Integrating CSA, Gender, and Nutrition into National Agriculture Investment Plans (NAIPs)

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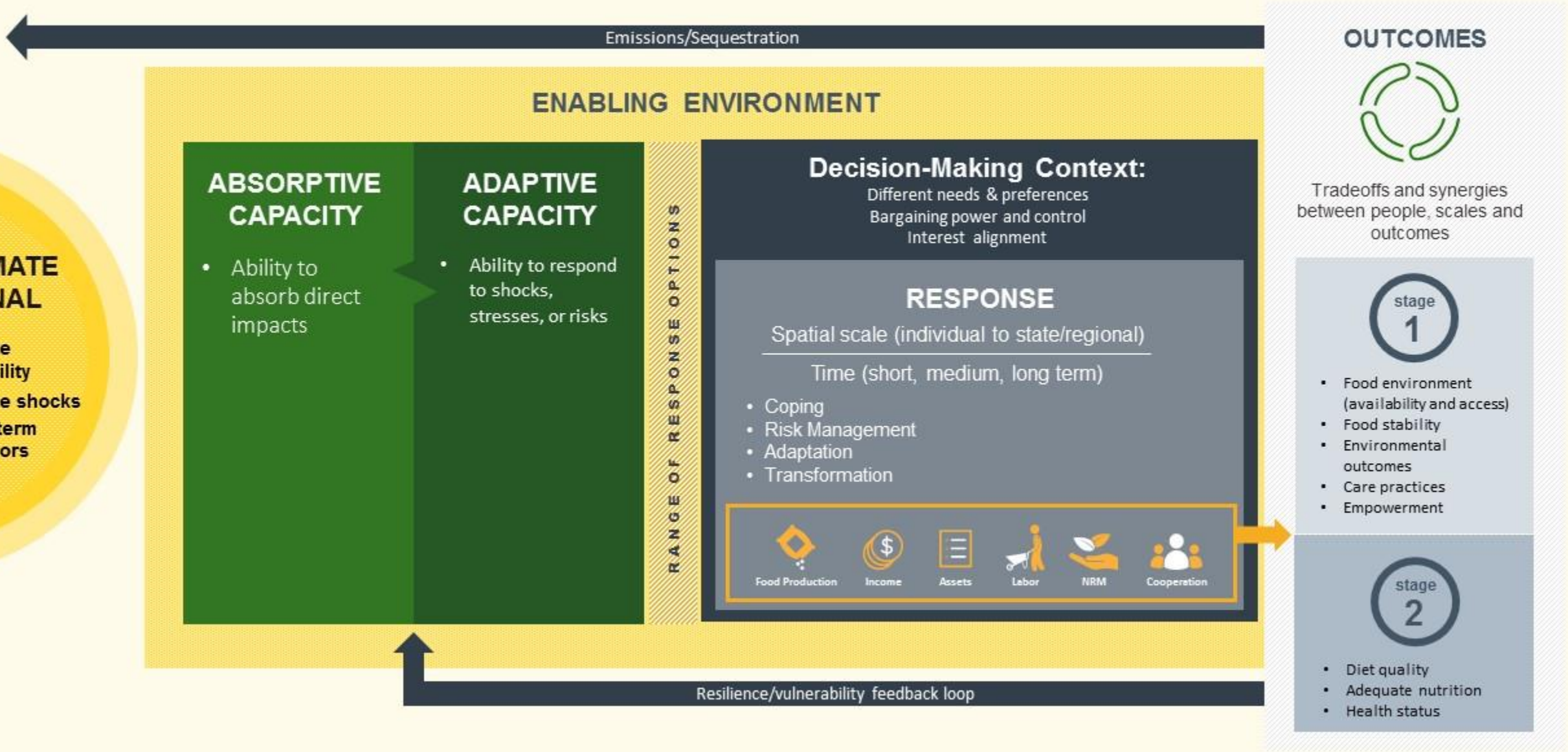
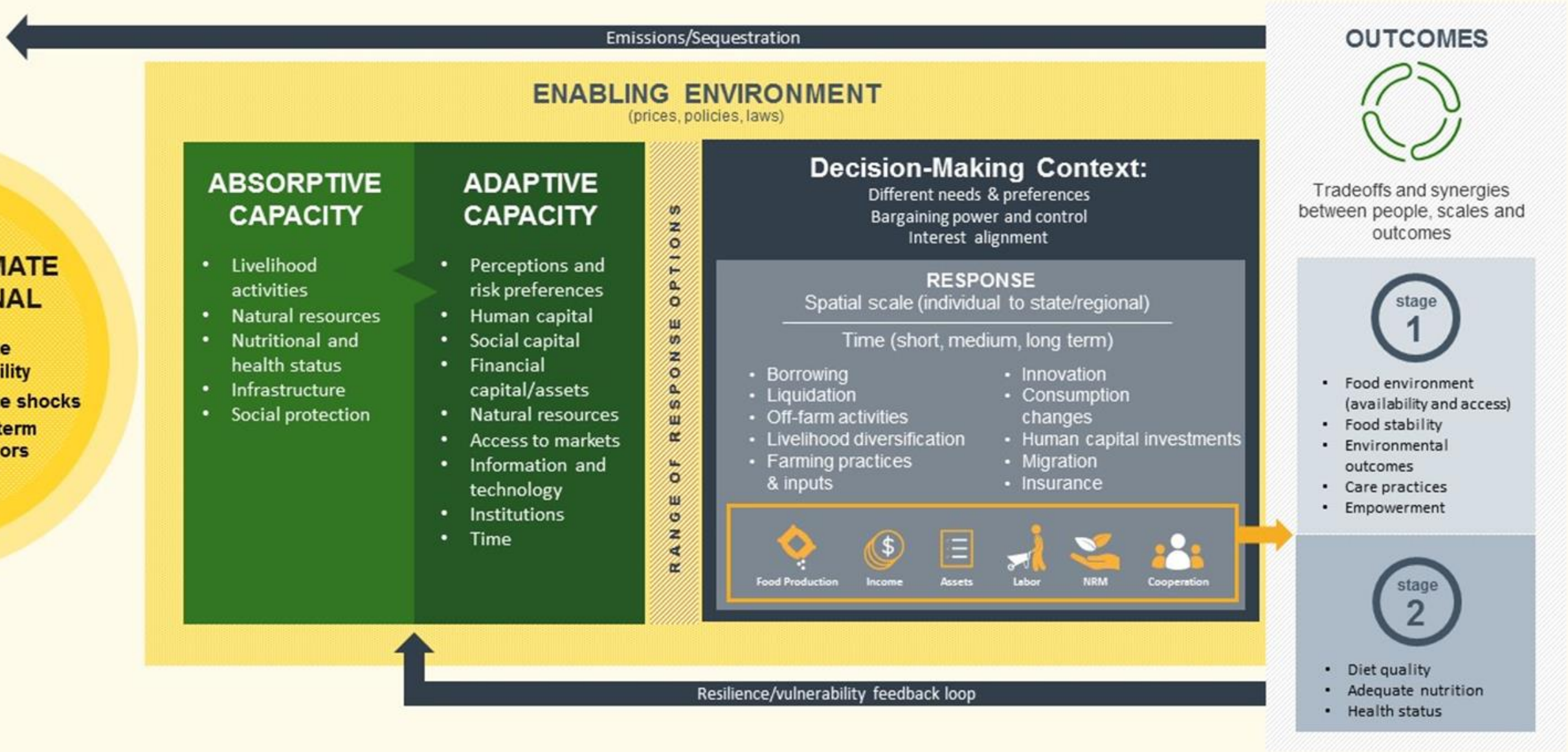
May 9 2017

