



Transforming Agri-Food Systems in South Asia (TAFSSA)

Initiative Lead and Co-Lead

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Primary CGIAR Action Area

Resilient Agri-food Systems

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\$40 - \$60 M

Challenge

Home to a quarter of humanity—a fifth of whom are youth—South Asia carries the highest density of poverty and malnutrition globally. Despite producing over a quarter of the world's consumed food, the region's agri-food systems suffer from social, economic, and geographic inequalities, and face formidable environmental issues. These challenges can only be overcome by transforming food, land, and water systems to support healthy diets. Such changes require evidence-based and coordinated actions across the production to consumption continuum. Agri-food systems currently fail to produce an adequate and affordable supply of the diverse foods needed for sustainable healthy diets accessible to people of all means in all areas. Unhealthy food consumption is rising. Many nutritious foods are too costly for the poor. Farming systems are threatened by unsustainable groundwater withdrawal (the region extracts a quarter of global groundwater) due to food and energy policy distortions. Declining soil health, poor nutrient and energy resource use efficiency, and nonpoint source, agriculture-based air pollution harm human health. South Asia's farmers are both contributors to, and victims of, climate change and extreme weather (erratic precipitation, droughts, storms, and floods) and rarely earn enough to fully support their families, driving youth out-migration and agricultural feminization. Socially embedded and economic inequalities create enormous barriers across the production to consumption continuum, disproportionately affecting the poor. Actionable evidence and coordinated efforts are urgently needed to overcome these challenges and achieve productive, environmentally sound agri-food systems supporting equitable access to sustainable healthy diets in South Asia. (References: <https://docs.google.com/document/d/1bZKhAgpy-7wogRchn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing>).

Objective

South Asia's agriculture, food, and health and nutrition challenges are inextricably linked to socio-economic conditions, and land, water, and energy resources. The transformative changes required to overcome these challenges urgently need participatory agenda-setting to generate pro-active and responsive research yielding relevant and actionable evidence and innovations. TAFSSA will propel evidence into impact through systematic and coordinated engagement with public and private partners across the production to consumption continuum. Operating in the region's most marginal and poverty-dense cereal-based farming systems, TAFSSA will test, adapt, target, and position agronomic technologies and practices supporting crop and livestock diversification among next-users, while developing strategies to render agricultural value chains more inclusive by 2024. Insights from behavioral sciences and market research will galvanize actions tackling climate risks among farmers. Participatory value chain studies addressing market inefficiencies and infrastructural challenges will inform financial services; established and versatile business models supporting rural entrepreneurship for young men and women will be expanded to contribute to food environments that support sustainable healthy diets. Complementary research will identify strategies to reduce agriculture-related air pollution and regenerate land and water resources. Pathways to sustainable healthy diets, i.e., greater awareness, improved affordability, and lower gender and time constraints to food acquisition and preparation, will be identified and positioned with partners focusing on improving sustainable healthy diets & reducing unhealthy consumption at scale. TAFSSA's partner-supported research and engagement across the agri-food value chain will deliver a coordinated program improving sustainable healthy diets, boosting smallholder livelihoods and resilience, and protecting land, air, and groundwater resources.

Theory of Change

Solutions to complex obstacles at the nexus of agriculture, food, and nutrition in South Asia are inextricably linked to land, water, energy, and socio-cultural and economic challenges, all exacerbated by climate change. Overcoming these challenges requires an ambitious research program to close crucial knowledge gaps and provide strategies for next users such as well-positioned policy makers, extension organizations, large-scale development and livelihoods initiatives, environmental organizations, and the private sector. Scientists in TAFSSA have collectively nurtured this diversity of partnerships for decades, positioning this initiative to rapidly amplify the development impacts accrued from research outputs and resultant technical, institutional, and policy innovations.

