

# Interventions with benefits for climate change and nutrition in South Asia: a regional analysis from a global Evidence and Gap Map



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## BACKGROUND

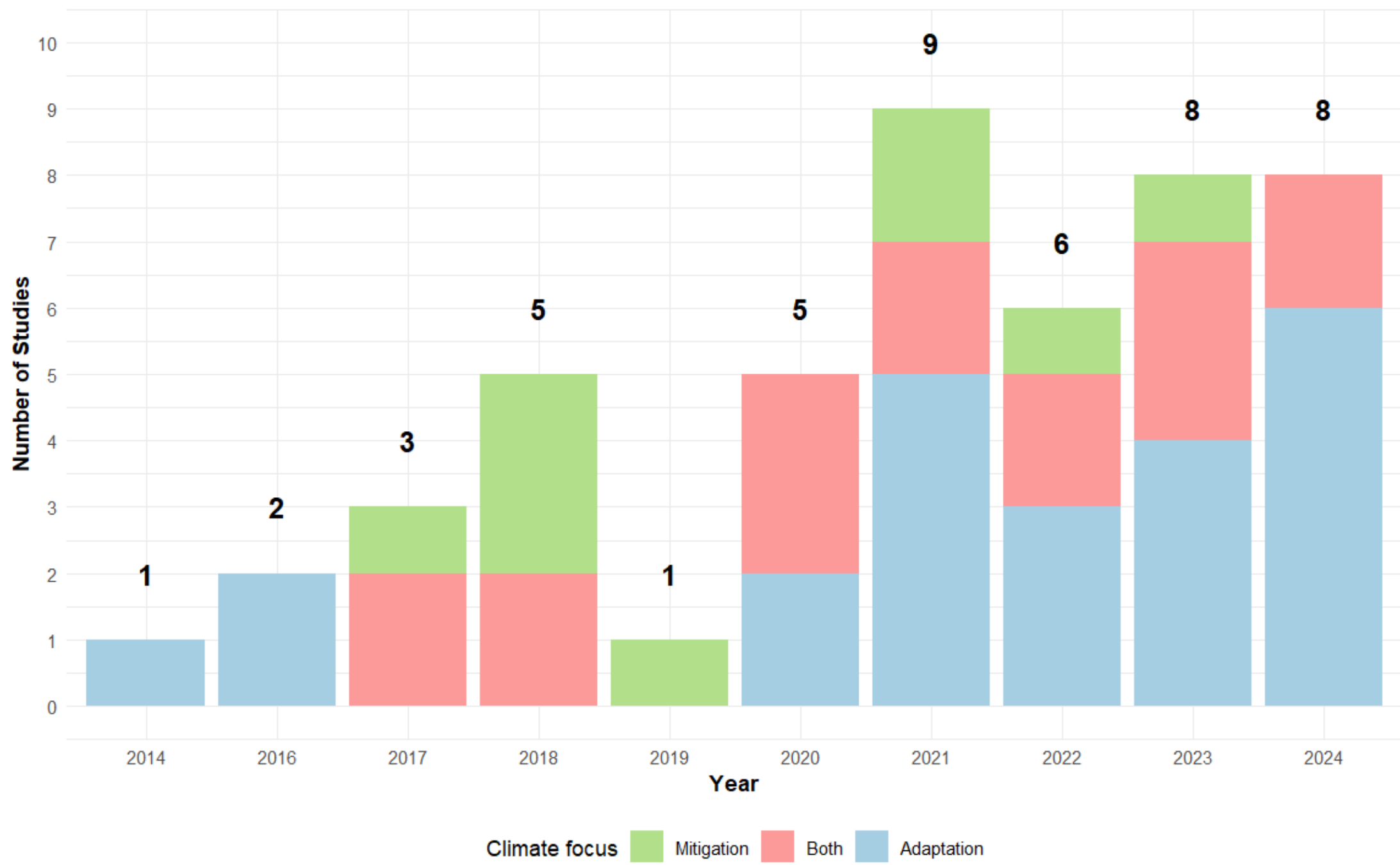
- Food insecurity, malnutrition, and climate change are deeply connected existential threats, and prioritizing among intervention options to address them remains a challenge.
- Interventions with benefits for addressing both climate change and the nutrition crisis vary with context, geography, and institutional factors.
- South Asia is one of the world’s most climate-vulnerable regions, facing severe nutritional challenges. These mutually reinforcing crises threaten the region’s future.
- The **objective** of this research is to summarize the evidence on interventions from multiple sectors that have demonstrated benefits for climate change (through climate mitigation or adaptation) and nutrition (including food security diets, all forms of malnutrition, and diet-related non-communicable diseases) for South Asia (SA).

