

Transforming Agri-Food Systems in South Asia (TAFSSA)



A One CGIAR Resilient Agri-Food Systems Regional Integrated Initiative



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Background, context, and challenges in South Asia

- World's most poverty and malnutrition dense region
- Deep inequalities and major resource degradation challenges
- (Literally) the world's climate change and risk hot-spot
- Cereal-based farming systems - with significant scope for diversification
- Relatively high degree of market integration



Production & food availability

- Unsustainable natural resource management
- Low resource use efficiency
- Agricultural nonpoint source pollution
- Climate extremes and change undermine production
- Greenhouse gas emissions
- High production costs
- Need for diversification
- Farmers manage diverse enterprises and not single commodities

Food access & affordability

- Increasingly connected market systems, but unequal access
- Low farm gate price challenges
- Remoteness and logistical challenges in market access
- Food waste and loss of food product quality from field to plate
- Large gender and social inequalities
- Nutritious food products too costly for the poor

Consumption

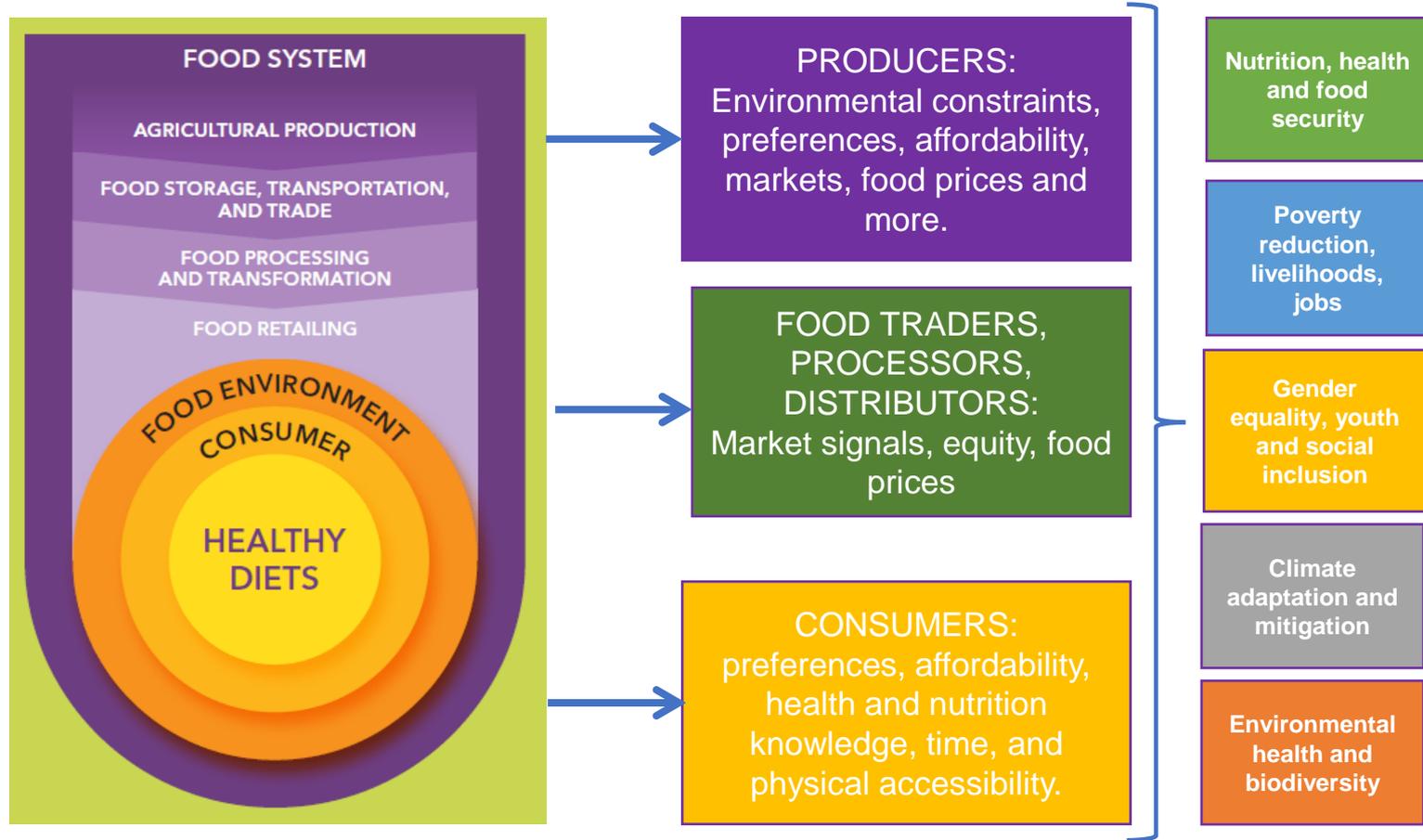
- South Asia: a quarter of humanity and the world's largest malnutrition burden
- Poor diets: Disease and disability
- Low levels of dietary diversity
- Increasing availability of unhealthy foods
- New consumer demands
- Heterogeneity in access to sufficiently nutritious foods
- Intrahousehold inequities



Framing:

TAFSSA provides impact-oriented research across the agri-food system continuum, to deliver research on all five CGIAR impact areas

- **Farming systems, food systems and value chains and food environments** affect nutrition, health, gender, the environment and climate change
- Food systems and value chains that deliver what the world eats are affected by various forces, as are food environments
- Food environments directly shape what farmer and consumers eat

