Environmental Engineering and Management Journal, September 2004, Vol.3, No.3, 199-214
http://omicron.ch.tuiasi.ro/EEMJ/

"Gh. Asachi" Technical University of Iasi, Romania

ICEEM /02 PLENARY SESSION: "Environmental Engineering and Management in the Context of Sustainable Development"

GREEN TECHNOLOGY FORESIGHT OF HIGH TECHNOLOGY: HYPE OR POTENTIALS - THE CHALLENGES FROM NANOTECHNOLOGY, BIOTECHNOLOGY AND ICT

Michael Søgaard Jørgensen

Innovation and Sustainability Group, Department of Manufacturing Engineering and Management, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark. Phone (direct): +45 45 25 60 24, Fax: +45 45 93 66 20, Mobile: +45 21 25 68 15, e-mail: msj@ipl.dtu.dk

Abstract

The paper describes the theoretical and methodological approach in an ongoing Danish technology foresight project focusing on the environmental potentials and risks of nanotechnology, biotechnology, and information and communication technology (ICT). The paper gives a short overview of some environmental aspects of the three technological areas and discusses the challenges, when assessing the environmental aspects related to long term development of technologies, which often are described with very promising words. The approach to assessment of the environmental aspects is based on identification and analysis of emerging applications of the technologies, research processes and their dynamics, and future techno-economic networks which the future technologies might need or enable. The environmental assessment is based on the following principles: life cycle thinking, systems approach, open discussion of the relevant environmental aspects, precaution and prevention.

Keywords: green technology foresight, nanotechnology, biotechnology, ICT, environmental assessment, life cycle thinking