Papua New Guinea Rural Household Survey 2023

Initial findings and brainstorming

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International Food Policy Research Institute

Australia High Commission | Port Moresby | October 20, 2023

IFPRI work in Papua New Guinea (2018-2022)

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Objectives

1. Collect socio-economic data on rural households, and ensure that analysis provides relevant information to policymakers

2. Inform dialogue on food systems and household resilience and welfare

3. Collaborate with diverse set of the PNG departments, research organizations, and development community

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IFPRI work in 2023

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- Ongoing capacity strengthening
  - Upcoming: Food commodity simulation modeling workshop – November 2023
- Close collaboration with government and development partners
  - FPDA: Food price monitoring
  - NARI: Discussions on strengthening domestic agricultural value chain actors and function
  - DoH / UPNG / UNICEF: Child stunting and nutrition indicators
  - Set-up of PNG country office in Port Moresby
- Build tools to inform policy and investment throughout the agri-food system
  - **2023 PNG Rural Household Survey:**
    - Building resilient agri-food systems that also support improved nutrition
    - Strengthening agricultural networks / value chains / competitiveness
    - Inform Payment for Ecosystem Services (PES) programs

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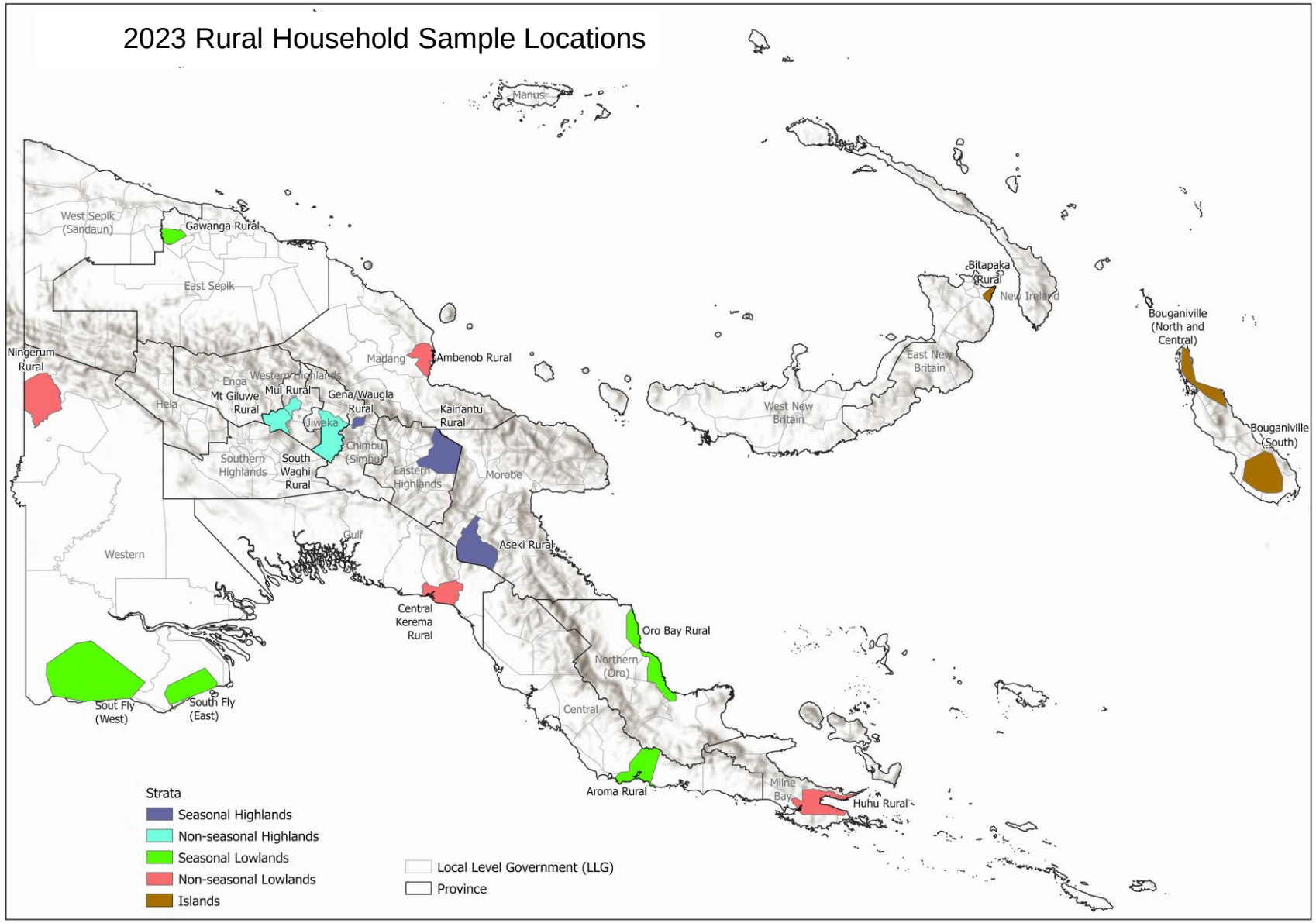
PNG Rural Household Survey 2023 – Survey sample

- 2,700 households
- In 270 villages
- Across 14 provinces
- Located throughout 5 agro-ecological zones

- LLG's as sentinel sites: randomly selected within criteria bounds
- 15 randomly selected communities
- 10 randomly selected households



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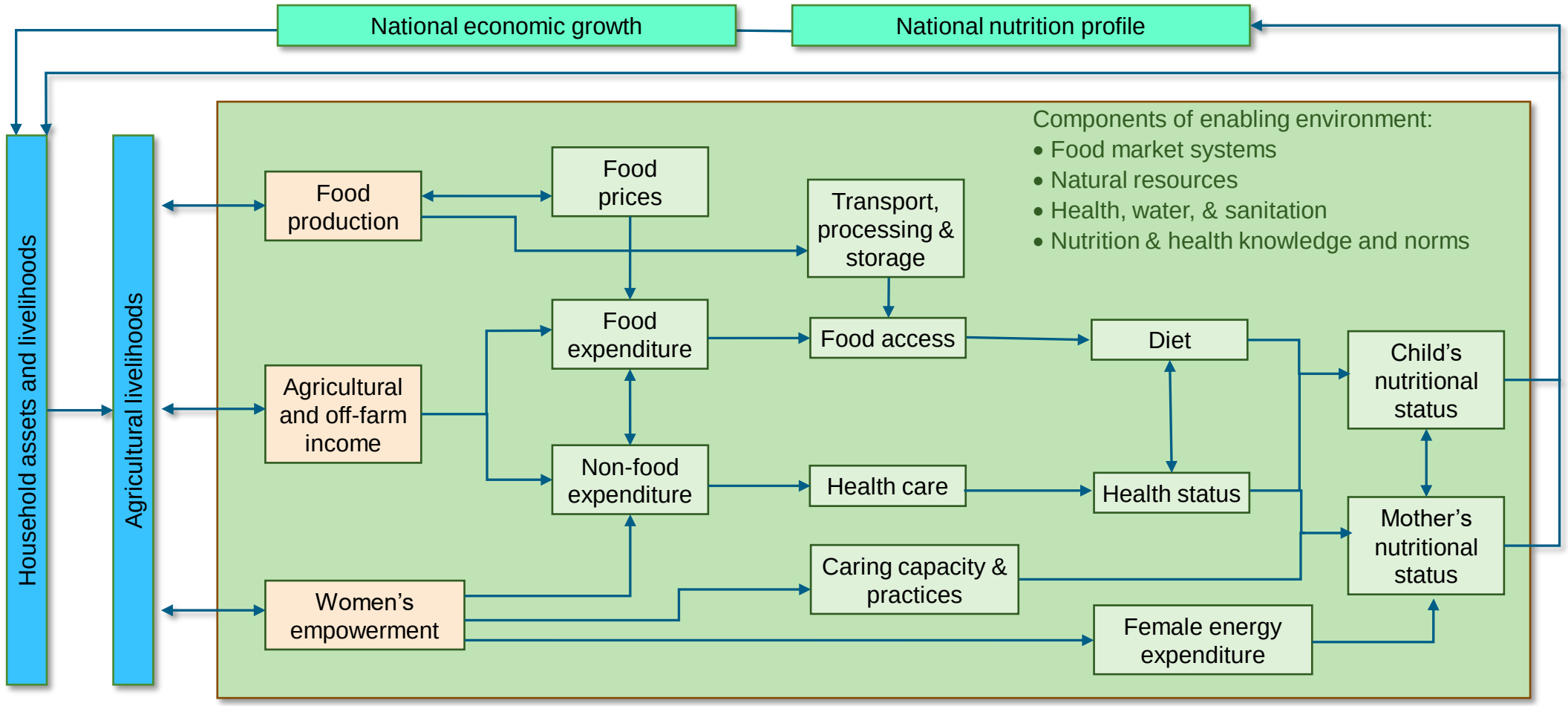
Linkages of agriculture, nutrition and household welfare



- Households have a set of assets and endowments → shape agricultural production and employment decisions
- Main agriculture pathways: 1) Food production; 2) Agriculture income; 3) Women's empowerment
- Circular impacts of nutrition: →increased economic growth of the nation → improved household welfare → improved individual nutrition

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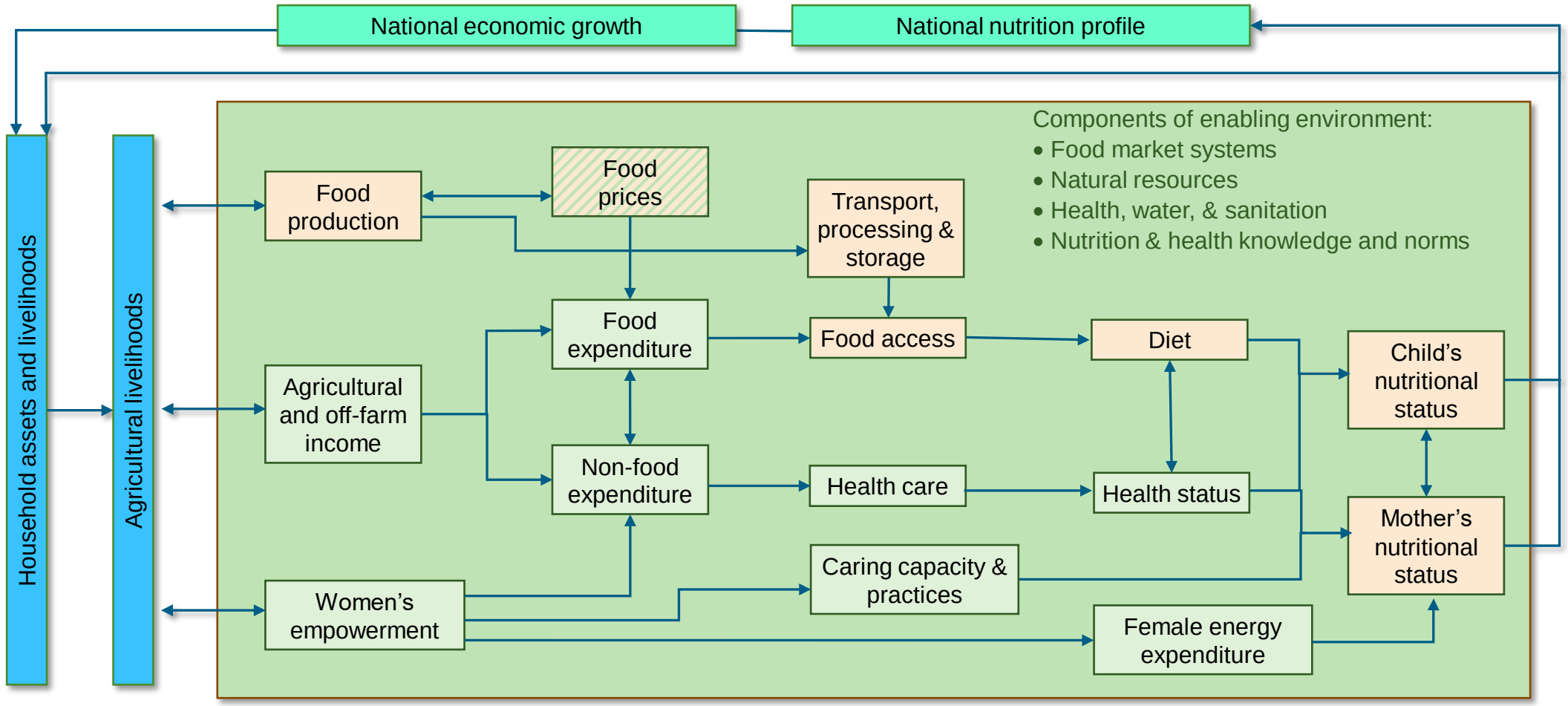
Agriculture and nutrition linkages: Food production pathways



- Rural PNG is dominated by subsistence-oriented agricultural → reliable food access will directly affect dietary outcomes
- Improved food production, food processing /storage, and food access → improved dietary outcomes, including maternal and child nutrition