## METHODS

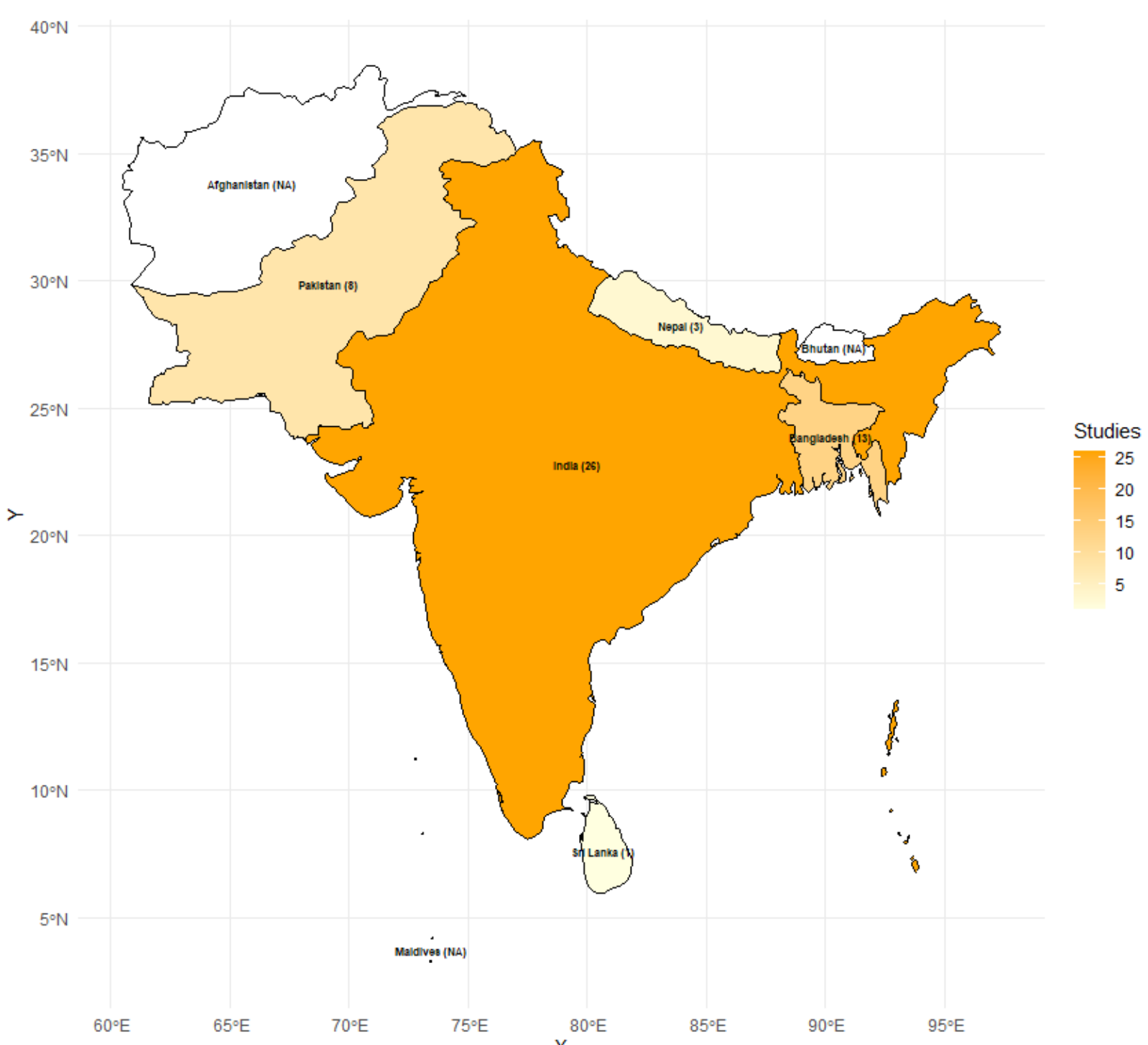
- We conducted a regional analysis of data from a systematic literature review (PROSPERO ID: CRD42024588770) of interventions and their effects on climate change (mitigation or adaptation) and nutrition (food security, diets, malnutrition, and non-communicable diseases).
- The global evidence and gap map (EGM) used a systematic search and screening of 14,741 records published since 2000. The global EGM includes 607 studies and provides online access to the full list of references for all studies included in this review.
- We identified 37 studies from the EGM conducted in SA, and 11 multi-country studies that included at least one SA country, for a total of 48 SA studies. We performed descriptive analyses on the types of interventions studied, Food Security and Nutrition (FSN) outcomes, gender considerations, and climate focus.

