

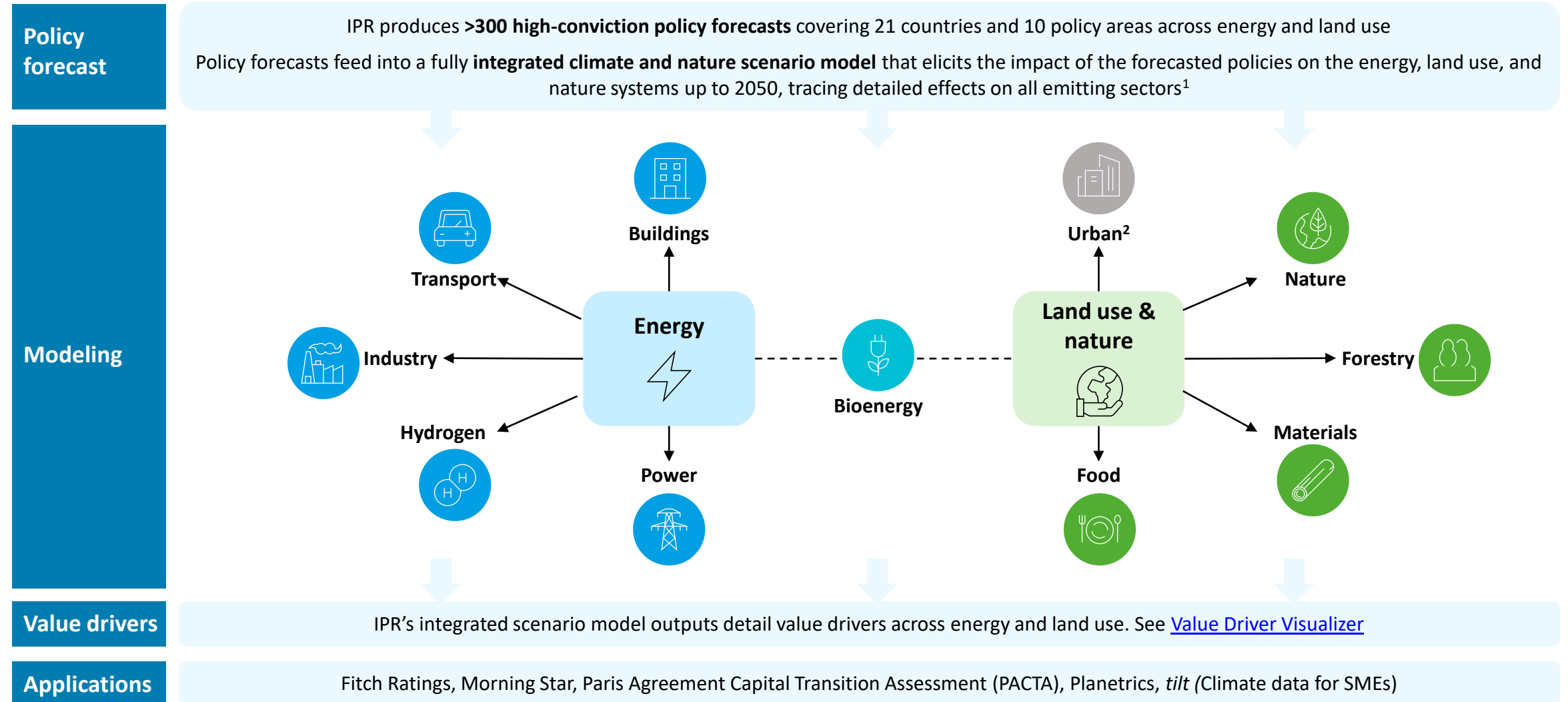
# The Inevitable Policy Response Forecast Policy Scenario 2023 (IPR FPS 2023)

- IPR Land Use: Opportunities for Emission Reduction, Emission Sequestration
- Sustainable Energy Production

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**October 2023**

# IPR offers a range of applications to help financial institutions navigate the climate transition across sectors and geographies



1. IPR also develops a '1.5°C Required Policy Scenario'(1.5°C RPS) building on the IEA NZE by deepening analysis on policy, land use, emerging economies, NETs and value drivers. The RPS scenario is also run through the model and can be used by those looking to align to 1.5°C. 2. Urban areas are not modelled in detail in IPR