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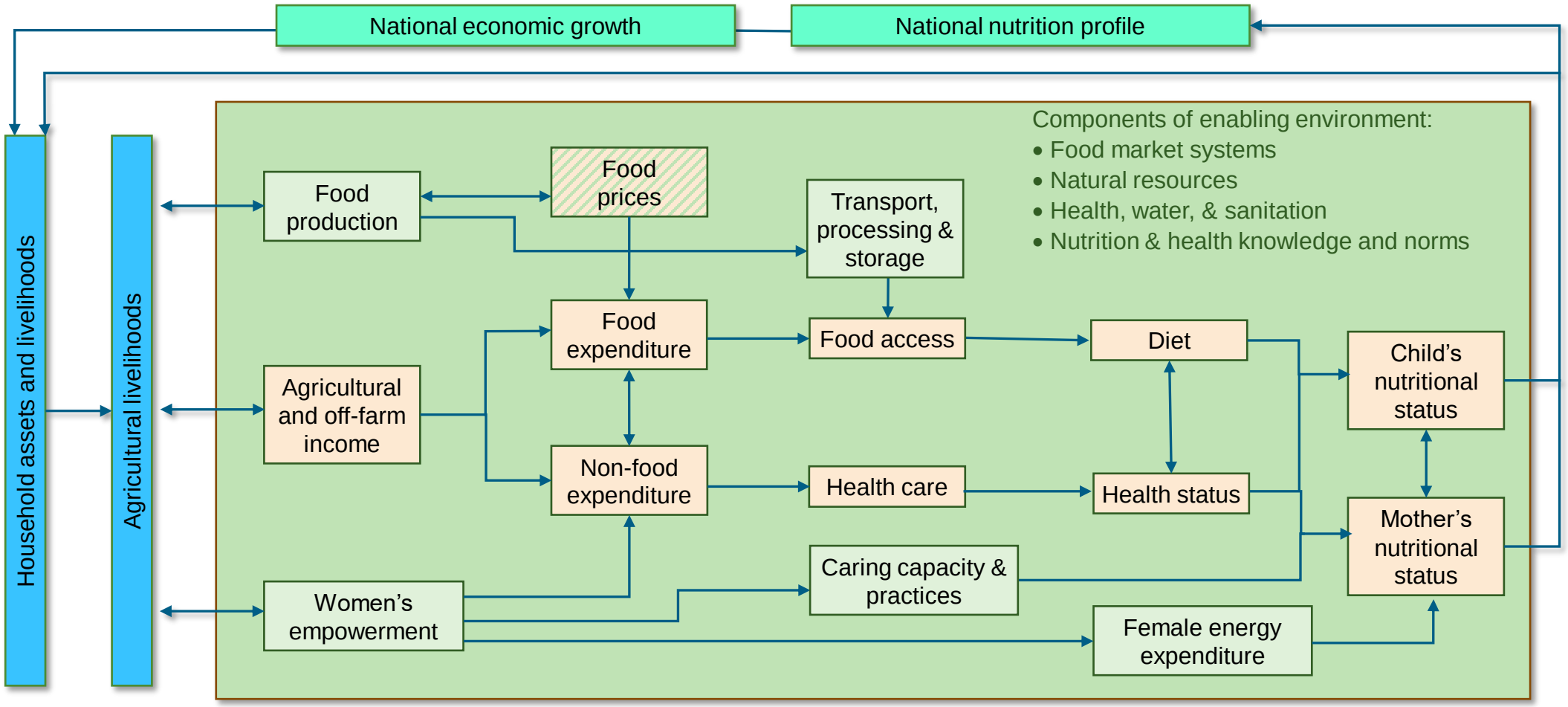
Agriculture and nutrition linkages: Agriculture and off-farm income pathways



Two pathways:

1) Income for food expenditure → expand dietary diversity outside of household-produced foods

2) Income for non-food expenditure → improved healthcare; water and sanitation, etc.; immediate health determinants of nutritional status

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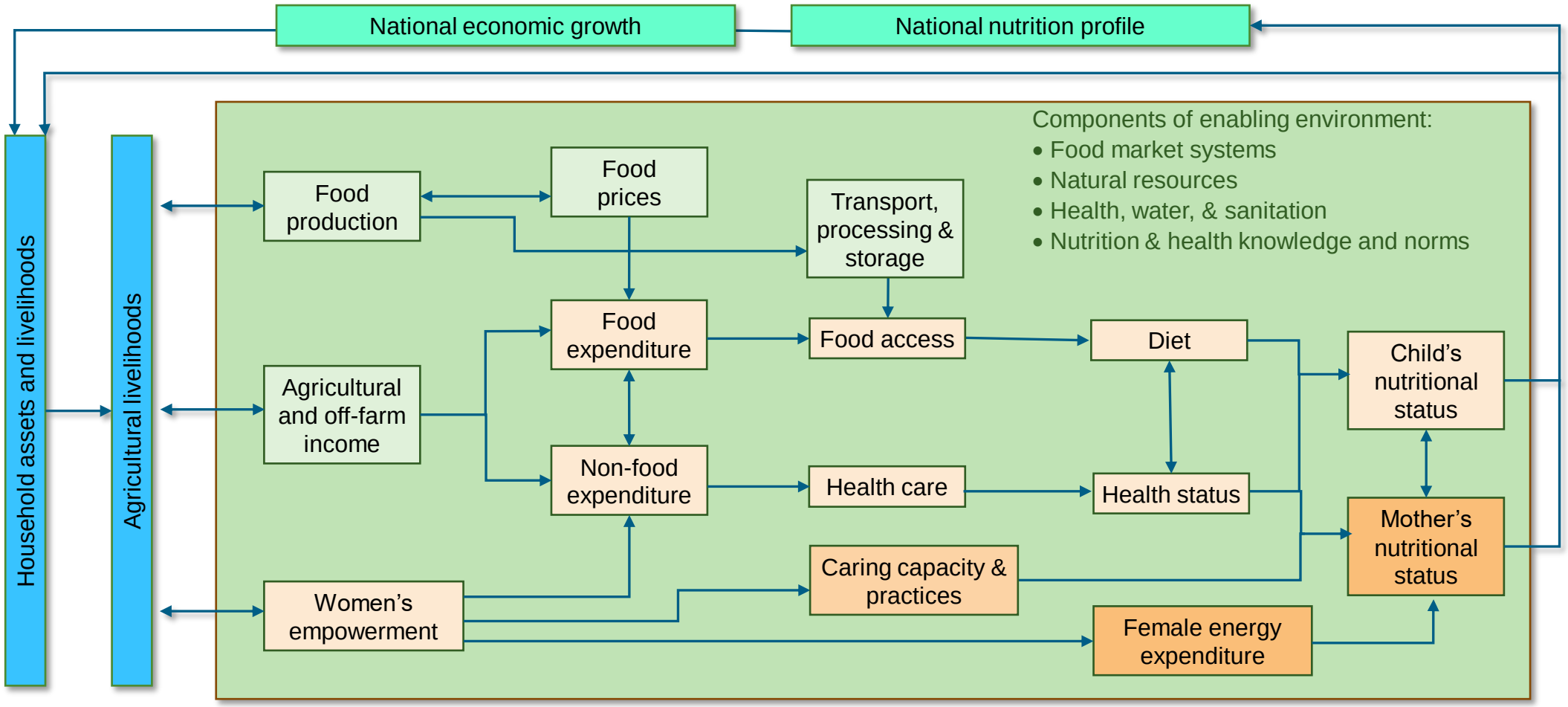
Agriculture and nutrition linkages: Women's empowerment pathways



3 paths pathways to improved nutrition

1. Increased control by women of household income → greater decision-making control over food and non-food expenditures
2. Increased control by women of their time → increased provision of adequate nutritional care
3. Reduced workload for women in agriculture → improved health and nutritional status of women and their children

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PNG Rural Household Survey 2023 – Initial findings

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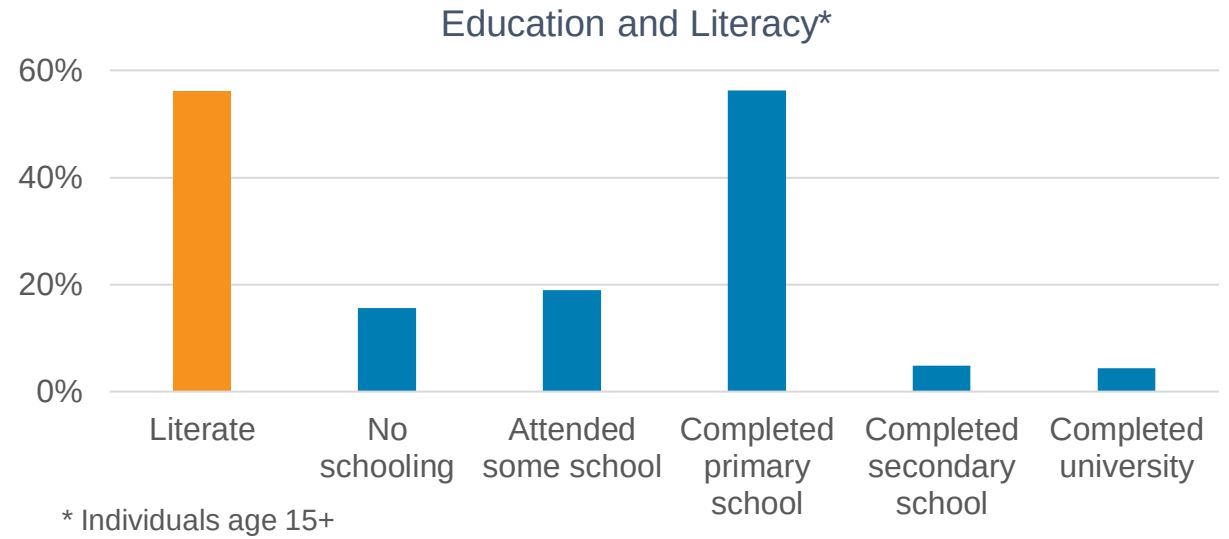
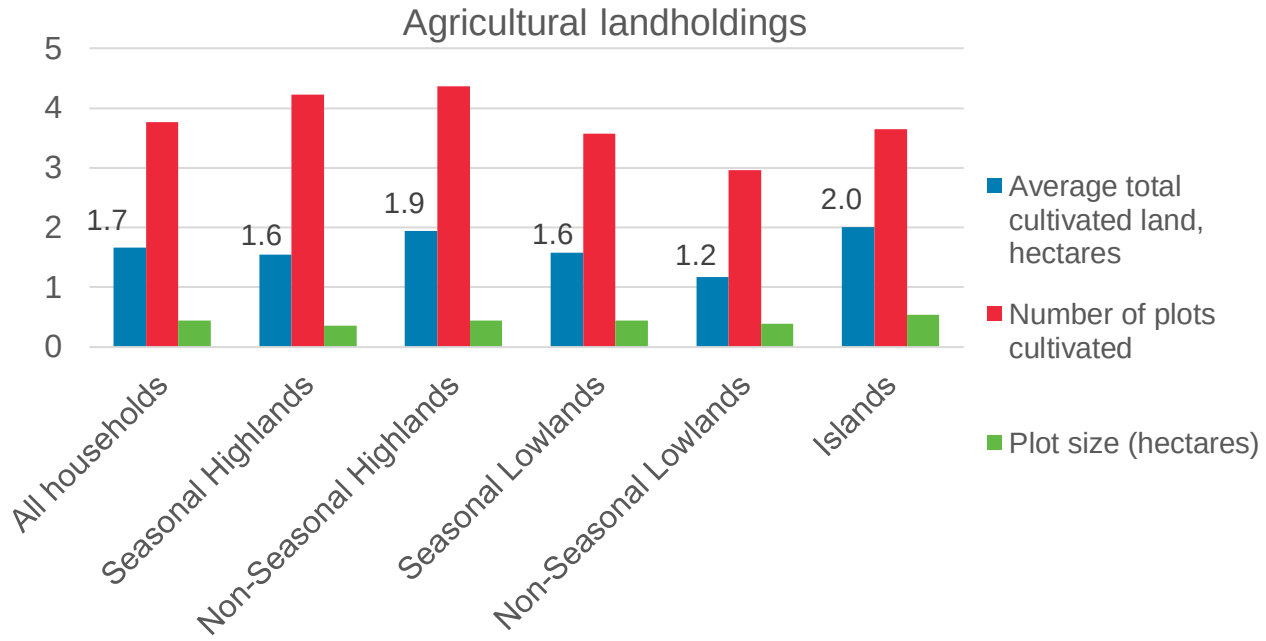
Household assets and livelihoods

- 56% of the sample reported being literate
  - Lowest: 40% in Seasonal Highlands
  - Highest: 73% in Islands
- 56% of the sample completed primary school
  - Lowest : 40% in Seasonal Highlands
  - Highest : 64% in Non-seasonal Lowlands and Islands
- On average, sample households cultivate over 1.5 hectares of land on 3-4 plots
  - Less agricultural land in non-seasonal lowlands
- Sample households have about 4 hectares of forested land that they are not currently cultivating





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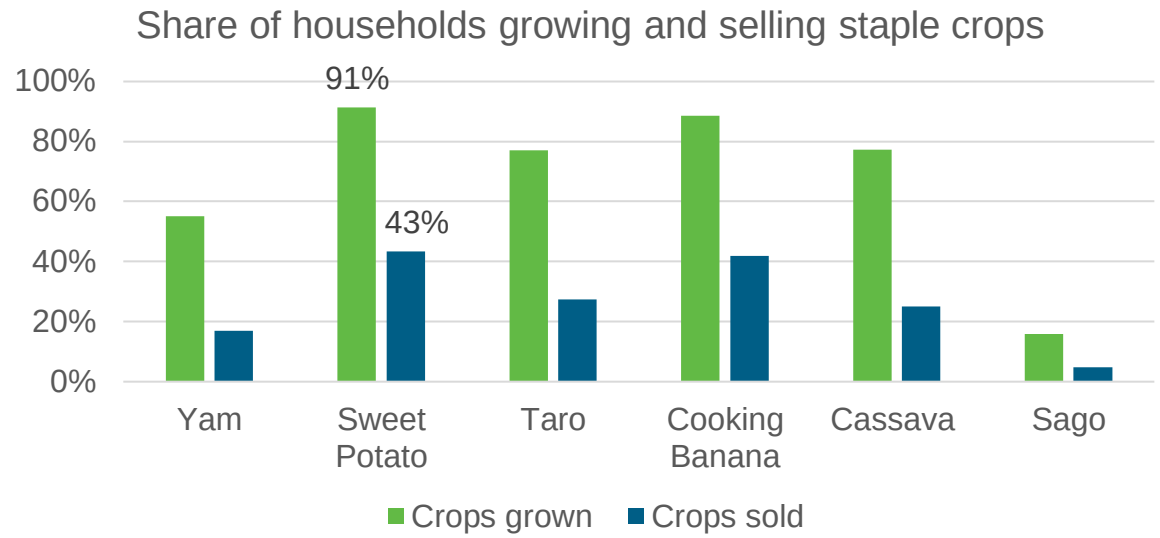
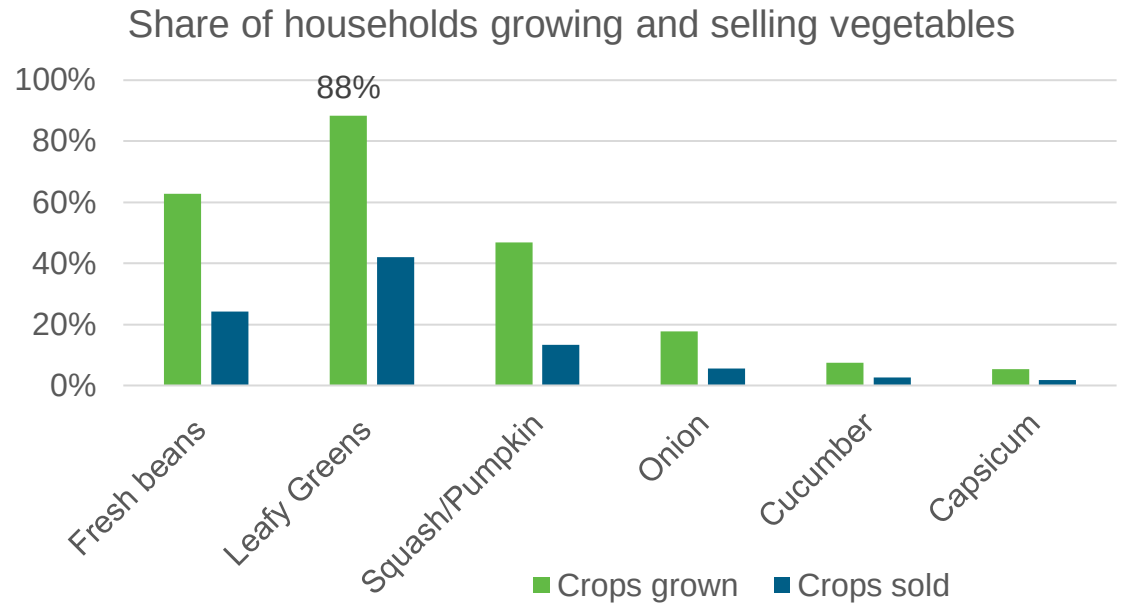
Agricultural production and sales

