FNG
FILL THE NUTRIENT GAP
SYSTEMS ANALYSIS FOR NUTRITION

Fill the Nutrient Gap Cambodia

Climate Change, Food Systems, and Nutrition Nexus
20 September 2023

NUTRITION SITUATION ANALYSIS

ទីស្ដីការគណៈរដ្ឋមន្ត្រី
ក្រុមប្រឹក្សាស្ដារអភិវឌ្ឍន៍វិស័យកសិកម្ម និងជនបទ (ក.ក.ជ.)

WFP
World Food Programme

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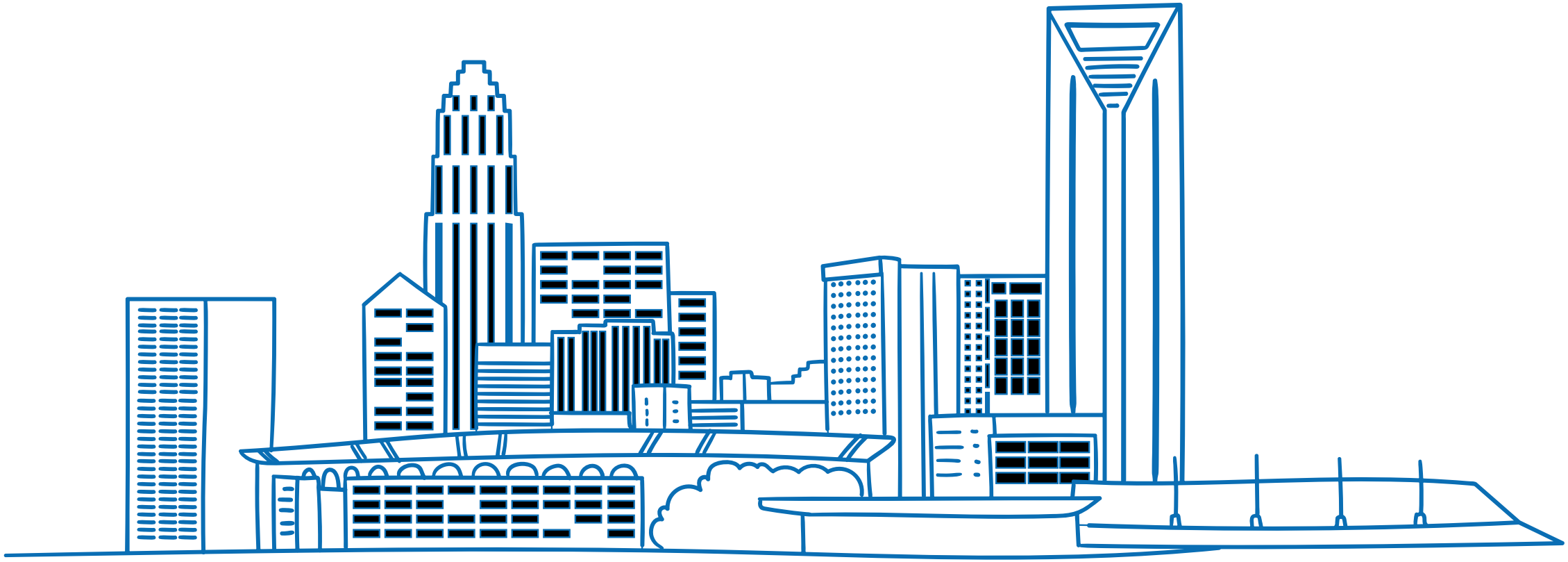
Lifestyles, food environments, and diets in Cambodia are changing rapidly



Non-communicable diseases are responsible for 64% of all deaths in Cambodia

And the economic burden is estimated at USD 1.5 billion lost per year as a result of NCDs

CAMBODIA

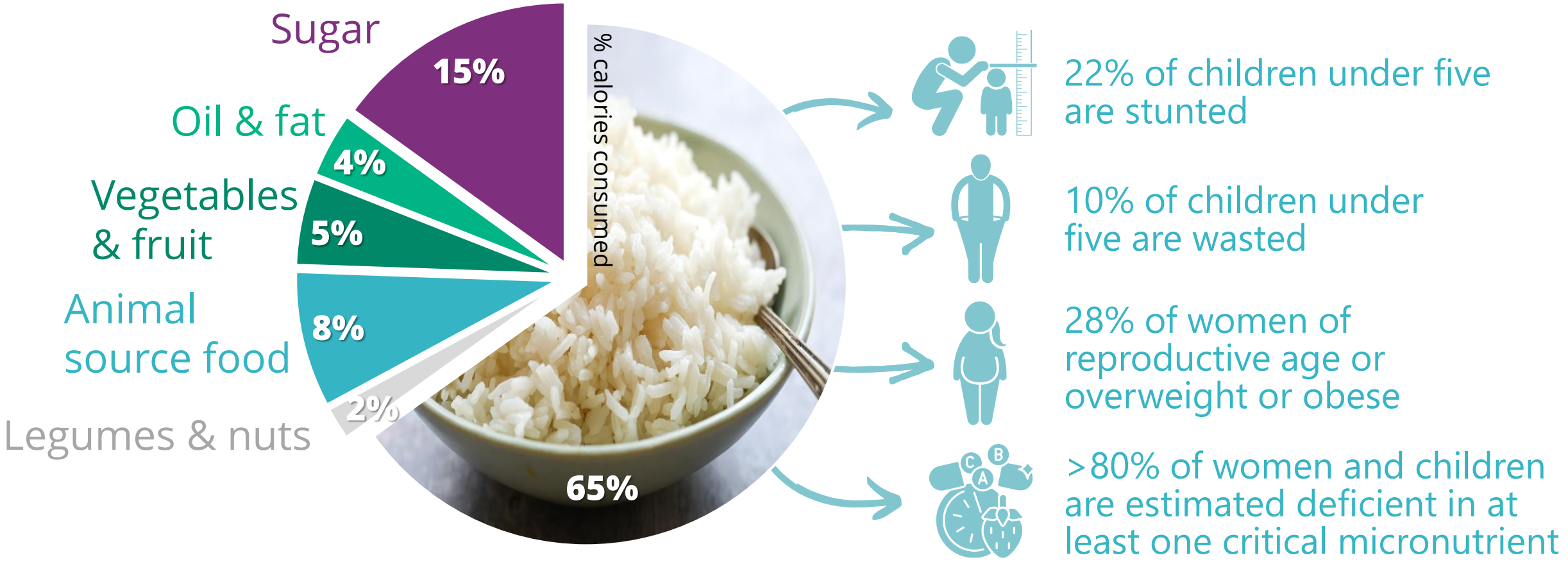
The case for investment in prevention and control of noncommunicable diseases (NCDs)

lost per year

indirect cost due to loss of workforce and reduced productivity

of dying prematurely from one of the four main NCDs

Poor quality diets and malnutrition are key risk factors for non-communicable disease



While this is partly driven by food supply chains and food environments, it is also a result of socio-cultural norms around diets and food consumption.

CSES 2020-2021; CDHS 2021-2022

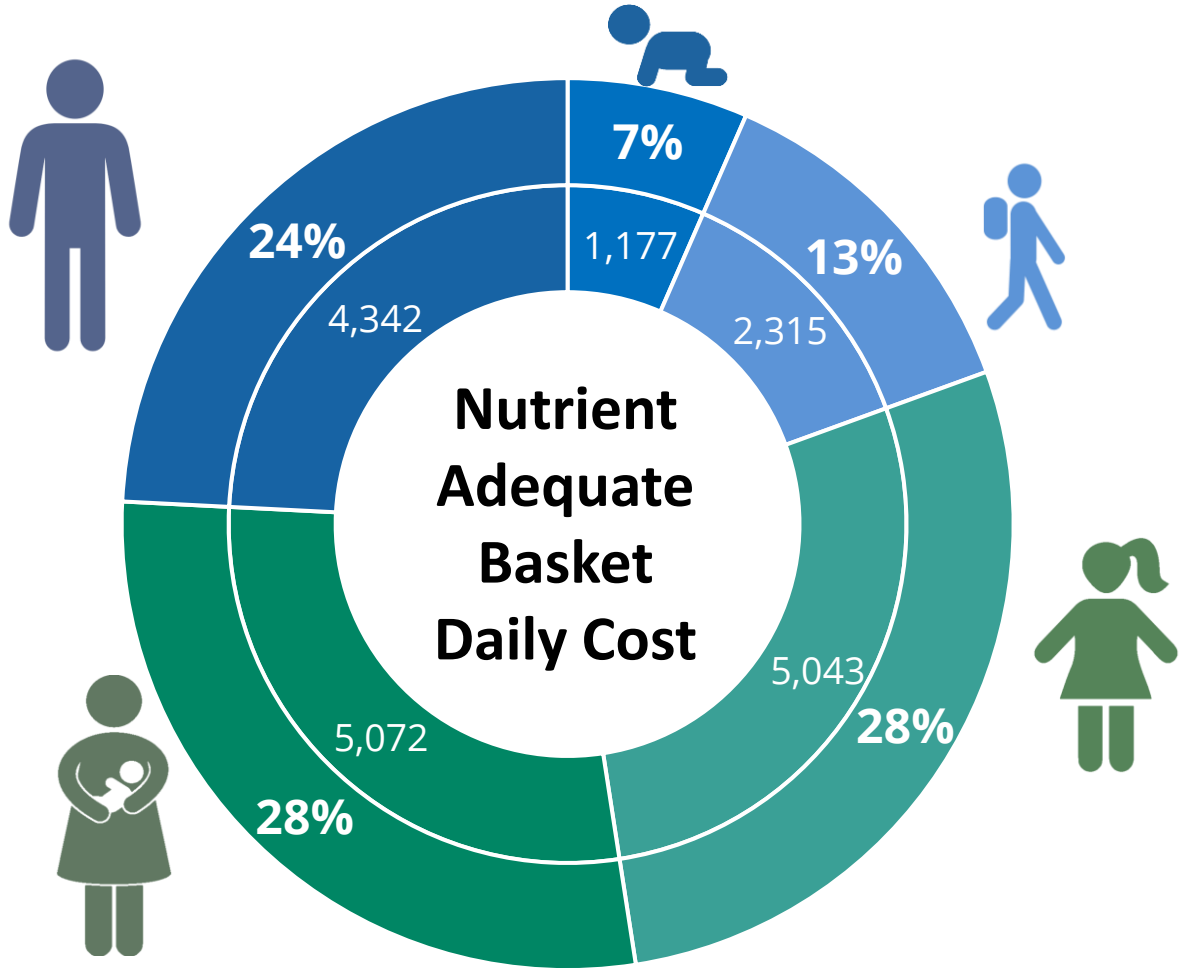
The lowest cost diet that meets the nutritional needs of a five-person family currently costs 18,000 KHR/day

