Chapter 5.13

The Negative Impact of ICT Waste on Environment and Health

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ABSTRACT

Global warming and climate change are growing issues of concern for businesses, governments and individuals. This is so because business activities in particular, based around the philosophies of 'profit maximization', play a crucial role in the harming of the environment. Therefore, achieving a sustainable future is also a responsibility of businesses. Furthermore, Information and Communication Technologies (ICTs) and its components are directly responsible for production of significant amount of electronic waste and Green House Gases (GHGs). This chapter will examine and analyze the negative impact of ICTs waste on environment and health. The chapter will also discuss how ICTs can be used as a tool to mitigate climate change and assist businesses reach a sustainable green goal.

INTRODUCTION

ICTs can negatively have an effect on our environment and our health. This is not only so because of its operational usage but more so because of the electronic waste generated at the end of the useful lifecycle of an ICT gadget. As one observes, the use of ICTs is growing in multiples - engrossing all aspects of our lives: at work, at home, in the air, on the water and in many shopping centres, to name but a few. ICTs have helped us solve many challenges too – such as connecting us globally, entertaining us in every possible way, and helping

us to be more productive, efficient and effective. However, this valuable industry has a negative side too and that is its contribution towards the GHGs emission. The operational aspect of ICTs generate regular Carbon dioxide (CO_2) from the myriad electronic devices we use in homes and offices, and so do the industrial-strength data centres feeding organizations and individuals alike with information. Conversely, despite having a challenging aspect to it, ICTs can be an enabler to alleviate climate change and global warming.

According to (Climate hot map organisation, 2001; and union of concerned scientists organisation, 2001) the signs of global warming are as follow; rise of sea level, melting of glaciers and increase in average temperature of earth's atmosphere. These changes are caused partially by nature and to some extent are caused by GHGs emission as a result of industrial activities in the past two centuries.

Improving environmental performance, reducing GHGs and tackling global warming are high on the list of global challenges that must be addressed urgently by governments, industries, businesses, and individuals alike. Some governments have already introduced schemes to tackle these challenges as part of their economic stimulation packages, such as Australia, Germany, and USA.

The scope of this chapter is limited to the literature review of a number of reports prepared by major international bodies, government bodies, newspapers and websites.

ICTs are a contributor to the environmental damage. Major questions to ask are:

- Which part of ICT industry caused or is causing the environmental damage?
- What ICT products can cause the environmental damage?
- What products measure the environmental damage?
- What kind of environmental damage? and
- To what degree is the impact of the damage on the environment?

These questions have not been answered by any literature under review.

Statistics describing the correlation between the negative impact of ICTs and the environment to cover worldwide is conceptual and scares. The first main reason is that-the relationship between ICTs and the environment is a new field. The second main reason is that the concentration is drawn more towards the positive aspect rather than the negative impact.

Perhaps there is statistical data existing on developed countries. However, no literature under review contains any statistical data on developing countries. The literatures used in this chapter only contain statistical data on some of developed countries, such as, Australia, Canada, New Zealand and USA.

This chapter is organized into three segments. Segment one; briefly describes ICTs waste. Segment two; examines, analyses and addresses the negative impact of ICTs arising from three dimensions (production, usage, and discard) on environment and health. Segment three; explains, how ICTs can be used as a valuable tool to lessen the effect of climate change plus global warming and assist businesses in reaching a sustainable green goal.

WHAT IS ICT WASTE?

According to (Hossam & Simon, 2008) Electronic waste (E-waste) is a popular, informal term for any electrical or electronic appliance that has reached its end-of-life. Yet, there is no standard definition of E-waste. The term E-waste is used for all electric and electronic waste ranging from large household appliances such as refrigerators and air conditioners, computers and stereo systems, to hand-held digital apparatuses and mobile phones.

The term e-waste is loosely applied to consumer and business electronic equipments that are near or at the end of their useful life. There is no clear definition of the term E-waste. For instance

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