TAFSSA's pathway to impact begins with generating robust evidence that responds to questions of deep regional development relevance. Five interlinked work packages span the continuum from production to markets to consumption, thus providing building blocks towards impact. Close involvement of next users in identifying, producing, and interpreting research findings assures relevance. Actively placing research within development practice considerably shortens the research innovation-to-implementation gap. Working closely with South Asia's major change agents in agriculture, environment, public health, social equity and food systems to integrate solutions across farms, value chains, and food environments, TAFSSA charts new pathways to move South Asia's agri-food systems towards more diverse, productive, profitable, inclusive, and environmentally sound futures supporting sustainable healthy diets. Our ultimate goal is resilient production systems capable of reducing greenhouse gases, groundwater depletion, and air pollution, while also linking farmers to profitable markets that increase consumers' access to affordable and sustainable healthy diets.



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Highlights

TAFSSA leverages a 10+ year history of significant bilateral investments in celebrated cross-CGIAR center projects that have nurtured exceptionally strong relationships with scaling partners, enabling significant development impacts (see: <https://bit.ly/3e2w7Lw>). This unique partnership advantage positions TAFSSA's research innovations to be rapidly integrated into real-world use from production to consumption.

Harnessing synergies with multiple thematic initiatives spanning science groups, TAFSSA will amplify CGIAR's impact in the world's most poverty-dense and malnourished region, one with deep inequities and major resource degradation challenges. High-caliber scientists with strong relationships with governments, development and private sector partners, will facilitate increased cross-initiative impact.

TAFSSA embraces interdisciplinarity to shed light on producer, retailer, and consumer choices. Insights from behavioral sciences will inform actions nurturing resource-conserving, resilient, and profitable farms and value chains; experimental methods will help to understand retailer and consumer choices. Together, these will deliver insights stimulating and supporting equitable agri-food systems change.

Food environments-where consumers access food-are diverse and range from fair price shops to local wet markets to supermarkets. TAFSSA will deliver insights on how diverse populations across multiple geographies access food, providing evidence to shape local food environments in support of equitable sustainable healthy diets.

Fostering sustainable healthy diets for all requires a strong understanding of how social, economic and structural consumer-level inequalities shape food acquisition, preparation, and consumption. Using interdisciplinary and behavioral methods, TAFSSA will generate evidence across South Asia' diverse geographies and social groups to inform solutions in different sectors.