IPR FPS maps the key implications of the projected decarbonization pathway and the tremendous investment opportunities for nature and technology-based solutions for capturing emissions



### Supply chain risk increases

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**Policy** that encourages **deforestation-free supply chains** has **significant risk** implications for downstream companies in tropical commodities



### Diets and waste transform

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**Diet shifts transform the food mix**, creating opportunities in alternative proteins while innovation and increased consumption of 'surplus food' reduce global food waste globally



### NBS takes off

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**Climate policy and incentives increase the uptake of NBS** while increasing demand for housing drives opportunities in timber for construction




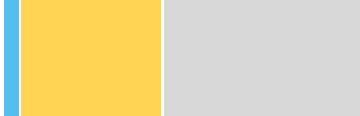
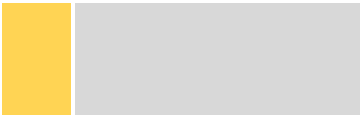

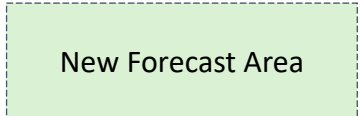
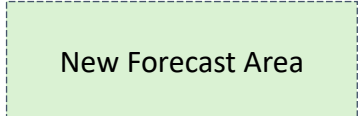

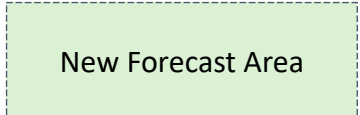
### Bioenergy is constrained

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Land competition, sustainable guardrails and cheaper, cleaner alternatives lead to a **modest growth opportunity in bioenergy**

# The Policy Forecast remains largely consistent with 2021, though it shows some deceleration in ambition in the agricultural sector and includes three new forecast areas

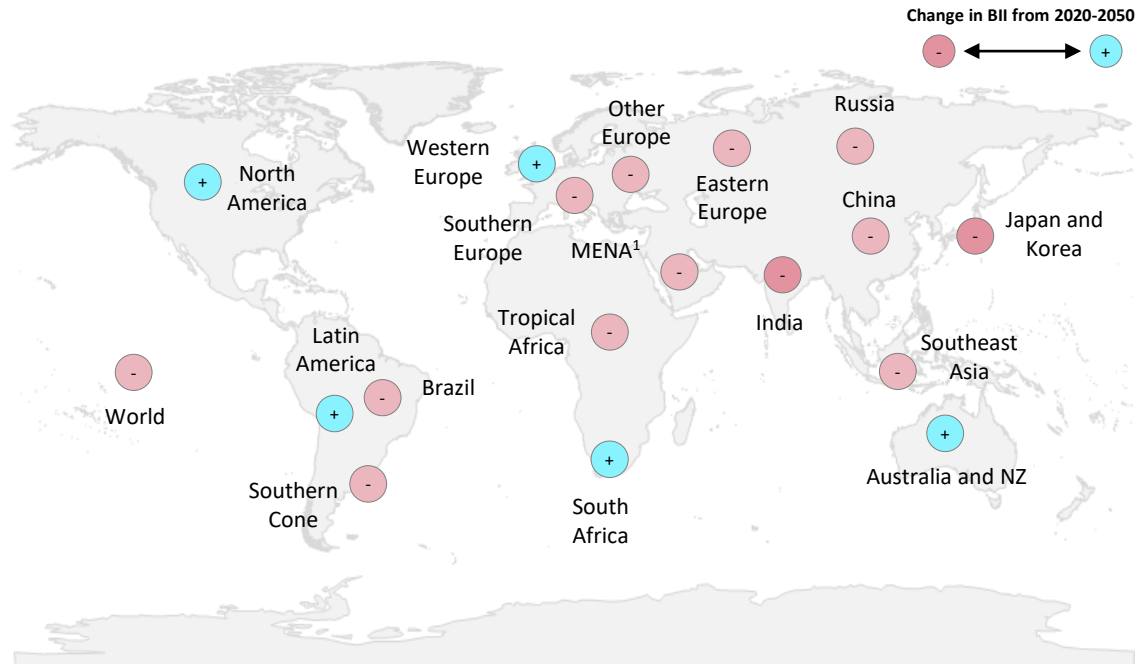
 Nature Action   
  Climate Action   
  Acceleration   
  Deceleration   
  No change