Daily cost of the nutrient adequate basket

3,590

(KHR per capita)

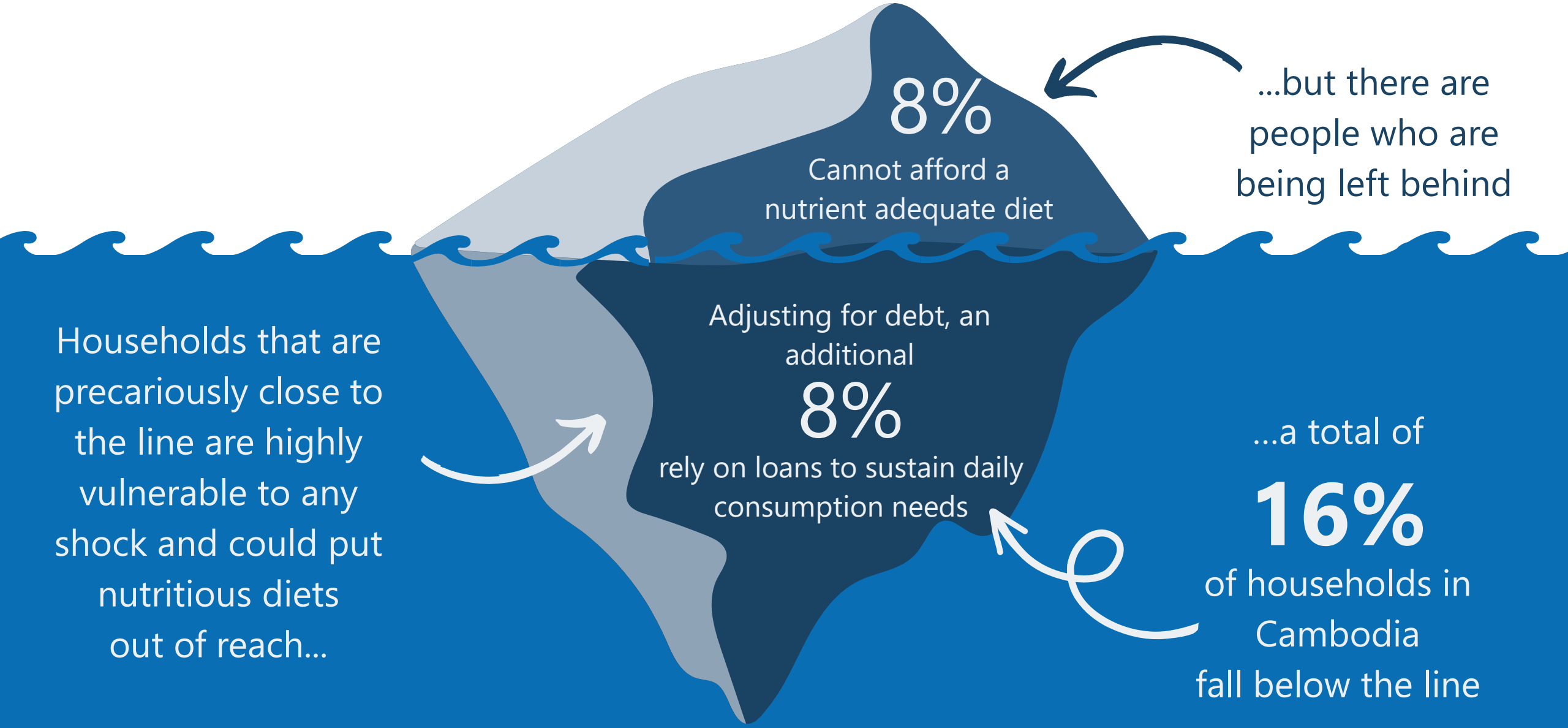
national weighted average



ENHANCE, 2023

Unaffordability is *Relatively* Low

which speaks to impressive progress in Cambodia's economic growth...



...but there are people who are being left behind

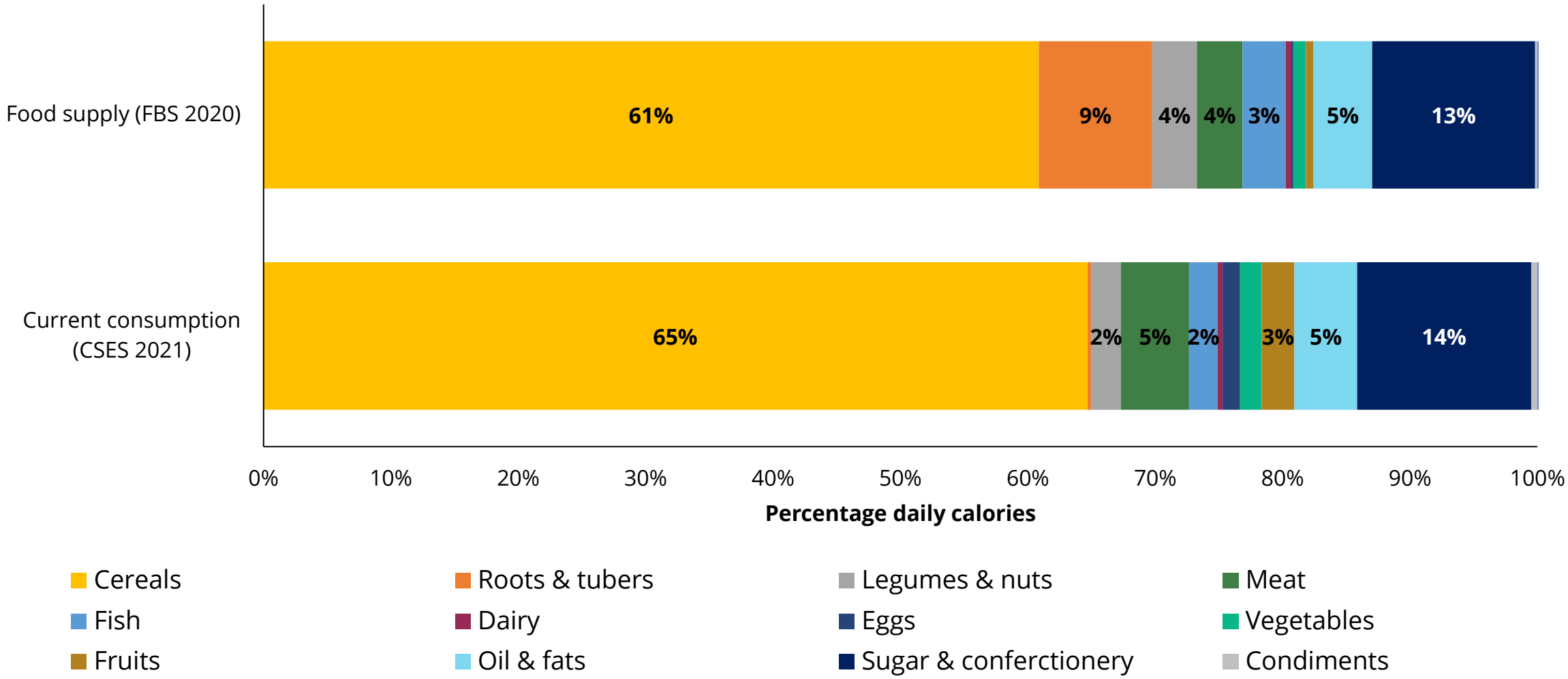
Households that are precariously close to the line are highly vulnerable to any shock and could put nutritious diets out of reach...