Work Packages

	Scope of Work	3-year Outcomes
FACILITATING AGRI-FOOD SYSTEMS TRANSFORMATION THROUGH INCLUSIVE LEARNING PLATFORMS, PUBLIC DATA SYSTEMS, AND PARTNERSHIPS	Leveraging well-established partnerships, TAFSSA will engage academia, government, development partners, environmental organizations, and the private sector to diagnose and respond to crucial agri-food systems challenges. Activities will generate in use-focused public datasets on production, markets, food safety and food environments and consumption, emphasizing gender, social equity, and spatially disaggregated analytics.	At least three major scaling partners in each TAFSSA country will collaborate with demand and innovation partners to design novel and recurrent data collection, vet evidence, and apply research results to inform catalytic activities towards productive, environmentally sound, and equitable agri-food systems that support jobs and healthier diets.
TRANSFORMING AGROECOSYSTEMS TO INCREASE INCOMES AND IMPROVE AVAILABILITY OF DIVERSE AND HEALTHY FOODS	Generating actionable evidence on varietal performance, farming technologies, and decision support systems, TAFSSA charts gender-equitable and inclusive strategies to sustainably increase farmers' productivity and incomes through rural entrepreneurship and improved crop and livestock management in the Indo-Gangetic Plains, Himalayan foothills, India's central highlands, and in select coastal areas.	By clearly communicating the value-addition of evidence generated through field- and landscape-level farming systems research, TAFSSA will help align policy and extension systems with private sector and farmers' interests, increasing uptake of farm-management practices and supporting services that create jobs and facilitate profitable production of diverse and healthy farm products.
ALIGNING EVIDENCE WITH ACTIONS ACROSS VALUE CHAINS TO INCREASE ACCESS TO SUSTAINABLY PRODUCED AND DIVERSE FOODS	More sustainable agri-food value chains must support farmers' incomes - particularly for women and marginalized groups - and enable consumers' equitable access to healthy foods. This work package, focused on markets and policy research, aims to inform production aggregation models, strengthen risk-reducing market mechanisms, re-orient safety nets and reshape diverse food environments.	Employing cross-country studies, policy process evaluations and bundled value chain and business models generated and tested with the public and private sectors will enable increases in farmers' bargaining power, create jobs, address infrastructure gaps across value chains, and strengthen food environments to include healthy and affordable foods for poor consumers.
TACKLING MULTIPLE BEHAVIORAL DETERMINANTS OF SUSTAINABLE HEALTHY DIETS	We will study dietary choices, synthesize regional evidence, and test behavioral-change innovations to support consumption of sustainable healthy diets. With an equity focus, we will assess ways to increase affordability through safety nets and women-focused agricultural programs to identify ways of confronting gendered and structural constraints across the acquisition-preparation-consumption spectrum.	At least two major nutrition behavior change programs per country will focus on the major drivers of food choices-including access, preferences, and gendered cultural constraints related to food, fuel, and water-to provide evidence-based consumer guidance to reduce consumption of unhealthy foods and increase access to sustainable healthy diets.
BUILDING RESILIENCE AND MINIMIZING ENVIRONMENTAL IMPACT	This work package examines how improvements in policy, technology, farm management, and value chains can improve nutrient, water, and energy resource-use efficiency to limit air pollution, groundwater stress, and greenhouse gases. It will also assess how focused climate services communicated through easy-to-understand and gender-appropriate methods can reduce risks for smallholders.	Relevant research generating robust evidence positioned among TAFSSA's partners will influence environmental policies, NGO strategies, and the actions of agricultural extension agencies in ways that will build farmers' resilience while offering viable options for mitigating air pollution, reducing over-exploitation of land and groundwater resources, and cutting greenhouse gas emissions.

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Impact Area Contributions

Nutrition, health & food security	Work packages 1, 2, 3, and 4 inform strategies used by nutrition programs, agricultural extension, development partners, and governments to increase production and affordable and equitable access to healthy foods. Prominent behavior change programs will strengthen activities on sustainable healthy diets. Bundled technology and policy innovations will curtail agricultural pollution.
Poverty reduction, livelihoods & jobs	Applying research insights to private sector partnerships in Work packages 2 and 3 will reduce poverty and support jobs by boosting male and female farmers' access to cost- and time-saving machinery services offered by youth entrepreneurs. This frees time, opening opportunities for additional remunerative off-farm employment to support rural families.
Gender equality, youth & social inclusion	Research across all work packages will make gender and inclusion issues sharply visible. Analyses will inform large-scale development programs and private sector partners to improve women's agency, decision making, and access to agricultural inputs and machinery. Insights on gendered differences in food acquisition, preparation, and consumption will guide cross-sectoral actions.
Climate adaptation & greenhouse gas reduction	Climate variability and extremes threaten farm production and cause price spikes, lowering food availability. Work package 5 generates evidence improving climate and farm management advisories scaled by extension agencies. Farm- and policy-level research on efficient use of low-carbon irrigation pathways and energy will inform efforts to mitigate greenhouse gases.
Environmental health & biodiversity	Leveraging ambitious partnerships across government, the fertilizer and energy industries, and the environmental conservation and public health sectors, Work package 5 will identify and facilitate opportunities to mitigate soil degradation, limit unsustainable groundwater use, and mitigate agriculture-based pollution through technologies, practices, and supportive policies.

Impact on SDGs



Regions

South Asia (SA)

Countries



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Innovations

TRANSFORMATIVE FARMING SYSTEMS MANAGEMENT AND ENTREPRENEURSHIP MODELS INCREASING DIVERSITY AND PROFITABILITY. Rural out-migration, agricultural feminization, and farm drudgery are widespread in South Asia. Innovations bundling public-private partnerships and youth-based entrepreneurship will accelerate access to cost-reducing farm mechanization and crop and livestock services and boost farmer's incomes through diversified production.