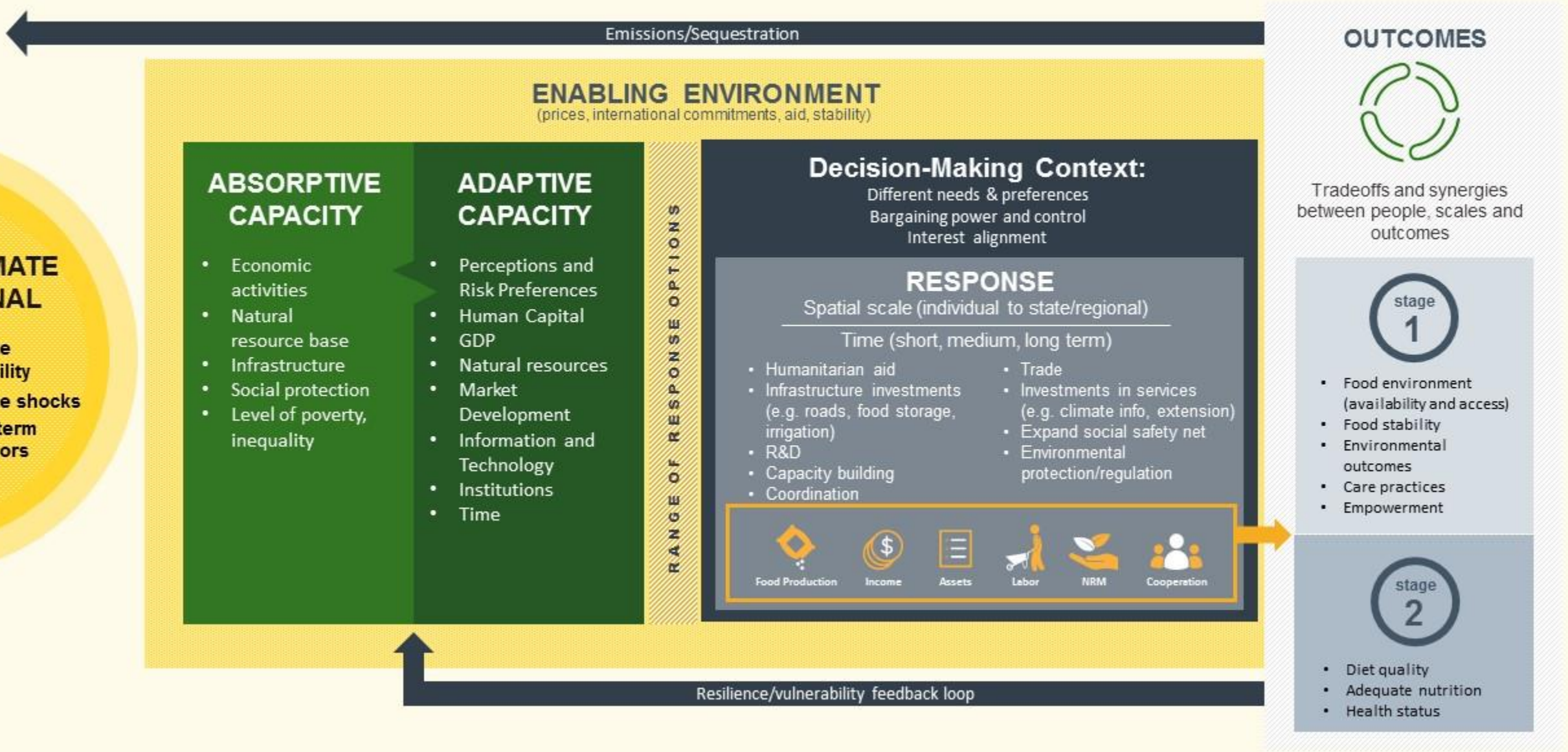
Framework for Climate, Gender, and Nutrition



Framework for Climate, Gender, and Nutrition- Household Level



Framework for Climate, Gender, and Nutrition- Policy/National Level



CSA and Nutrition:
Considerations for nutrition-sensitive climate resilience programming