- Over 95% of sample households work in agriculture on their own land
- Almost all sample households grow staple crops
  - Fewer households sell surplus staple crops – about ½ the households that grow sweet potato, sell sweet potato
- Fewer households grow and sell vegetables
  - Most common: fresh beans, leafy greens, pumpkin and onion
  - Less than 10% grow other vegetables (carrot, cucumber, broccoli, capsicum, etc.)
  - Few households sell vegetables:
    - Lack of market access, transport, process and handling services





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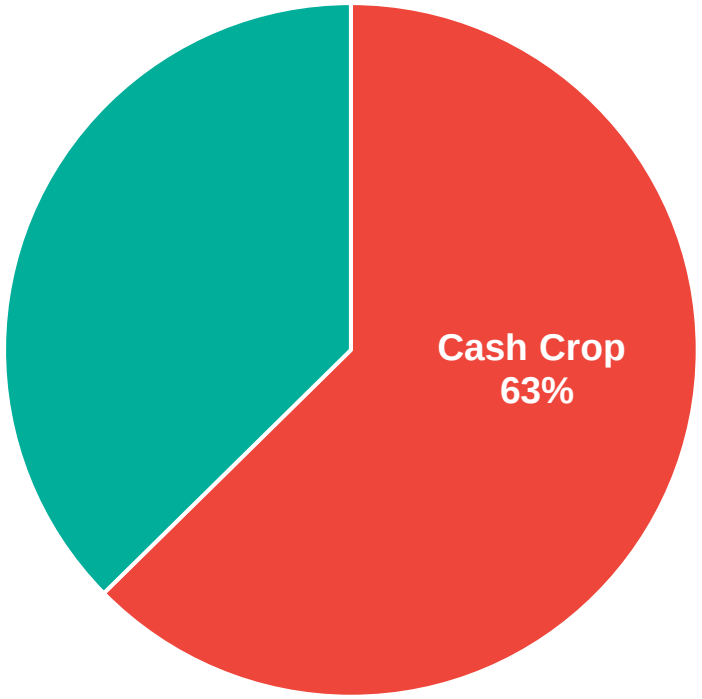
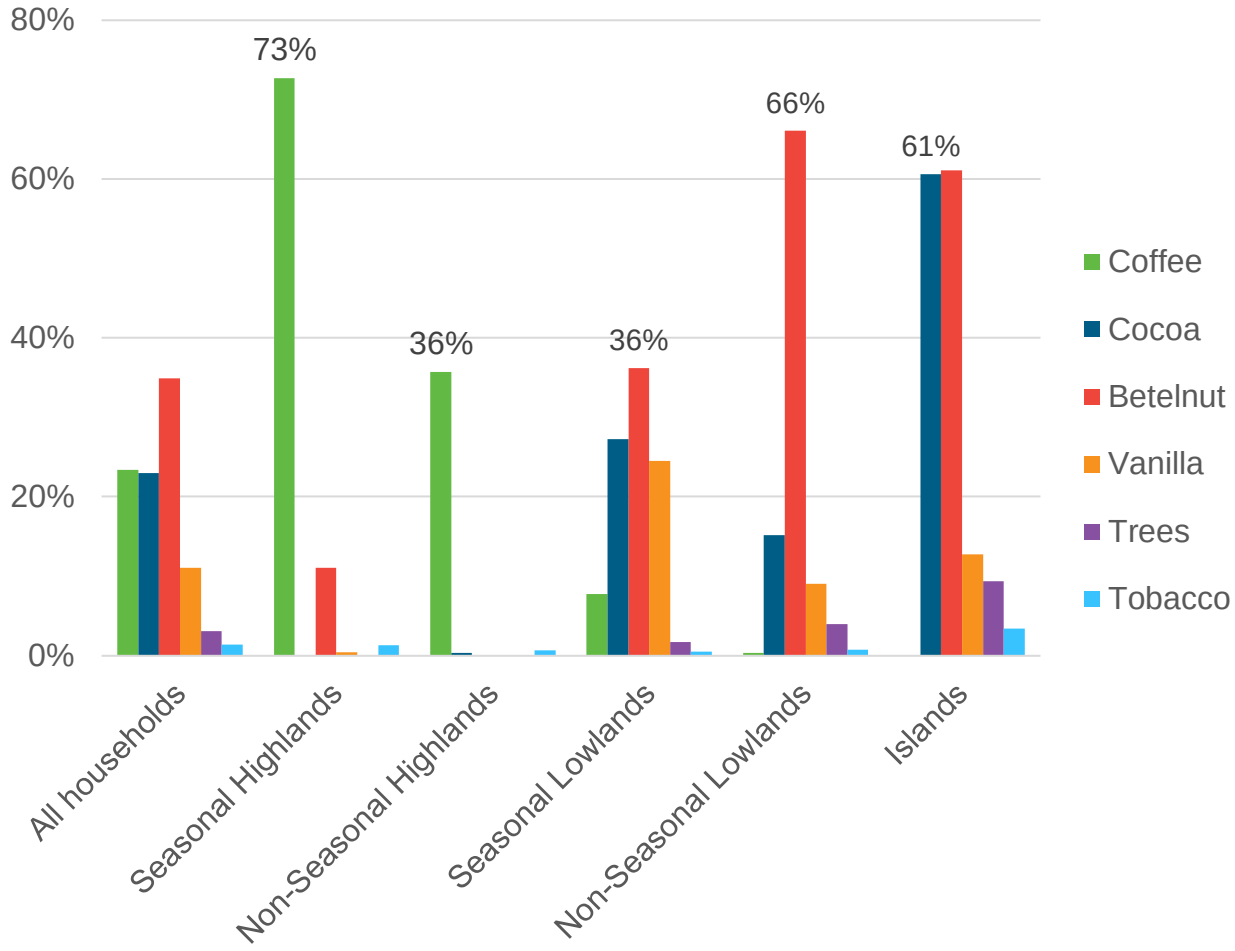
Agricultural and nonfarm income

Share of households that grow a cash crop



Share of households that grow different cash crops



- Coffee production dominates in the Seasonal Highlands
- Cocoa production prevalent in lower elevations – particularly the Islands strata (ARoB)
- Betelnut important in Lowland and Island stratas and some Seasonal Highland areas

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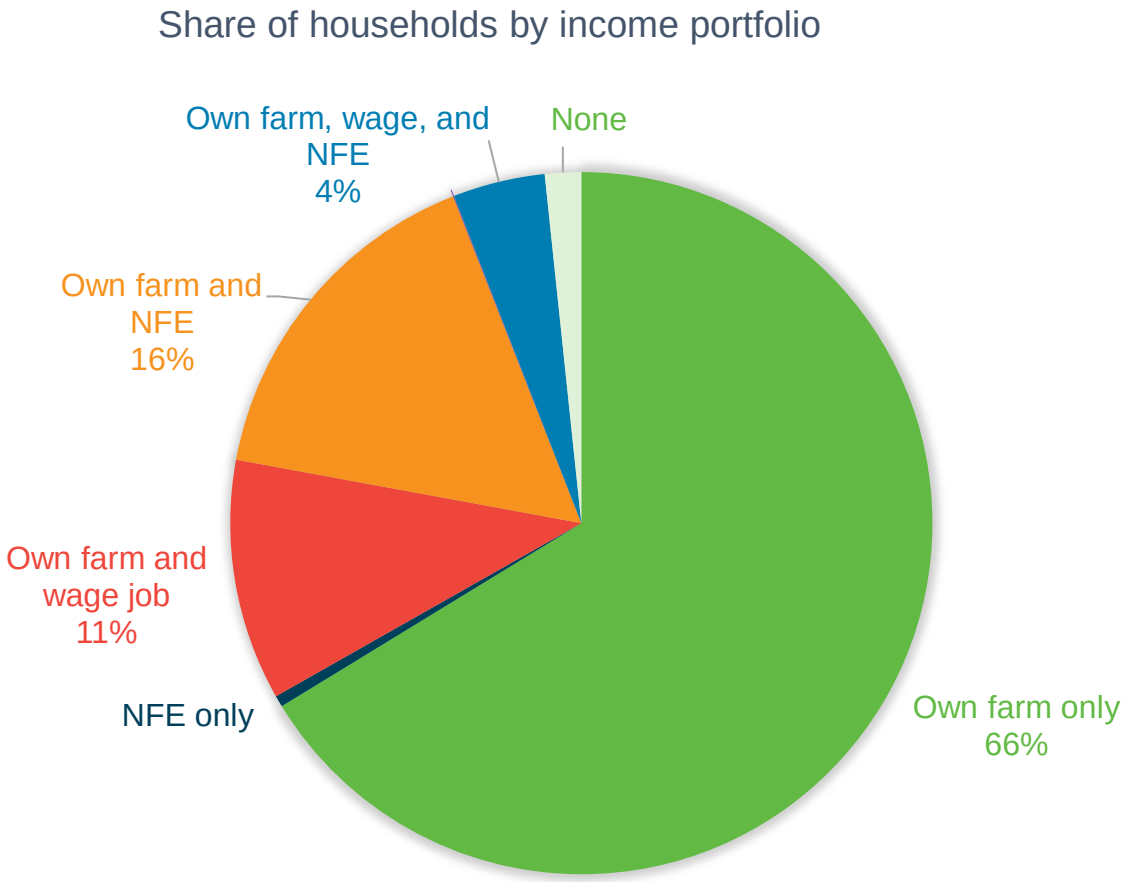

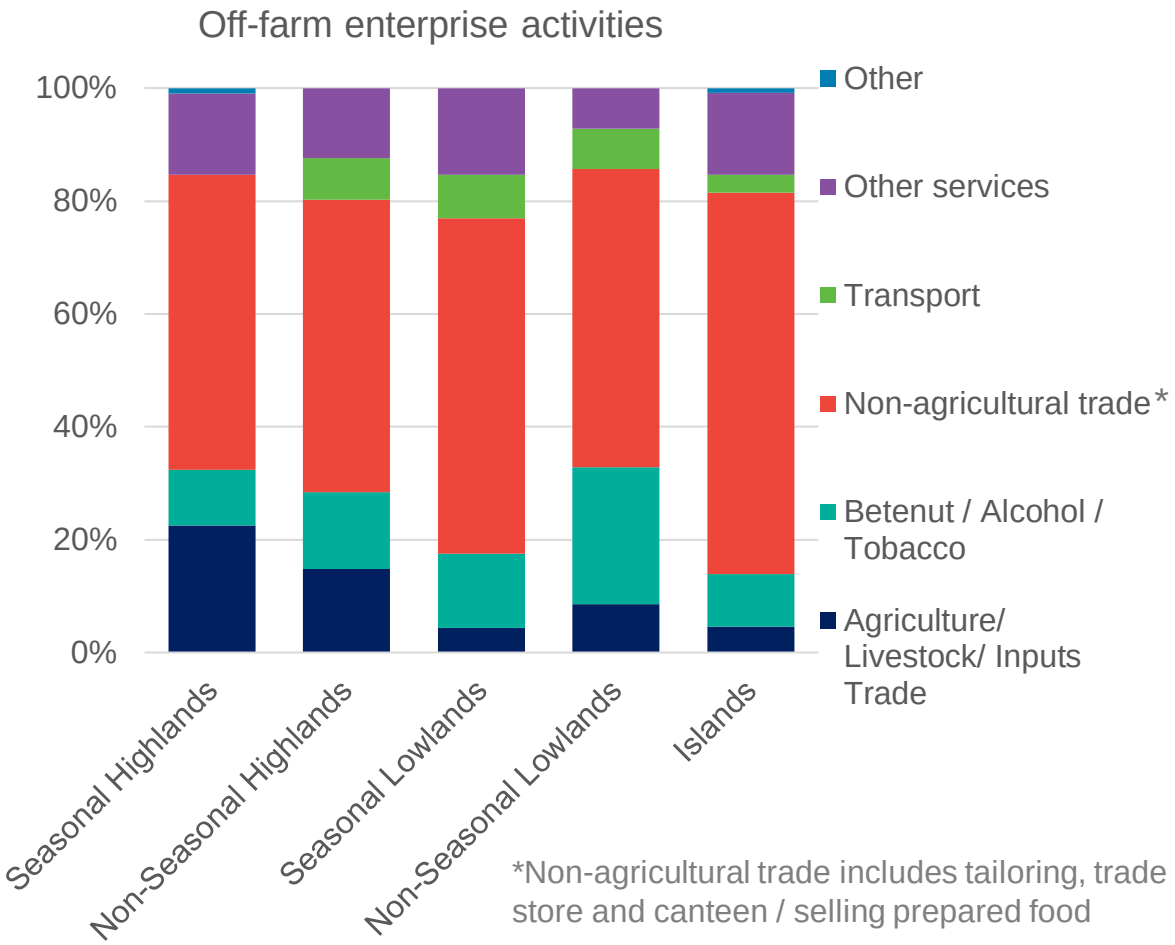

*Non-agricultural trade includes tailoring, trade store and canteen / selling prepared food

- 2/3 of household sample works solely on their own-farm agriculture
- 1/5 of households have a mix of own-farm and small business income – trade stores /canteens/sales of prepared foods
- Less than 1/6 of households work in wage employment

