

The prospects for sustainable energy

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Abstract

Concerns about sustainability, and the harsh realities of environmental catastrophe, can be traced back at least 4000 years. This paper points out how human pressures on the surrounding environment have had severe consequences over this period, coal burning has had adverse consequences traceable over the past 750 years, and the adverse environmental impacts of using other fossil fuels have aroused attention more recently. Heightened awareness of the need for sustainable development is a modern development, evident in international and national debates since the early 1970s. Fossil fuel use has continued to rise; renewable energy use has made insufficient inroads; waste and inefficiency in energy usage continues to be far too high; too many people remain without modern energy services or are exposed to severe pollution in the home and local atmosphere; there are mounting concerns about the conventional oil resource base—and future supplies and prices of oil and natural gas; greenhouse gas emissions continue to rise and evidence of human-induced climate change continues to mount. Indices of national environmental performance suggest no country is performing adequately; population, housing and transportation pressures result in greater pollution, loss of natural habitats, and species reduction; and poor governance is frequently cited as a major cause of poor environmental performance. The prospects for sustainable energy are bleak on current trends.

1. Introduction

Human activities have long had a devastating impact on the local environment and the capacity of societies to survive. About 4000 years ago, both in the Sumerian Empire of Mesopotamia and in the Indus Valley city civilisations of Harrapa and Mohenjo-daro, societies went into terminal decline because of food and potable water shortages in relation to population size. About 2500 years ago Hippocrates, the physician of Ancient Greece, linked air quality and climate to human health and character. Theophrastus, nearly 2400 years ago, wrote of the links between forest clearing and local climatic change—as Christopher Columbus was to do 2000 years later. [1]

Theophrastus was following Aristotle and, in common with others of his followers, was able to draw on Aristotle's vast 10-part compendium on zoology drawn from first-hand observation. It is no accident that the knowledge of Aristotle's teachings, passed down through Muslims in Spain and Byzantium, has influenced later Christian thought—and, in the case of St Francis of Assisi, daily life. Further to the East, for Confucius and Lao Tse,