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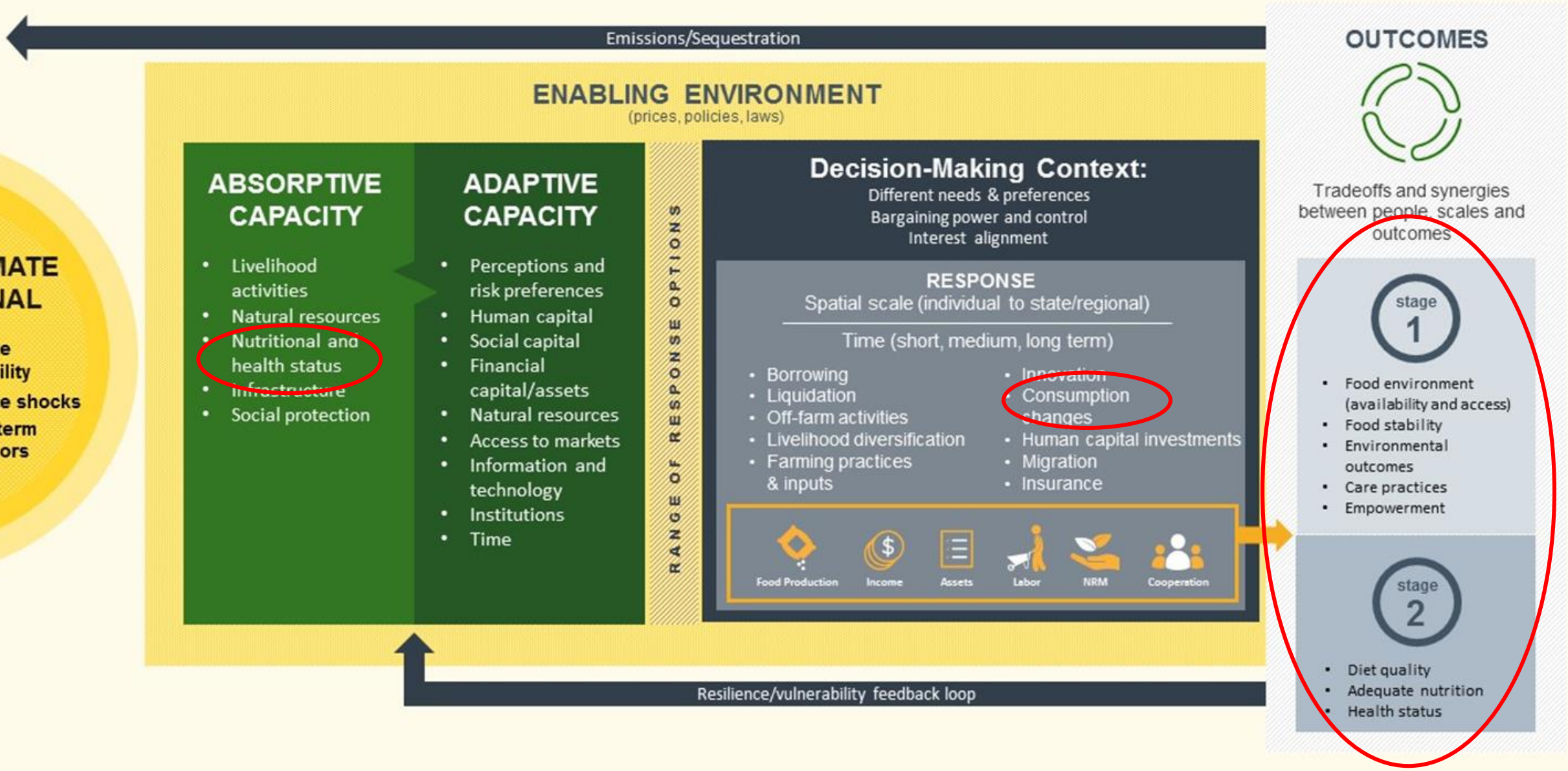
Framework for Climate, Gender, and Nutrition- Household Level



Nutrition profile

- **Priorities**:
  - Global Hunger Index 2016
  - Stunting in children under 5 years: (WHO cutoff ≥20%).
  - Wasting in children under 5 years: (WHO cutoff ≥5%)
  - Overweight and Obesity in women ≥20 years

- **Micronutrient deficiencies** (varies with urban/rural, wealth quintile)
  - Anemia in women of reproductive age
  - Anemia in preschool-aged children
  - Zinc deficiency in preschool-aged children
  - Vit A deficiency in children and women

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Climate, Nutrition Smart Value Chains

Maximize nutrition "entering" the food value chain

Input Supply	Production	Post Harvest Storage	Processing	Distribution	Marketing and Retail	Consumption Food Utilization
Improved varieties, bio-fortification, fertilizer, irrigation	New production locations, diversification, CO2 fertilization, focus on women farmers, extension	Aflatoxin control, refrigeration	Fermentation, drying, fortification, product reformulation (reduce salt, sugar, unhealthy fats)	Moving food from areas of shortage to areas of surplus, targeting of vulnerable groups	Messaging on the importance of nutrition and sustainability, benefits of certain foods	Home fortification (fish powders), training in nutritious food preparation, time mgmt, food preservation
Lack of access to inputs (seeds, fertilizer, irrigation, extension)	Limited available land, soil degradation, loss of biodiversity, temperature and water stress, CO2 effects	Contamination, spoilage, increased electricity demands, damage from extreme weather events	Improper processing of foods, nutrient losses during milling, combination with unhealthy ingredients	Climate impacts on transportation and retail infrastructure, export/import impacts on prices and availability	Advertising campaigns for unhealthy foods, loss of small food retailers	Lack of knowledge of nutrition, nutrient losses during preparation, increased diarrhea & enteropathy

Minimize nutrition "exiting" the value chain

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Production

- **Production diversity** – Zambia RAIN project – Mumbwa District.
  - Positive association with dietary diversity in young (6-23 months) and older children (24-59 months)
  - Positive association with stunting but not wasting in older children. No association in younger children.

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Minimize nutrition "exiting" the value chain

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Post Harvest Storage - Aflatoxins

- Naturally occurring by-product of certain species of the *Aspergillus* fungi
- Known carcinogen and can be fatal to humans in large doses. Increased risk of liver disease and other illness with high acute exposure.
- Colorless, odorless and can only be detected through specific testing (high costs of testing – unavailable in markets in LMICs)
- Growing body of research on association between aflatoxin exposure and child linear growth

Ismail et al 2014

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Example from Zambia

- Maize + Groundnut.
- Aflatoxin levels rise during growth and storage (extreme environments)
- Maize: Low contamination levels, high exposure due to consistent consumption
- Groundnuts: Very high levels and commonly consumed by children (41% in 6-23 mo old; ZDHS2009).