Agriculture and nutrition linkages

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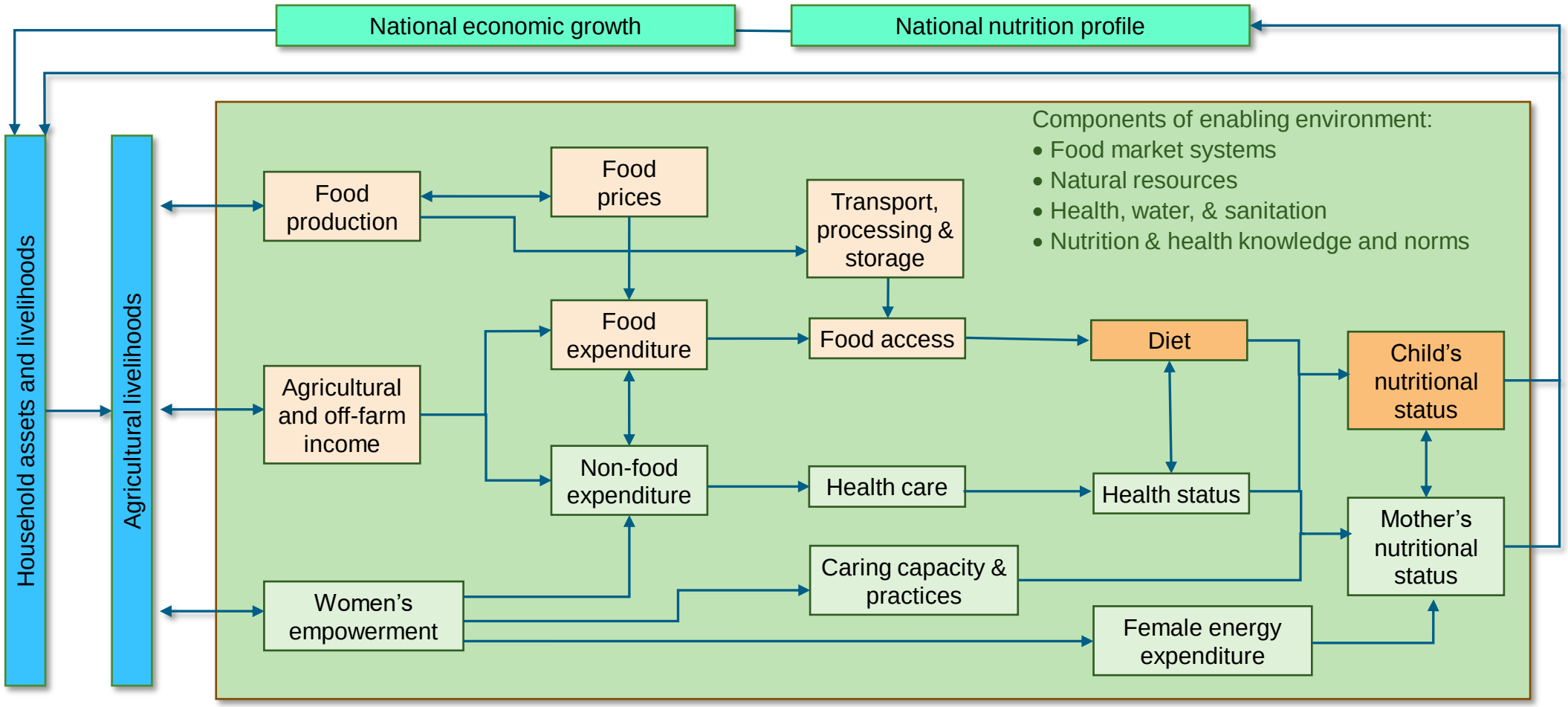

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Food consumption

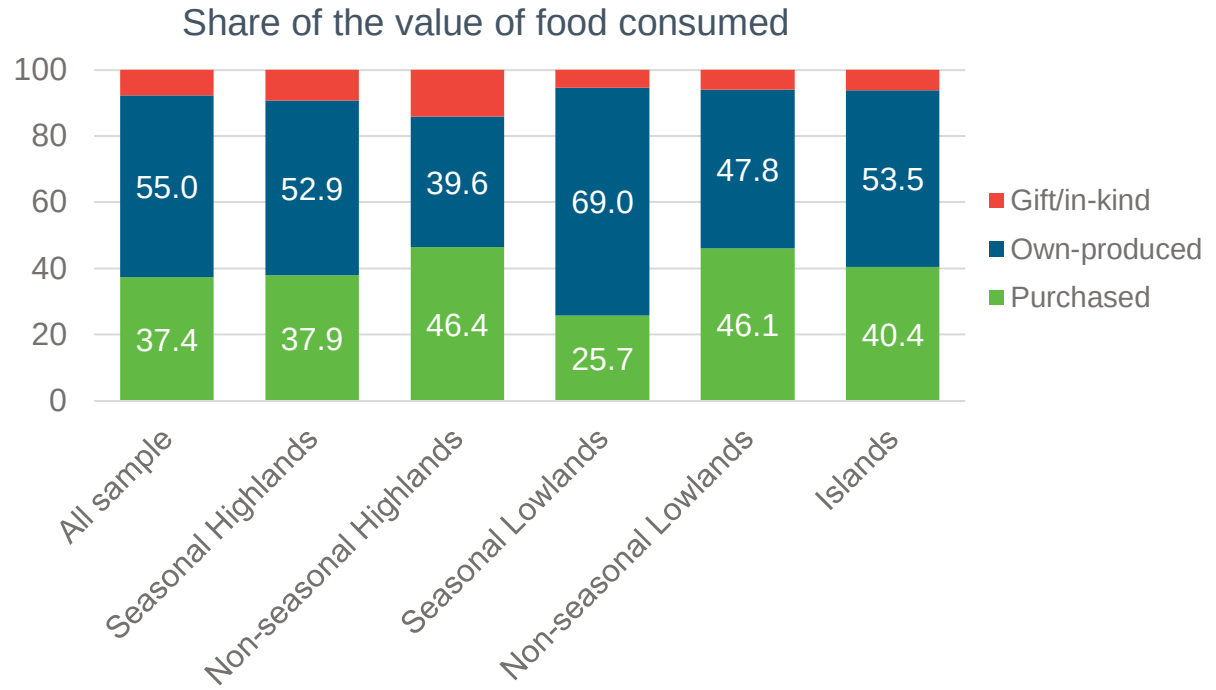
- Households reported quantities of food consumed from a detailed list of food types (last 7 days)
- Reported source of each food (own-produced, purchased, gifted)

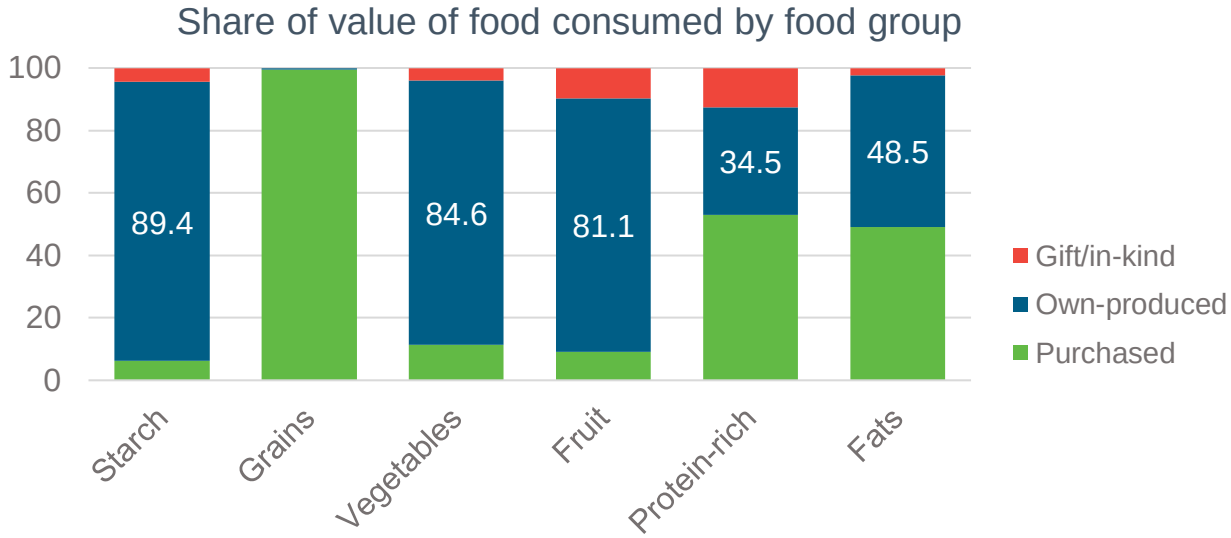
Share of value of food consumed

- For most areas, more than 50% of the value of food consumed comes from own gardens.

Share of value of food consumed by food group

- Most starches (yam, sweet potato, cassava, etc.), vegetables and fruit are sourced from own-gardens





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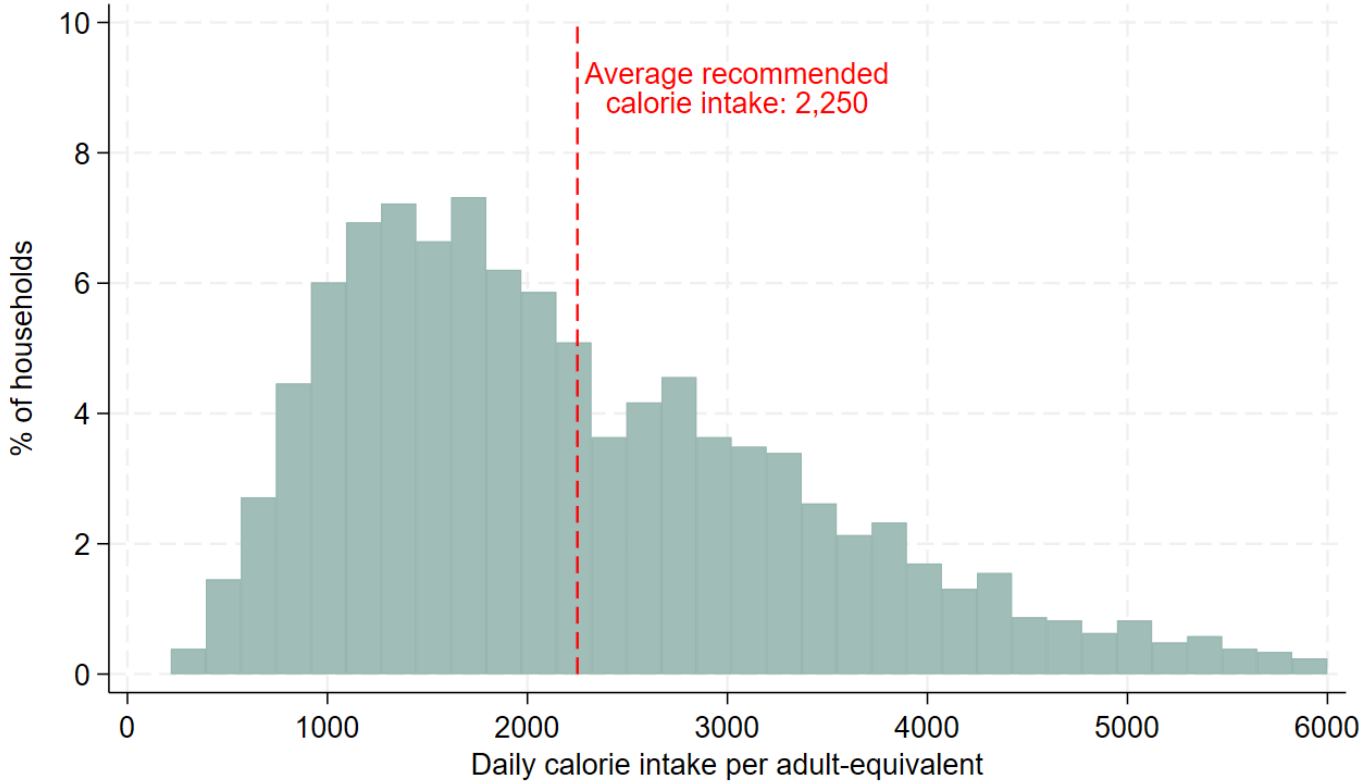
Food consumption

- More than half of the survey sample does not report consuming the 2,250 kcal/ adult equivalent/ day threshold
- More than half of average caloric intake is from staple food items (sweet potato, sago, rice etc.)
- Few calories from vegetables and fruits comprise the overall household food basket
- Fats represent an important calorie source of the rural diet (coconut milk)



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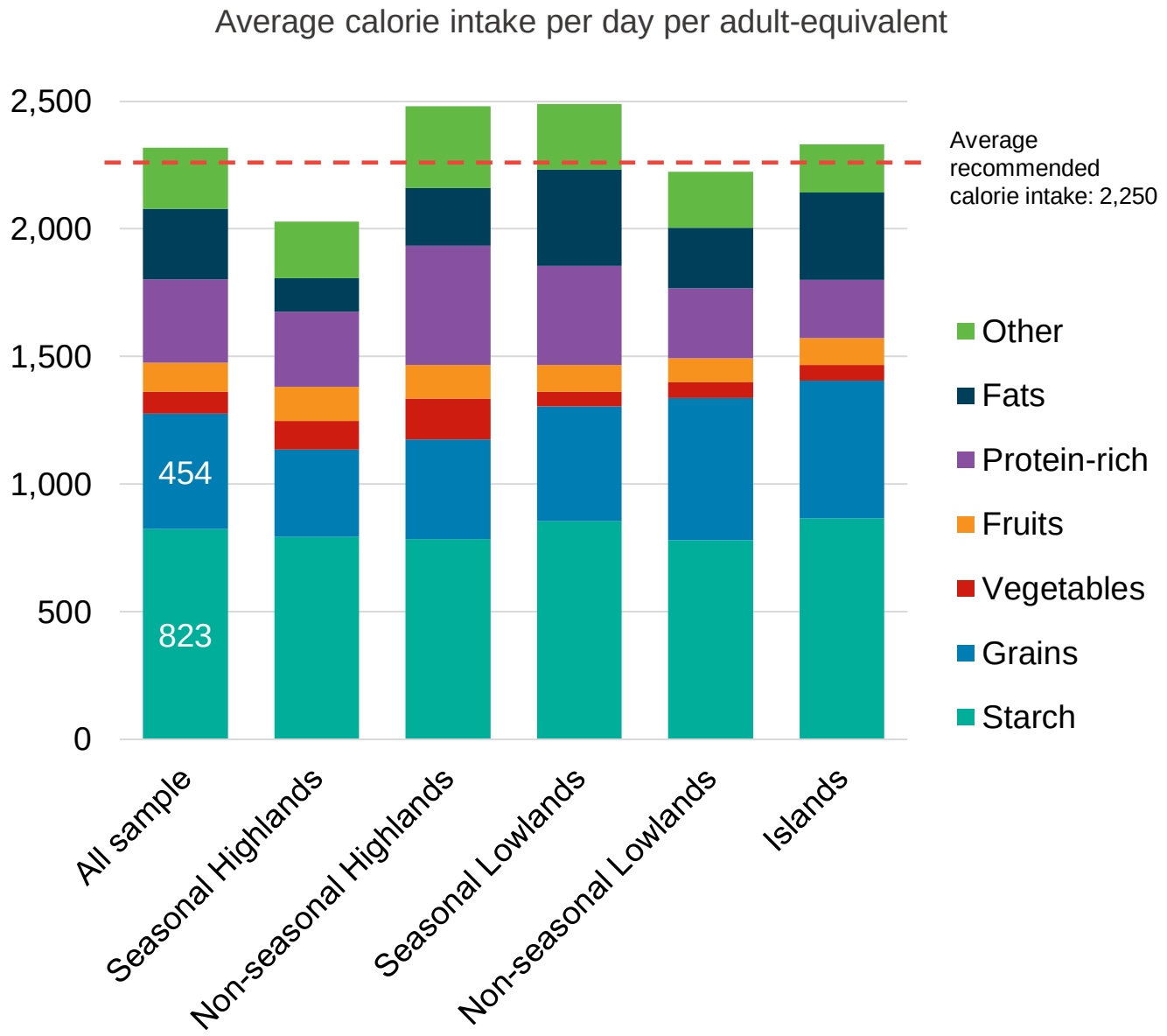