Policy Area	Policy Type	Policy Lever	Change in Forecast Relative to FPS 2021	Policy Implications
Agriculture		<b>Emissions from agricultural production</b>	Policies that encourage farmers to significantly reduce emissions from agricultural production 	<ol style="list-style-type: none"> <li>Deceleration in some countries is often due to a delay in announcement of the policy expected in FPS 2021. However, these are mostly technical and have a small impact on overall land use projections</li> <li>In the case that a country's policy ambition decelerates, this occurs before 2030, resulting in a low impact on the sustainable transition of agriculture in the short term</li> <li>Area protection policies limits agricultural land expansion which interact with other agriculture policies as land competition increases</li> </ol>
		<b>Afforestation and Reforestation</b>	Policies which encourage farmers to carry out significant afforestation and reforestation 	
Land Use		<b>Deforestation- free supply chains</b>	Implementation of policies that require agricultural commodity inputs to be deforestation-free 	
		<b>Land protection</b>	Achievement of Dec 2022 COP15 Biodiversity target of protecting 30% of land and marine area 	
Nature		<b>Nature incentives</b>	Implementation of policies to deliver market incentives to improve biodiversity 	

# Conservation and restoration policies reverse biodiversity loss to 2020 levels by 2050

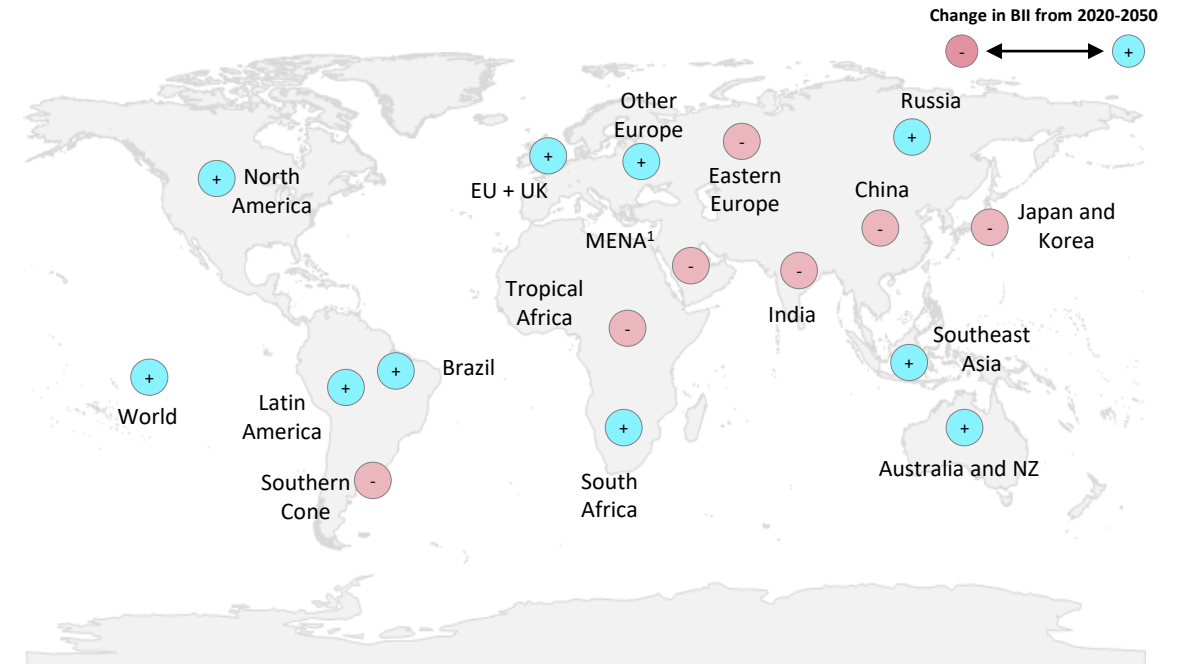
## FPS 2021: Change in biodiversity 2020-2050

Pursuit of climate-only policies results in continued biodiversity decline globally and in critical regions such as Tropical Africa, Southeast Asia and Brazil



## FPS 2023: Change in biodiversity 2020-2050

Nature policies related to protected areas, restoration and biodiversity valuation drives biodiversity recovery globally and in critical biodiversity-rich regions