...a total of

16%

of households in Cambodia fall below the line

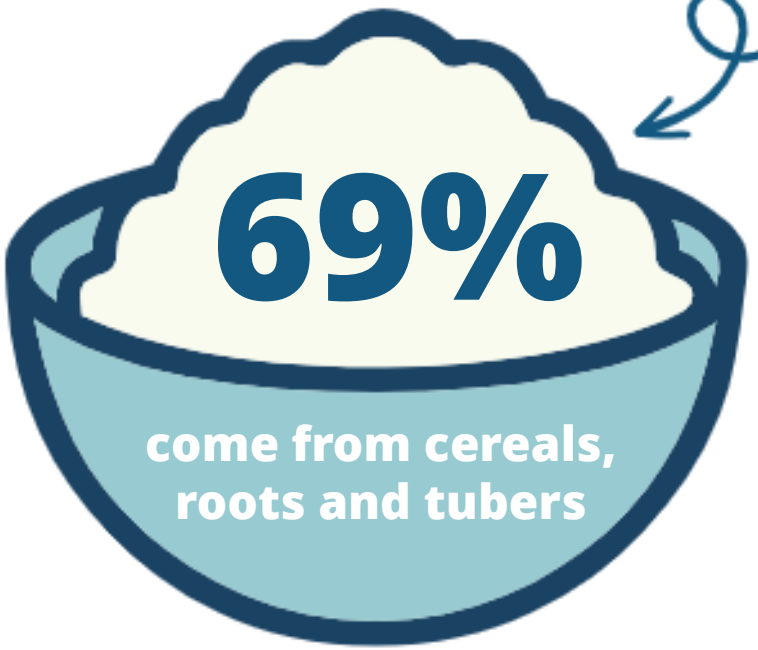
Consumption patterns reflect the supply of food, dominated by rice and sugar, with smaller contributions to calories from other food groups



FAOSTAT Food Balance Sheets, 2020; analyst calculations based on Cambodia Socio-Economic Survey, 2021

Dietary energy is highly available but there are insufficient quantities of most nutrient dense foods

2,700 kcal per person per day are available

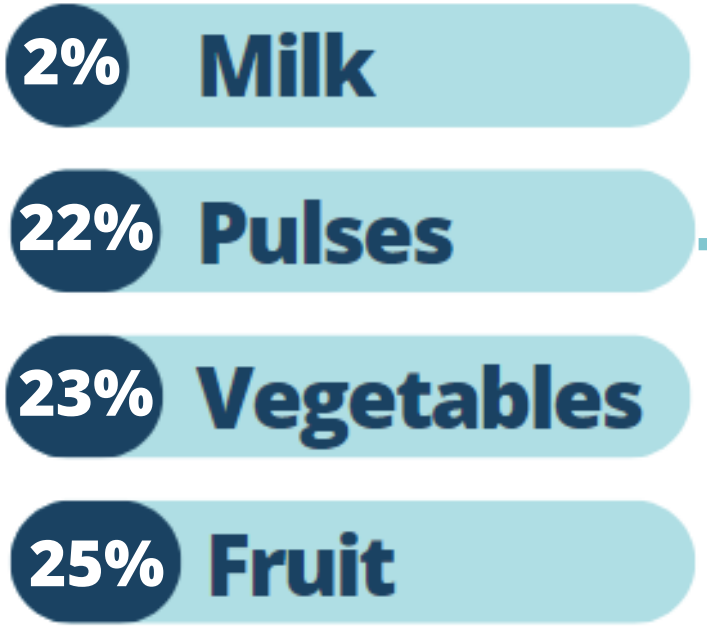


and

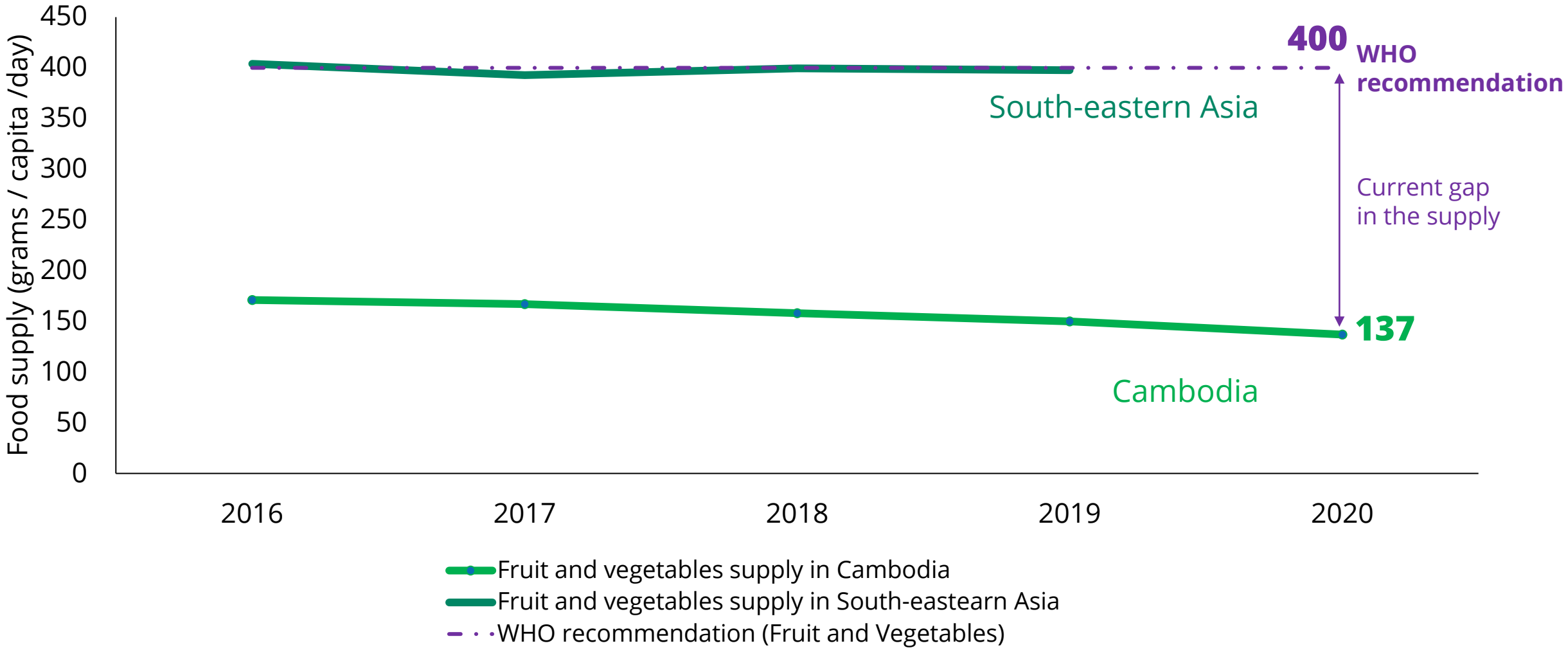
sugar and protein are available in plentiful supply

yet

The availability of the following foods is only enough to meet a small percentage of dietary intake recommendations



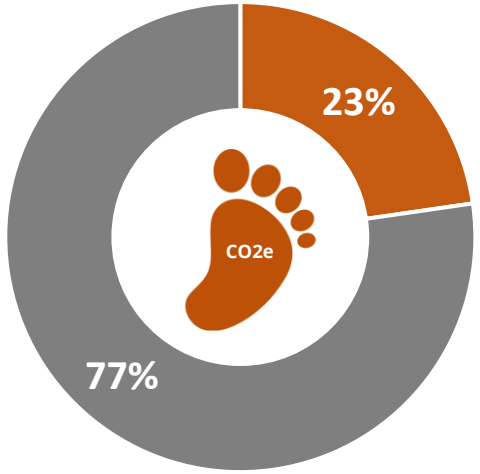
Cambodia's current fruit and vegetables supply is three times lower than the regional average and WHO recommendations



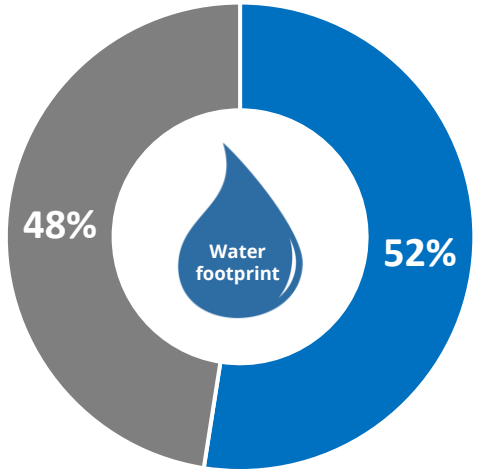
Food system dashboards 2022

Fruit, vegetables and legumes are a low contributor to the environmental impact of current diets

