green when sustainability and sustainable development concepts are applied into the traditional operational principles, i.e., economic, environmental and social friendly practices are considered part of the operational procedures on a regular basis (Pusavec et al., 2010). There are many definitions being brought up by researcher on sustainable supply chain or green supply chain management (GSCM). Srivastava (2007) defines sustainable supply chain management or GSCM as the integration of the sustainable thinking that incorporated into the supply chain, including product design, material sourcing and selection, manufacturing processes, delivery of goods to the final products to the consumers as well as the product management after its useful life also known as reverse logistics (Vanalle et al., 2011). Zsidisin and Siferd (2001) argue that environmental supply chain management is a series of policies and actions on design, procurement, production, bulk dispatch, utilization, reutilization, and disposal, undertaken by businesses out of concern for the natural environment. Skjoett-Larsen (2000) suggested that green should include each link in the chain from initial manufacturer at the raw material stage to the end-user which including production, processing, packaging, shipping, handling, and so on. Supply chain strategies are developed with the purpose to improve effectiveness and efficiency of processes across the operation. Integration of environmental concern in supply chain or green supply chain is one strategy for operational improvisation (Hasan, 2013). Green supply chain management main concern is to integrate environmental interest into corporate supply chain practices that include purchasing, material handling, and logistics procedure. Thus, it is of vital importance that the upstream members of the supply chain, which are the suppliers to be aware of the focal company aspiration of establishing green supply chain management (Zhu et al. 2014). Besides, Zucatto et al. (2008) defines green supply chain management as a way of environmental improvement that can involve initiatives in purchasing, production, shipping and reverse logistics, including material suppliers, service contractors, salesmen, distributors and final users, all them working together to reduce or eliminate adverse environmental impact from their activities (Zucatto et al., 2008; Vanalle et al., 2011).

COMPANY BACKGROUND

Intel Corporation was formed by Gordon. E. Moore and Robert Noyce. Gordon Moore was as chemist and a physicist while Robert Noyce was a physicist. Robert Noyce is part of the duo who invented the integrated circuit. Both Gordon Moore and Robert Noyce left Fairchild Semiconductor Corporation and formed Intel. Legend has it that the new start-up company was to be named “Moore Noyce” but this was quickly discarded as this name would never do for a semiconductor company. They later bought the rights to the