## RESULTS

**Figure 1: Number of studies on interventions with dual benefits by Climate focus over time.** The figure presents the number of published papers per year, disaggregated by Climate focus. The figure includes 37 single-country and 11 multi-country studies.



**Figure 2: Geographical distribution of studies.** The figure presents the frequency of published papers by countries of publication based on the EGM for South Asia. The figure includes 37 single-country and 11 multi-country studies. Multi-country studies including more than one South Asian country were counted more than once.



Access the global EGM :



### Acknowledgement:

This study received generous funding from the Global Affairs Canada (GAC) under the International Development Assistant Program for the Standing Together for Nutrition Phase II (Project No.: P012681-001).

## RESULTS (cont.)

- Trend:** We find an increasing number of studies on interventions with dual benefits for climate change and FSN in South Asia published between 2014 and 2024 (Figure 1).
- Setting:** Studies are concentrated in India (51%), Bangladesh (25%) and Pakistan (16%) (Figure 2). There are 3 studies from Nepal, and 1 from Sri Lanka.
- Interventions:**
  - 55% of studies (27) focus on Food Production Systems (FPS) interventions. Within these, 74% of studies focus on Climate-Smart Agricultural Practices (14) or Inputs & Infrastructure (6). These include farm-level adaptation strategies (integration of crop and livestock farming, adopting agroforestry) responding to the need for rain-fed agriculture in SA to adapt to climate threats.
  - 22% of studies focus on Sustainable Diets (SuD), with 55% of these studies comprising Food Based Dietary Guidelines (FBDG) and Optimized diets.
  - 16% of studies are on Social Protection & Livelihoods (SPL) (16%).
  - 26% studies have multisectoral interventions, frequently combining FPS with SPL.
- Outcome:** The most studied outcome is Food security (FS) reported by 27 studies (56%), using indicators such as HDDS (5 studies), HFIAS (5 studies), FCS (4 studies). 3 studies assess effects on Diet-related Non-Communicable Diseases (NCD).
- Study Design:** 77% studies employ quantitative methods. Within these, 13 studies use quasi-experimental or experimental study (EQES) designs (35% of quantitative studies). There were 10 mixed-methods studies, including 3 systematic reviews.
  - EQES studies on FPS, SPL, and NS show positive (12/13) effects for FSN outcomes, though we note the low quality of the evidence.
- Gender:** Only 4% of studies analyzed the impact on gender equity by examining the role of women in the implementation of FPS and SP interventions (e.g., watershed development), and measuring the impact for women’s empowerment (mobility, decision-making, financial inclusion). 18% of the total studies provided meaningful discussion, while 4% offered minimal discussion on the potential benefits for gender equity. Gender was not discussed in 40% of the studies.
- Climate focus:** 23 studies focused on climate adaptation, 8 addressed mitigation, while the remaining 17 addressed both. Among the 25 studies on climate mitigation and those addressing both adaptation and mitigation, more than half (13) have their mitigation potential assessed. 8 out of 9 mitigation studies focused on the role of sustainable diets (largely on dietary shifts with minimum deviation from current SA diets) to mitigate emissions, while the remaining study examined emissions savings from food loss and waste reduction.

## CONCLUSION

- Most studies evaluate households’ own adaptation strategies and coping mechanisms to the climate threats, rather than structured efforts led by government or development agencies. Thus, program and policy makers should focus on integrating effective and inclusive interventions to support these adaptation strategies.
- A growing number of studies assess the role of sustainable diets in reducing emissions while meeting nutrient adequacy and reducing diet related disease risk, and on the role of social protection systems and livelihood strategies in supporting adaptation.
- Our findings reveal substantial gaps in evidence across intervention (notably post-harvest food systems, energy, water, sanitation and hygiene (WASH), nutrition and health services), outcomes other than food security, geographic coverage (few studies on countries other than India and Bangladesh), and studies that consider impacts on gender.
- Further research should synthesize effect estimates to identify the most effective interventions for the South Asia region.