→ Implications of climate change on aflatoxin levels in crops (curing, storage, processing, women's roles)

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Climate, Nutrition Smart Value Chains

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Minimize nutrition "exiting" the value chain

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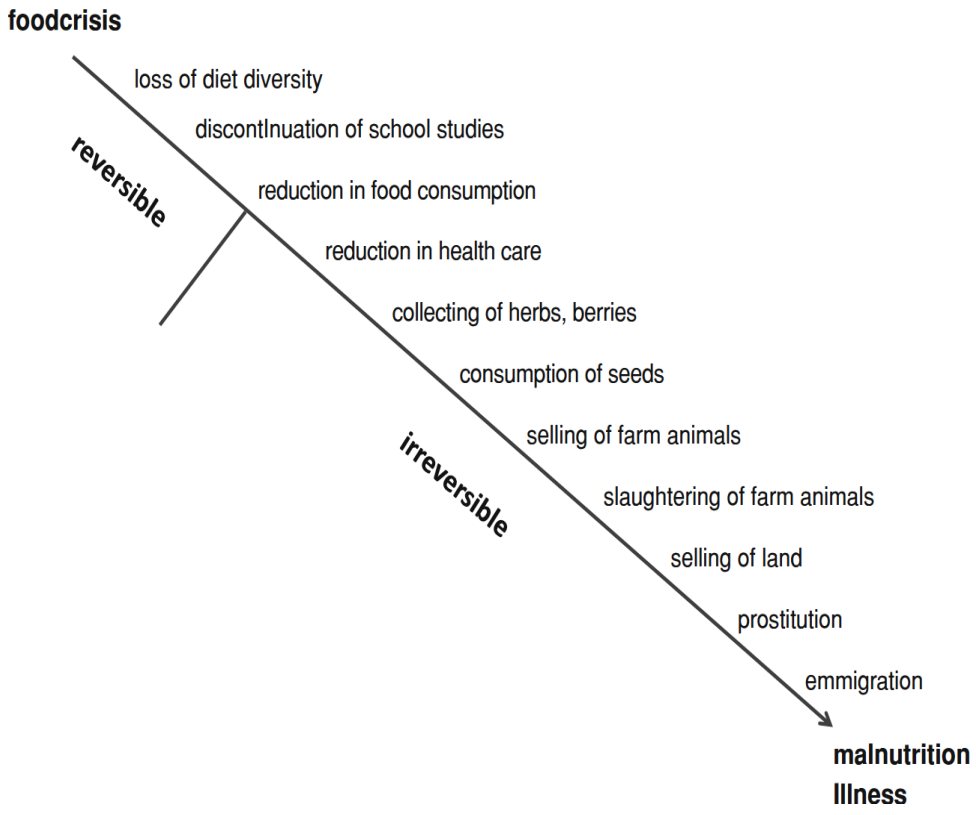
Seasonality Affects Food Prices & Their Volatility

In most contexts, food prices are determined by market factors. They fluctuate by season and year, responding to supply-demand interactions.

Food price volatility is associated with the underlying variability inherent in agricultural production, i.e. due to seasonality, variable weather, incidence of pests and diseases, etc.

Food price volatility poses risks for everyone – from farmers to consumers



Global Panel. 2016. Managing Food Price Volatility: Policy Options to Support Healthy Diets and Nutrition in the Context of Uncertainty. Policy Brief. London, UK: Global Panel on Agriculture and Food Systems for Nutrition; Hauenstein Swan, S., and B. Vaitla. "The justice of eating. Hunger Watch report 2007-08." (2007); Hendrix C (2016) When Hunger Strikes: How Food Security Abroad Matters for National Security at Home. The Chicago Council on Global Affairs, Chicago USA; Breisinger, Clemens, Olivier Ecker, Perrihan Al-Riffai, and Bingxin Yu. Beyond the Arab awakening: policies and investments for poverty reduction and food security. Intl Food Policy Res Inst, 2012.

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Food prices and nutrition - Bangladesh

- Rice prices positively associated with prevalence of child underweight, inversely associated with dietary quality (represented by expenditure on non-grain food). Dietary diversity score significantly associated with monthly per capita food and total expenditures.[1]
- Households that spent a greater proportion on non-rice foods and less on rice had lower prevalence of maternal and child malnutrition. When food prices increase, weekly per capita rice consumption does not change, resulting in less money spent on non-rice foods (decreased dietary diversity)[2].

→ Need to consider implications of climate change on production and the effects on food prices, rice prices, price of non-rice foods.

[1] Thorne-Lyman et al; [2] Campbell et al

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CSA and Gender:
Considerations for gender-sensitive climate resilience programming

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Why Care About Gender and CSA?

Understanding and addressing these gender differences to:

- Ensure social inclusion: *who is adopting CSA and who is not?*
- Mitigate potential harm to the most vulnerable: *how can we catch and reduce unintended negative consequences or inequalities in CSA?*
- Participatory input enhances CSA effectiveness: *in what ways can women's unique knowledge and networks contribute to CSA?*
- Achieve co-benefits/other development outcomes: *how will activities and outputs affect nutrition through health, diets, and care?*
- Advance empowerment and gender equality: *who is benefitting from CSA?*

