



The need for global coordination in sustainable development

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ARTICLE INFO

Article history:

Available online 20 December 2008

Keywords:

Eco-industrial parks
Fossil fuels
Greenhouse gases
Manufacturing industries
Minerals
Natural resources
Recovery
Sustainable management
Cement industry

ABSTRACT

Natural resources are being depleted at faster rates than ever; this highlights the need for global audits and actions to reverse the depletion. Coordinated efforts by various organizations are essential to quantify reserves and demands in such audits in order to enable the development and implementation of strategies for sustainable recovery, usage, and recycling of natural resources. This paper discusses such audits in several industries and puts forward analytical and technical methods and policies for sustainable recovery, usage and recycling of resources in those industries. Scenario analysis can help to provide better future directions for industries whilst eco-industrial parks could improve the efficiency of usage of available resources and waste products through synergies among different industries on a regional basis. Sustainable manufacturing within industries such as micromachining, cement and leather could further reduce consumption of natural resources. New technologies in mineral recovery could help to recover valuable minerals present in concentrates generated by various processes such as reverse osmosis of sea water, chemical processing of minerals, and domestic and industrial wastewater treatments. These areas are discussed in this special issue of the Journal of Cleaner Production. It is imperative that the efforts by various organizations toward sustainable management of natural resources should compliment each other to minimize duplication; furthermore policy makers should play greater roles in developing and implementing policies and procedures to support such sustainable development oriented approaches simultaneously throughout the world in a coordinated and proactive manner for the short and long term future.

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1. Introduction

Naturally occurring materials that are valuable in their relatively unmodified form are called natural resources. Mining, petroleum extracts, fishing, hunting and forests are considered natural resources as they primarily require extraction and purification before being used. Natural resources could be subdivided into renewable and non-renewable. Living resources are renewable as they could restock themselves when used in a sustainable manner. However, if they are consumed at a rate that is greater than the rate of replacement, then their net availability will diminish. Soil is a relatively non-renewable resource as it takes a very long time to be replaced compared to the current rate of utilization in many regions.

This special issue deals with the concerns that are posed by the following topic – “*Present and anticipated demands for natural resources: scientific, technological, political, economic and ethical*

approaches for sustainable management”. There are many journals, especially the Journal of Cleaner Production, dedicated to disseminate the knowledge generated by the scientific community to all stakeholders around the globe who are involved, in one way or the other, in utilizing natural resources. Understanding the material flow of natural resources can help societies manage the resources as well as contribute to reducing the negative impacts upon the environment. Supportive information on such dynamics is included in excellent summaries of several mineral commodities which are available from the United States Geological Survey (USGS) website [1].

In this special issue, we have identified several issues, in different geographic areas to explore and to contribute to possible solutions that could help societies to make progress toward more sustainable development around the world. Thereby, we hope to plant seeds in stakeholders’ minds that may help them to make progress toward more sustainable management of natural resources. We strongly urge decision makers to develop and implement proactive, integrated policies and strategies for helping societies to manage all resources in more sustainable ways. Eight different areas are explored in this special issue in terms of scenario

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