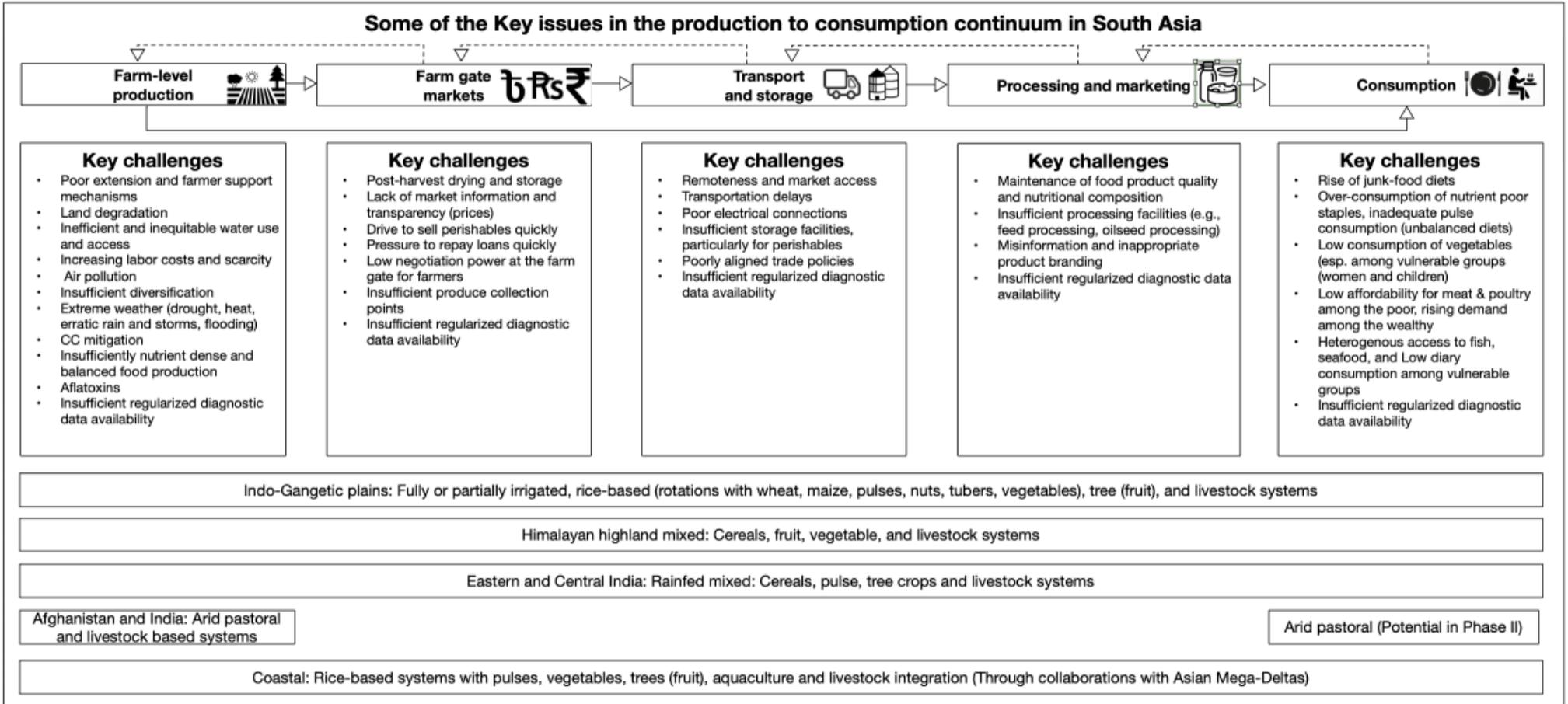


TAFSSA focuses on key food systems, focused food environments, and the farming & marketing systems affecting them



Agri-food systems in South Asia: Connecting the dots and linking components in a systems approach

Objective: Increase healthy and sustainable diets for all, and address smallholder livelihoods, resilience and climate adaptation, through a coordinated program of strategic research and engagement that spans the continuum from production to consumption.



← **A truly interdisciplinary systems approach to regional challenges** →



One CGIAR is not new in South Asia: Decades of deep regional experience and established partnerships