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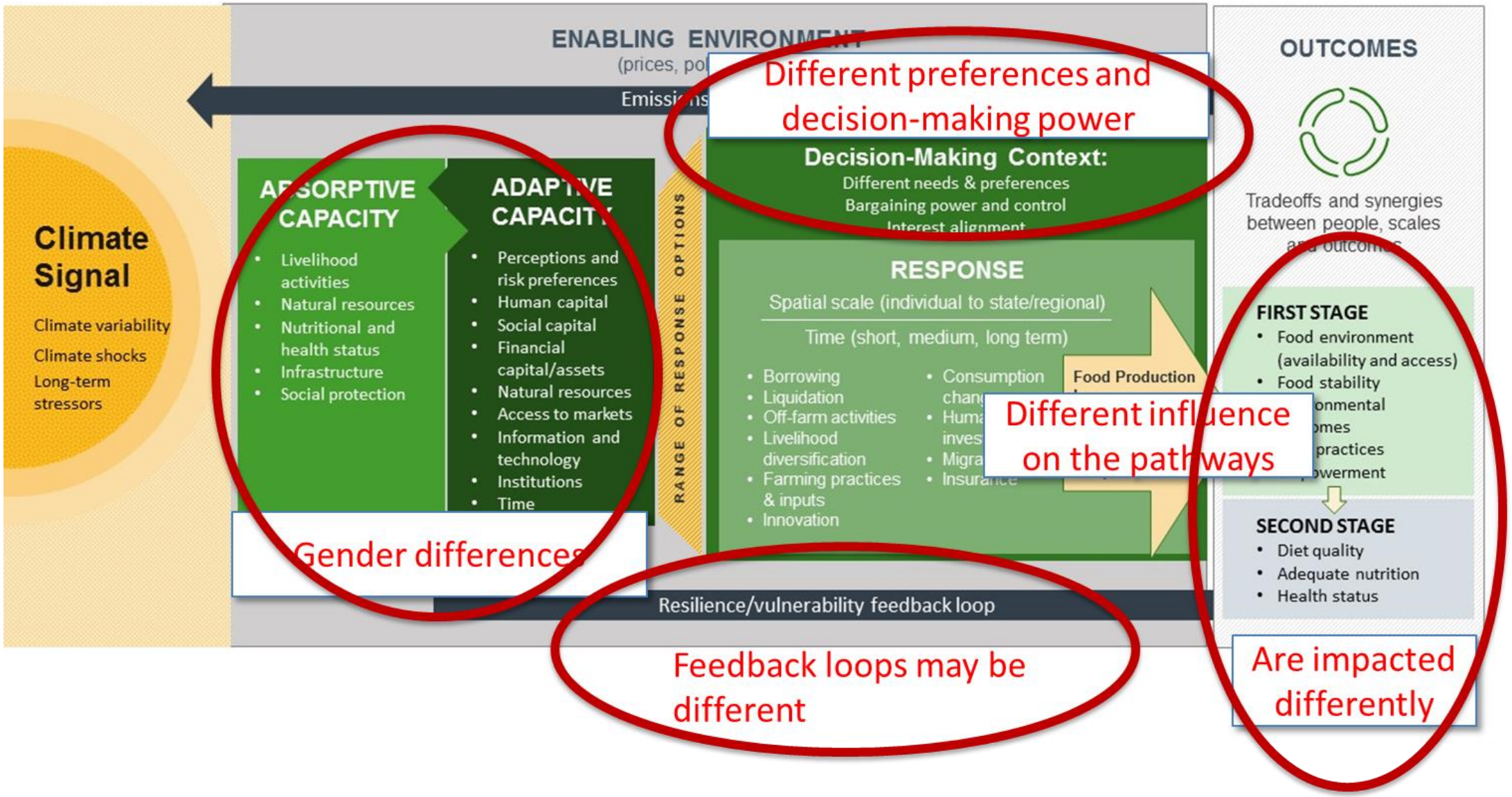
Where are the Gender Differences?

Framework for Climate, Gender, and Nutrition – Household Level



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Evidence for the Gender Linkages

- Research shows there are considerable gender differences in terms of key framework elements:
  - Absorptive capacity (sensitivity) (limited evidence)
  - Adaptive capacity (growing evidence)
  - Responses to climate change (growing evidence)
  - Pathways from CSA to well-being outcomes (limited evidence in the context of climate change)
  - Distribution of benefits and costs of CSA (limited evidence)
- Gender integration into programs and projects is often lacking (growing evidence)

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Absorptive Capacity: Sensitivity to CC Depends on—

- Gender roles within and outside of agriculture—this is largely dependent on the context:
  - Gender division of labor within the household—women may be more or less involved in agriculture. Some livelihood activities are more sensitive to climate change (e.g. collecting water, agriculture)
  - Gender division of labor on the farm—Separate plots? Separate crops? For different purposes?
- Nutritional status of men and women may be different—women may be more sensitive to climate signal (temperatures, flooding etc.)
- The extent to which institutions (e.g. social protection programs, social norms) support both men and women