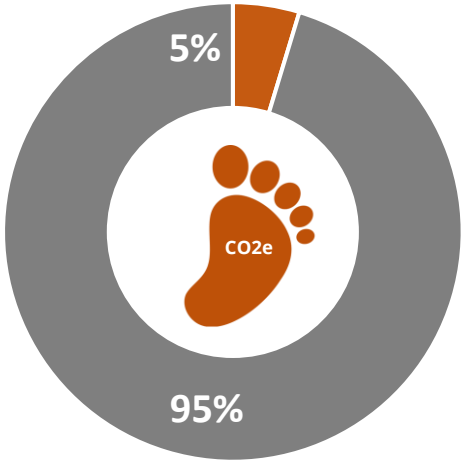
Rice



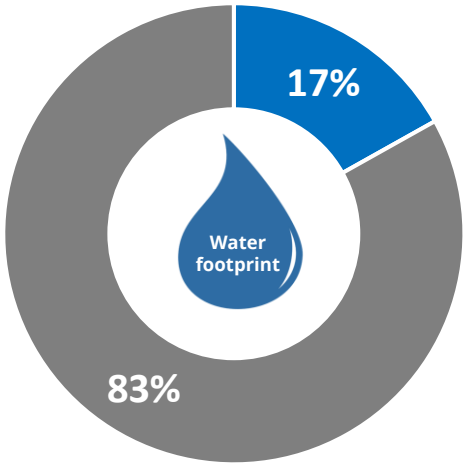
Rice footprint as a percentage of total estimated from current diets



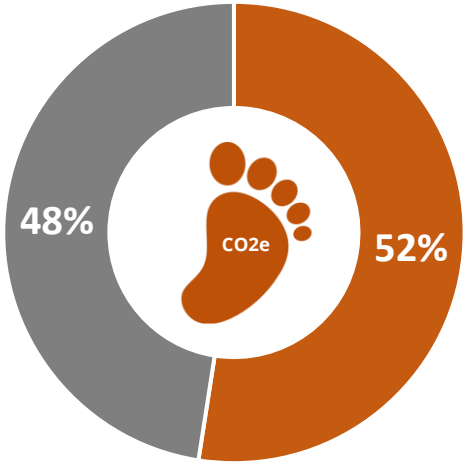
Fruit, vegetables & legumes



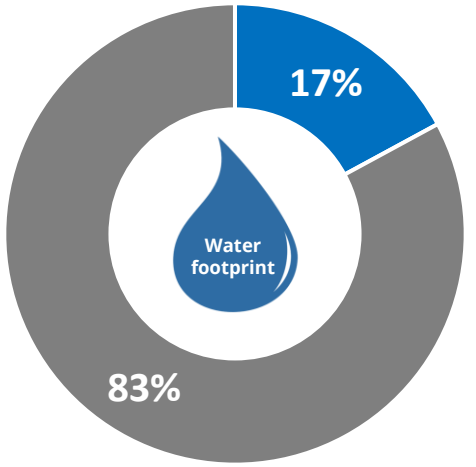
Fruit & veg footprint as a percentage of total estimated from current diets



Meat, offal & eggs

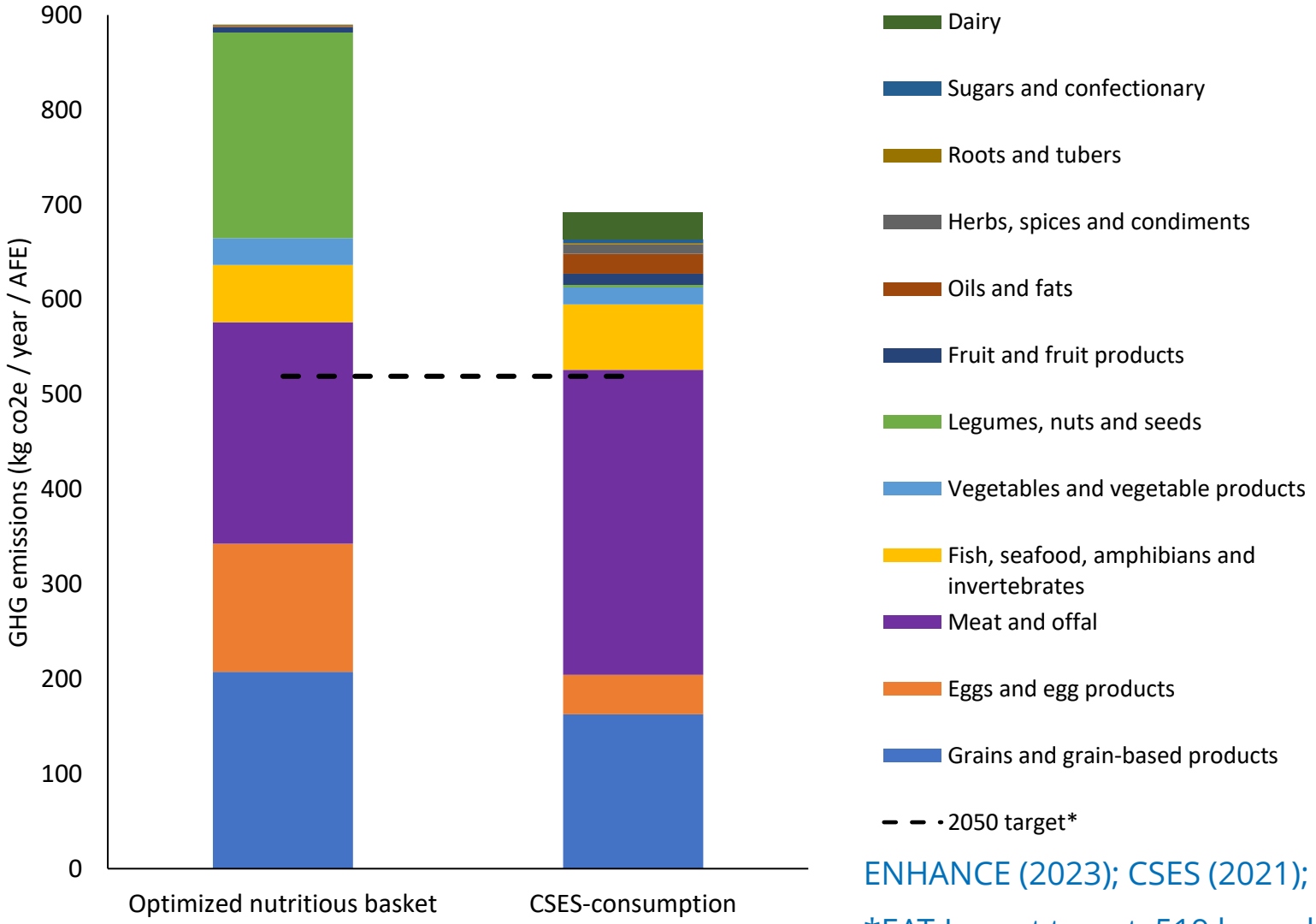


ASF footprint as a percentage of total estimated from current diets



FAOSTAT (2023)

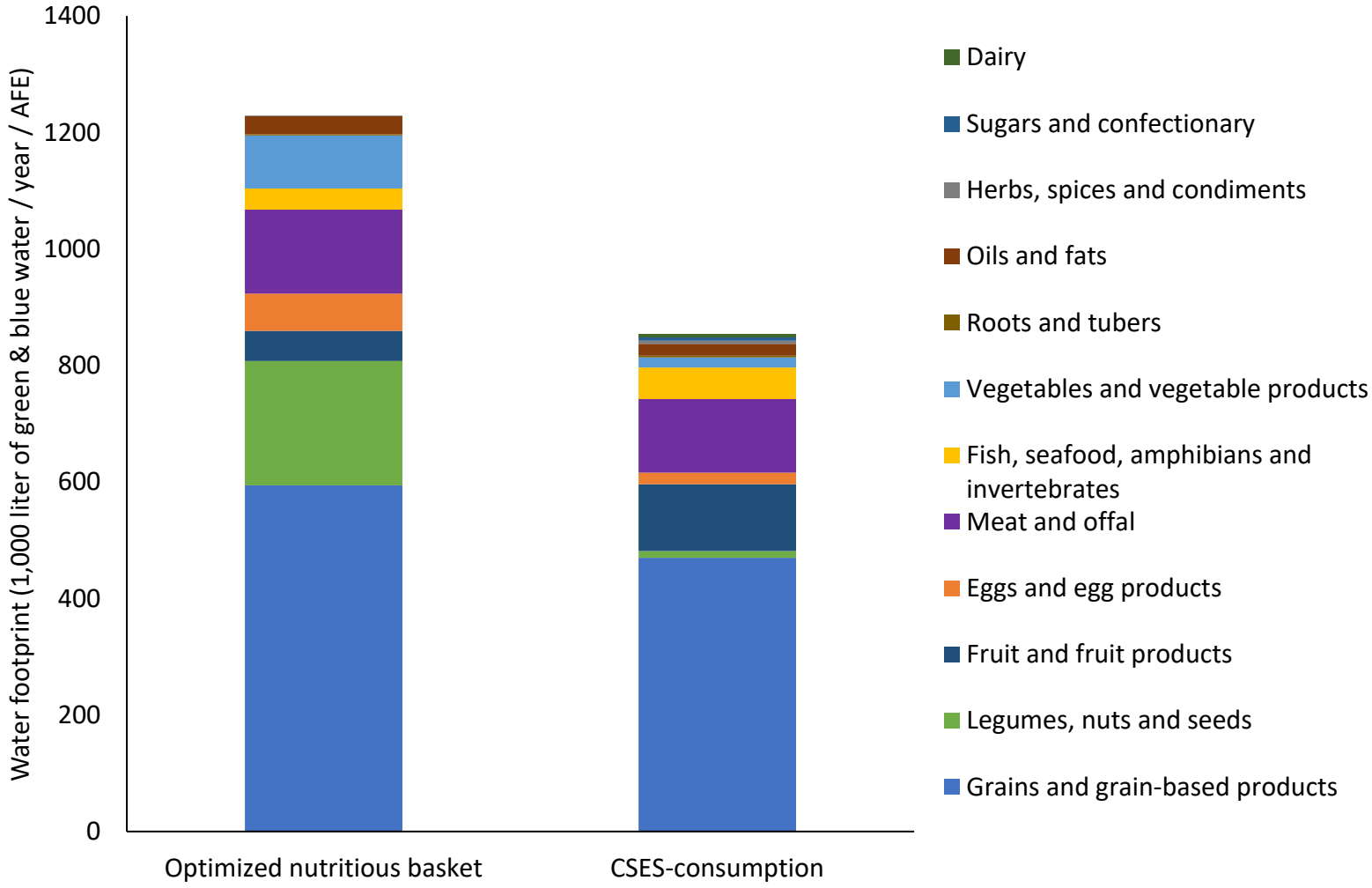
Trade-offs: Diets optimized for nutrient content result in higher levels of greenhouse gas emissions compared to current diets