PATHWAYS TO OVERCOME ACCESS AND AFFORDABILITY CONSTRAINTS TO SUSTAINABLE HEALTHY DIETS. Agri-food systems transformation becomes possible when production and market access align with affordability and preferences. Shorter value chains and high-value produce aggregation methods increasing farmers' capacity to respond profitably to consumer preferences will be tested with the private sector.

TOOLS FOR UNDERSTANDING MAJOR DRIVERS OF DIETARY CHOICES. Combining insights from agriculture, nutrition, anthropology, economics, and sociology with data-collection innovations in ethnography and survey methods, we will partner with large-scale nutrition projects to test and generate a repository of tools deepening insights on dietary determinants and informing adaptive project management.

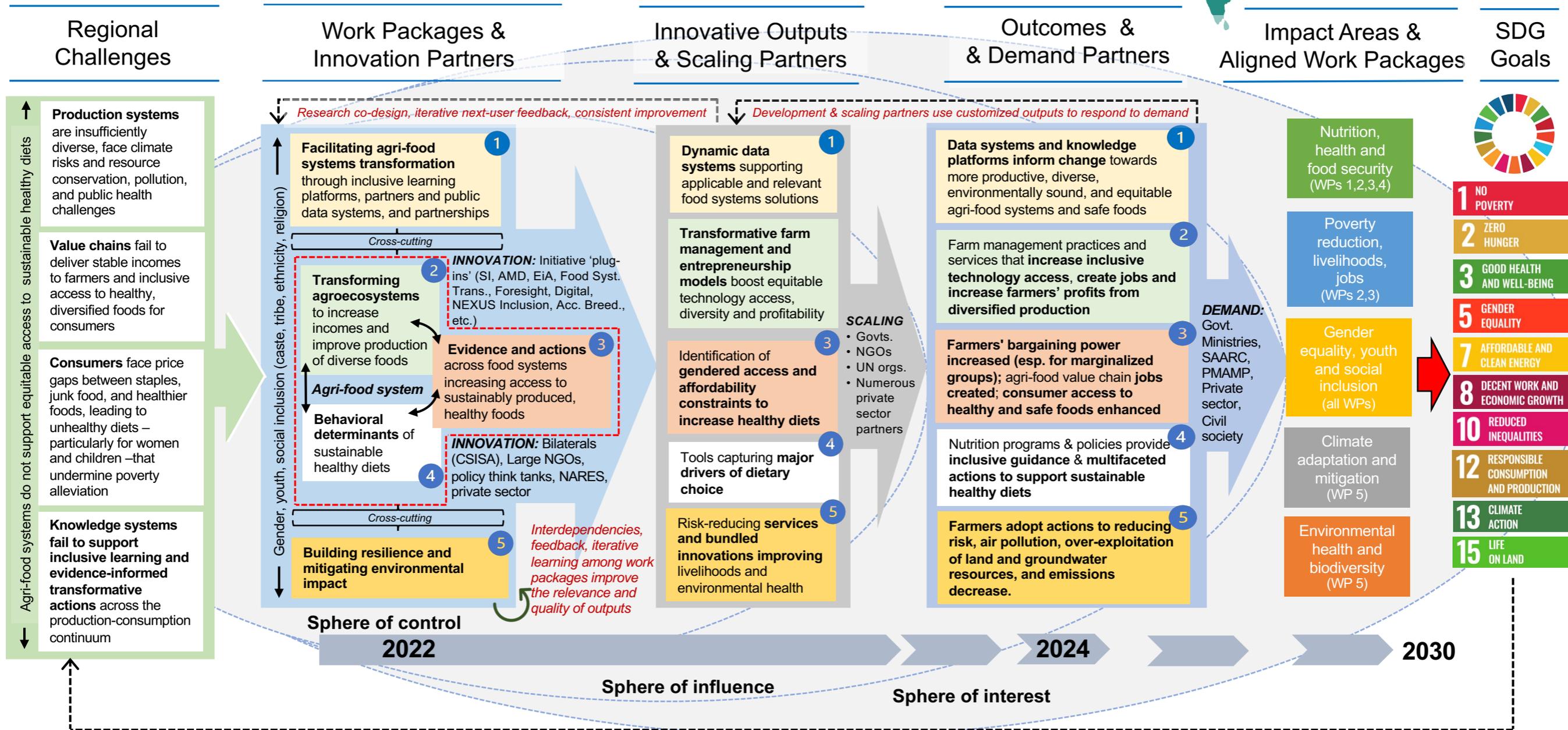
RISK-REDUCING INNOVATIONS FOR IMPROVING LIVELIHOODS AND ENVIRONMENTAL HEALTH. Tailored climate services delivered through extension services will improve farmers' risk-adaptive capacity. Focusing on links between crop-residue burning and unsustainable groundwater management, TAFSSA will research and provide options for policy makers in India to mitigate air pollution and reduce stress on groundwater.

