Journal of Cleaner Production xxx (2015) 1–9

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Integrating cleaner production into sustainability strategies: an introduction to this special volume

C.M.V.B. Almeida [a, *], F. Agostinho [a], B.F. Giannetti [a], D. Huisingh [b]

[a] Universidade Paulista (UNIP), Programa de Pós-graduação em Engenharia de Produção, Laboratório de Produção e Meio Ambiente, São Paulo, Brazil
[b] Institute for a Secure and Sustainable Environment University of Tennessee, Knoxville, TN, USA

ARTICLE INFO

Article history:
Received 27 November 2014
Accepted 27 November 2014
Available online xxx

Keywords:
Sustainability strategies
Decision-making
Sustainability research
Sustainable societies
Well-being
Quality-of-life

ABSTRACT

This special volume of the Journal of Cleaner Production is built primarily upon articles submitted for the 4th International Workshop Advances in Cleaner Production held in São Paulo, Brazil, in 2013. The 53 articles underscore the urgent need for changing from unsustainable production and societal patterns to sustainable ones. They provide many new approaches to help industries, governments and society to speed up the transition to sustainable patterns. The authors focus on defining and solving problems with special emphasis upon sustainability strategies: raw material replacement, renewable energy, technological developments, product, and policy changes. The central roles of improved corporate management for sustainable societal transitions are explored, with an emphasis upon stakeholder empowerment in promoting implementation of new cleaner technologies within companies, industrial sectors, supply chains and countries. Some authors improved assessment tools for environmental accounting at the biospheric scale. Some authors underscored the need for cooperation among governments, industrial sectors and companies to accelerate the integration of Cleaner Production into policies and practice. Multiple examples of successful integration of CP in national and local policy structures, exemplified how focused work in key industrial sectors is delivering multiplier benefits within and among companies and in the community, at large. The authors documented numerous benefits of holistic integration of local, regional, national and global efforts to accelerate the transition to sustainable development and societal well-being.

1. Introduction

The term strategy is used in different ways, although it is defined as “the science or art of combining and employing the means of war in planning and directing large military movements and operations” and “ plan, method, or series of maneuvers or stratagems for obtaining a specific goal or result” (MLA, 2014). The expression originated from the Greek στρατηγία (stratēgia), and refers to the ability of formulating a plan to succeed in achieving one or more goals under circumstances of restricted resources and/or uncertainty. The authors of this article used ‘strategy’ and ‘shared mental pictures’ to help society to design and implement short and long-term approaches to achieve the transition to truly sustainable societal development.

Geiser, in 2001, associated CP to the conceptual connection between the production sector and sustainability, considering that CP has helped to the industrial sector to engage in achieving SD goals by defining procedures and by developing the means to implement those procedures. Application of CP can help leaders evaluate alternative approaches to more effectively reduce negative environmental and human health impacts of industry and to accelerate the transition to truly equitable and sustainable societies.

In expanding upon this vision, the articles in this Special Volume (SV) address production and consumption by providing new ideas on, catalyzing innovations eco-product design, improved process control, and incorporating environmental and social issues into management systems. These articles contribute to shifting the standard economic view of environmental protection always being a cost to environmental protection resulting in environmental, social and economic benefits.

The central purpose of this SV is to underscore the importance that academic research places on sustainable planning, by documenting how integration of CP initiatives with SD concepts and

* Corresponding author.
E-mail addresses: cmvbag@unip.br (C.M.V.B. Almeida), donaldhuisingh@comcast.net (D. Huisingh).

http://dx.doi.org/10.1016/j.jclepro.2014.11.083
0959-6526/

integrating them with strategy definitions (Mintzberg, 1992) in order to assess and evaluate possible courses of action. In this context, an exciting array of creative research examples of strategies to achieve sustainability is included in this SV.

Most of the articles in this SV were presented during at the 4th International Workshop Advances in Cleaner Production held in São Paulo, Brazil, in 2013, with the challenge to reorient the present unsustainable patterns by integrating CP into sustainability strategies. The representation in Fig. 1 helps the reader to understand the relationships among the different levels in which strategies presented in this SV are being applied. From the base to the top, the pyramid shows increasing coverage and influence on decision-making. For each level of the pyramid, different strategies are applied to different decision-making structures while assessments methods and tools, acting multi-hierarchically, help to monitor decisions made and to redefine strategies, approaches and indicators, when necessary.