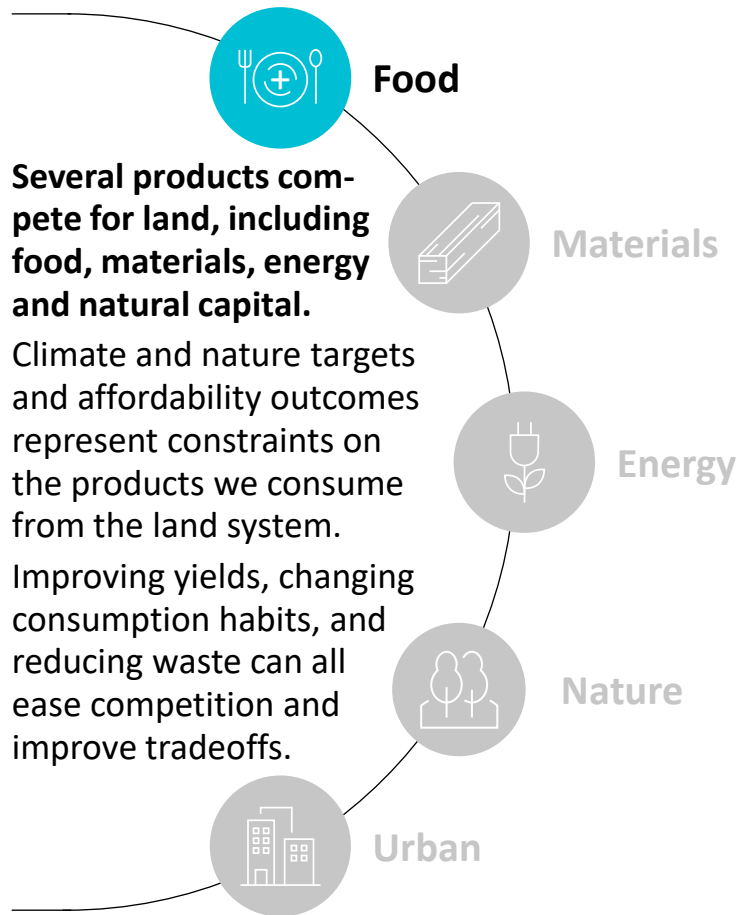


1. Middle East and Northern Africa

# 1. FOOD – Implications of FPS23 for food production

 Deep-dive

## Land system



## Drivers

## Description

## Key Implications for the land use Sector



**1. GDP and population growth**

Population growth increases food demand, particularly in regions such as Tropical Africa and India

Per capita food demand grows by 26% globally as countries become wealthier and increase their consumption



**2. Food waste**

Food waste is particularly high in high-income countries, leading to inefficiencies in the food system

Waste reductions reduce the effect of GDP growth on food demand



**3. Diet shifts and alternative proteins**

Diets shift away from animal products, particularly ruminant meat (beef, sheep and goat meat) which peaks in 2035

A slowdown in per-capita consumption of animal products eases land use competition and reshapes the food mix by increasing the reliance on alternative proteins



**Productivity**

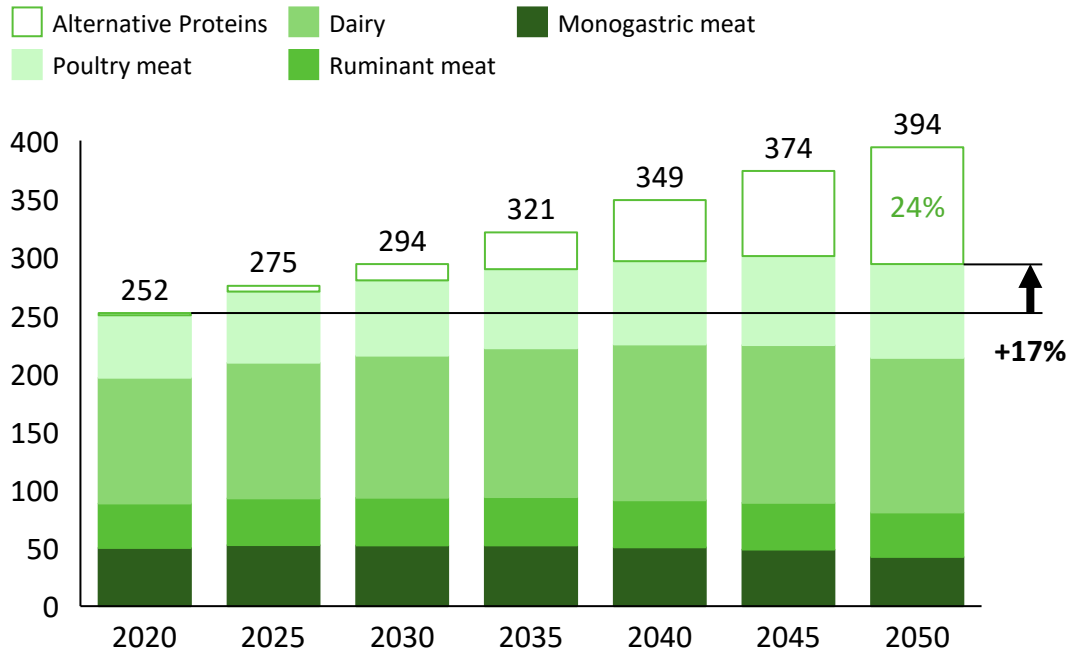
Increasing food demand in Emerging Markets and Developing Economies(EMDEs) is partially met by catch-up yield growth