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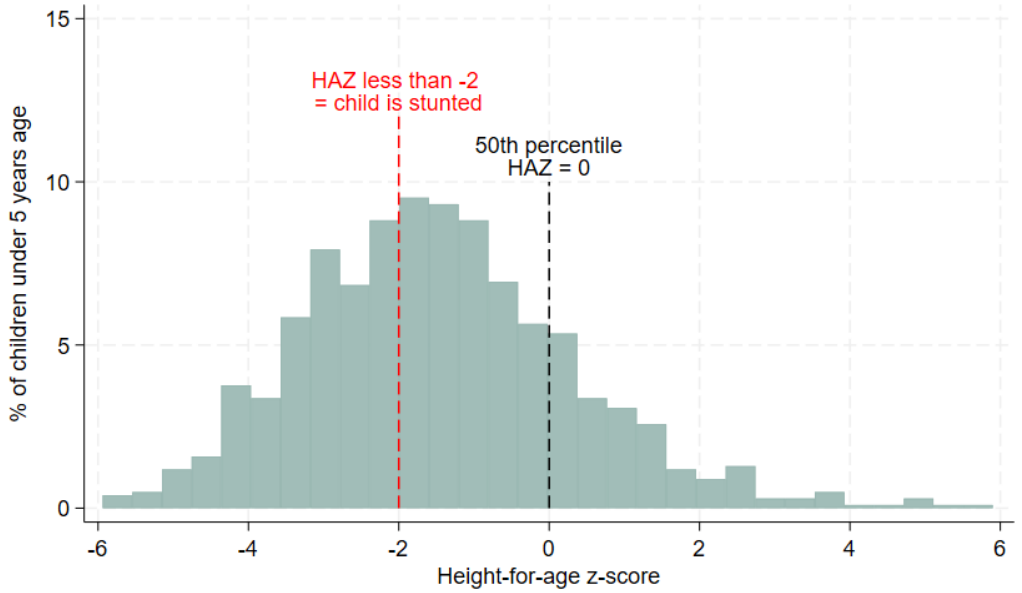
Anthropometry

Stunting is an extreme deviation from expected growth (too short for one's age).

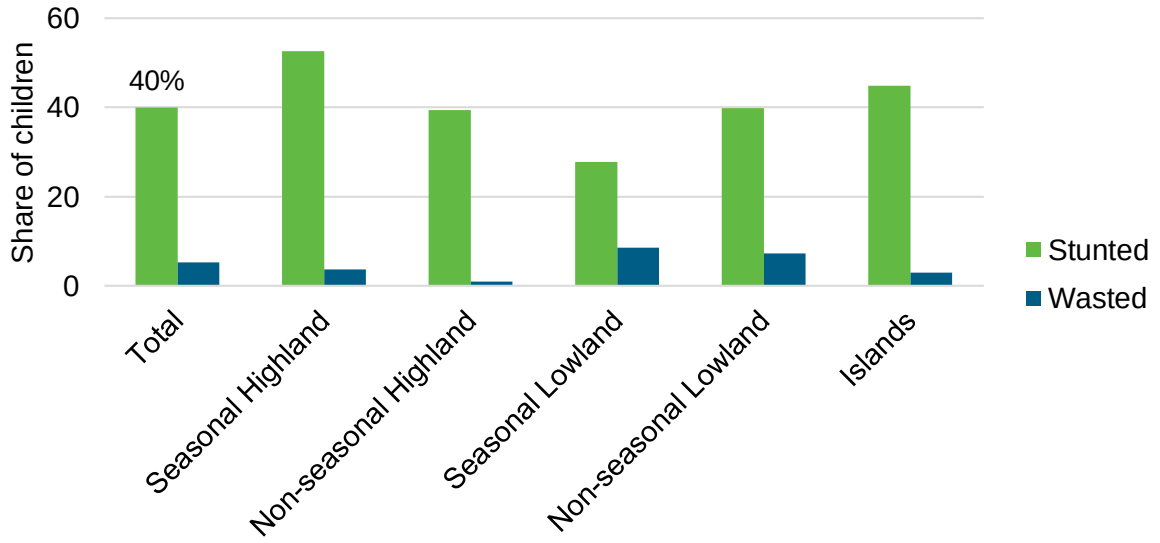
- **Increase children's vulnerability** to sickness and premature death
- **Inter-generational** effects – malnourished / stunted mothers → increased risk of difficult births or small babies
- **Highlights deficient environments for child growth**
  - Poor food/nutrient availability
  - Inappropriate child feeding or care practices
  - Repeated infections or illness

Wasting is too thin for one's height

- Evidence of **acute deprivation** or illness
- Often evidence of **short / medium term shock**
- **Increased risk of mortality** for wasted children



Share of children under 5 that are stunted or wasted



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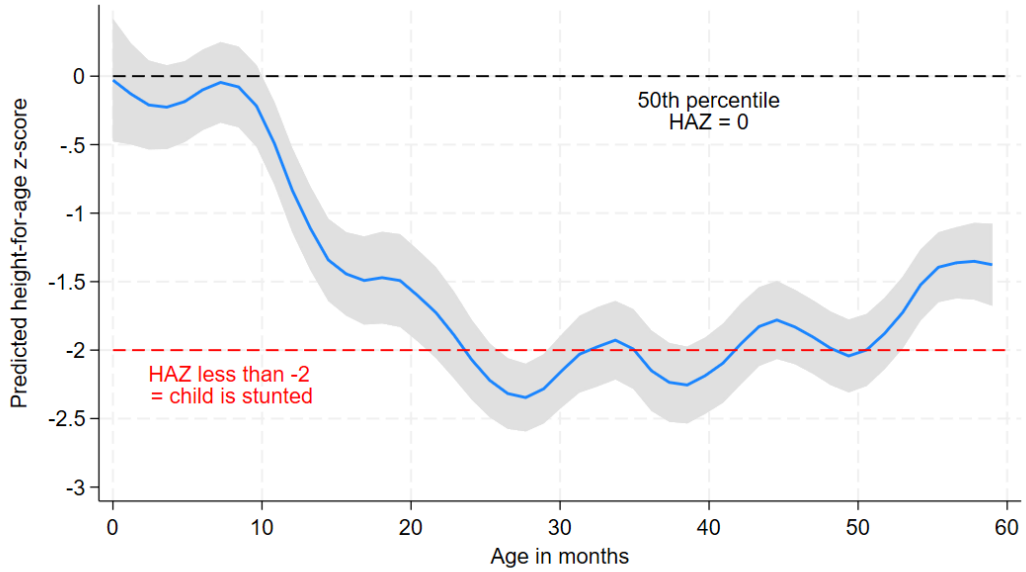
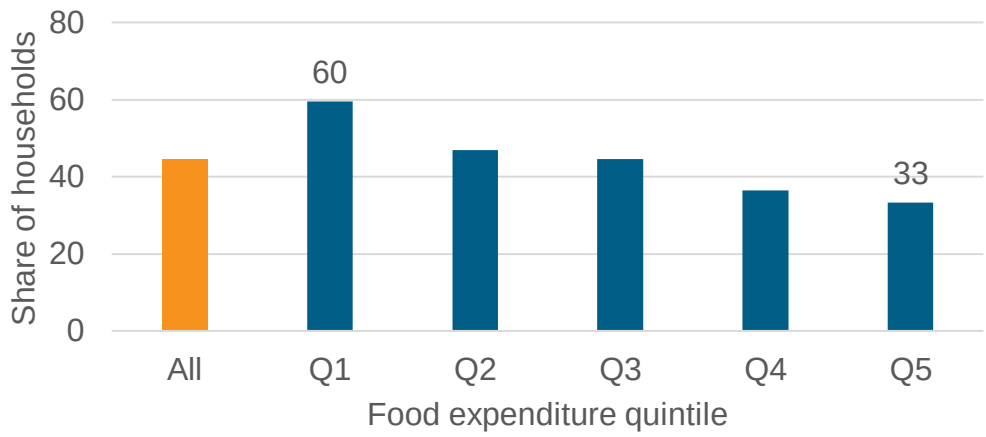
Anthropometry

- Stunting measure by Height for Age Z-score (HAZ)
- On average, at birth sample children are near the 50th percentile (HAZ=0)
- 7 months – 2 years of age: sharp decline in HAZ
  - Weaning from exclusive breastmilk to other foods and liquids
  - Food preparation, sufficient quantity and diversity becomes more important
  - Water treatment becomes important
- Likelihood of having a child who is stunted decreases by food expenditure quintile

Height for age z-score between 0-59 months



Share of households with a child that is stunted by food expenditure quintile



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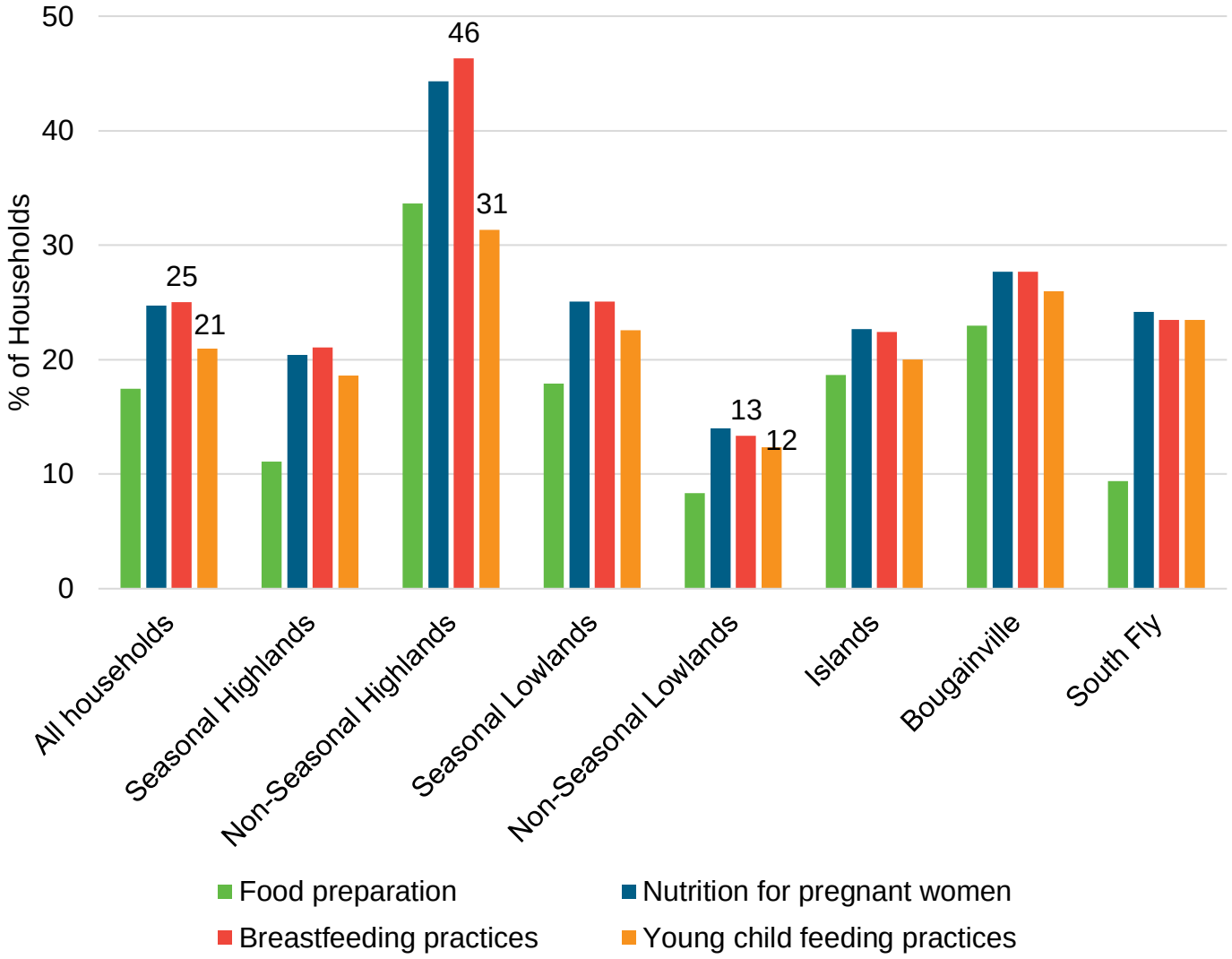
Food preparation, nutrition and feeding training

- **Stunting can highlight a deficient environment for child growth:**
  - Food/nutrient availability
  - Child feeding or care practices
  - Repeated infections or illness
- About ¼ of households have received information / advice on breastfeeding or nutrition for pregnant women.
  - Greater healthcare extension received in non-seasonal highlands
  - Least healthcare extension received in non-seasonal lowlands



