Implementing Sustainability in Emerging Economies: Challenges and Opportunities for Supply Chain Management

Dr. Bruno Silvestre
Faculty of Business and Economics
The University of Winnipeg, Canada
Email: b.silvestre@uwinnipeg.ca
Outline

• Motivation
• Theoretical approach
  – Capability accumulation
  – Innovation
  – Sustainable Supply Chain
  – Stakeholder Theory (?)

• The Case: the Brazilian oil and gas Supply Chain
• Implications
• Contributions
Motivation: Literature

• Over the past two decades, supply chain management has become an enduring research theme in the business literature.
• A key research stream that has raised a lot of attention in the industry, academic and policy circles is the one exploring why and how supply chains incorporate sustainability into their operations.
• Several studies claim that the social aspect of sustainability has been often neglected in existing research and practice (Beske et al., 2008; Pagell and Wu, 2009; Beske, 2012).
• Dearth of empirical evidence and theoretical reflection on the characteristics of SCs in emerging economies (Zhu et al., 2005; McCormack et al., 2008; Cerra et al., 2008).
• The literature claims for further research on resource-based clusters in Latin America (Altenburg and Meyer-Stamer, 1999).
Motivation: Why Brazil?

- Largest country in Latin America
- Fast growing emerging economy (BRICs)
- World-class industries (e.g., aircraft, agriculture, mining)
- Very sophisticated energy industry (e.g., ultra deep-water oil and gas, biofuels – ethanol and biodiesel, hydro potential)
- Great potential for innovation
- But... there is a large population of excluded producers and consumers
- The country is still struggling with social disparities – e.g., social exclusion, wealth concentration, crime and corruption
Theoretical Approach (A)

• Capability accumulation
  – Firms and SCs are technologically immature (Silvestre and Dalcol, 2009)
  – Different forms of learning - individual vs. organizational vs. SC
  – Greater the SC knowledge, greater the capacity to learn (absorp. capacity)

• Innovation
  – Schumpeter (1934)
  – New to the world, new to the industry or new to the firm?
  – Working definition of innovation – new to the SC
Theoretical Approach (B)

• **Sustainable Supply Chain**
  – Firms do not compete in isolation, but rather together with its supply chain partners to achieve sustainable operations (SCs compete against other SCs)
  – It is critical that all stages of the SC operate efficiently, responsively and transparently so that the whole system can perform in a sustainable manner.
  – If one stage of the SC is inefficient, or is not sensitive to emerging environmental and social risks, the entire SC will suffer or definitely fail.

• **Stakeholder Theory** *(Donaldson & Preston, 1995; Freeman et al, 2004; Orts & Strudler, 2009)*
  – Focus on mutual benefits, not only on economic returns generated from the relationship
    • Having one objective (myopic logic), such as profit, directing the organization’s values and practices is unsustainable
    • If stakeholders’ interests are recognized and accommodated (broad logic), then the organization is sustainable and all actors accomplish their purpose
The Brazilian oil and gas Supply Chain (A)

• Petrobras: National oil company and focal company
• According to Petrobras former CEO Gabrielli de Azevedo (2009), Petrobras’ operations had been hindered by poor environmental performance in the past.
  – For example, in 2000 the company was responsible for major oil spills, and lost a modern floating platform (P-36) after numerous explosions, killing 11 employees in 2001
  – And the present? Sao Sebatiao/Caraguatatuba 2013 (????)?
• These events, along with public backlash, contributed towards the company’s shift in its environmental and social stance.
• The company is now seen as a model for corporate social responsibility within the oil and gas industry (Noria, 2008).
The Brazilian oil and gas Supply Chain (B)

• Leader in deep and ultra-deep well technology
• 5th largest publicly traded oil & gas company (listed on SP, Madrid and NYSE)
• Latin America’s largest, most profitable firm
• Rare example of an innovative national oil company (Silvestre & Dalcol, 2009)
• Currently, it is a major player in biofuels; developing technologies in wind, solar, and fuel hydrogen energy
• Industry leader in sustainable development - at least according to SD indicators like DJSI (Hall, Matos & Silvestre, 2011)
The Brazilian oil and gas Supply Chain (C)

- Offshore deep and ultra-deep water developments and operation (Is that sustainable?)
- As early as 1975, Petrobras had engaged in various efforts to derail Proálcool (Hira and Oliveira, 2009)
- Petrobras becomes an “energy company” instead of an oil company in 2002 (Ferreira, 2009)
- Creation of the Biodiesel Program in 2005 by the Federal Gov’t
- In 2008 Petrobras launched the subsidiary Petrobras Biocombustível
- Petrobras started investing in the biofuel production in 2009 (bought 43.58% da Total Agroindústria Canavieira)
Implications

• Additional barriers to technology diffusion
  – The field work carried out in the Brazilian oil and gas SC suggests that:
    • SC management presents at least four additional barriers to innovation and sustainability:
      – lack of an adequate regulatory framework
      – high level of bureaucracy and corruption
      – strong presence of informal economy
      – lack of trust in the government
    • SC management is permeated by additional levels of uncertainty. This is because pressing social issues are encountered in these countries, and they must be considered by supply chains for successful operation
Contributions

• We cannot understand sustainability without considering SC approaches (individual companies are not relevant)
• In emerging economies, the existence of additional barriers to sustainability must be considered
• Pressing social issues increase the uncertainty levels
• Focal companies are fundamental to endorse new cleaner production innovations and sustainability in SC
• The implementation of sustainability strategies can only be pursued through innovation for truly integrate the environmental and social dimensions into business models, without losing market competitiveness