

## CHAPTER 3

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# Climate Change in South Asia: Green Bridging between Nepal and India

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### Introduction

South Asia comprises eight countries, namely India, Nepal, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives, and Afghanistan. It is home to more than one-fifth of the total population of the world. It is not only known to be the most disaster-prone region but also the most densely populated geographical region in the world where the majority of world's poor and vulnerable are to be found (Lal et al., 2011; UNEP, 2003). According to the International Food Policy Research Institute (IFPRI, 2012), South Asia continues to have the highest levels of hunger. Approximately one billion people are undernourished worldwide, with more than 456 million in South Asia (FAO, 2009). A significant portion of the economically active population in South Asia, especially in the rural areas, is still involved in agriculture. Agriculture contributes a significant share to the gross domestic product (GDP) of the countries in South Asia. Given this, sustainable agriculture, in terms of establishing food security and rural employment as environmental security, environmentally sustainable technologies such as soil conservation, sustainable natural resource management, and biodiversity protection are essential for the holistic and inclusive development of the region.

Although many immense rivers flow from the Northern Himalayas to the South, water scarcity is a serious problem in South Asia (Immerzeel et al., 2010; Mirza and Ahmed, 2005). Increasing population growth, the need for irrigation for intensive agriculture, and preconditions for

industrial growth are the three main driving forces putting pressure on already inadequate supplies of water. Yet climate change impacts the region badly: it results in an increase in the frequency of droughts, extreme precipitation, floods, and other water-induced disasters affecting agriculture and hydroenergy systems. Changes in weather patterns and increased frequency of extreme weather events such as heavy precipitation, longer droughts, and intense tropical cyclones have all been observed since about 1950 (IPCC, 2013). Thus, the “Impacts of such climate-related extremes include alteration of ecosystems, disruption of food production and water supply, damage to infrastructure and settlements, morbidity and mortality, and consequences for mental health and human well-being” (IPCC, 2014: 6). Changing patterns of rainfall and melting snow and ice are altering freshwater systems and affecting the quantity and quality of water available in many regions, including South Asia. The issue of water access and water purity is also creating territorial and border tensions between Nepal and the surrounding powers (China and India). This in turn impacts geopolitical intentions and dynamics. Climate change will, therefore, have “widespread impacts on South Asian society and South Asians’ interaction with the natural environment” (IPCC, 2014: 4).

“People” who are socially, economically, culturally, politically, and institutionally marginalized are especially vulnerable to climate change as they lack resources for taking appropriate steps through adaptation and mitigation. This environmental insecurity to climate-related hazards affects poor people’s lives and their livelihoods directly, through reductions in crop yields and destruction of homes, and indirectly, through, for example, increased food prices and food insecurity. This heightened vulnerability is rarely caused by a single factor. Rather, it is the product of intersecting economic and social factors that result in inequalities in socioeconomic status and income resulting into disproportionate exposure to climate impacts. The social processes include discrimination on the basis of gender, class, ethnicity, age, and (dis)ability (IPCC, 2014). In this respect, marginalized groups are the ones affected by the impact, externalities, and experience of environmental insecurity. The climate literature points out clearly that climate change risks are, therefore, unevenly distributed and are generally greater for the more disadvantaged people and communities in the developing low-income and middle-income countries (IPCC, 2013; IPCC, 2014; Pandey, 2012). Due to its disproportionate and variable impacts caused by spatial and