SoLAR



STRASSA

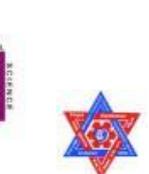


WINGS

Demand



Innovation



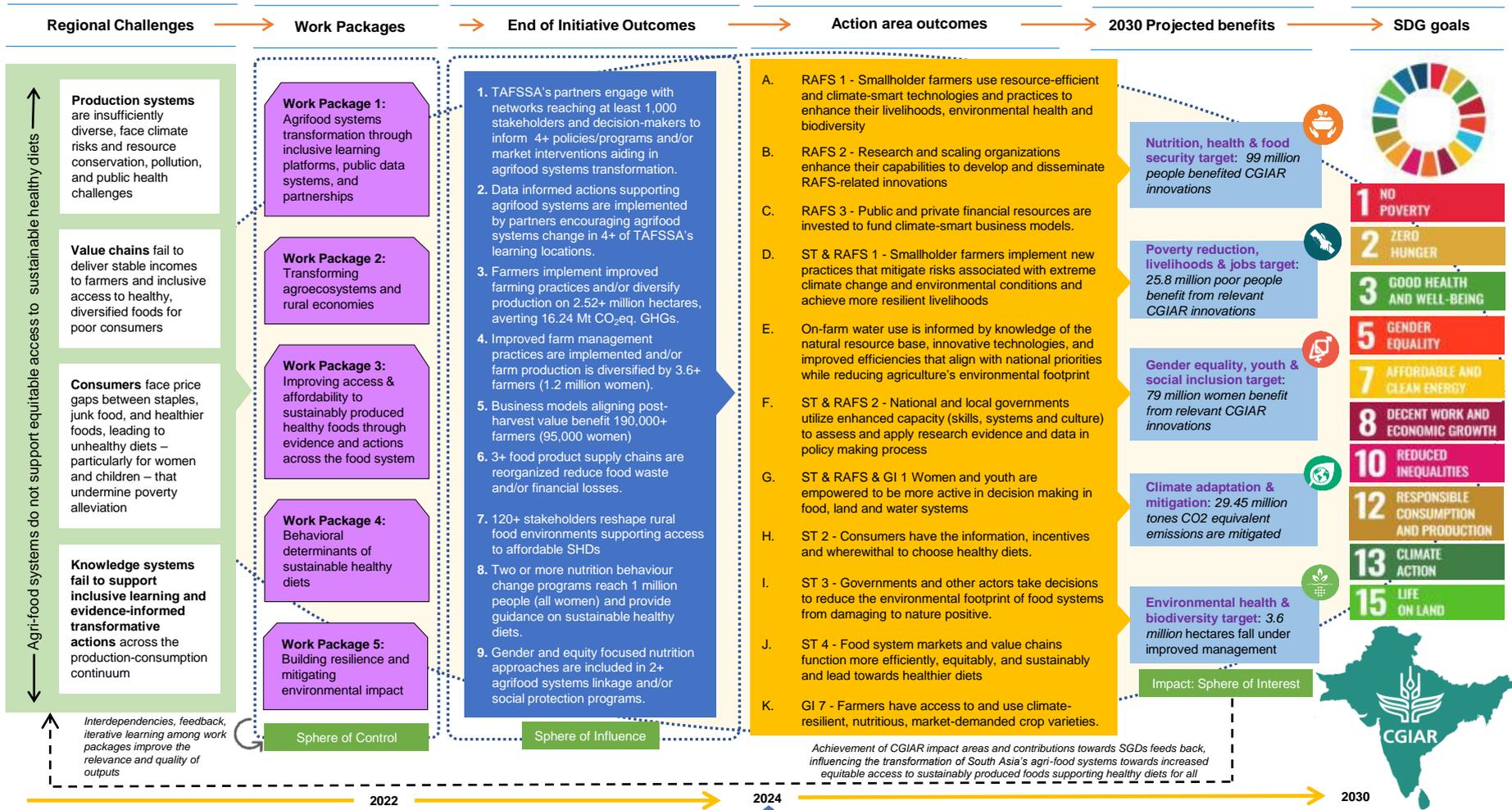
Scaling



Research relevance, science quality, and translating research into impact requires:

- Alignment with bilaterals
- Responsiveness to govt. priorities
- Long-term initiatives
- Regionally/nationally grounded staff
- Bridging the RinD divide
- Objective-oriented convergence platforms
- Scaling strategy from the start
- Flexibility and adaptability
- Coherence across CGIAR and other research partners

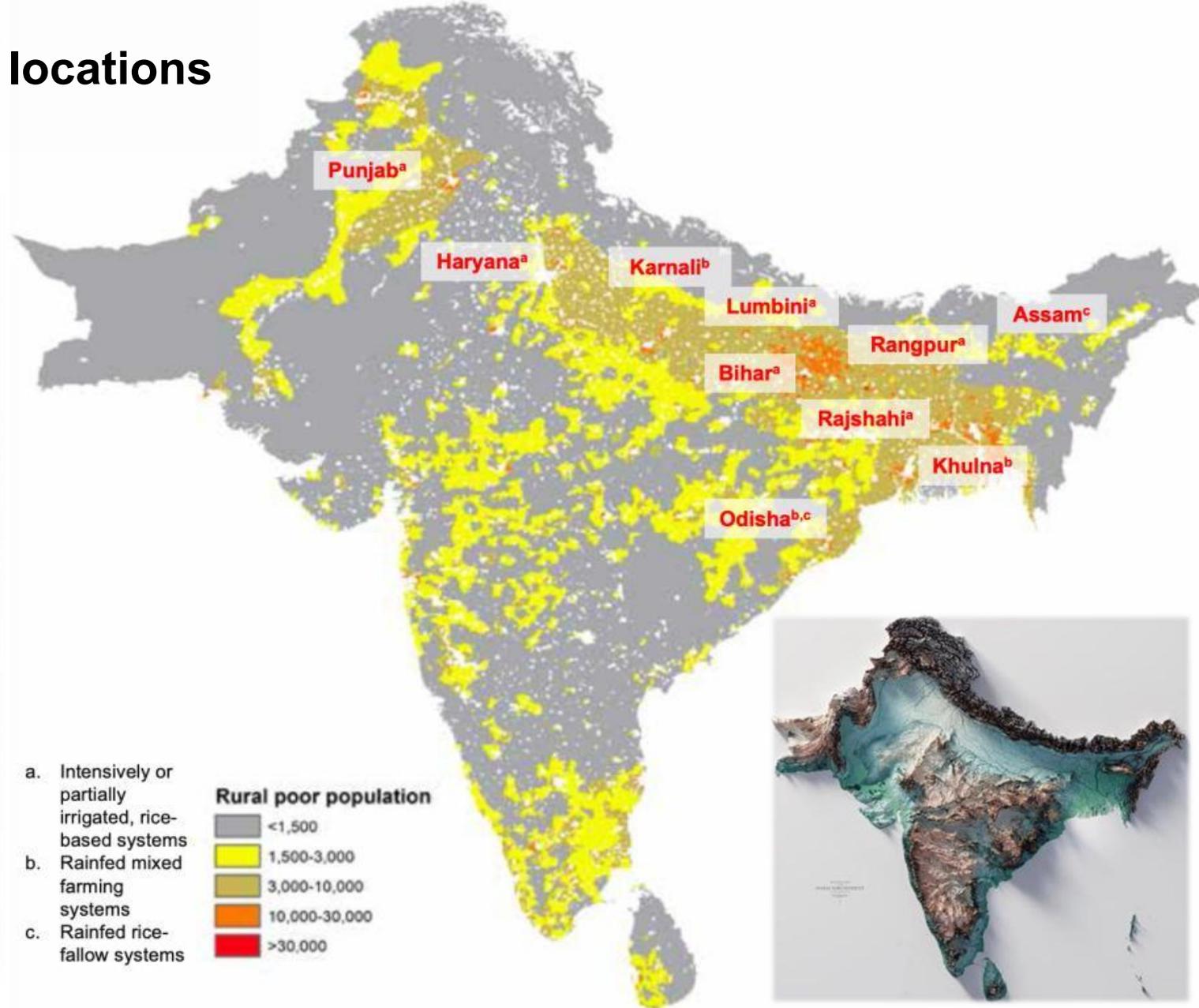
* Also a demand partner



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.

The context for agri-food systems transformation is shaped by economic development, trade, politics and resulting policies, institutional capabilities, the information environment, socio-cultural influences and change

TAFSSA's learning locations





Work Packages, outputs and innovations

Preliminary initiative working areas, systems, issues, and options

WP1: Inclusive learning platforms and public data systems	Why? Significant data gaps (esp. spatially disaggregated and for marginal groups) across the production-consumption continuum, undermining the evidence base for systems change	Output / Innovation: Established digital dynamic end-to-end public data system productive, diverse, environmentally sound, and equitable agri-food systems and safe foods
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Major farming system 1 Intensive (full or partially irrigated) with livestock Rice-based cereal (R-R, R-W, R-M), pulse, or hort systems, residues as feed	Issues / options Prod: Diversification Markets: Strong Health: Food sufficient, but calorie heavy, stunting, gender issues, air pollution Env: climate. extremes, GW (over/under use), soil, air pollution.
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WP2: Transforming agroecosystem to boost income and diversified food production

WP3: Evidence and actions across food systems boosting access to sustainably produced, healthy diets

WP 4: Behavioural determinants of sustainable healthy diets

Major farming system 2 Rainfed mixed w/ livestock. W, M, or pulse, semi-extensive grazing, residue as feed, plateau or mountains	Issues / Options Prod: Diversification Markets: Relatively weak Health: Significant malnutrition challenges Env: Limited impact, climate advisory
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Why? The productivity of South Asia's cereal-based farming systems are highly heterogenous geographically, and insufficiently capture opportunities to produce diverse and healthy foods

Why? South Asia's food value chains are complex, and insufficiently deliver incomes to producers. Inexpensive and unhealthy products are however increasingly common for consumers. Value chains need to be aligned to deliver healthy and affordable foods.

