Chapter 14
Green Growth and Energy Use in India

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ABSTRACT

The objective of the chapter is to analyze the trend and pattern of energy use, energy challenges of India, and the sustainability through green growth strategy. The study is based on secondary data collected from energy outlook, integrated energy policy, world development indicators, and RBI database. Energy security and sustainable development are critical issues to ensure India's economic growth and its human development. Transport sector energy demand witnesses a noticeable increase, growing by almost three times, from 125 Mtoe in 2012 to about 360 Mtoe in 2018. India has a vast supply of renewable energy resources, and it has one of the largest programs in the world for deploying renewable energy products and systems. The share of oil has in particular fallen from 36% to 33%, while that of natural gas has increased from 23% to 24%, and that of renewable energy (including nuclear and large hydro) has gone up from 12.5% to 14% in the period 2005-15. There is urgent need to have proper integrated energy policy in India with emphasis more on renewable sources of energy.

INTRODUCTION

Green growth involves rethinking growth strategies with regard to their impact(s) on environmental sustainability and the environmental resources available to poor and vulnerable groups. Green growth and development measures bring positive changes by lifting additional people above poverty, thereby impacting the key education and health indicators as well. These green growth interventions include increased share of renewable energy (RE), sustainable agriculture practices, better natural resource management, and structural changes within industry and infrastructure sector. The income generated from these measures and new investments get distributed, especially across the rural households, thereby reducing the inequality. India, with 17% of the world's population is a homeland of 1.20 billion people

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and it has a seemingly unquenchable thirst for energy. Energy is acknowledged as a key input towards raising the standard of living of citizens of any country, as is evident from the correlation between per capita electricity (a proxy for all energy forms) consumption and Human Development Index (HDI). Accordingly, energy policies of India have over the years directly aimed to raise per capita energy (and electricity) consumption, even while the main focus of the country's development agenda has been on eradication of poverty. With nearly 304 million Indians without access to electricity, and about 500 million people, still dependent on solid bio-mass for cooking, it may be acknowledged that the country has to still go a long way on securing its energy security objective. While India strives to achieve a double digit growth rate in its national income, making clean energy available to all of its citizens, ought to be included as a key component of the poverty alleviation programmes.

It ranks fifth in the world in terms of primary energy consumption, accounting for about 3.5 per cent of the world's commercial energy demand. The energy consumption of India has gone up manifolds since its independence in 1947. In order to meet its energy needs, the country has tried to harness energy from various natural resources including wood, coal, natural gas, hydro, wind, solar etc. Technological innovation and industrialization has led to the overexploitation of natural resources beyond limits to satisfy the insatiable lust of greed by humans worldwide. One harsh result of its meteoric growth is the widening gap between required energy and actual energy produced. With high economic growth rate and the aspiration of its people to better quality of life, India has a voracious appetite for energy. But the country lacks sufficient domestic energy resources, particularly of petroleum and natural gas, and must import much of its growing requirements. Currently, about 35% of India's commercial energy needs are imported. The future levels and patterns of energy use in India therefore have important implications, at the national level in terms of environmental impacts of energy use, issues of access and equity, and at the global level in terms of geopolitics of energy supply and GHG emissions related to the combustion of fossil fuels. According to World Bank estimates, around 35% of the country's population subsists below the poverty line and does not have access to basic amenities and clean energy forms. Indian economy is characterized by dualism arising from the divide between the rich and the poor in respect of income, energy use and their environmental consequences.(Reddy, 1997).Approximately 40% of house-holds in India do not have access to electricity by the end of 2011 (The India's power sector, World Bank group). The country continues to face electricity shortages, with an overall power shortage of 8.4% and a peaking power shortage of 12.3% in 2010. Despite gradual urbanization, around 72% of the country's population resided in rural areas in 2001. (Ghosh & Mitra, 2015). The rural urban divide in India is manifest not only by the differences in the levels of energy requirement but also in the availability and choice of fuel and technologies to meet the same useful energy needs and services. Energy demands of several households, especially those in the rural areas, continue to be met primarily by inefficient traditional energy forms like fuel wood, crop residue, and animal waste. The poor in India suffer from energy poverty due to lack of access to modern energy services like electricity or clean cooking fuel like LPG (Birol, 2007). In this context, the objective of this paper is to analyze the trend and pattern of energy use, energy challenges of India, the cause and effect relationship between energy and economic development, and the sustainability of its environment for its millions of poor populace. Energy security and sustainable development are critical issues to ensure India's economic growth and its human development objectives.