ENHANCE (2023); CSES (2021);

*EAT-Lancet target, 519 kg carbon dioxide equivalents/cap/y (de Pee et al 2021)

Trade-offs: Nutrient optimized baskets require higher water use than currently consumed diets



ENHANCE (2023); CSES (2021)

Climate Change and Climate Shocks are Putting Healthy Diets at Risk

Climate Change

Variable Precipitation

Increased Temperatures
(1.9-3.6° by 2090)

Severe Flooding

More Droughts

Agro-Ecosystems and Food Production

Impact on Diets

Affordability

Reduced Agricultural Incomes and Increase in Food Prices

Accessibility

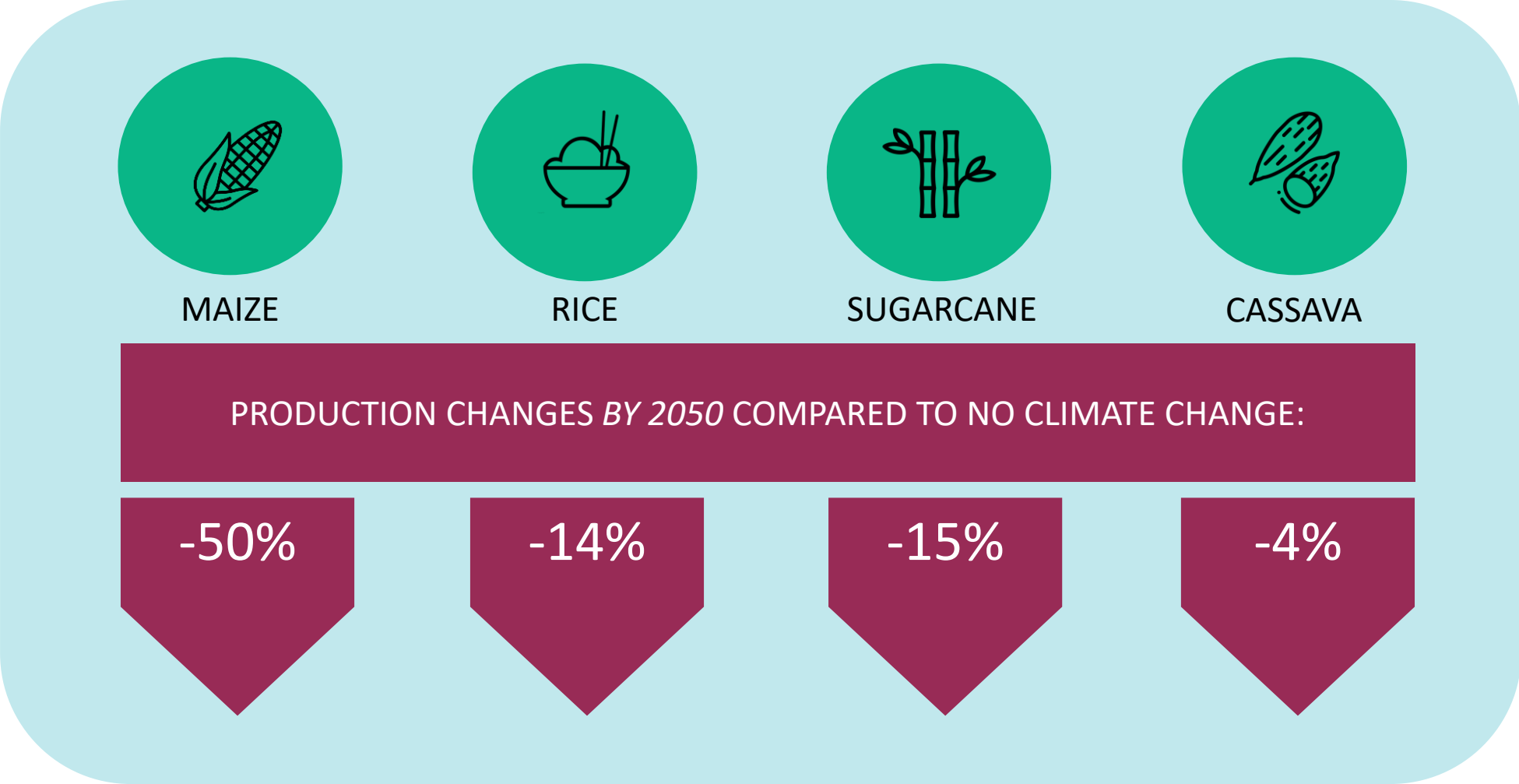
Reduced diversity of items in local markets

Nutrient Content

Reduced nutrient content in certain foods

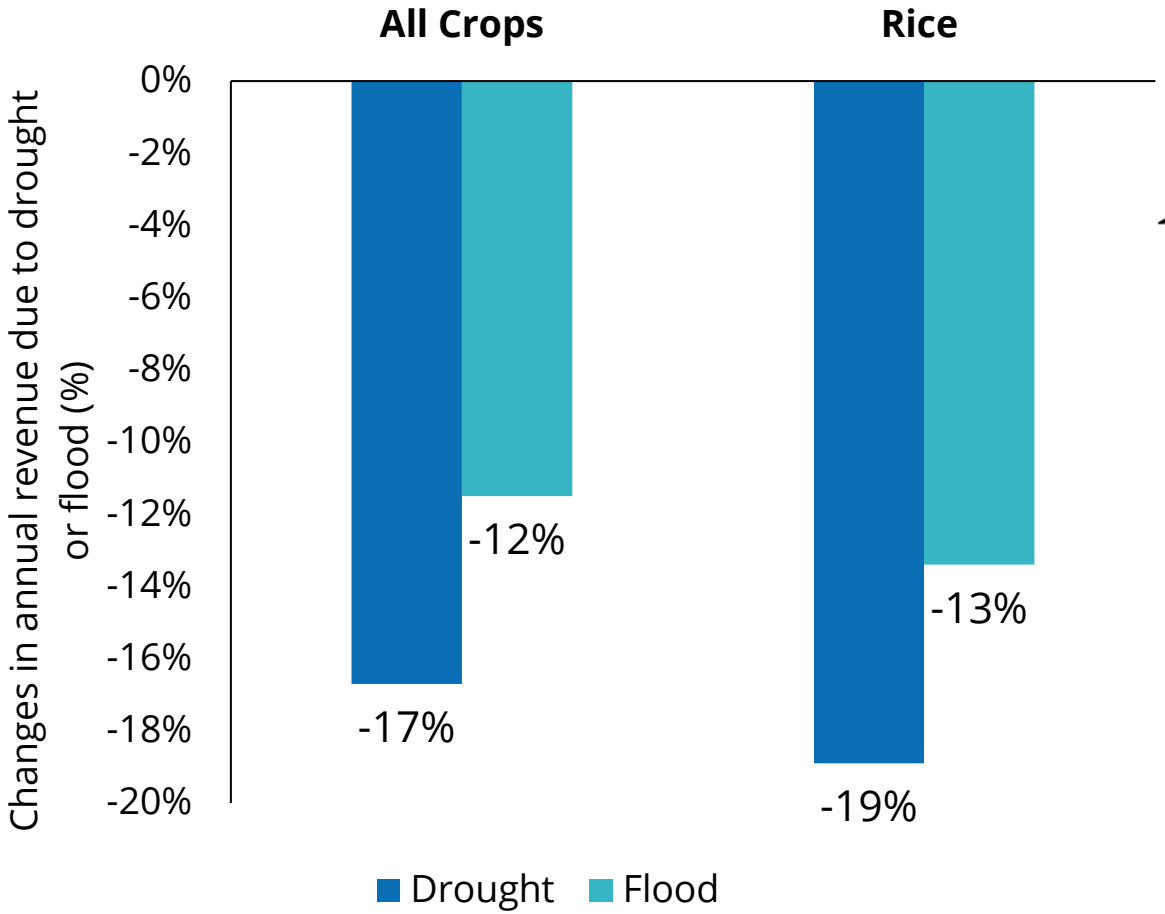
ND-GAIN Index, 2021; USAID 2019

Production decreases for major crops. Rice production will likely to decrease 9%~14% by 2050.



