Chapter 14
A Case of Climate Financing in Agriculture in the Global South:
Imperative to Develop Innovative Financing Instruments

Anup Samal
Climate Policy Initiatives, India

Labanya Prakash Jena
Xavier School of Management, India

ABSTRACT

Climate change is a threat to the agricultural sector; rising temperatures, altered precipitation patterns, and increased frequency of extreme events lead to reduced crop yields, and food security. Further, the agriculture sector contributes to greenhouse gas emissions that lead to climate change. The sector requires substantial investments in climate-smart practices and technologies to address these challenges. However, it has traditionally been underserved by the financial system, so farmers and other stakeholders don't have access to the financing to follow climate-smart agriculture practices. This chapter identifies financing challenges in following CSA practices and explores critical role innovative financial mechanisms can play in alleviating these challenges. This includes development of tailored financial products, use of risk-sharing instruments, and promotion of public-private partnerships. It highlights importance of capacity building of FIs and farmers to design and implement climate-smart interventions and develop robust metrics to measure impacts of these investments.

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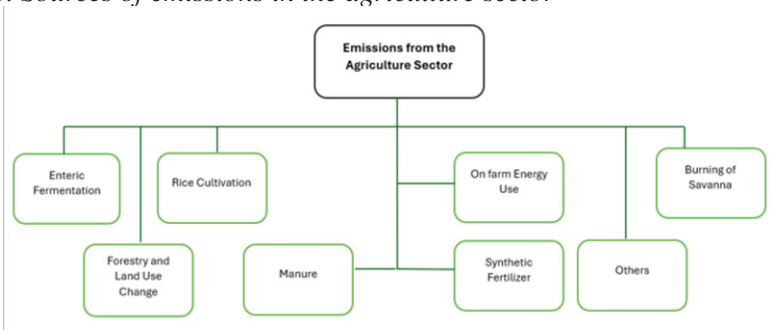
1. INTRODUCTION

The agricultural sector constitutes a significant source of greenhouse gas (GHG) emissions, contributing approximately 15 billion tons annually, equivalent to roughly 20% of global GHG emissions[1]. Forecasts suggest a potential increase in emissions by 15 to 20 percent by 2050, attributed to population growth and rising food consumption per capita if mitigation measures are not implemented[2]. The sector's emissions are primarily attributed to the production, processing, and transportation of agricultural products and inputs such as fertilizers and pesticides[3]. The farm sector in India has experienced significant growth in recent decades, driven by the need to meet the food demands of a rapidly growing population. India, being home to over 1.4 billion people, and the country's agricultural production has had to keep pace with this expanding population[4].

Figure 1. Sources of emissions in the agriculture sector



Conversely, climate change poses significant risks to the agricultural sector, reducing food availability, compromising access to food, and diminishing food quality. Rising temperatures, altered precipitation patterns, increased frequency of extreme weather events, and declining water availability threaten agricultural productivity. Projections indicate a substantial rise in the probability of significant yield decreases for major crops in countries like India, with potential implications for food security[5]. The International Food Policy Research Institute (IFPRI) has highlighted the possibility of increased hunger among millions due to reduced agricultural production and disruptions in food supply chains by 2030[6].

This is particularly concerning for staple crops such as rice, wheat, and maize, which are critical for food security in many regions (NMSA 23). The National Mission for Sustainable Agriculture (NMSA) in India has projected a significant decline in rice yields by 2050 and 2080, with irrigated rice yields expected to reduce by 3.5% and 5%, respectively, and rainfed rice yields expected to decline by 20% and

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