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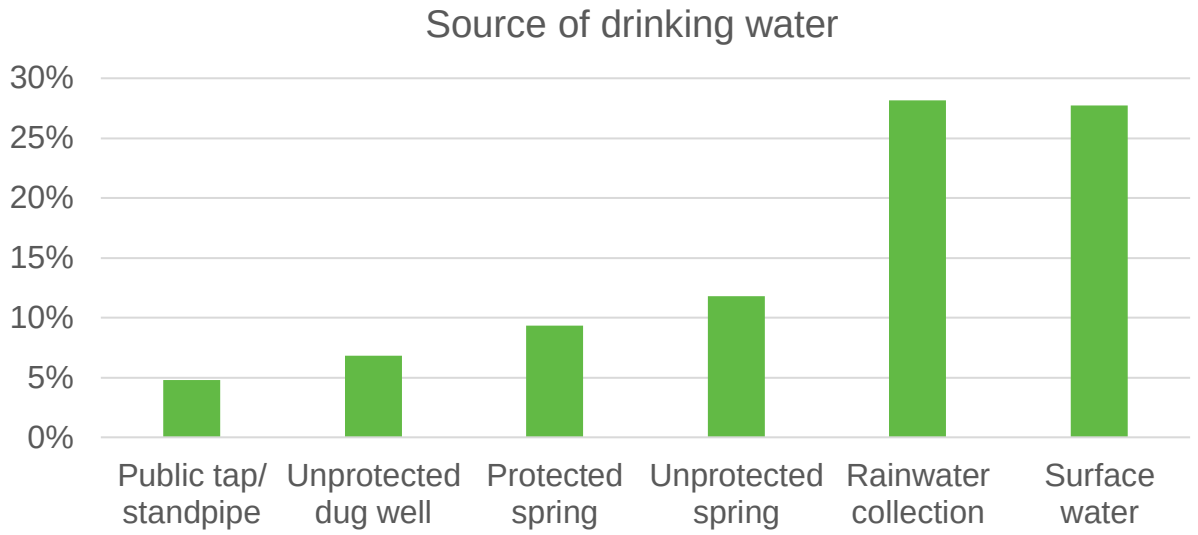
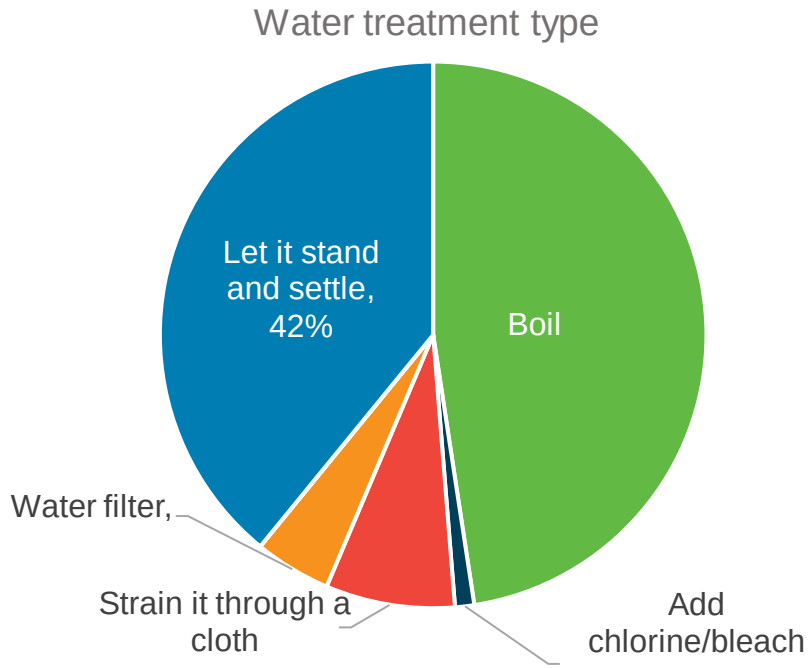
Access to drinking water and treatment

- **Stunting can highlight a deficient environment for child growth:**
  - Poor food/nutrient availability
  - Inappropriate child feeding or care practices
  - Repeated infections or illness
- Majority of drinking water comes from rainwater collection, surface water or springs
- Approximately 15% of households report treating their water before drinking
  - Of those that treat their water:
    - 42% let water stand and settle
    - 52% boil water





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Final thoughts and upcoming work

Research

- Socio-economic analysis of food security and resilience
- Agriculture and nutrition linkages
- Off farm employment and household welfare outcomes
- Linkages of agriculture and environmental services
- Simulation modeling of climate change and mitigation

Capacity strengthening

- Food commodity simulation modeling in Washington DC
- Survey analysis course (UPNG and hands-on analysis)
- Data collection and database management
- Data driven policy analysis with government departments

Policy dialogue

- Hands-on collaboration with key government partners
- Annual workshop on research results
- Meetings with provincial government partners
- Collaboration with ACIAR and other intl. stakeholders

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A special thanks to the Institute of National Affairs and our incredible enumerator team

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Thank you…

This has been a major collaborative effort:

- PNG Department of Health and the PNG-UNICEF office partnered with IFPRI to collect the anthropometry data
- National Statistical Office for community and household roster and sampling consultation
- Institute of National Affairs (INA) is the survey implementing partner and worked tirelessly to resolve on-the-ground challenges during survey collection
- Australia High Commission in Papua New Guinea
- Australian Department of Foreign Affairs and Trade (DFAT)
- Australia Papua New Guinea Sub-National Program (implemented by Abt Associates) for on-the-ground logistics and in-kind support in South Fly data collection area

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Extra slides

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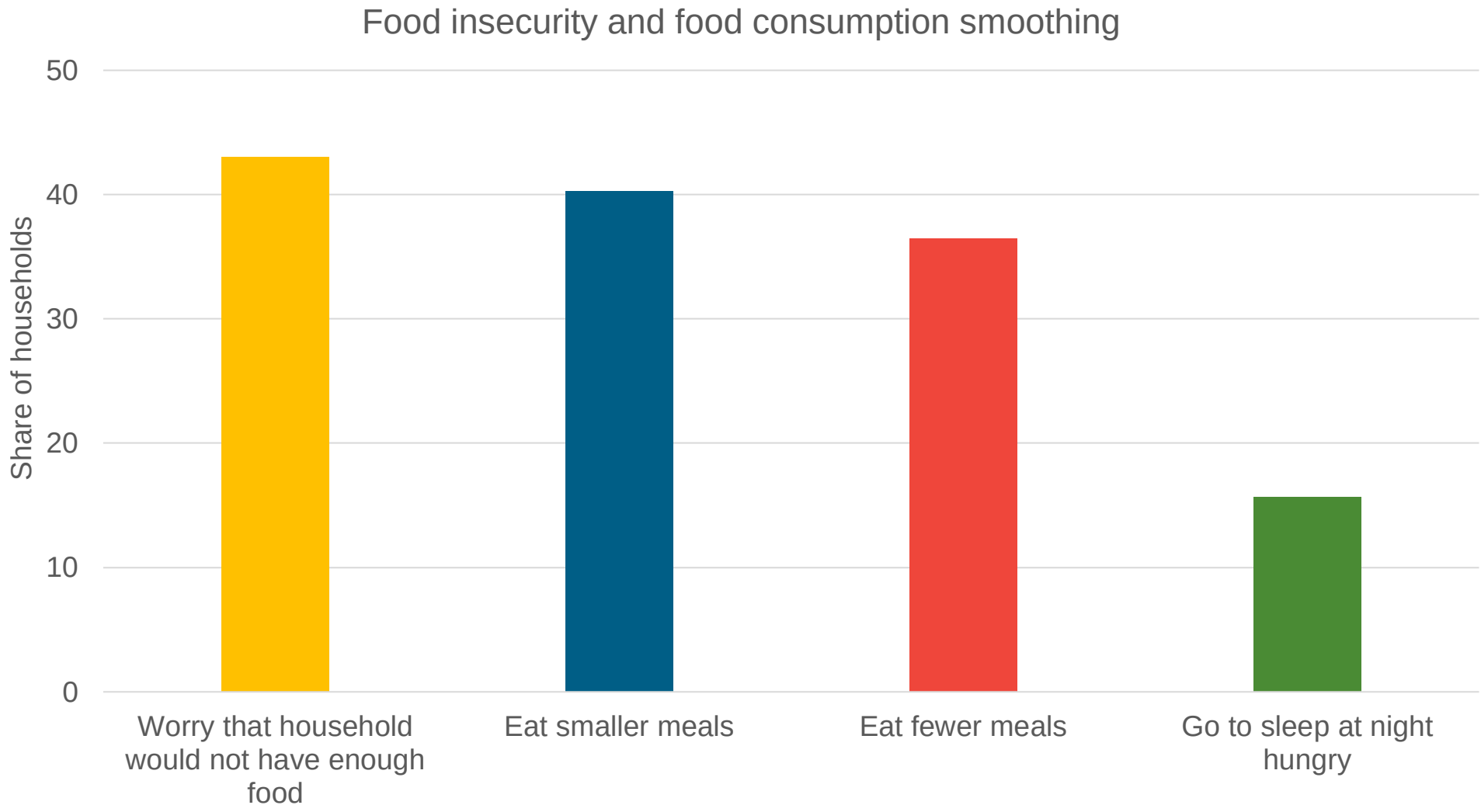
Perception of food security



* During the 4 weeks prior to survey interview

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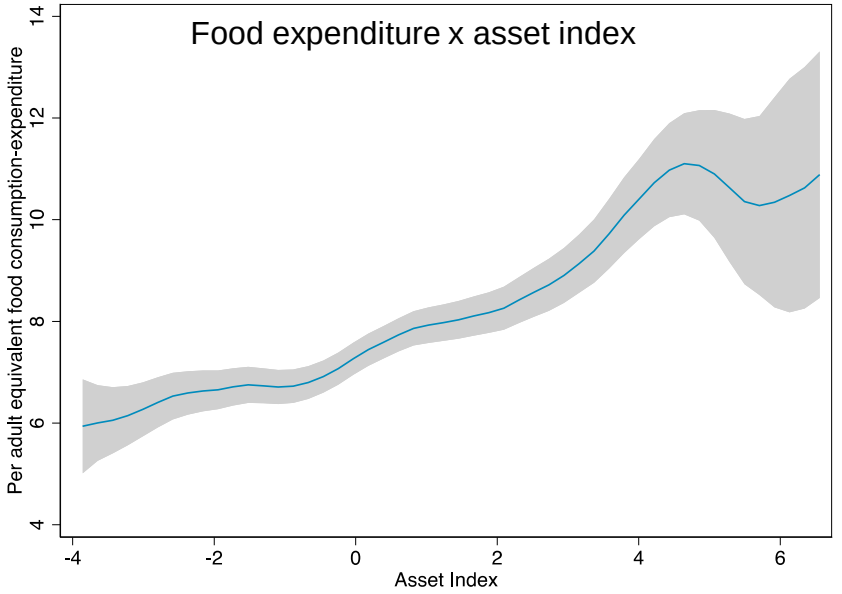
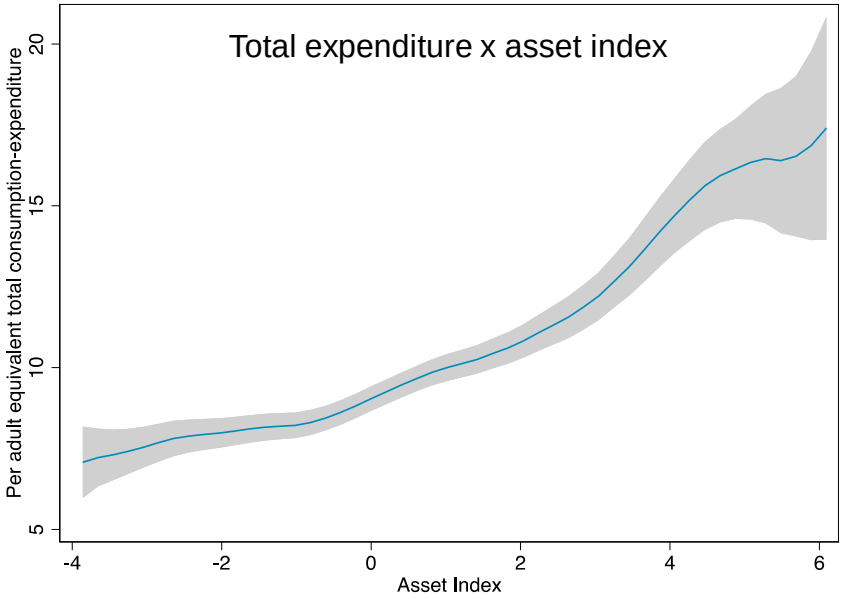
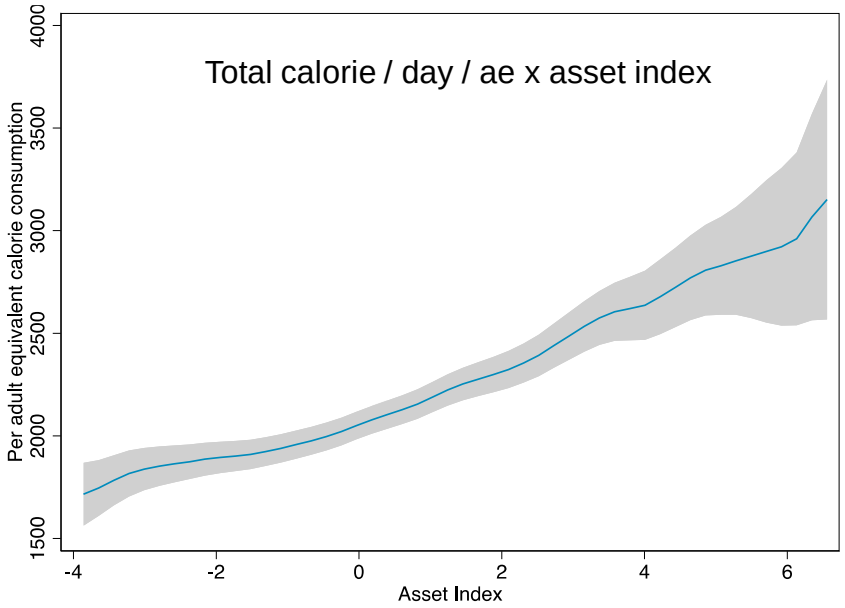
Food consumption







Note: Gray shaded area indicates 95% confidence interval.

