Chapter 8
Information Systems for a Green Organisation

Yogesh Deshpande
University of Western Sydney, Australia

Bhuvan Unhelkar
University of Western Sydney & MethodScience, Australia

ABSTRACT

Green ICT is the study and practice of using computing resources efficiently and effectively with minimal or no impact on the environment. It is a new and rapidly evolving discipline with new terminologies, experimental results, regulatory restrictions and policy recommendations from scientists, ICT organizations and governments. Organizations need to monitor their practices and ICT usage carefully in order to formulate effective policies, control processes and manage content based on sound architectures. Green ICT contains a high level of complexity because of uncertainty of processes, data quality and reliability. It is also beset by dissent and debate that engulfs wider disciplines such as technology itself, sociology, ethics and law – all of which reflects into the amalgamation of wide ranging data. The success or failure of Green ICT policies is determined by the way an organisation manages the participation and social interactions of its employees and customers. A green organization works on enhancing the data and information management within the organization that revolves around information systems, their databases and their applications. This chapter takes cognizance of the overall complexity of the field and aims to bring to the fore formal, research-based approaches to the use of data and information in the domain of Green ICT to enable organizations to change in a systematic, controlled and measured manner through information portals based on ontologies. The ontological considerations include user perspectives on green ICT, actual use of information in greening an organization, and dispersal of knowledge not only within the organization but also across the industry.

DOI: 10.4018/978-1-61692-834-6.ch008

INTRODUCTION

Green ICT, usually termed Green IT or Green computing, has been defined or described by several sources (Murugesan, 2008, Lamb, 2009, Wikipedia, 2010 and Webopedia, 2010). Murugesan (2008) gives a comprehensive definition which is also used by Wikipedia (http://en.wikipedia.org/wiki/Green_computing, retrieved on 7.2.2010): "the study and practice of designing, manufacturing, using, and disposing of computers, servers, and associated subsystems—such as monitors, printers, storage devices, and networking and communications systems—efficiently and effectively with minimal or no impact on the environment. Green IT also strives to achieve economic viability and improved system performance and use, while abiding by our social and ethical responsibilities. Thus, green IT includes the dimensions of environmental sustainability, the economics of energy efficiency, and the total cost of ownership, which includes the cost of disposal and recycling. It is the study and practice of using computing resources efficiently."

Lamb (2009) simplifies this definition to: "Green IT is the study and practice of using computing resources efficiently" and elaborates on it in an almost identical fashion to Murugesan. Webopedia's definition also includes all stages in the life cycle of ICT equipment, from manufacturing to final disposal.

This chapter considers Green ICT mainly from the perspective of non-ICT manufacturing organizations. Green ICT then relates to acquisition, usage and disposal of ICT equipment in an environmentally friendly manner. The ICT equipment will range from laptops, PCs and printers to all types of servers and data centres. By consensus, the supporting equipment such as air-conditioning units or facilities like specialized centres are excluded from Green ICT.

The chapter assumes that organizations will want to create and implement policies and procedures for Green ICT. This assumption is important because the topic of climate change has raised controversies and doubts have been cast on the methodologies used in assessing the climate change. Even as this chapter was being drafted, there were newspaper reports that two major organisations conducting research in climate change, viz. Intergovernmental Panel on Climate Change (IPCC- http://www.ipcc.ch) and Climate Research Unit (CRU) at University of East Anglia (http://www.cru.uea.ac.uk), had not shown due diligence in drawing conclusions about cause and effect of climate change. Since then, the allegation has been refuted and additional criticisms, including in Australia, of political interference in scientific validity of climate change are being flagged (http://www.abc.net.au/news/stories/2010/02/11/2816431.htm). It is safe to assume that an organization will seek ways and means to start working towards Green ICT policies.

The issue of reliability and credibility of data and information in the green space has assumed significant proportions. This challenge to reliability is further compounded by the enormous amount of data and information available from diverse sources, such as ICT manufacturers, research organizations and governments at local, national and international levels. The chapter takes cognizance of the overall complexity of this field and aims to bring to the fore formal, research-based approaches to the use of data and information in the domain of Green ICT to enable organizations to change in a systematic, controlled and measured manner. While the overall 'green agenda' is a movement in the right direction, the concerns addressed in this chapter are important from an information systems perspective. The approach outlined here will enable organizations to bring about sensible and sustainable changes in the management of their information and knowledge that will not only serve the 'green agenda', but will also have a positive influence on the overall business efficiency.

At the heart of the analysis and discussion in this chapter is the basic need of an organisation