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## A bottom-up approach to sustainable transformation: accounting for regional preferences in global environmental goals

VARTIKA SINGH<sup>1,3</sup>, MIODRAG STEVANOVIC<sup>2</sup>, CHANDAN KUMAR JHA<sup>3</sup>, ABHIJEET MISHRA<sup>4</sup>,  
RANJAN KUMAR GHOSH<sup>3</sup>, HERMANN LOTZE-CAMPEN<sup>1</sup>, ALEXANDER POPP<sup>2</sup>

<sup>1</sup>*Humboldt-Universität zu Berlin, Germany*

<sup>2</sup>*Potsdam Institute for Climate Impact Research, Germany*

<sup>3</sup>*Indian Institute of Management, Ahmedabad, India*

<sup>4</sup>*International Food Policy Research Institute, Washinton D.C., United States*

### Abstract

Food systems transformation policies are presently at odds between ensuring nutritional security and environmental protection. Whereas nutritional security depends on the consumption of diverse and healthy foods, there may be local and global impacts of food production, aside from local barriers to affordability and adoption. Being the largest populated country and one of the largest food producers, globally, this issue becomes more pertinent for India. While India may be food secure, there is still a long way to go for the nation to become nutrition secure and make progress towards the other sustainable development goals (SDGs). In this paper, we present comparisons between two types of healthy dietary recommendations made by global and national institutions as compared to the status quo and examine their implications on environmental indicators in India as well as the world using a global partial equilibrium model. Our analysis of food demand changes between the present diets, globally recommended values from the EAT Lancet Commission as well as recommendations of India’s National Institute of Nutrition show that regional recommendations that account for regional dietary preferences and cultures have greater environmental outcomes for key indicators. While there is an overall reduction of total calories consumed in the alternative diet scenarios, there is greater diversity on the plate. These results persist when we perform a sensitivity analysis with varying trade scenarios. In scenarios with liberalized trade, a transition to locally recommended diets yields positive outcomes for environmental indicators but have tradeoffs with other national policies such as India’s export promotion policy. Our results point towards the need for accounting for regional food demand patterns in a global context, when assessing environmental impacts to determine transformation pathways for food systems for countries.

**Keywords:** Diets, food systems, India, pathways, sustainable