Why? South Asia's food environments are diverse. Insights on consumption and nutrition across food systems and by gender are needed to support actions towards equitable sustainable healthy diets.

Output / Innovation: Transformative farm management and rural entrepreneurship models that increase inclusive technology access, create jobs and increase farmers' profits from diversified production

Output / Innovation: Systems to overcome consumers' constraints to the equitable supply of diverse and healthy foods in was that increase farmer's bargaining power and creates jobs (especially for marginal groups).

Output / Innovation: Tools that capture the major drivers of dietary choice to provide inclusive guidance and faceted actions to support sustainable healthy diets.



WP5: Building resilience and mitigating environmental degradation

Why? Significant climate risks (extreme events), non-point agricultural pollution, groundwater decline, GHG emissions linked to poor resource use efficiency

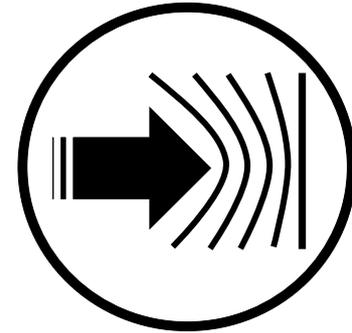
Output / Innovation: Bundles improving livelihoods and human health (dynamic climate services, technologies/policies for energy-efficient farms and value chains, improved groundwater management, reduced air pollution and policy evidence to reduce GHG emissions.

← Social inclusion (gender, youth, caste, tribe, ethnicity, religion) →

Work Package 1:



Facilitating agrifood systems transformation through inclusive learning platforms, public data systems, and partnerships

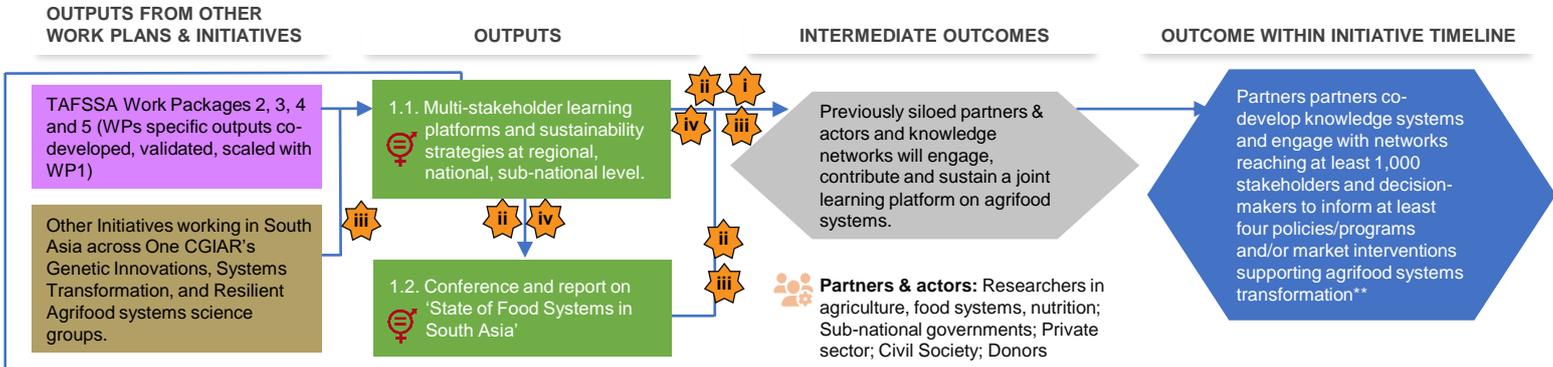


Data → Insights → Knowledge → Partnership → Impact

TAFSSA WORK PACKAGE 1: Facilitating agrifood systems transformation through inclusive learning platforms, public data systems, and partnerships

PATHWAY 1 | Connected knowledge communities amplify integrated actions for food systems

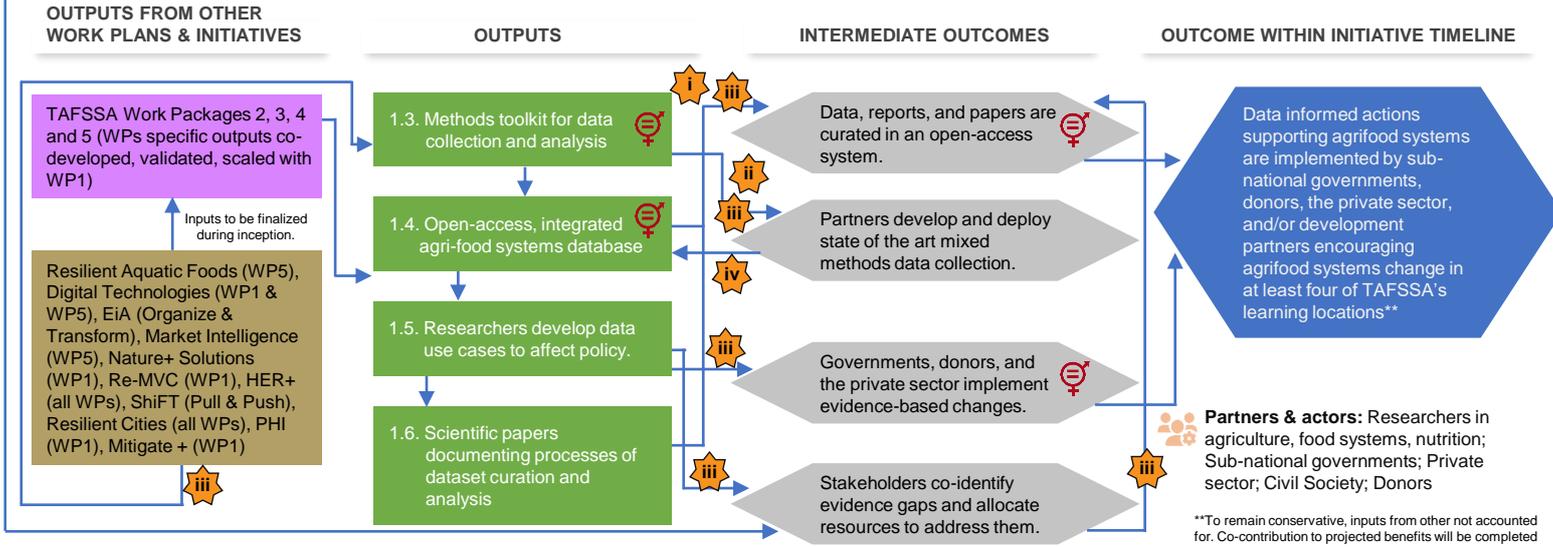
Research question 1:
Research question 1: How can multiscale learning platforms support, engage, and connect existing but siloed knowledge networks to accelerate the uptake and diffusion of data and evidence informing agrifood systems change at regional, national, and subnational levels?



