

Chapter 8

ICT and Renewable Energy: A Way Forward to Secure New Generation

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ABSTRACT

In the last few decades, we have seen remarkable growth in the technology sector. But this growth has cost us in the form of global warming and climate change. Information and communication technology (ICT) is the quickest grown area in the technology sector and impacted a lot on every part of our lives and is somehow responsible for global warming and climate change in the form of energy emissions. The increasing level of emission of carbon dioxide (CO₂) and other gases from various sources has has great affect. ICT, RES, and strict governance can help to mitigate the problem and contribute to energy efficiency by becoming smart. It can contribute to developing smart homes, smart grids, smart logistics, and other smart devices. Using renewable energy sources (RES), small and medium scale systems, computers and related peripherals, and electric and solar vehicles may contribute to conserving the environment and mitigate climate change and global warming. If we can work honestly, we can secure our future generations by making technologies smarter by integrating RES.

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1. INTRODUCTION

The key driver of socioeconomic growth in most economies is technological development. As ICT advances, countries are able to develop economically as well as improve the quality of life for people. With the advent of ICT, communication methods around the world have changed, and now the world is a “global village” (Zeeshan et. al., 2022). There is growing concern over human activities harming the environment, especially climate change. The issue of climate change poses serious challenges to people around the world. As a result, citizens are more in danger, economic gains will be undermined, and social and economic development will be hampered. It also threatens to worsen access to basic services and the quality of life for citizens. As a result, countries must adapt to climate change to survive. Climate change adaptation can be greatly enhanced by information and communication technologies. Climate change adaptation strategies can be enriched and advanced with it. It is difficult to develop and implement climate change adaptation strategies in urban contexts because of the complexity of the environment. However, it also enables the ICT sector to play a greater role in adapting to climate change in countries (ITU, 2015).

For the technologies reliant on systems, electrical appliances use a large amount of energy. Nowadays, computing power is more than compared to the time when man was sent to the moon (Ahmed, F., et. al, 2016). Due to the technology-enabled lifestyle, we are consuming a lot of energy and the result is energy demand is expected to rise by 37% by 2035 on average of 1.4% a year (BP energy outlook 2035).

A constant increase in “carbon footprint” has also been caused by the revolution of ICT in a daily average life. In addition, to reduce energy consumption, raise environmental awareness, communicate effectively about environmental issues, and monitor and restore natural ecosystem functions, energy-efficient Informatics need to play an important role. Weather and geographical circumstances affect renewable energy sources and they are often uneven. ICT has taken the responsibility and initiatives have been taken. Globally, ICT plays a major role in combating climate change and protecting the environment in recent years. There is no doubt that climate change has an impact on ecosystems, water and food supplies, public health, agriculture, and infrastructure. In addition to increasing temperatures and sea levels, flooding and storms are becoming more frequent occurrences as well (Zacharoula, S. A., 2012). With the global climate change and instability of energy markets, ICT has begun to recognize the role it can play in designing energy-efficient and environmentally friendly technology and systems (Bronk, C. et. al, 2010).

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