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Sustainable consumption and production – Research, experience, and development – The Europe we want

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ABSTRACT

Since the publication of the Brundtland Report, production processes and consumption patterns towards sustainability have improved. This Special Volume Section of the Journal of Cleaner Production focuses on sustainable consumption and production (SCP), and identifies further challenges and provides solutions related to resource efficiency (ReE), sustainable water systems, sustainable management, cleaner production (CP), and sustainable urban development. In order to better understand the state of the SCP issues globally, existing policy directions have been explored within this paper, as well as six newly emerged sustainability terms, which have been integrated into the existing terminology classification to better describe and understand sustainable development concepts. In this Special Volume Section, the authors have demonstrated many valuable theoretical and practical contributions to the aspects of SCP, including a number of practical examples of achieving sustainability in companies, such as using bottom-up and a top-down approaches or by implementing theoretical models. There are also examples of achieving eco-efficiency in water systems (including urban), further requiring economic incentives and governmental support, and practical experiences, providing in-situ data and evidence of impacts of measures on processes and systems regarding resource efficiency, cleaner production, and also considering life cycle assessment (LCA). A model on how to achieve a sustainable urban development, based on small communities and neighbourhoods is also provided. The examples of SCP research and development in the fields of ReE presented in this section of the SV indicate that existing production and service processes in companies and social (urban) environment could be more sustainable, using a holistic approach to the SCP and achieving global policy recommendations.

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1. Introduction

Sustainable development (SD) has been on the global agenda for almost three decades: it was first identified in the Brundtland Report (Brundtland Commission, 1987) and further highlighted by Agenda 21 (UN, 1992). Since then, global society has achieved some significant successes, such as the reduction in ozone-depleting chemicals and the increased use of renewable energy sources, as well as in decoupling emissions and economic development (UNEP, 2011), becoming more efficient in terms of production, consumption and re-use of resources and materials. As resources and material consumption grows, there is a decline in emissions, energy

and material use per output (Krausmann et al., 2009). Technological improvements and development have reduced the energy and material intensity while increasing per capita wealth (Sorrell, 2015). Further positive steps have been taken in the area of access to fresh water, where nearly 90% of the world's population in developing countries now has access to improved sources of drinking water (UNEP, 2011). However, sustainability-related challenges still exist and have been identified by Hutt (2016) at the World Economic Forum, emphasizing also resource security, a topic on which this Special Volume (SV) section provides information on current research of both a theoretical and practical nature.

This SV section on sustainable consumption and production (SCP) identifies challenges and provides solutions related to resource efficiency (ReE), sustainable water systems, sustainable management, cleaner production (CP), and sustainable urban

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Acronyms

ASN	autonomous sustainable neighbourhoods	OECD	Organization for Economic Co-operation and Development
BAT	Best Available Technology	OLED	Organic Light Emitting Diode
CE	Circular Economy	SC	Sustainable Consumption
COP 21	21st Conference of Parties	SCP	Sustainable Consumption and Production
CP	Cleaner Production	SD	Sustainable Development
EPA	Environmental Protection Agency	SDG	Sustainable Development Goals
ERSCP	European Roundtable on Sustainable Consumption and Production	SEAT	Systemic Environmental Analysis Tool
ESD	Education for Sustainable Development	SmC	Smart City
EU	European Union	SP	Sustainable Production
EVAT	Economic Value-chain Analysis Tool	SmS	Smart Specialization
GHG	Greenhouse gas	SURESCOM	SUstainable and RESponsible COMpany
ICT	Information and Communication Technology	SUSG	Strategic Urban Sustainability Goals
IPCC	Intergovernmental Panel on Climate Change	SV	Special Volume
IPPC	Integrated Pollution Prevention and Control	UN	United Nations
ISO	International Organization for Standardization	UNCED	United Nations Conference on Environment and Development
LCA	Life Cycle Assessment	UNDP	United Nations Development Programme
LCI	Life Cycle Inventory	UNEP	United Nations Environment Programme
LCIA	Life Cycle Impact Assessment	UNESCO	United Nations Educational, Scientific and Cultural Organization
RECP	Resource Efficient and Cleaner Production	UNFCCC	United Nations Framework Convention on Climate Change
ReE	Resource Efficiency		

development. Sustainable solutions are seen as key for changing production and consumption patterns, where experts in the areas of business development, design for sustainability, consumer behavior and system innovation come together to play a role in shaping such solutions, since many sustainability problems seem to be unsolvable by actors in the production-consumption value chain (Tukker et al., 2008). Lorek and Fuchs (2013) distinguished between “strong” and “weak” SC, where the “weak” approach assumes that SC can be achieved by improvements in RE, as a consequence of technological solutions and innovations. SC is based on the assumption that changes in consumption patterns are necessary to achieve SC, where the need for reduction of overall resource consumption rather than of the product based individual consumption is emphasized (Lorek and Fuchs, 2013).

Achieving “strong” SC, which provides a framework for exploration of linkages between consumption, SD and de-growth, and emphasizes social innovations and technological pessimism (Lorek and Fuchs, 2013), could lead to solutions to the above mentioned challenges, and a transformation of global society towards SD (Waas et al., 2012).

Such a transformation requires political, economic, institutional, behavioural and technological shifts, which are realized not only through SC, but also through Sustainable Production (SP) principles, approaches and strategies that will require increased efforts towards their implementation in future decades. Therefore, radical changes are needed regarding CP, zero waste approaches, increased ReE, and the circular economy (CE) paradigm.

Global policy recommendations and international agreements regarding sustainable development, such as Sustainable Development Goals (SDGs) led by United Nations (UN) and its organizations (e.g. UN Environment Programme (UNEP) or UN Development Programme (UNDP)) are shaping our common future (Unteregger, 2015); however, the inability to accept a common “sustainable policy” shows individualism of people, corporations, nations and countries, and not a collectivism towards our common responsibility for the future generations. Individualistic behaviours with their search for profit maximization and wealth accumulation

(see OXFAM International, 2015) are identified as having created economic, environmental and social imbalances. Calls and efforts towards SD seek to establish a dynamic equilibrium among these elements, where collaboration represents one of the key factors in the transition towards more sustainable societies (Lozano, 2007). Global action and international laws can diminish the negative effects of climate change, resource depletion, and biodiversity reduction. Control of population, use of renewable energy sources, and SCP can slow down the pollution and resource depletion, reduce the increasing non-equilibrium, and a possible uncontrolled, stochastic development (Glavič, 2010).

This SV section was developed mainly from papers presented at the 17th European Roundtable on Sustainable Consumption and Production (ERSCP), held in Portorož, Slovenia, 14–16 October 2014, which had as its title “The Europe We Want” and at which SCP was the over-reaching theme. The SV section brings to the forefront SCP solutions to the global challenge related to resource security. It presents new knowledge and contributes to the SCP discussion through articles covering both the theoretical and practical perspectives, across a range of topics, also emphasized at the conference. These topics include: solutions of SCP, and ReE in companies through environmental management, resources efficiency related to water systems, ReE and CP in textile industry and a brewery, and sustainable urban development cases.

2. Sustainable consumption and production update

Two achievements from Autumn 2015 have to be mentioned – the Paris Agreement and the adoption of the United Nations (UN) Sustainable Development Goals (SDGs). They are connected to UN Development Programme’s (UNDP) Strategic Plan focus areas: SD, democratic governance and peace building, and climate disaster resilience.

The Agreement dealing with GHG emissions mitigation, adaptation and finance, starting in the year 2020, has been accepted within the United Nations Framework Convention on Climate Change (UNFCCC, 2015) at its 21st Conference of the Parties (COP

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