- ASSUMPTIONS**
- i** Gender disaggregated data co-generation & access
 - ii** COVID-19 safe data collection is possible
 - iii** TAFSSA breaks down siloes and achieves stakeholder and cross-initiative cooperation
 - iv** Governments are willing share data

PATHWAY 2 | Data-informed actions by multiple stakeholders

Research question 2:
Considering farm, market, consumer, social equity and environmental issues, how can the value of integrated and socially inclusive agrifood systems data generation, availability, and access be demonstrated and strengthened across diverse sectors?



- LEGEND**
- Research questions
 - TAFSSA Work Package and relevant outputs
 - Other Initiatives & their work packages (WPs)
 - Outputs
 - Intermediate outcomes
 - Outputs within Initiative timeline
 - Impact pathway
 - Causal pathway
 - Transformative gender impact
 - Demand, scaling, innovation partners
 - Assumption (numbers match WP ToC text)

Ongoing capacity development and opportunities for data co-creation to enhance stakeholder learning, ownership, and sustainability

**To remain conservative, inputs from other not accounted for. Co-contribution to projected benefits will be completed during the Initiative's inception phase.

Work Package 2:

Transforming agroecosystems and rural economies to boost income, generate jobs, and support diversified food production within environmental boundaries



TAFSSA WORK PACKAGE 2: Transforming agroecosystems and rural economies to boost income and support diversified food production within environmental boundaries

PATHWAY 1 | Farm diversification and nutrition-sensitive landscapes

OUTPUTS FROM OTHER WORK PLANS & INITIATIVES

OUTPUTS

INTERMEDIATE OUTCOMES

OUTCOME WITHIN INITIATIVE TIMELINE

ASSUMPTIONS

Research question 1:
At the farm level, can crop diversity, biofortification, and animal components be managed to improve women's and men's livelihoods through production of nutritious foods while conserving resources and mitigating GHG emissions?

Research question 2:
How can foodsheds, watersheds, and airsheds be managed at the landscape level to increase nutritional yields and agrobiodiversity while maintaining or augmenting ecological services?

Research question 3:
Within the emerging culture of agricultural entrepreneurship in South Asia, how can public-private partnerships and rural service provision markets be made socially inclusive to support innovations generating income and lowering production costs for farmers diversifying their enterprises in socially inclusive ways?

TAFSSA Work Packages 1 (Outputs 1.1, 1.4)
TAFSSA Work Package 5 (Outputs 5.4, 5.5, 5.6)

Plant Health (WP2), Genetic Innovation Initiatives (biofortified and stress-tolerant varieties), Resilient Cities (WP1), SAPLING (WP1), Agroecology (WP1), EIA (Innovate & Deliver), SI-MFS (all WPs)

Resilient Aquatic Systems (WP3), Agroecology (WP1)

Nexus Gains (WP2)

HER+ (all WPs)

*Inputs from other Initiatives will be finalized during inception.

2.1. Evidence on recommendations for diversified farming practices tailored to GESI build profitable, nutritious, and equitable farming enterprises.

2.2. Open-access peer-reviewed papers, reports, and datasets

2.3. Decision toolkit for co-development of agroecological landscape management

2.4. Landscape and watershed level groundwater sustainability assessments

Stakeholders (including public & private extension) and farmers exposed to decisions tools, innovations & recommendations.

Smallholder farmers use decision tools, innovations and service to support diversified production systems.

Partners & actors: Smallholder farmers, NARS, extension agencies, government partners, local governments, women and self-help groups, private sector

Farmers implement improved farming practices and/or diversify production systems on at least 2.52 million hectares averting GHG emissions by 16.24 million tons CO2 equivalent.**

Improved farm-management practices and entrepreneurial service provision markets facilitate production diversification by at least 3.6 million farmers including 1.26 million women*

- i** NARES and farmers make land available for experiments
- ii** Participatory action research fine-tunes and simplifies farm mgt. options to boost adoptability
- iii** Extension networks can be mobilized to reach farmers at scale
- iv** Private sector makes technologies commercially available

PATHWAY 2 | Socially inclusive farm service provision markets

OUTPUTS FROM OTHER WORK PLANS & INITIATIVES

OUTPUTS

INTERMEDIATE OUTCOMES

LEGEND

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TAFSSA Work package 1 (Output 1.1)

EIA (WP1)*

HER+ (all WPs)*

*Inputs from other Initiatives will be finalized at inception.