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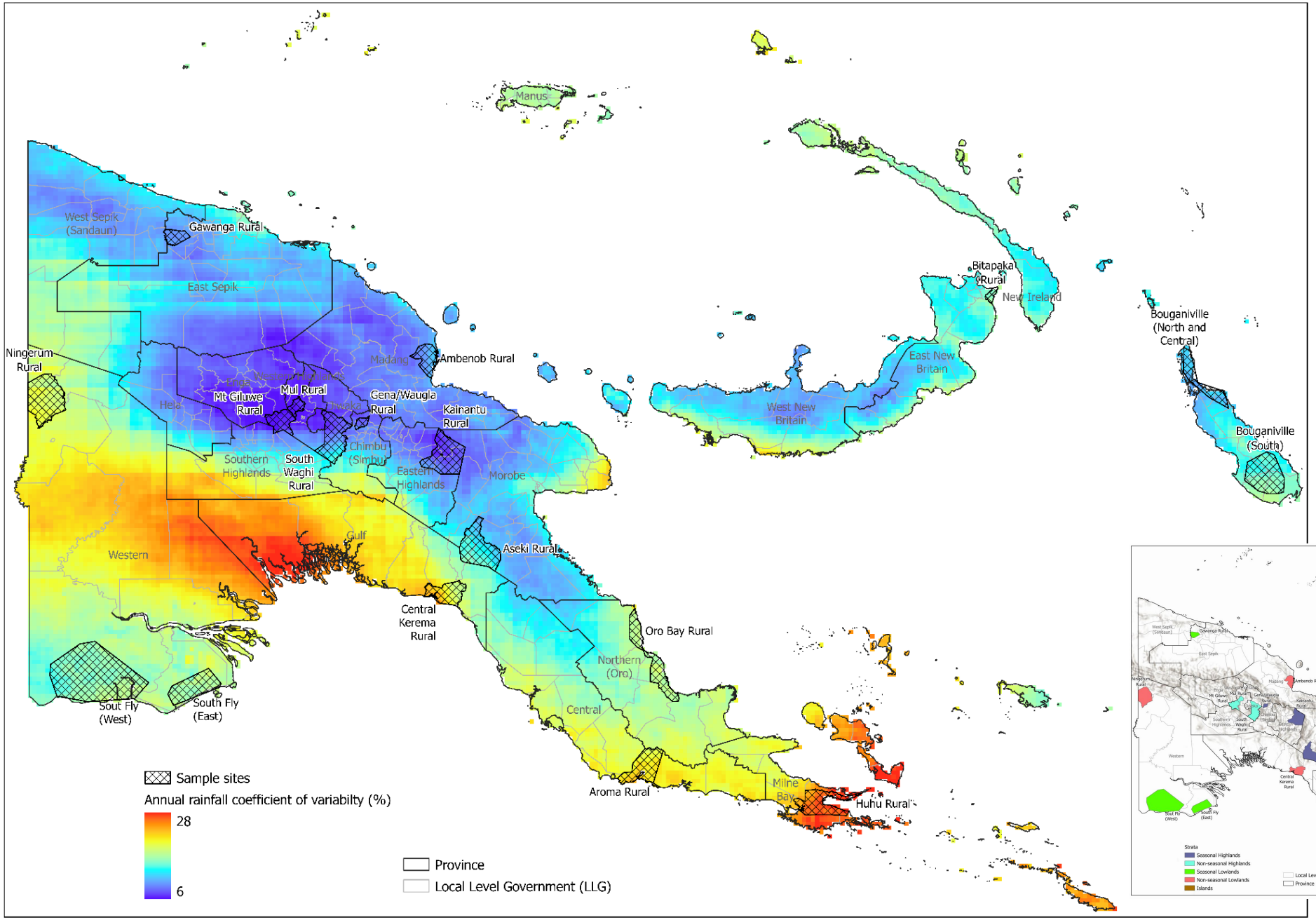

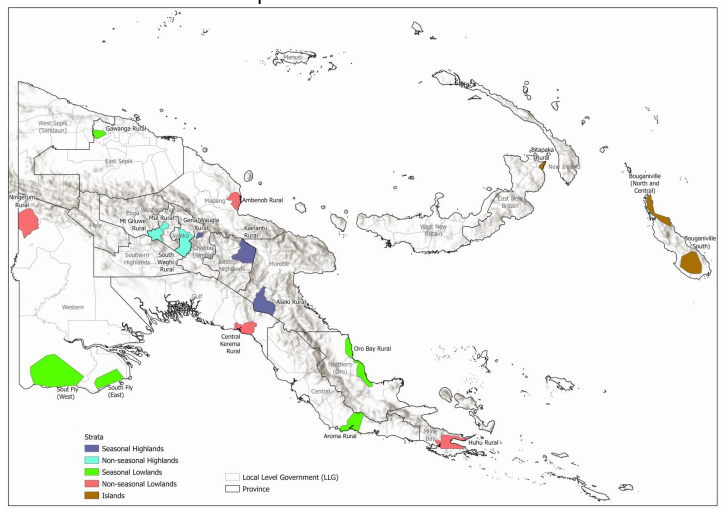

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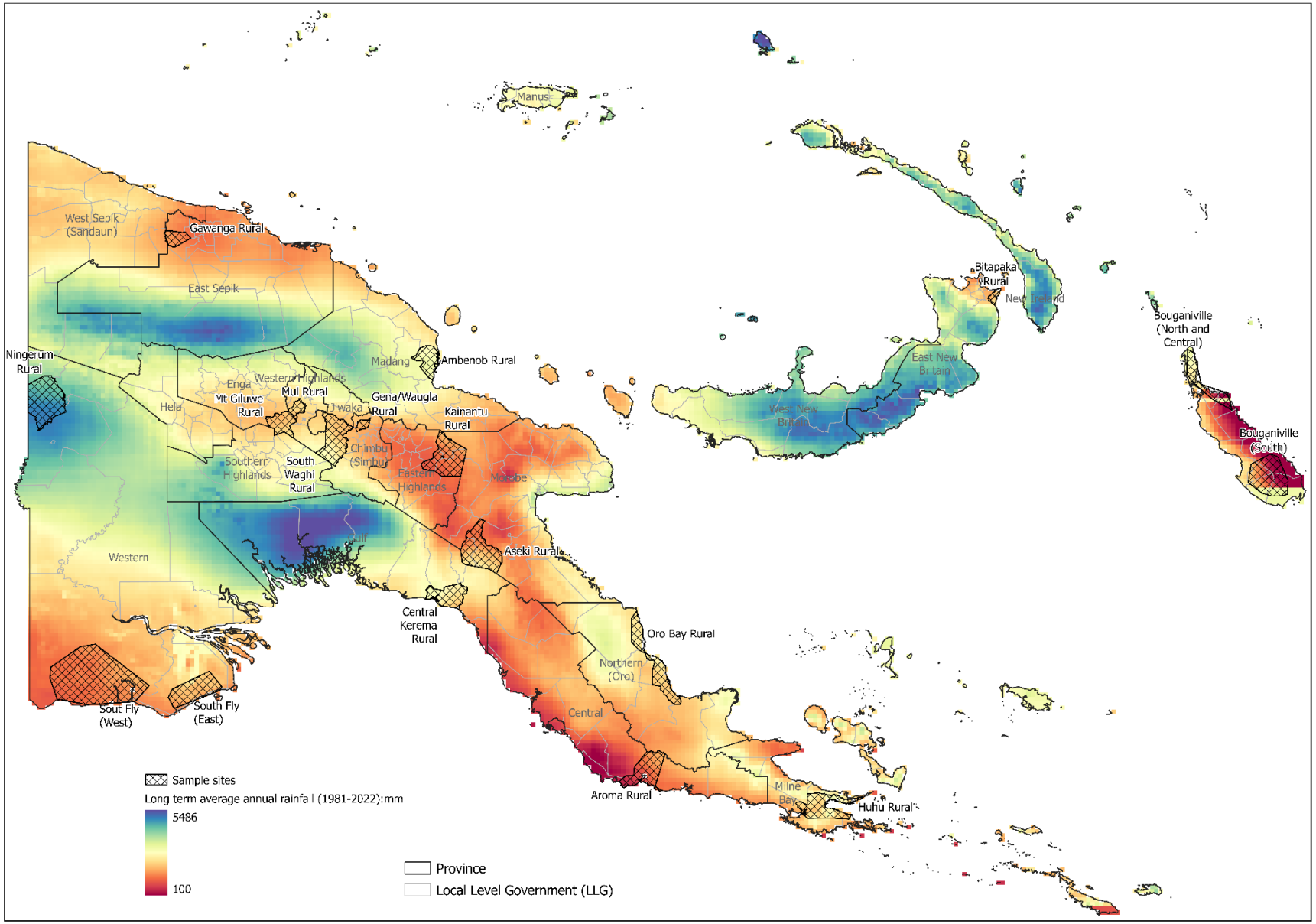

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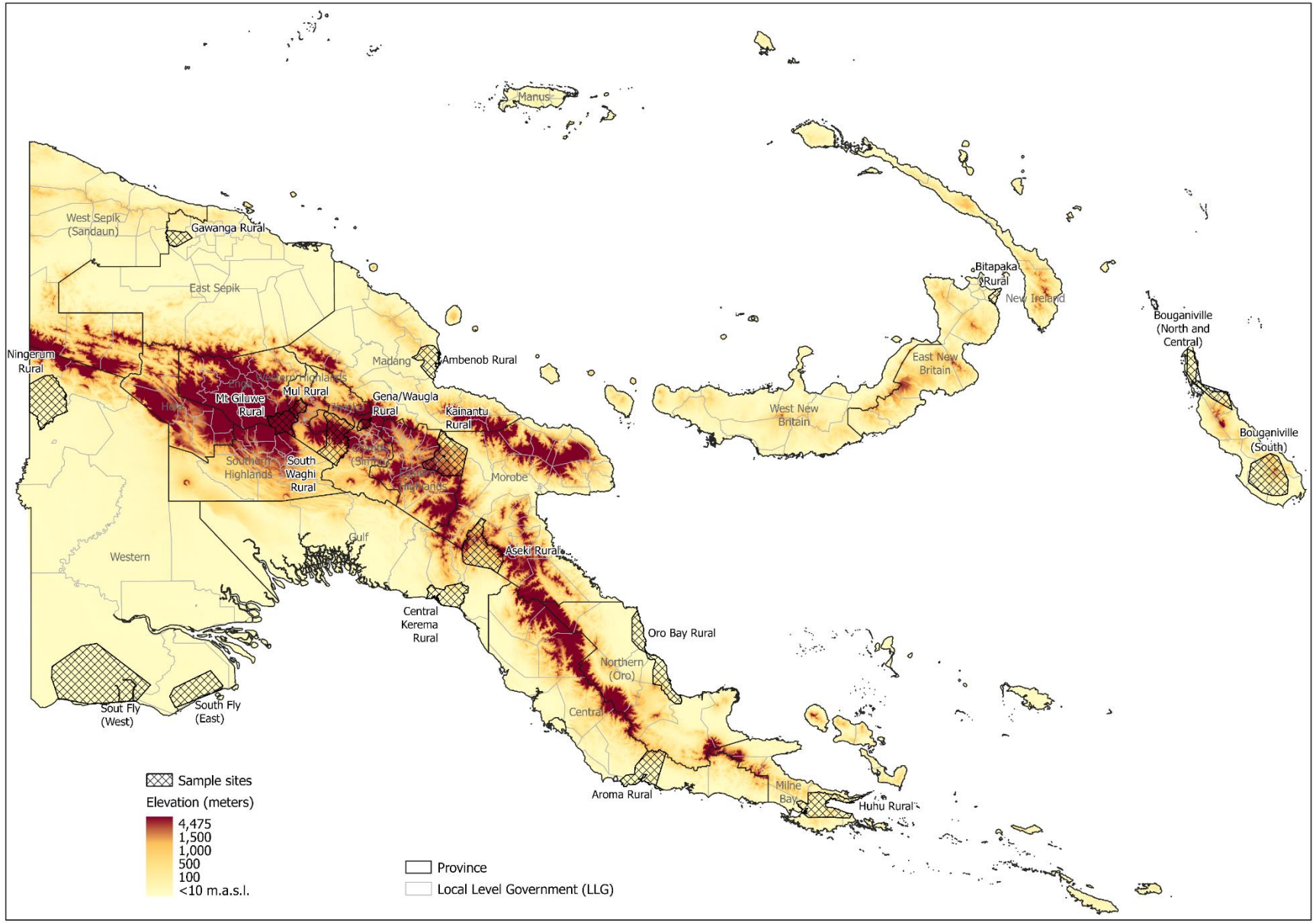

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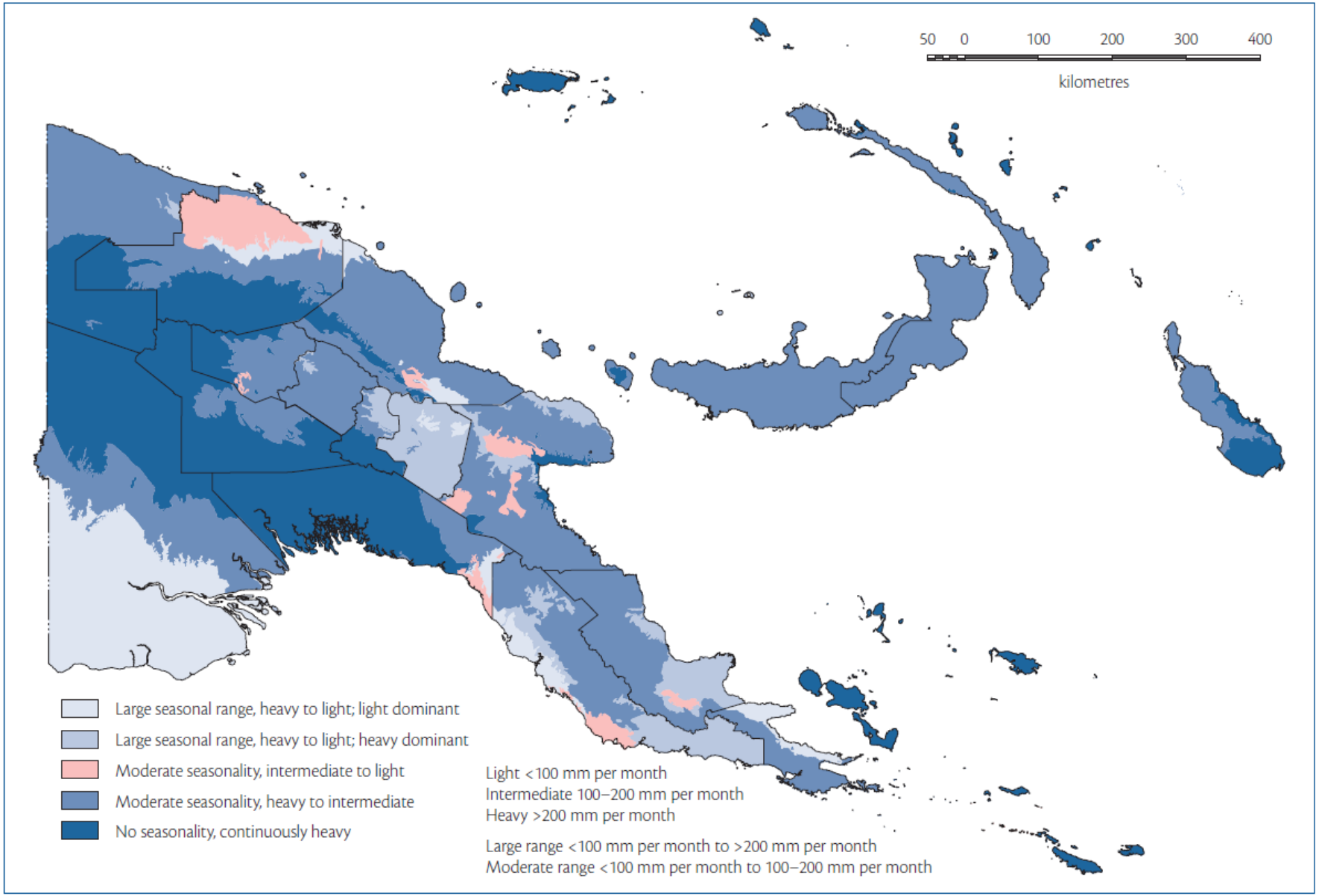