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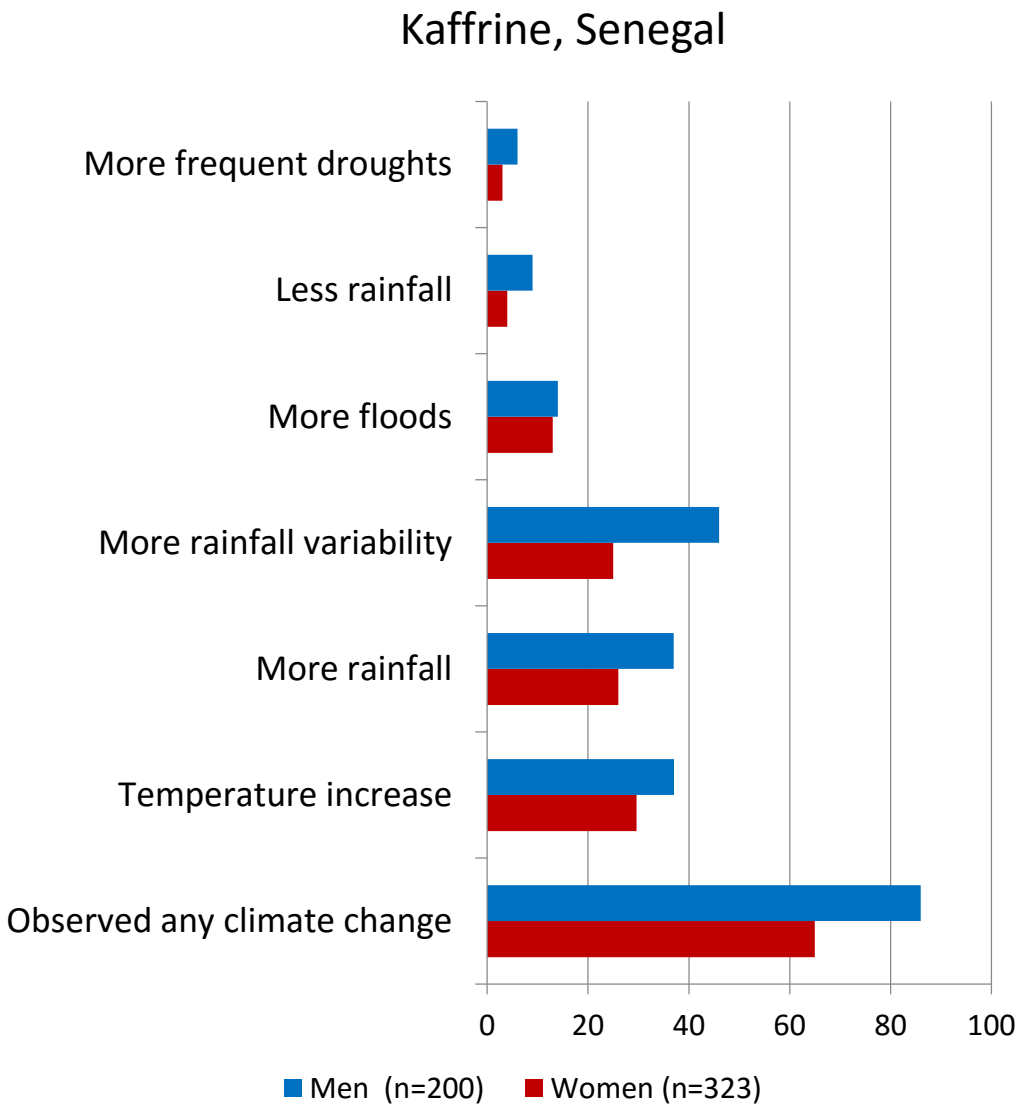
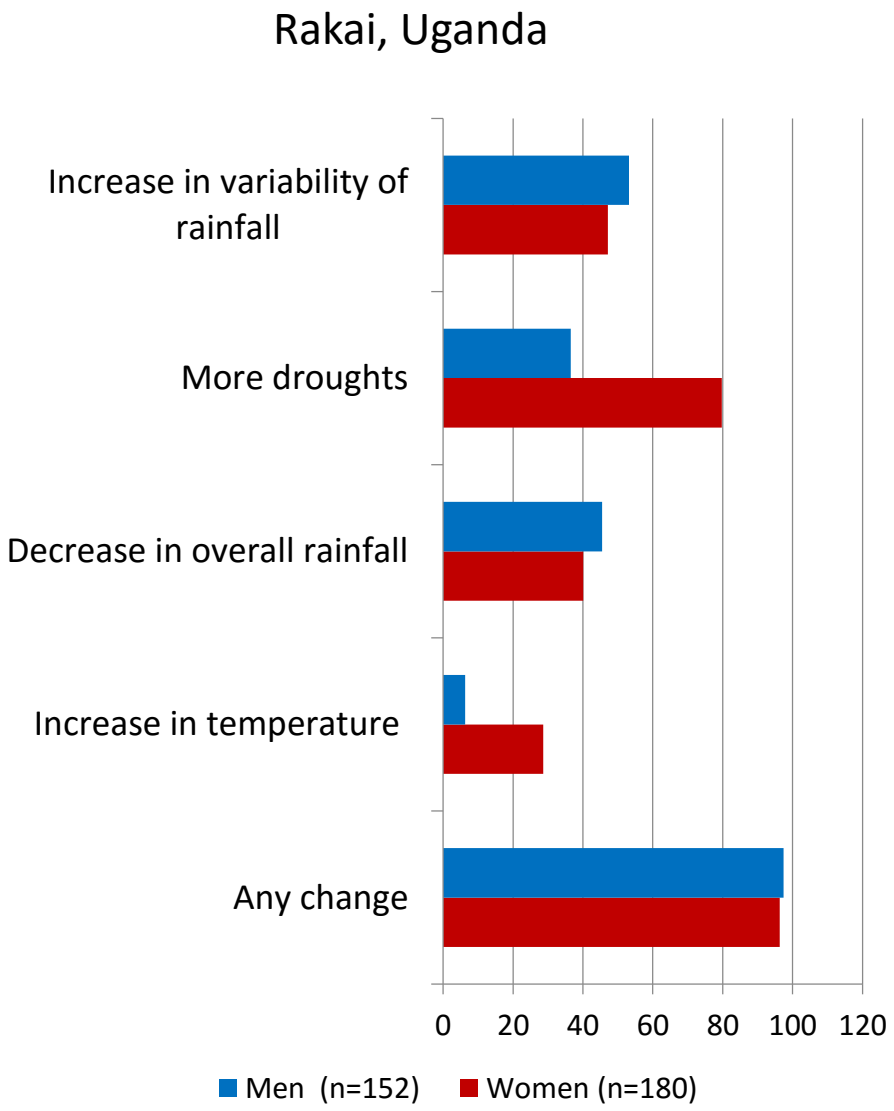
Adaptive Capacity: Different Perceptions





Source: IFPRI-CCAFS intra-household survey.

Adaptive Capacity: Information and Technology

	Nyando, Kenya		Wote, Kenya		Rakai, Uganda		Kaffrine, Senegal	
	Women	Men	Women	Men	Women	Men	Women	Men
Extension agents	40	42	98	99	30	67	2	12
NGOs	68	64	84	67	31	68	8	24
Community meetings	38	63	97	99	24	45	8	17
Farmer organizations	36	13	30	11	12	36	1	1
Religious groups	42	32	55	44	36	31	13	14
Agri-service providers	16	7	67	18	12	40	6	15
Family members	93	79	97	99	52	73	83	68
Neighbors	82	94	99	99	91	95	80	79
Radio	96	99	99	100	86	98	85	88
TV	15	45	5	15	2	14	10	8
Newspaper/bulletin	6	27	2	11	1	34	0	1
School	16	28	2	9	4	14	0	0
Cell phones	6	28	2	2	6	12	1	4
Internet	0	11	1	1	0	0	0	0
Traditional knowledge	81	93	91	90	74	75	88	94
Agricultural shows	3	11	4	11	1	20	0	0
Farmer field schools	8	11	57	41	6	12	0	0

Women have less access to information sources

Source: IFPRI-CCAFS intra-household survey.

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Adaptive Capacity: Information and Technology

	Nyando, Kenya		Wote, Kenya		Rakai, Uganda		Kaffrine, Senegal	
	Women	Men	Women	Men	Women	Men	Women	Men
Agroforestry	52	76	98	100	98	98	93	95
Terraces/bunds	60	81	100	100	100	100	20	45
Water harvesting	39	72	94	95	58	93	7	26
Irrigation	72	77	85	92	100	100	90	94
Zai/planting pits	11	14	37	25	19	21	0	3
Crop residue mulching	94	88	96	97	100	99	44	66
Composting	20	43	27	48	97	96	10	47
Manure management	88	88	93	85	89	96	65	71
Efficient fertilizer use	64	73	12	35	53	86	60	80
Improved HYVs	85	62	94	99	96	98	29	67
Improved STVs	18	11	99	99	85	73	2	15
No/min tillage	56	72	7	34	96	54	54	67
Improved grain storage	56	48	98	98	82	98	46	48
Improved stoves	60	74	88	96	99	99	81	66
Improved feed management	33	39	68	74	88	92	34	50
Destocking	27	28	69	63	86	79	38	47
Cover cropping	40	24	13	4	6	25	28	39
Stress tolerant livestock	14	10	53	30	68	73	8	20
Rangeland management	20	5	31	2	76	99	30	41
IPM	6	4	0	5	83	77	1	6

Source: IFPRI-CCAFS intra-household survey.