2.. Public-private partnerships generating farm services business models

Farming services (including machinery) are made accessible, affordable, and socially inclusive

Partners & actors: Machinery dealers, mechanics, governments, banks, smallholder farmers, women, marginalized communities' agricultural laborer, smallholder farmers

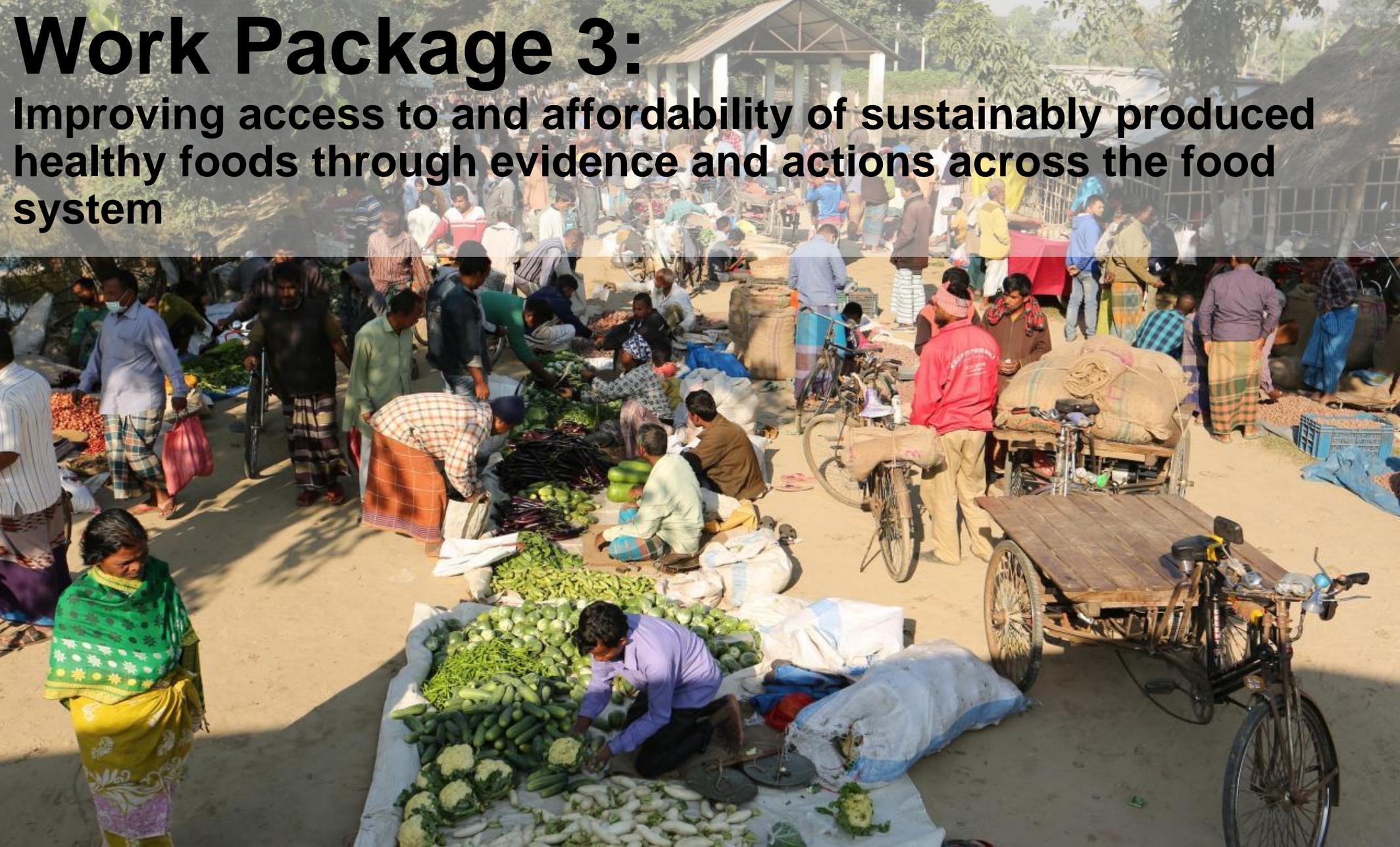
TAFSSA Work Package 3: Farm production supported by WP 2 linked to WP 3 (Outputs 3.1, 3.2) at the farm gate

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Ongoing capacity development and opportunities for data co-creation to enhance stakeholder learning, ownership, and sustainability

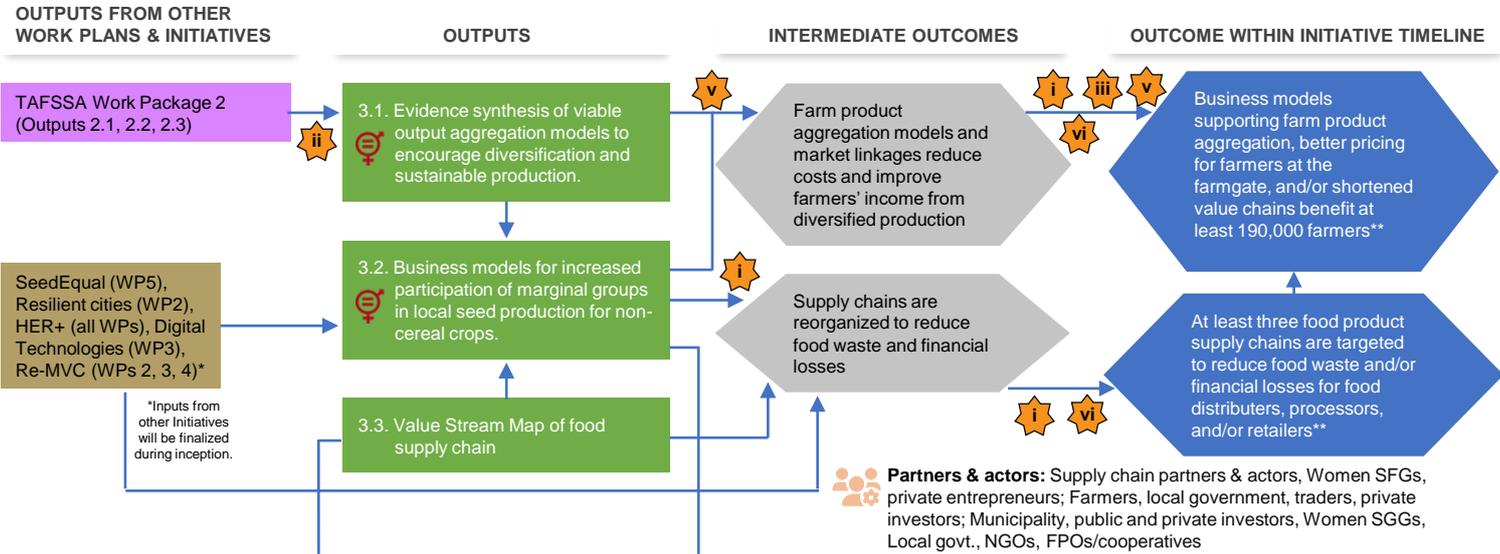
Work Package 3:

Improving access to and affordability of sustainably produced healthy foods through evidence and actions across the food system



