Chapter 4

Prioritizing Sectors for Sustainable Growth in India: An Environmental Social Accounting Matrix based Analysis

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ABSTRACT

This chapter has adopted method of Environmental Social Accounting Matrix (ESAM) and its multiplier analysis to identify sustainable growth path for India. Given the surge of GHG emissions, all developed countries and large emerging economies like India are coming under pressure in global forum to adopt a growth path that is sustainable from the environmental point of view. In this chapter, we propose to analyse the inter-linkage between sectoral GDP growth and its implications on growth in employment, income, GHG emissions and in energy use. The results indicate that the cereal productions other than rice and wheat should be given higher priority to reduce GHG emissions. Furthermore, the findings suggest that the existing pattern of government expenditure is sub-optimal as its reallocation based on their sustainable growth index increases GDP by 1%, reduces GHG emission by 1.57% and increase employment by 2.57%.

1. INTRODUCTION

India needs to grow fast in terms of Gross Domestic Product (GDP) in the coming decades to fulfil the basic development needs of her citizens. However, this would raise her greenhouse gas (GHG) emissions; a fact repeatedly pointed out to India by the global community in the context of climate change mitigation efforts. Thus, India’s challenge is to decouple GHG emissions with its economic growth so that its GHG emissions do not increase significantly with the growth in GDP. To address this issue, In-

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India has laid emphasis on energy efficiency improvement and renewable energy use in its 12th five year plan period during 2012 to 2017 (Planning Commission, 2011). Though these initiatives are important to reduce GHG emissions, lack of availability of advanced technologies in the domestic economy is key constraint for their successful implementation. Therefore, decoupling GHG emissions with economic growth becomes a major policy issues in India.

There is no easy solution to address this issue. One way could be to focus on the growth of those sectors which are comparatively less GHG intensive than others. This again poses a counter question, whether the growth of low emission intensive sectors leads to solve the issue of targeted GDP growth, employment creations, and growth in income of the households? To address this question prioritization of sectors is necessary by considering their impacts on GDP, income of the households, employment, energy use and GHG emissions. As government expenditure acts as a stimulus for a sector to grow, allocation of government budget according to the priority of the sectors could be a policy effort to decouple GHG emissions with the overall economic growth. Although the issue of prioritization has also been acknowledged by the Government of India (GOI) in its approach towards 12th five year plan to allocate government budgetary support to various sectors, no criteria for prioritization has been outlined in the plan document (Planning Commission, 2011).

Till date the issue of prioritization has been resolved by the experts with the help of cost-benefit analysis (Ortega et.al, 2014; Kendrovski et.al, 2014; Alston et.al, 1995); and most of these studies have taken into account single sector with the objective of prioritizing government interventions to achieve desired growth of the sector of concern. On the other hand, a few experts have also applied Input Output (IO) data and technique to identify key sector of the economy to emphasis the policy focus (Botric, 2013). However, key sector analysis using IO technique only takes into account monetary flow across various sector and their backward and forward linkages and leaves the environmental consequences aside. Therefore extending linkages across the sector by incorporating GHG emissions and employment in the IO framework could be a logical step to identify key sector(s) to decouple GHG emission with the economic growth in India. The linkages between economic sector and their environmental consequences has already been analysed by the experts using environmentally extended social accounting matrix (ESAM), which is an extension of IO matrix of the country of concern. The application of ESAM is popular in many countries such as Netherlands, Bolivia, Chile, China and UK. Recently, similar attempt has been made in case of India by Pal and Pohit (2014). However, India is still young in application of ESAM in its environmental policy analysis. Therefore, an attempt has been made in this chapter to set criteria to prioritize sectors of Indian economy using environmentally extended social accounting matrix (ESAM) multiplier based analysis. Using ESAM multiplier we have estimated sector specific Low Carbon Development Score (LCDS) which comprises of sector specific impact on GDP growth, growth in households income, greenhouse gas (GHG) emissions, and primary energy use. The higher the value of this score, higher is their priority for government budget reallocation. Further we have analysed the impact of government budget reallocation according to the newly set criteria on GDP growth, employment growth and GHG emissions. In this way, this study provides a guideline for government budget reallocation as an alternative mechanism to low carbon economic development especially when technology adoption is not easy process.

Following this introductory section, the rest of the paper is organised as follows. The section 2 describes briefly framework of ESAM for India along with the derivation of ESAM multiplier analysis. Section 3 describes application of ESAM multiplier to estimate development score for India to identify...