Crop yields in EMDEs grow to accommodate some of the additional food production

# Diet shifts transform the food mix, creating opportunities in alternative proteins...

Though global livestock production increases **by ~17%** by 2050, a diet shift to alternative proteins reduces overall reliance on animal products. In 2050, alternative proteins represent close to a quarter of global proteins production

## Global Protein Production, Mt DM<sup>1</sup> per year



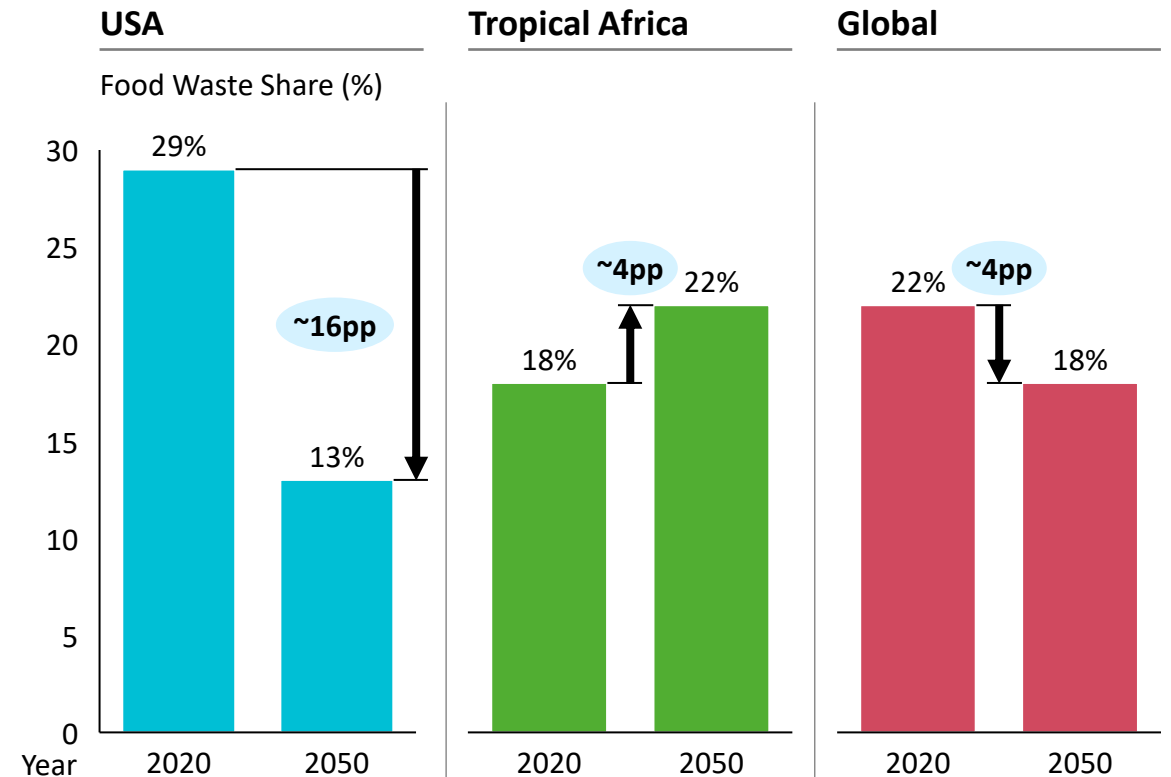
Note: 2020 baseline per capita food demand is calculated by Bodirsky et al (n.d.), using dietary data such as incomes, age distributions and BMI, calibrated against historical food demand data from FAO