Women less aware of climate-smart practices (%)

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Adaptive Capacity: Information and Technology

	Nyando, Kenya		Wote, Kenya		Rakai, Uganda		Kaffrine, Senegal	
	Women	Men	Women	Men	Women	Men	Women	Men
Agroforestry	33	25	70	93	90	93	96	95
Terraces/bunds	45	41	95	98	56	60	34	23
Water harvesting	37	22	28	31	30	8	4	0
Irrigation	21	14	9	10	21	29	6	6
Zai/planting pits	48	26	6	7	11	17	0	20
Crop residue mulching	92	67	75	87	100	95	85	82
Composting	63	24	28	30	33	21	16	10
Manure management	79	57	85	84	57	72	96	96
Efficient fertilizer use	60	56	0	13	34	50	80	74
Improved HYVs	87	82	91	99	22	56	78	59
Improved STVs	60	30	92	99	55	60	67	45
No/min tillage	47	18	8	0	21	48	58	50
Improved grain storage	32	18	66	49	62	48	70	67
Improved stoves	36	34	29	35	37	33	14	17
Improved feed management	42	23	65	36	71	22	83	88
Destocking	43	29	40	25	32	10	20	16
Cover cropping	60	48	38	0	17	5	85	65
Stress tolerant livestock	43	50	47	65	2	13	0	20
Rangeland management	78	33	41	33	5	1	57	55
IPM	33	14	0	78	75	29	100	83

When aware, women as likely to adopt climate-smart practices (%)

Source: IFPRI-CCAFS intra-household survey.

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Adaptive Capacity: Different Institutional Environments

- Social and cultural norms
  - Prohibit adoption of certain practices (e.g. treadle pumps)
  - Limit mobility (e.g. men more likely to migrate)
- Women's inability to join and participate meaningfully in community groups, such as water user associations, limits adaptation options
- Lack of tenure security hinders adoption of long-term strategies (e.g. agroforestry)

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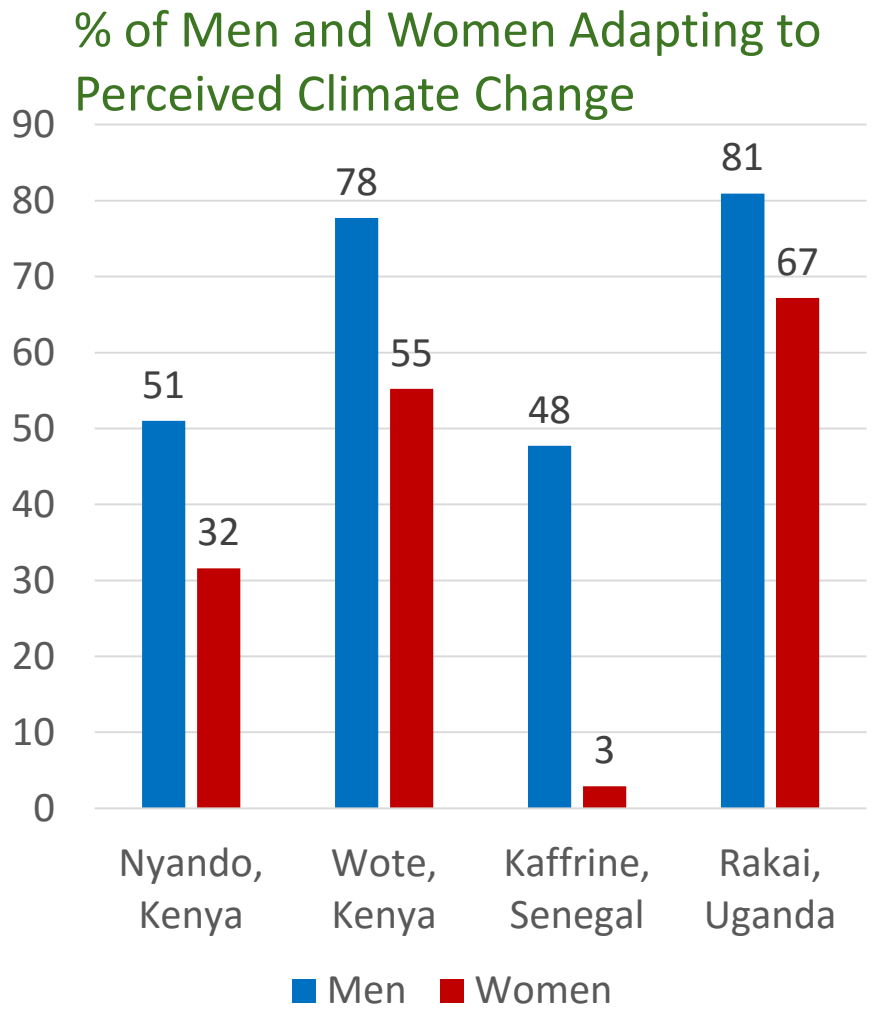
Responses to Climate Change: Different Preferences