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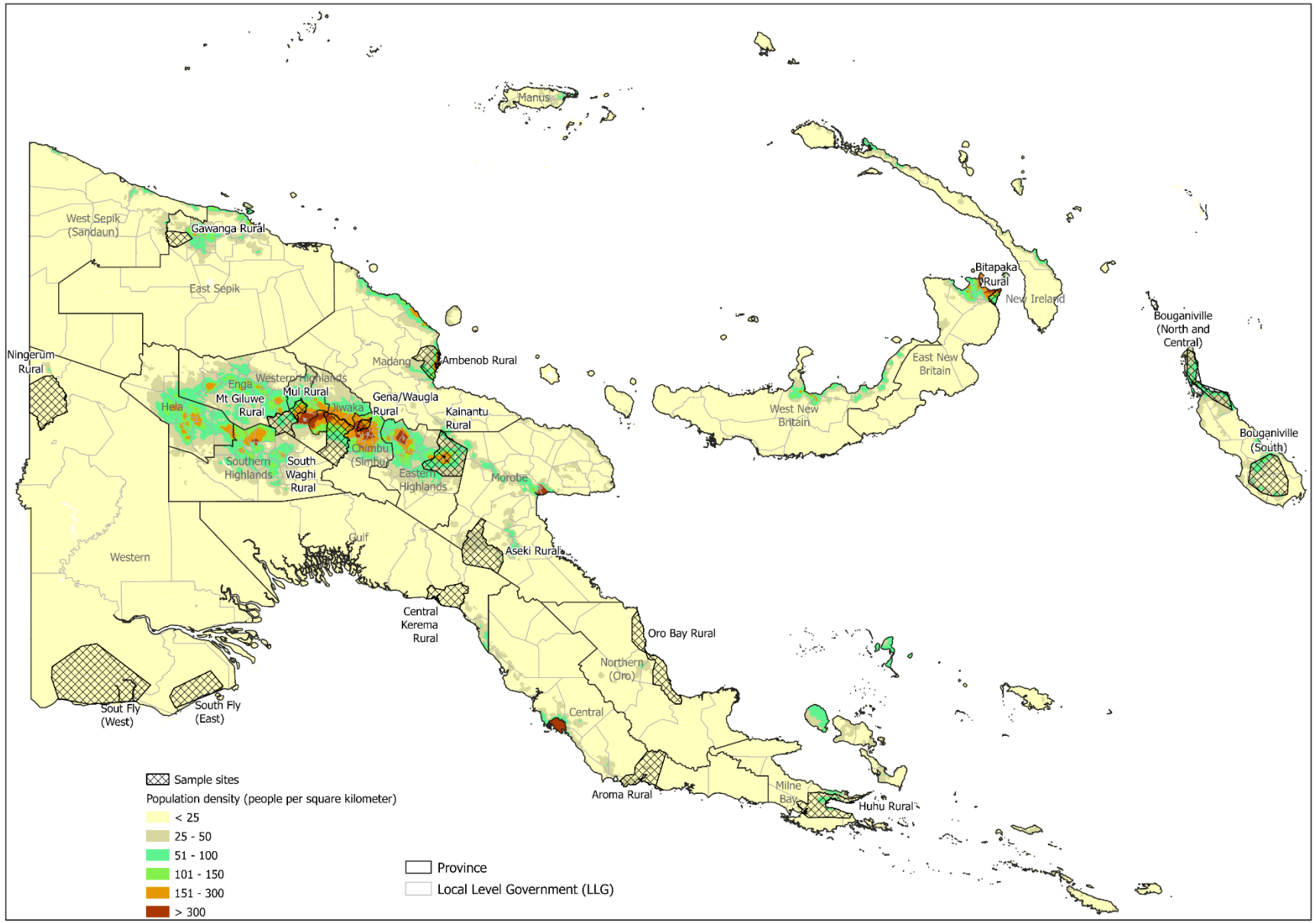

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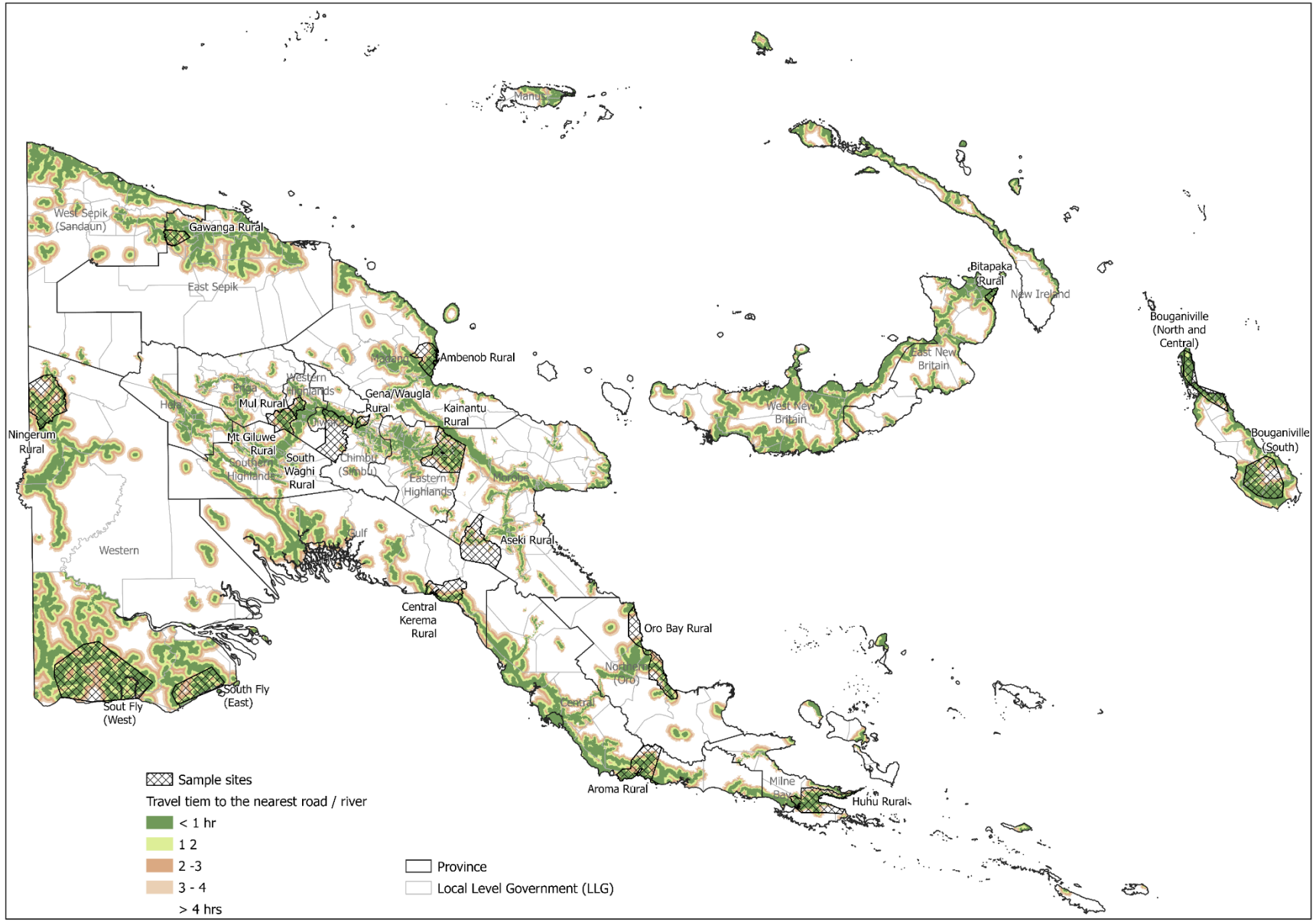

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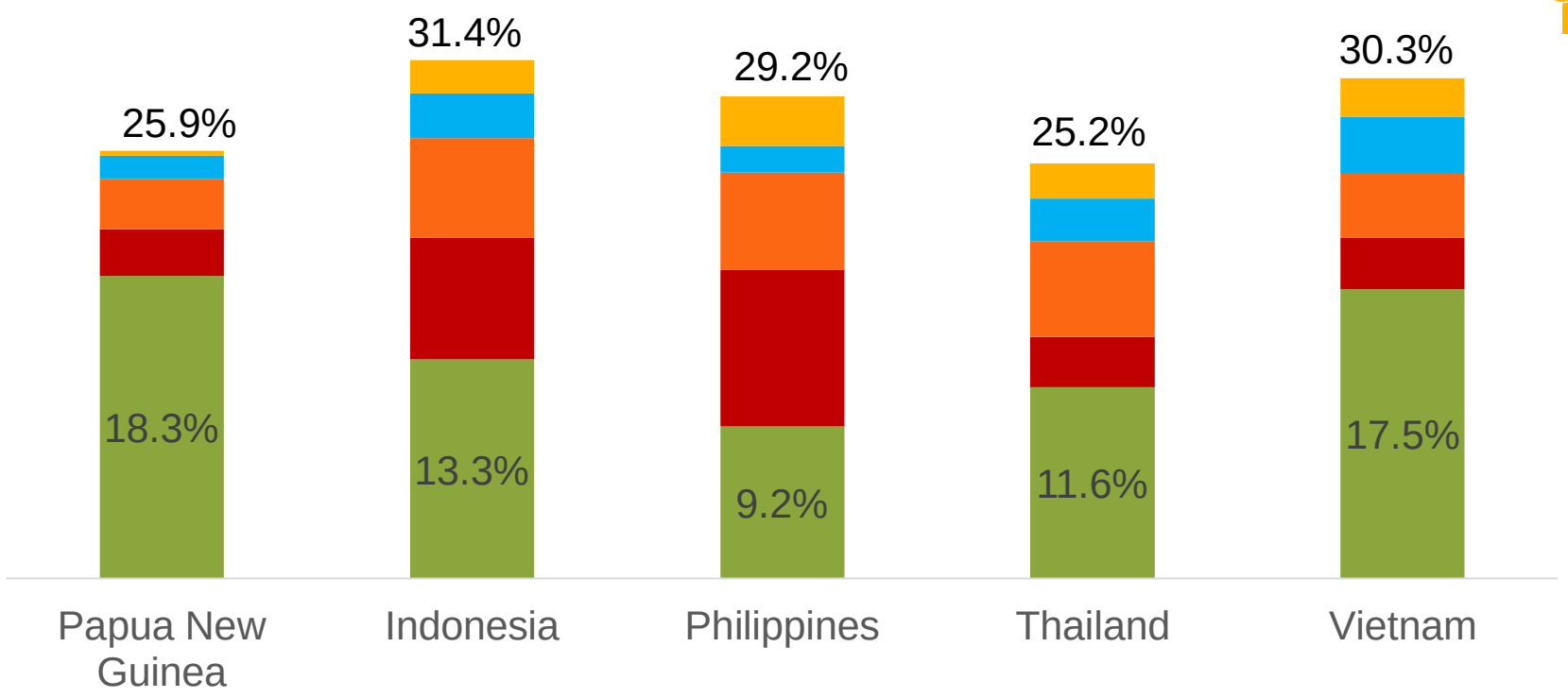
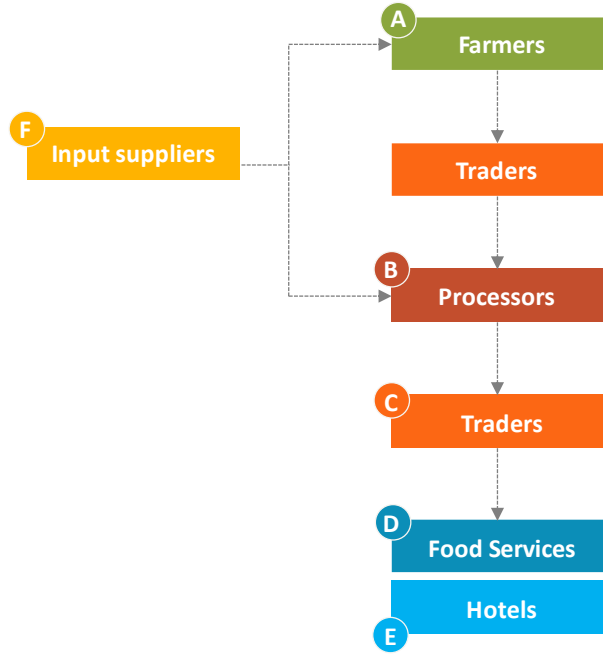
DRAFT – NOT FOR CIRCULATION

Total agri-food system GDP+ (including downstream agricultural manufacturing and trade) accounts for 25.9% of GDP in PNG





- Within SE Asia and Pacific, Indonesia and Philippines have agri-food systems that are 2.9 and 3.2 times the size of agriculture sector