TAFSSA WORK PACKAGE 3: Improving access and affordability to sustainably produced healthy foods through evidence and actions across the food system

PATHWAY 1 | Public-private partnership for collective action

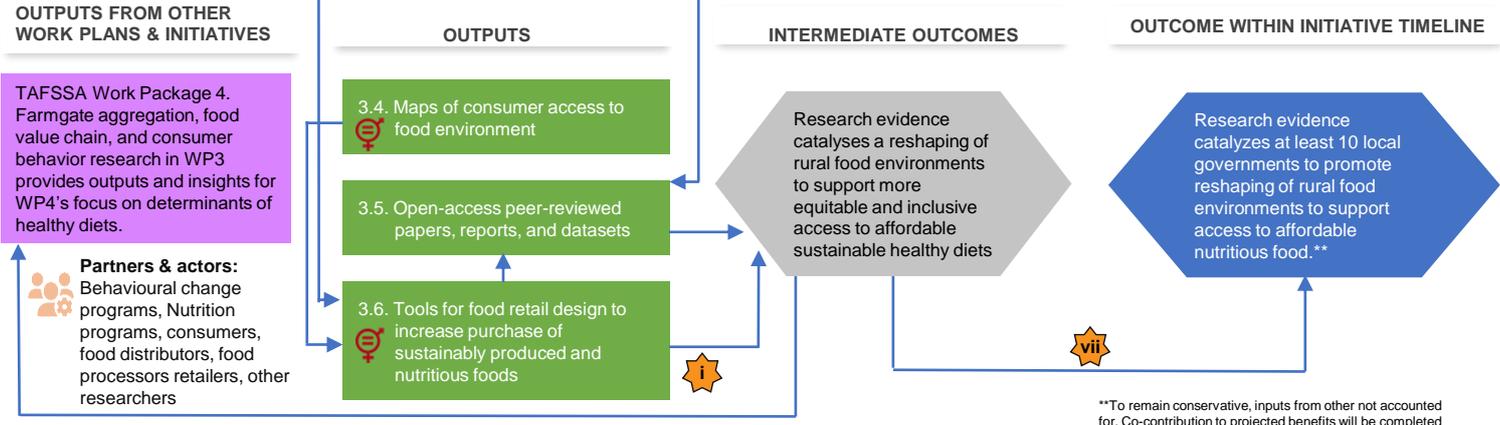


Research question 1:
Given the challenges smallholders face with input and output markets, how can we strategically link and improve the participation of hundreds of millions of small and marginal farmers including women and youth in the agrifood value chain, while supporting the sustainable production of nutritious crop and animal-based foods?

Research question 2:
How can key food supply chains in South Asia be made more sustainable in terms of supplying sustainably produced, healthy foods?

Research question 3:
Acknowledging that a significant proportion of food consumed in South Asia is bought in markets, what food retail environment (partners & actors influence access to and purchase of nutritious food for poor consumers – with emphasis on women – and how can it be increased?

PATHWAY 2 | Enhanced knowledge to foster change in food environments



Ongoing capacity development and opportunities for data co-creation to enhance stakeholder learning, ownership, and sustainability

ASSUMPTIONS

- i Receptive public and private sector
- ii Update of WP 2 outputs by farmers
- iii Transactions costs reduced
- iv Research on food retail environments galvanizes action
- v No free-rider problems, limited social conflict
- vi Risks from market failures and price fluctuations are low
- vii Awareness of importance of healthy diets can be increased

LEGEND

- Research questions
- TAFSSA Work Package and relevant outputs
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Work Package 4:

Behavioural and structural determinants of sustainable healthy diets

TAFSSA WORK PACKAGE 4: Behavioral and structural determinants of sustainable healthy diets

PATHWAY 1 | Stronger understanding of determinants of sustainable healthy diets

OUTPUTS FROM OTHER WORK PLANS & INITIATIVES

- TAFSSA Work Package 1 (Outputs 1.1., 1.2, 1.3, 1.4), 3 (Output 3.6)
- Resilient Cities (WP 4), ShiFT (WP1, 2); Resilient Aquatic Foods (WP 1), Fruit and Vegetables (WPs TBD)*
- TAFSSA Work Package 2. (Outputs 2.1, 2.2; provision of intra-household data for farming systems modeling)
- Re-MVC (WP1)*
- National Policies (WP 5)*

Research question 1:
What are the primary determinants of current dietary patterns, especially the consumption of diverse diets and unhealthy foods?

OUTPUTS

- 4.1. Primary research papers and maps on plate-to-farm studies of major food groups, including unhealthy foods
- 4.2. Methods toolkits to support rapid analyses of dietary patterns & drivers

INTERMEDIATE OUTCOMES

- Nutrition awareness increased across sectors through engagement with regional, national and subnational learning networks.
- Partners & actors: Farmers' organizations, agriculture & nutrition researchers, advocacy partners & actors
- Improved awareness among stakeholder to pinpoint actions on healthy diets and industry accountability.
- Partners & actors: Agriculture-nutrition researchers, policymakers, extension services, farmer organizations/enterprises, others

OUTCOMES WITHIN INITIATIVE TIMELINE

Data-informed actions supporting agrifood systems implemented by partners encouraging agrifood systems change in at least four of TAFSSA's learning locations**

PATHWAY 2 | Behavior change investments focus on healthy diets

- TAFSSA Work Package 1. (Outputs 1.1., 1.2, 1.3, 1.4)
- ShiFT (WP1 & 2)*
- Resilient Cities (WP 4), Fruit and Vegetables (WPs TBD)*

Research question 2:
How can behavior change programs in South Asia help to shape dietary behaviors that shape human and planetary wellbeing?

- 4.3. Evidence summaries on addressing consumption of unhealthy foods in behavior change programs
- 4.4. Practice insights and RCT-based recommendations on behaviour change on unhealthy diets.

- Improved stakeholder ability to tackle constraints to healthy diets more effectively
- Partners & actors: Advocacy networks, policy makers
- Governments and program implementers will integrate robust content from BCC innovations to reduce unhealthy food consumption.
- Partners & actors: Nutrition program designers, implementers and funders

At least two nutrition behavior change programs provide evidence-based guidance on sustainable healthy diets, reaching 1 million people (all women)**

PATHWAY 3 | Evidence on affordability and equity to shape agricultural production, markets and consumer policy actions for the poorest

- TAFSSA Work Package 1. (Outputs 1.1., 1.2, 1.3, 1.4)
- ShiFT (WP1, 2)*
- HER+ (all WPs)*

Research question 3:
How can programs in other sectors tackle major structural drivers of dietary choices?