DYNAMIC DATA SYSTEMS FOR RELEVANT FOOD SYSTEM SOLUTIONS. Collaborating with partners, TAFSSA will create a dynamic data collection and analysis system capturing production, consumption, price, food markets, and environmental data. This end-to-end system, with a strong social equity lens, will support design and course correction in agriculture, environmental, and nutrition programs implemented by partners.

Key Partners

Demand	Government	Ministries of Agriculture, Energy, Environment, Food, Public Health, Rural Development and Planning Commissions in Bangladesh, India, Nepal, and Pakistan, including Regional, national, and sub-national training academies for civil servants and parliamentarians
		Prime Minister's Agricultural Modernization Project (PMAMP; Nepal)
	Multilateral	South Asian Association for Regional Cooperation (SAARC) Agriculture Center
	Other Public Sector	Civil society organizations and self-help groups
	Private Sector	Agricultural machinery manufacturer's associations in Bangladesh, India, Nepal and Pakistan For details, see Section C here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing ; numerous private sector input companies, ITC firms, farm equipment companies, seed companies, alternative energy firms (full details can be found in Section G, here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing)
Innovation	Academic, Training and Research	Councils of Agricultural Research in Bangladesh, India, Nepal, and Pakistan
		Policy research institutions in Bangladesh, India, Nepal, and Pakistan (For details see Section D here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing), Universities and advanced research institutions within the region and abroad)
	International NGO	The Nature Conservancy, Helen Keller International, BRAC
	Private Sector	More than 10 private sector innovation partners can be found in Section G here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing)
	Private Sector in Aid Recipient Country	National business and industry associations in Bangladesh, India, Nepal, and Pakistan (Key examples show in Section G here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing)
Scaling	Foundation	Syngenta Foundation
	Government	National and sub-national departments of agricultural extension in Bangladesh, India, Nepal, and Pakistan
	International NGO	Large-scale NGO development implementers in Bangladesh and Nepal (For details see Section E here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing)
	Multilateral	United Nations International Children's Emergency Fund (UNICEF), national offices of the Food and Agriculture Organization (FAO)
	Private Sector	More than 15 private sector innovation partners can be found in Section G here: https://docs.google.com/document/d/1bZKhAgpy-7wogRchcn-98e3GQPo7StWD93xiNCErYw8/edit?usp=sharing)

Transforming Agri-food Systems in South Asia



Achievement of CGIAR impact areas and contributions towards SDGs feeds back, influencing the transformation of South Asia's agri-food systems towards increased equitable access to sustainably produced foods supporting livelihoods and healthy diets

Objective: Deliver a coordinated program of research and engagement across the food production to consumption continuum to improve equitable access to sustainable healthy diets, improve farmer livelihoods and resilience, and protect land, air, and groundwater resources.