IMPACT-SIMM IFPRI; high-end estimates of climate change model

Farmers are already heavily affected by droughts and floods; climate change will have severe impacts (example from 2020-21)



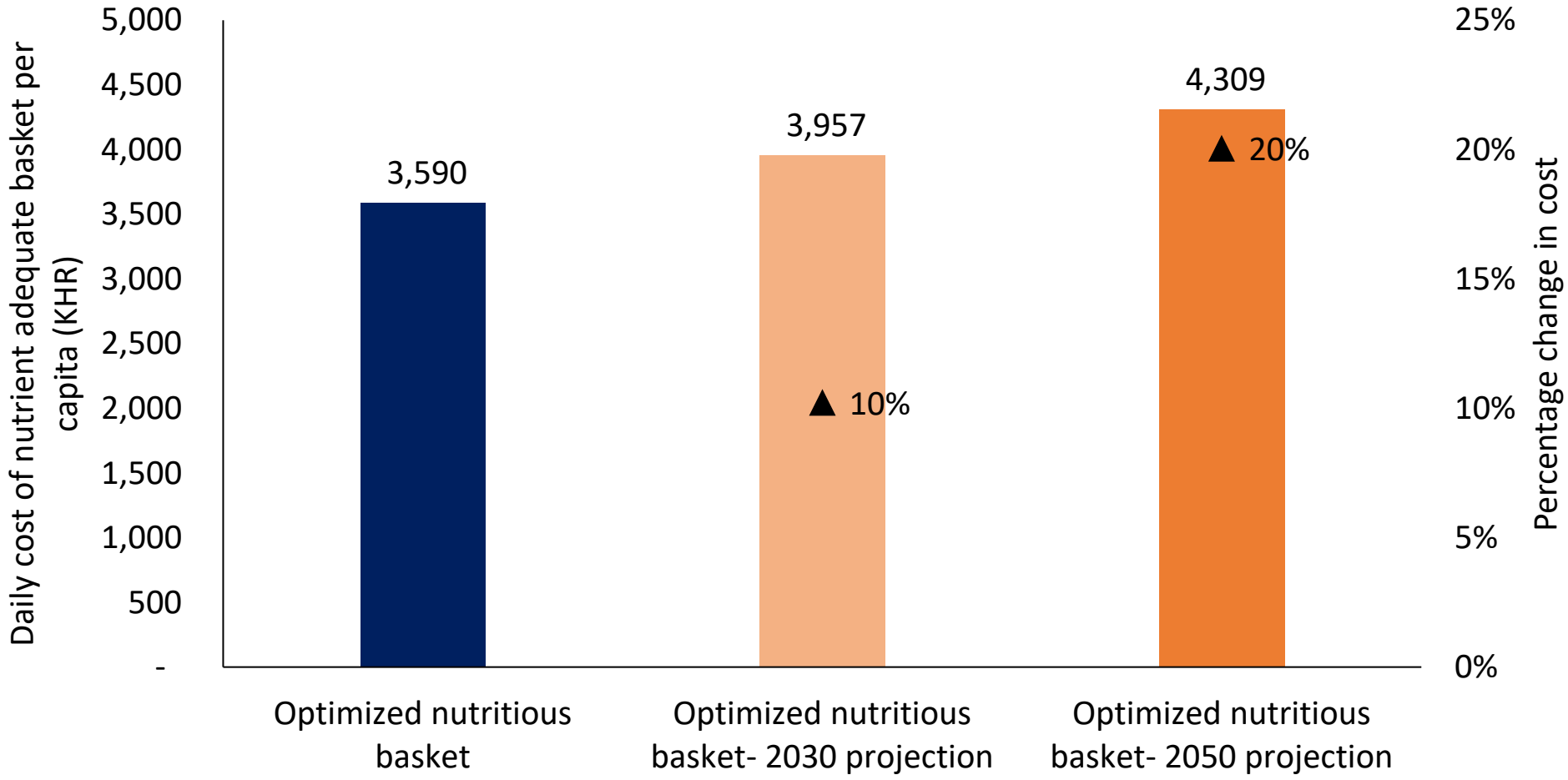
Daily **profit** from Smallholder Rice Farming (< 3Ha ; 75% of rice farmers in the country):
KHR 1,514 per capita

Drought Profit **Loss** (daily):
KHR 437 per capita

Flood Profit **Loss** (daily):
KHR 308 per capita

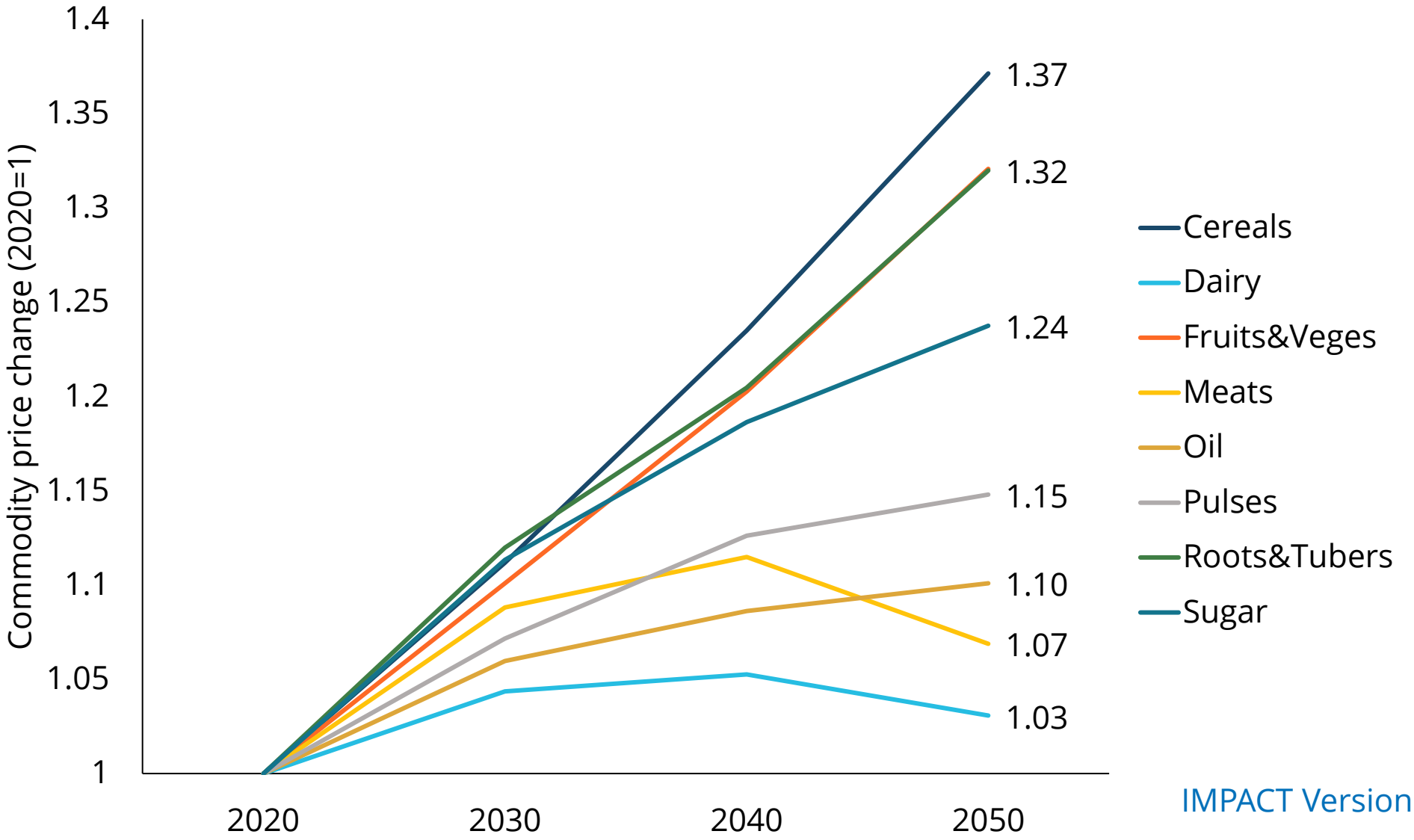
Calculations based on Cambodia Agriculture Survey 2020

The cost of nutrient adequate baskets would increase 20% by 2050 due to the climate change.