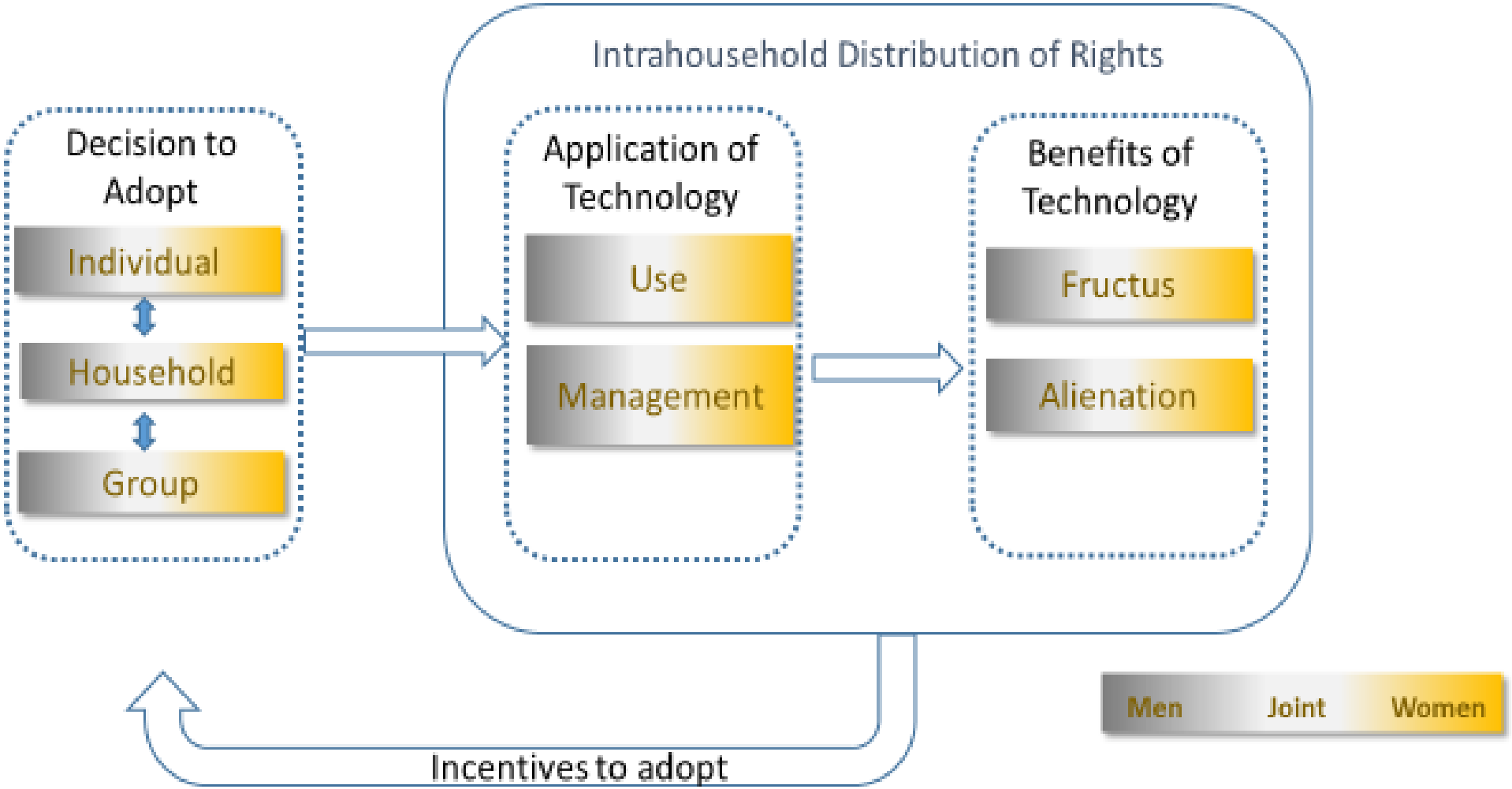


Men and Women have Different Preferences for CSA Practices

- Men more likely to report planting trees
- Both reported changing crop types, varieties and planting dates but preferences for crop types and varieties may be different
- Insurance preferences are different
- Women more likely to mention strategies such as food storage, starting an off-farm business, fuel efficient cookstoves

Source: IFPRI-CCAFS intra-household survey.

Responses to Climate Change: Decision-Making Context



Source: Theis, et al. 2017. unpublished

Pathways: Influenced by Gender

- Production pathway: Who makes crop/production choices? Men and women may choose different crops and for different purposes (consumption or sale)—implications for nutrition
- Income pathway: Who controls income? Men and women have different consumption preferences
- Asset pathway: Gender-differentiated asset dynamics have implications for well-being outcomes for men and women
- Labor pathway: Different CSA practices have different time implications for men and women (e.g. women's time burden affect their caring capacity—a key determinant of child nutritional status)

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Outcomes: Will CSA Close or Exacerbate Gender Inequalities?

- **The costs and benefits of responses to climate change, including CSA, are not distributed across all household members equally.**

- How does time use change on different activities, and for whom?
- How does relative control over income change?
- Who gains/loses assets?
- Who is impacted by changes in human capital investments? (e.g. leaving school, reduced health services)
- Who changes consumption?
- Who is more exposed to health risks?

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Outcomes: Women's Time burden

- Time burden across activities are likely to increase under climate stress, and acutely for women in times of climate shock (e.g. care for sick)
- Some CSA approaches have a heavy time burden associated with them
- Given women's triple roles in production, caregiving, and domestic responsibilities, **women shoulder a heavy time burden** in most contexts
- In addition, hiring labor can be more difficult for women
- Available time and access to labor can pose a constraint for women to adopt certain CSA practices (e.g. conservation agriculture)

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Outcomes: Women's Empowerment

WEAI	Irrigators	Gender Parity Index	Non-irrigators	Gender Parity Index	Contributors to disempowerment
Ethiopia	0.82	0.9	0.85	0.91	•Group membership •Leisure time •Speaking in public •Credit access •Control over use of income
Ghana	0.82	0.86	0.8	0.87	•Credit access •Workload •Group membership •Control over use of income •Leisure time
Tanzania	0.88	0.96	0.86	0.92	•Group membership •Credit access •Leisure time •Speaking in public •Autonomy in production

Source: ILSSI baseline survey data

Source: Bryan et al. 2017. unpublished

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ENTRY POINTS FOR GENDER TRANSFORMATIVE CSA

- Need to improve enabling conditions for women both within and outside the household
- Strengthen capacity of organizations on gender
- Develop/disseminate tools for assessing gender in CSA
- More gender-responsive and gender-transformative programs that:
  - Involve women in the design of programs, technologies and approaches to CSA
  - Ensure that both men and women have access to information, groups, social protection programs etc.
  - Ensure buy-in by men (e.g. participatory, family approaches, awareness raising of men's and women's contributions)
  - Gender disaggregated M&E to track outcomes for women/men

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