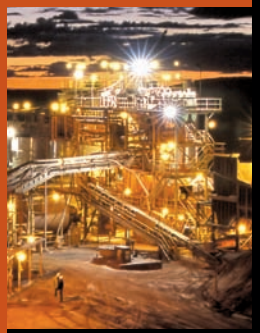
TRENDS IN SUSTAINABLE DEVELOPMENT

Economic & Social Affairs

CHEMICALS

MINING



TRANSPORT

WASTE MANAGEMENT

United Nations

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Department of Economic and Social Affairs
Division for Sustainable Development

TRENDS
IN SUSTAINABLE DEVELOPMENT

Chemicals, mining, transport and waste management

United Nations
New York, 2010

DESA

The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which Member States of the United Nations draw to review common problems and to take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

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FOREWORD

Since the United Nations Conference on Environment and Development in 1992 and the subsequent World Summit on Sustainable Development in 2002, significant efforts have been made in pursuit of sustainable development. At the political level sustainable development has grown from being a movement mostly focusing on environmental concerns to a widely recognized framework utilized by individuals, governments, corporations and civil society that attempts to balance economic, social, environmental and inter-generational concerns in decision-making and actions at all levels. At the September 2005 World Summit, the United Nations General Assembly reiterated that "sustainable development is a key element of the overarching framework for United Nations activities, in particular for achieving the internationally agreed development goals", including those contained in the Millennium Declaration and the Johannesburg Plan of Implementation (A/RES/59/227).

This report highlights key developments and recent trends in chemicals, mining, transport and waste management. In addition to considering these four themes, the Commission on Sustainable Development (CSD) addresses the progress of the "Ten Year Framework of Programmes on Sustainable Consumption & Production Patterns" as a thematic issue during its 18th and 19th sessions (2010–2011).

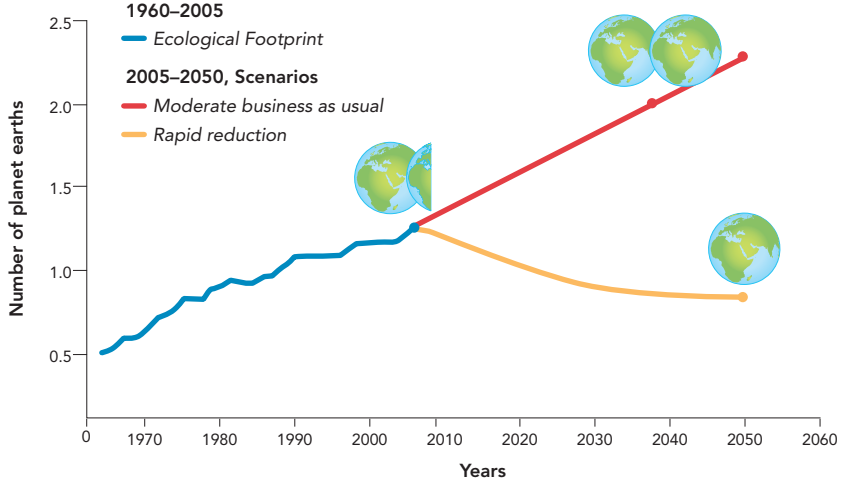
Tariq Banuri, Director
Division for Sustainable Development
Department of Economic and Social Affairs
April 2010

CONTENTS

INTRODUCTION

> "The truly healthy environment is not merely safe but stimulating."
>
> — *William H. Stewart, Environmental Science and Technology, February 1968*

The global ecological footprint in its current size and two trend scenarios: "Business as usual" and "Return to sustainability"



Source: Global Footprint Network, 2009

The implementation of a portfolio of strategies (Wedges) with different time horizons is critical to return to sustainability and to decrease humanity's ecological footprint.

The ecological footprint is a measure of the scale of demands which human activities place on natural systems. The size of the footprint represents the amount of biologically productive land and sea area needed to regenerate the resources humanity consumes and to absorb and render harmless the corresponding wastes. The figure above suggests that human activity is currently unsustainable in that it requires more than the total of all such productive land and sea area — i.e., more than one planet — to support it. On current trends, by 2040 it would require two planets.

Though the ecological footprint is only one of a number of possible measures of sustainability, there is broad agreement that a change to consumption and production patterns and technologies is needed in order to increase resource efficiency and reduce waste dramatically. This would permit living standards to be maintained in developed countries and to continue to rise in developing countries without exceeding the carrying capacities of critical ecosystems and life-support systems.

Using the technology wedge metaphor which Pacala and Socolow (2004) applied to greenhouse gas emissions, we can identify multiple options (or wedges) which would contribute to closing the gap between BAU and sustainability (i.e., living on the resources of a single planet).

The costs and degree of difficulty of different options vary from the relatively low-cost and simple — e.g., insulating buildings to conserve energy — to the longer term, more complex, such as stabilizing the world's population.

Many interventions are possible. Individual energy and resource consumption can be reduced by designing cities in which walking is preferable to driving. Technological innovations can increase the efficiency of resource use, such as reducing material wastage in production processes. Rehabilitation of degraded lands can increase agricultural yields while minimizing increases in footprint associated with agricultural expansion.

Wedges can be defined around major consumption categories such as food, shelter, mobility. The footprint of food, for example, might be reduced by optimizing the relationship between the distance it is transported and the efficiency with which it can be locally produced. The energy efficiency of residential and commercial buildings can often be dramatically increased, and utilities supporting them can be integrated so that wastes from one system serve as inputs for another.