1. Mega Tonnes of Dry Matter
2. Ruminants are herbivores with three- or four-chambered stomachs, such as cattle and sheep

# ...Innovation and increased consumption of 'surplus food' reduce global food waste globally

FPS expects the **share of waste in global food demand to decline by 4pp until 2050**. This is primarily driven by food waste reductions in **Advanced Economies**

## Share of food waste in terms of food demand, 2020 vs. 2050 %



# Deforestation, international trade reliance and pressure for disclosure increase financial risk

# Key regions and products are at higher risk as policy tackling deforestation increases

Policy that encourages deforestation-free supply chains has significant risk implications for downstream companies in tropical commodities





# Despite challenges, climate policy and incentives increase the uptake of NBS...

## Agricultural improvement



removed a year by 2050 through agricultural improvement equivalent to ~938 Mha

## Ecosystem restoration



removed a year by 2050 through ecosystem restoration equivalent to ~302 Mha

## Avoided forest loss



In reduced emissions through avoided forest loss relative to a reference scenario by 2050

## Nature action



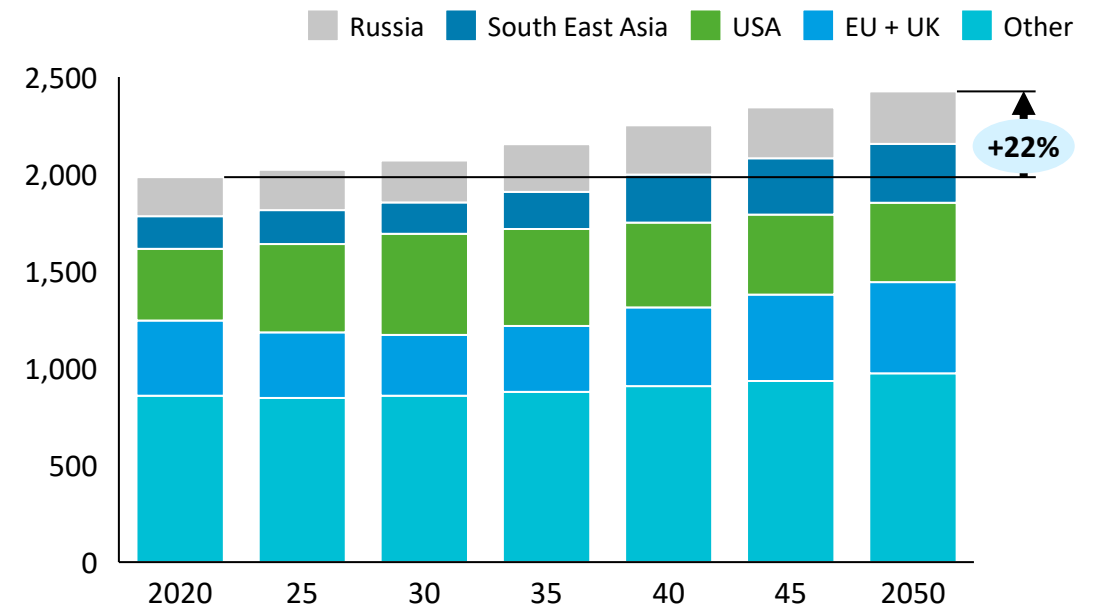
additional natural vegetation protection through increased nature action

# ...While increasing demand for housing drives opportunities in timber for construction

Increased use of lumber for sustainable construction materials accounts for ~1/3rd of the growth in timber demand, leading to an overall increase 22% increase in industrial roundwood production

Under FPS, 10% of all new buildings use wood as a construction material

## Industrial roundwood, Mm<sup>3</sup>/year



1. According to the Shared Socioeconomic Pathway 2 scenario, the global share of population living in urban areas could rise to 80% by 2100
2. IPR team modelling based on Churkina et al. (2020)

# Disclaimer

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