- 4.5. Gender- and equity-focused tools, research papers, and insights on improving diets
- 4.6. Compilation of tools, insights and recommendations on addressing affordability of healthy diets

- Stakeholders are exposed to and use affordability-focused analyses in strategies to address nutritious diets
- Partners & actors: Social protection policy community (researchers, advocate, policy makers)
- Gender and equity focused nutrition approaches are included in programs focused on agri-food systems linkages
- Partners & actors: Social protection policymakers, advocacy partners & actors

Gender and equity focused nutrition approaches are included in at least 2 large programs focused on agrifood systems linkages and/or social protection programs**

*Inputs from other Initiatives will be finalized during inception.
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Ongoing capacity development and opportunities for data co-creation to enhance stakeholder learning, ownership, and sustainability

ASSUMPTIONS

- i Comprehensive assembly of data across learning locations
- ii Non-constrained field research
- iii Partners implement pilots with limited or no funding
- iv Effective engagement of key Partners & actors to refocus resources
- v Private sector engagement and vested interests are contained
- vi National fiscal constraints are not overly limiting

LEGEND

- Research questions
- TAFSSA Work Package and relevant outputs (Out)
- Other Initiatives & their work packages
- Outputs
- Intermediate outcomes
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Work Package 5:
Building resilience and mitigating environmental impact

TAFSSA WORK PACKAGE 5: Building resilience and mitigating environmental impact

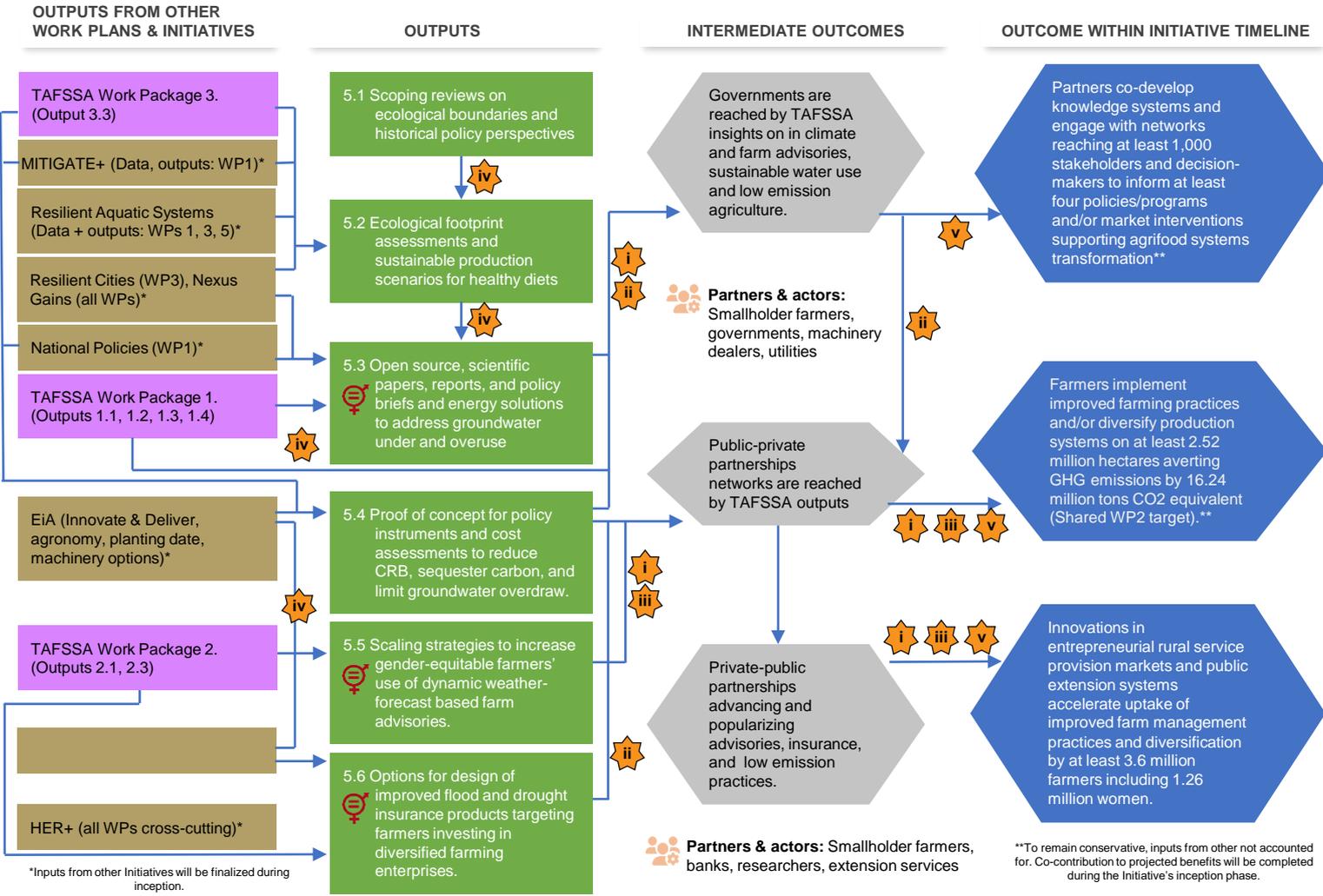
PATHWAY | Inclusive, resilient and low carbon agri-food systems within ecological boundaries

Research question 1:
Can South Asia's agrifood systems sustainably produce the food groups required to provide healthy and culturally appropriate diets for men, women, youth and children, without transgressing ecological boundaries?

Research question 2:
How can energy and food policies be deployed to equitably curtail groundwater overuse in the water scarce western IGP and catalyze equitable and sustainable use in the water abundant eastern IGP?

Research question 3:
How can crop residue burning be limited to mitigate air pollution and GHG emissions, without exacerbating groundwater overdraft?

Research question 4:
How can climate service-based crop advisories and insurance be effectively designed and scaled-out to strengthen the resilience of diverse farm enterprises to extreme weather events?



Ongoing capacity development and opportunities for data co-creation to enhance stakeholder learning, ownership, and sustainability

Thank you!

**Comments and suggestions
appreciated!**

