Preface

South Asia (SA) includes the region surrounded by Western Asia, Central Asia, Eastern Asia, Southeastern Asia and the Indian Ocean. It consists of Iran, Afghanistan, Pakistan, India, Nepal, Bangladesh and Sri Lanka. The region is also referred to as the Indian Sub-Continent or the Sub-Himalayan region, because of its unique and distinct geographical and physiographic setting. It was once a small continent which collided with mainland Asia about 50–55 million years ago, giving rise to the Himalayan mountains and the Tibetan Plateau. The SA region has diverse climate and terrains ranging from glaciers and tropical rainforest, the highest rainfall in the world to desert, and flat alluvial plains to hills and undulating terrains. The region has a population of 1.62 billion (24% of the world's population) living in 642 million hectares or 5% of the world's geographical area. The region is developing rapidly, both industrially and economically. Yet, there is a widespread problem of poverty, hunger and malnutrition. As much as 75% of the poor and malnourished people live in rural areas and are dependant on subsistence and small scale agriculture. Yet, globalization has accelerated economic growth. By 2007, the regions GDP growth had reached 9%/year which extended to all countries of SA. The growth rate in 2009 was 5.6%, which was the smallest decline compared with all other regions of the world.

Climate change is a major concern in SA because of alterations in temperature and precipitation, rise of sea level, melting of the Himalayan glaciers, and degradation of natural resources and the environment. According to the Fourth Assessment Report of the IPCC (2007), future projections of climate indicate that SA is very likely to warm during the twenty-first century. Also, the fresh water availability is projected to decrease and coastal areas will be at greatest risk due to increased flooding at the sea and rivers. In some SA countries, a substantial decrease in crop yields from rainfed agriculture could occur. Additionally, dramatic changes in land use patterns in SA compound the problem of climate change. To cope with climate change more effectively in SA, it is necessary to identify integrated adaptation and mitigation options for a range of agroecosystems so as to enable a favorable policy environment for the implementation of Regional Climate Change Adaptation Network. Majority of the poor people in SA are at risk because of the increase in frequency of extreme events, and especially the drought, floods and variability in climate. Glacier melting is a cause of concern because of its impact on the

availability of water, and thus agronomic productivity. Climate change may also impact the on-set, distribution and amount of monsoons, as was the case in 2009 when monsoons failed in India. It is also feared that crop yields and agronomic production will be adversely affected, thereby exacerbating the food insecurity. The U.N. Millennium Development Goals, especially of cutting hunger and poverty by half, may not be met by 2015.

Soil degradation is a serious problem in SA. A total of 83 Mha is affected by water erosion and 59 Mha by wind erosion. In addition, loss of nutrients and organic matter content is a widespread problem throughout the regions, and affect about 26 Mha of cropland area. Nutrient depletion is exacerbated by erosion. The loss of cereal production in India is estimated at four million tonnes (Mt) on moderately degraded land, and 11 Mt on strongly regarded land, which together amount to 8% of India's total cereal production. This loss is equivalent to $2.3 billion/year. Salinization is another problem, especially in the irrigated areas of the Indo-Gangetic Plains.

Therefore, an international symposium entitled "Climate Change and Food Security in South Asia" was organized. The symposium was held from 25 to 30 August 2008 at the University of Dhaka, Bangladesh, and was jointly sponsored by the Ohio State University, World Meteorological Organization, University of Dhaka, Economic and Social Commission for Asia and Pacific, and Food and Agriculture Organization of the U.N. The objectives of the symposium were:

- To provide a central forum to develop an improved understanding and assessment of the climate change impacts on agriculture and the associated vulnerability in South Asia
- To identify and discuss integrated mitigation and adaptation win-win options for the agricultural sector in different agroecosystems of South Asia
- To discuss and propose a regional Agricultural Mitigation and Adaptation Framework for Climate Change in South Asia
- To discuss and recommend policy and financial innovations to enable smooth implementation of the regional framework and it's integration into the sustainable development planning of SA countries
- To discuss appropriate options for strengthening information exchange on climate change impacts and cooperation on agriculture mitigation and adaptation actions among SA countries

The Symposium was attended by more than 250 participants from 17 countries. The symposium was opened by His Excellency, Dr. Iajuddin Ahmend, President of Bangladesh, and closed by His Excellency Dr. Ólafur Ragnar Grímsson, President of Iceland. All presentations were organized into nine technical sessions. Papers submitted for publications were reviewed and revised for publication in this volume.

The editors thank all of the authors for their outstanding contributions to this volume. Their efforts will allow others to gain from their work, and will, we hope, lead to development of new policies to help mitigate the greenhouse effect while providing many other benefits to agriculture and society. These efforts have led to a merging of science and policy.

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