FNG, 2023; IMPACT

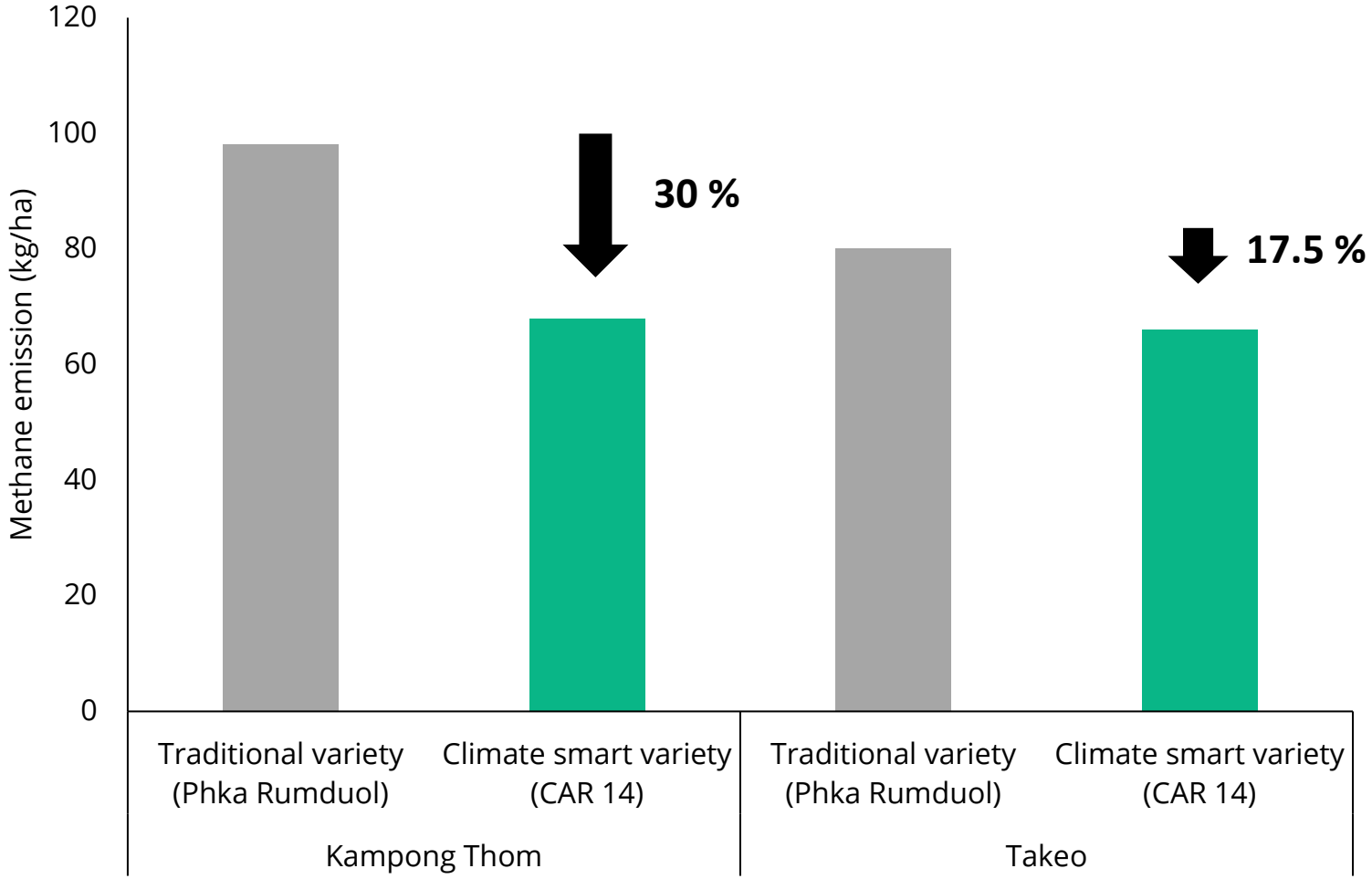
Price of cereals, fruit/veg and roots/tubers projected to increase by >30% by 2050



IMPACT Version 3

What could be solutions to tackle emissions in a changing climate?

Climate-smart rice varieties reduce GHG emission & are resilient to future climate change

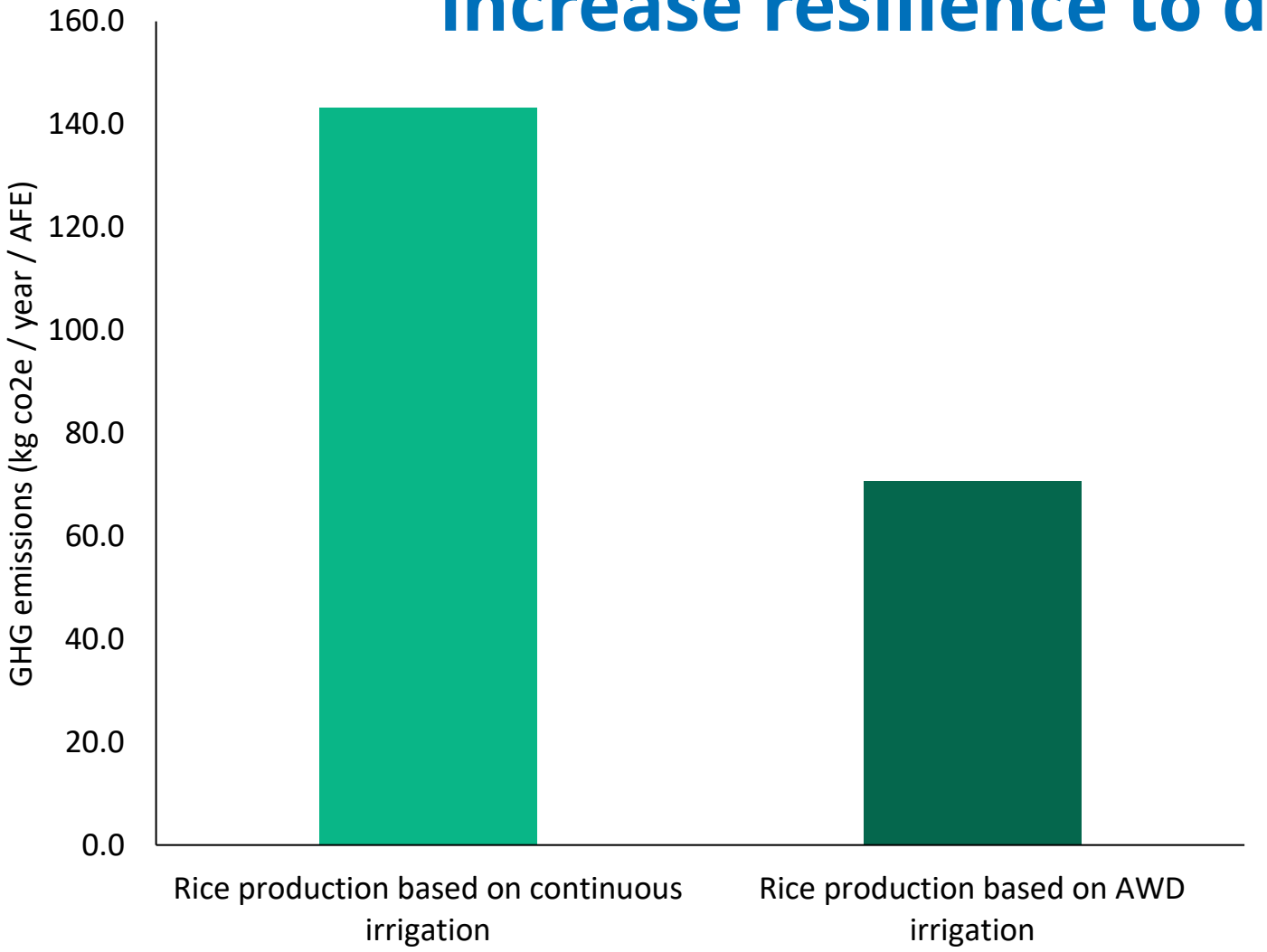


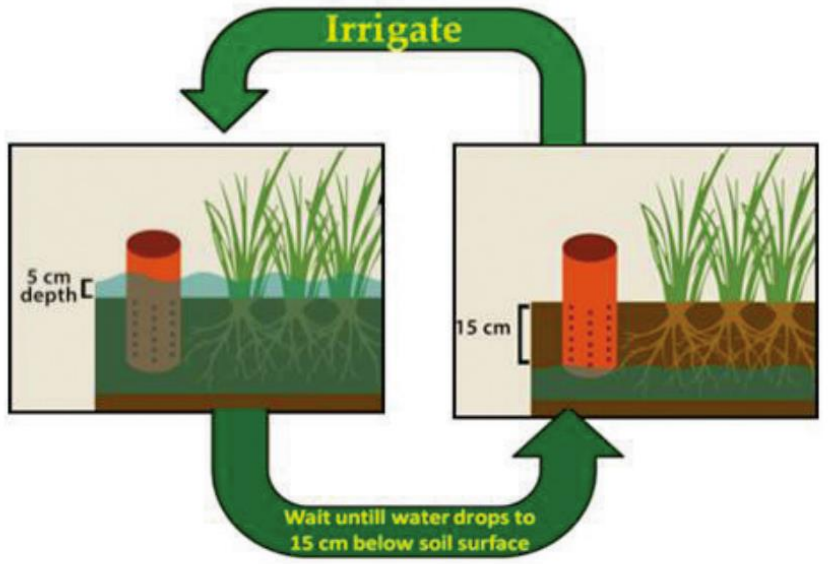
CAR14 variety has short duration and early maturity.