2. CP strategies presented in this SV

Results of research are presented and ordered according to their level in the strategy hierarchy, from the top to the bottom of the pyramid shown in Fig. 1. Some strategies deal with the promotion of specific improvements within different levels. At the bottom of the strategy hierarchy, actions are taken within individual companies and management practices are tested and proposed to improve the companies' environmental performance. The area of influence of CP actions is limited to the area of the company, information is available locally, and their effects are evident in the short and medium term. At the top of the hierarchy, several countries and cultures must share strategies in order to achieve common goals. Multi hierarchical strategies can be applied at various levels, such as those assessing improvements that even if applied in a specific sector, have repercussions in other hierarchical levels. The several approaches that seem to be unrelated may interconnect to provide solutions at various levels and scales, thereby, contributing to achieving broader goals.

2.1. Strategies at the global level

At the global level, the broader goals are established by society's perceptions with regard with SD, development and wellbeing. To pursue these goals, the international community is guided visions, strategies and indicators that are designed to provide information on the status of each society, such as the gross domestic product (GDP), which evaluates the economic status, or the Human Development Index (HDI), which is designed to assess the social dimensions of societies. The information provided by these indicators can serve to help leaders establish priorities for action in each country, and to help to accelerate the transition to truly sustainable societal patterns. Another global sustainability strategy deals with the responsibilities for effective integration of knowledge, purposes and skills by academic and non-academic professionals into their work at all levels with regard to societal sustainability.

2.1.1. How to integrate strategies to achieve goals at the global level

Giannetti et al. (2014) provided a comprehensive review in which the current default standard for economic and social progress, GDP, was found to be inadequate for monitoring all of the relevant features for modern societies, governance, eco-system, policymakers and public policies. This review showed that progress indicators measured only in monetary or social terms are limited and restricted, and recommended that it urgent that changes are made in the paradigm of progress to go far beyond GDP by integrating a wide array of non-monetary elements of human well-being and eco-system health into our real world SD journey. This approach was complemented by Frugoli et al. (2014) who compared emergy indices with ten indicators, and suggested that existent socio-economic indicators should be used in combination with biophysical indicators to provide a better understanding of the impacts of economic growth upon sustainable well-being. Both articles made it clear that the currently used measures of 'progress' misguide the elaboration of public and sectoral policies at all levels, and their weaknesses are key stimuli for the development of alternative indices to measure and guide the needed transitions to ***truly equitable and sustainable societies***.

It is important to highlight that articles dealing with African issues included in this SV (Section 2.4 and 2.5) emphasized that local solutions are more effective than those internationally accepted, and underscored the need of combining social issues with environmental assessment, and the urgent need to develop better ways of measuring the outcomes of CP implementation. Concern was expressed about the need for adapting well known CP strategies to developing countries, not only at company's level (Section 2.4), but also at sectoral and supply chain scale (Section 2.3) and

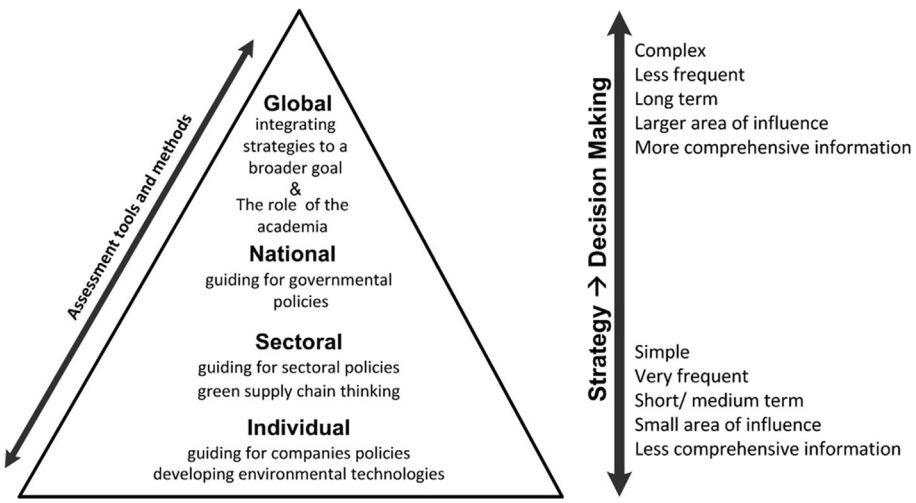

Fig. 1. Decision-making hierarchy and outline of the main characteristics of each decision-making level presented in this SV.

Please cite this article in press as: Almeida, C.M.V.B., et al., Integrating cleaner production into sustainability strategies: an introduction to this special volume, Journal of Cleaner Production (2015), http://dx.doi.org/10.1016/j.jclepro.2014.11.083