Abstract

Accurate accounting of carbon stocks and stock changes in forest ecosystem is necessary for the improved greenhouse gas inventory which was made mandatory by the United Nations Framework Convention on Climate Change and its Kyoto Protocol. The Kyoto Protocol provides for the involvement of developing countries in an atmospheric greenhouse gas reduction regime under its Clean Development Mechanism (CDM). Bangladesh, a densely populated subtropical country in South Asia, has huge degraded forestlands which can be reforested by the CDM projects. To visualize the potential of the forestry sector in developing countries for emission mitigation, carbon sequestration potential of different species in different types of plantations should be integrated with the carbon trading system under the CDM of the Kyoto Protocol. Fossil fuel substitution by biomass fuel and its efficiency can also be important options for the Clean Development Mechanism (CDM) projects in Bangladesh.

The book finds that afforestation and reforestation (A/R) can be one of the greatest choices in mitigating global warming by increasing the carbon sink in Bangladesh under the CDM. Avoiding deforestation also can be a great option by decreasing the carbon sources in Bangladesh, but this is not recognized by the CDM yet. The study shows that the greatest reforestation success of the Republic of Korea can be a better lesson for Bangladesh to increase the carbon sink in the forests. It confirms that bioenergy projects are attractive and CDM provides complementary options for international cooperation toward sustainable development in Bangladesh. The study shows that burning of biomass in the traditional cooking stove in Bangladesh has a severe implication on the deforestation and greenhouse gas emission to the atmosphere. It also confirms that innovation of the improved cooking stove can be critical to the involvement of the CDM. The results show that tree tissue in the forests of Bangladesh stores 92 tC ha^{-1}, on average. The results also reveal a gross stock of 190 tC ha^{-1} in the plantations of 13 tree species, ranging in age from 6 to 23 years. The study confirms the huge atmospheric CO_2 offset by the forests if the degraded forestlands are reforested by the CDM projects, indicating the potential of Bangladesh to participate in carbon trading for both its economic and environment benefits.

The book suggests the capacity building and policy changes in Bangladesh to comply with the CDM modalities. It also suggests Bangladesh to learn the

reforestation success from the Republic of Korea. Research and development (R&D) of efficient biomass burning has been recommended for Bangladesh.

The outcome of this book will be of great importance to both national and international policy makers in the field of global warming mitigation. The energy policy makers, administrators, and the international CDM investors will find this study critical to the national sustainable development in developing countries like Bangladesh.

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