- Considered a climate-smart variety contributing less to global warming
- Resilient to climate change (i.e., Cambodia crop growing duration will be likely two and three months)

IRRI 2017

Climate-smart rice production practices could contribute to reductions in rice GHGe & water use, and increase resilience to droughts

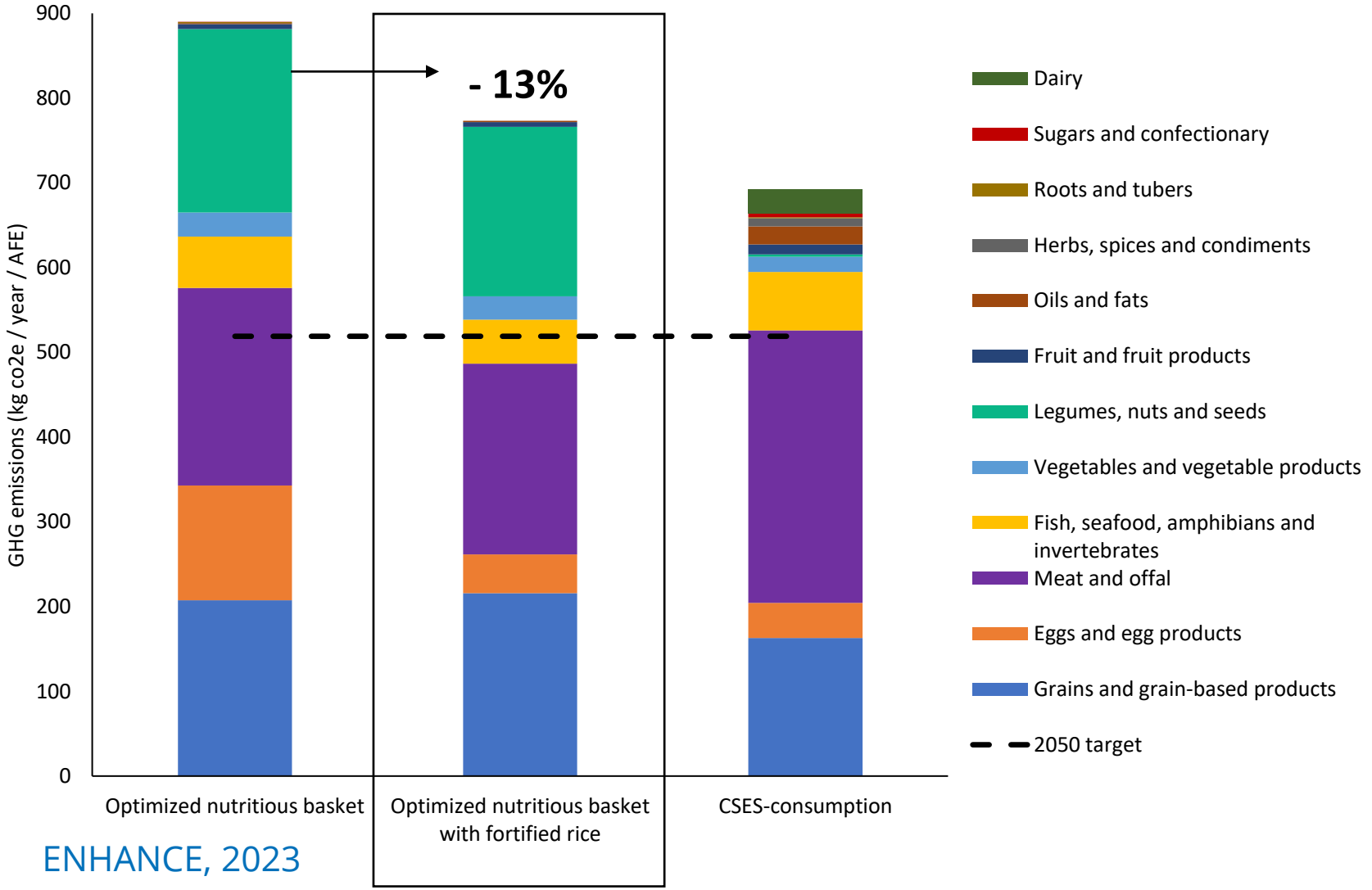




AWD: alternate wetting and drying irrigation

Bangladesh case study, ADB,IRRI 2019

Modelling impact of **fortified rice: a win-win!**
GHG emission decrease by 13 percent primarily driven by lower quantities of animal source foods selected

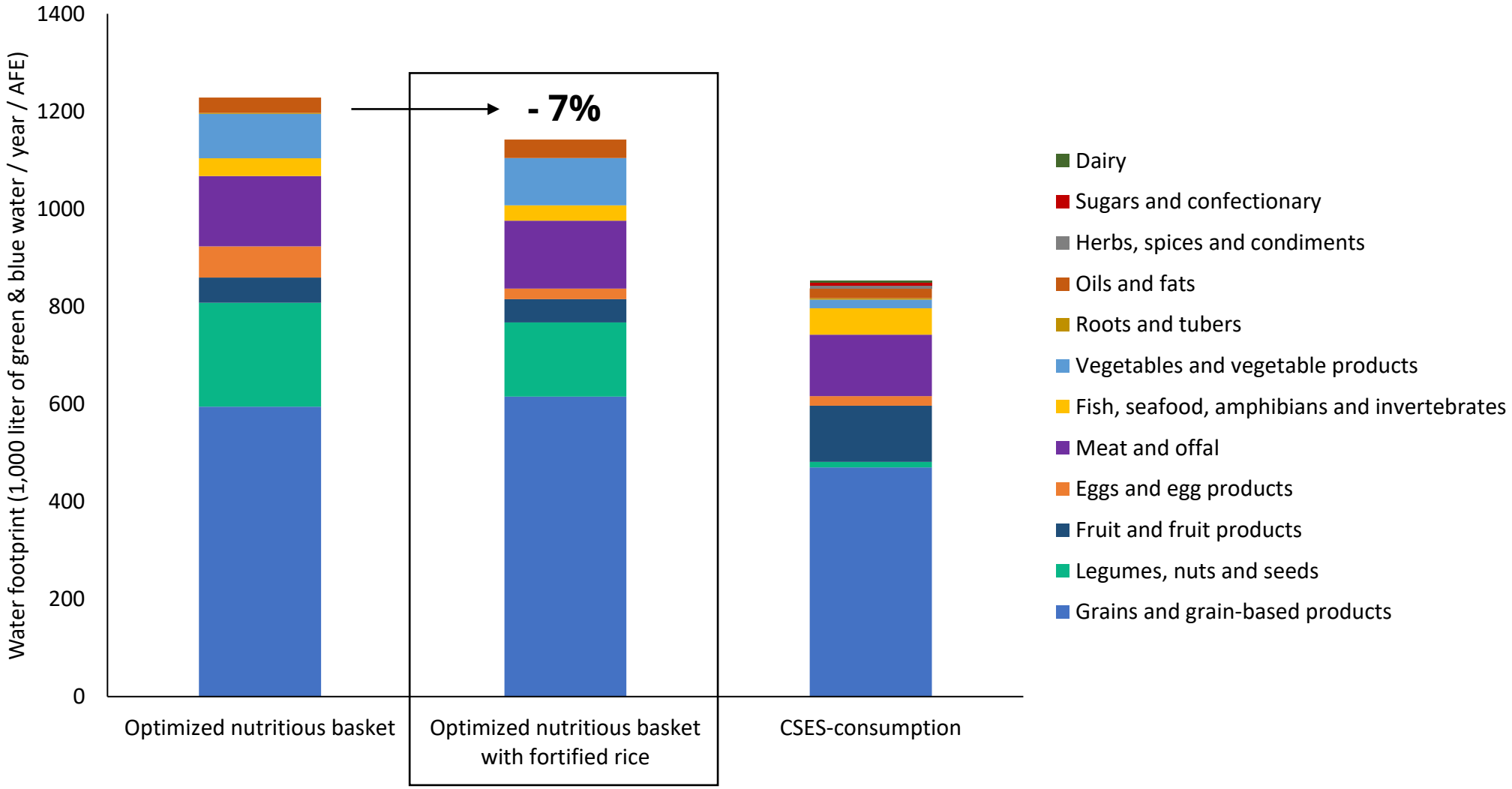


ENHANCE, 2023

Summary of reductions in GHGe

Grains and grain-based products	4%
Eggs and egg products	**-66%**
Meat and offal	-3%
Fish, seafood	-14%
Vegetables and vegetable products	-2%
Legumes, nuts and seeds	-8%
Fruit and fruit products	-8%
Oils and fats	20%

Water use decreases by 7%, with inclusion of fortified rice in nutritious basket



ENHANCE, 2023

Integrated packages for climate change, food systems and nutrition- what does it look like?

Climate Change	Agro-eco system & Food system	Diets
Adaptation	• Efficient use of water: Irrigation, water harvesting, storage & accounting tech • Climate resilient crops • Increasing the diversity within production systems	• Access to finance and weather insurance • Improved handling and storage • Alternative income source for farmers • Social protection (responding to climate shocks) • Agricultural market information system • Home grown school feeding • Fortification
Mitigation	• Water management technologies to reduce GHG emission • Switching crops with less GHG emission • Sustainable crop production method	• Changes in consumption behaviour • Developing environmentally sustainable dietary guideline considering the GHG emission and water (ENHANCE)

FNG
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Thank you

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