Climate Change and the Economy

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How Climate change impacts on the economy

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- Loss of land area, including beaches and wetlands, because of sea-level rise
- Loss of species and forest area
- Disruption of water supplies to cities and agriculture
- Increased air conditioning costs
- Health damage and deaths from heat waves and spread of tropical diseases
- Loss of agricultural output due to drought
- Economies and industries that depend on natural resources and favorable climate conditions, such as agriculture, tourism, and fisheries, are vulnerable to the growing impacts of climate change.
- Rising temperatures are projected to reduce the efficiency of power generation while increasing energy demands, resulting in higher electricity costs

Climate change impacts for agricultural economy

- The sector most vulnerable to climate risk is agriculture.
- Without substantial and sustained mitigation and adaptation efforts, climate change is expected to cause losses to infrastructure and property and impede the rate of economic growth
- Poorer countries are more exposed to the weather because of the important role of agriculture and water resources in the economy

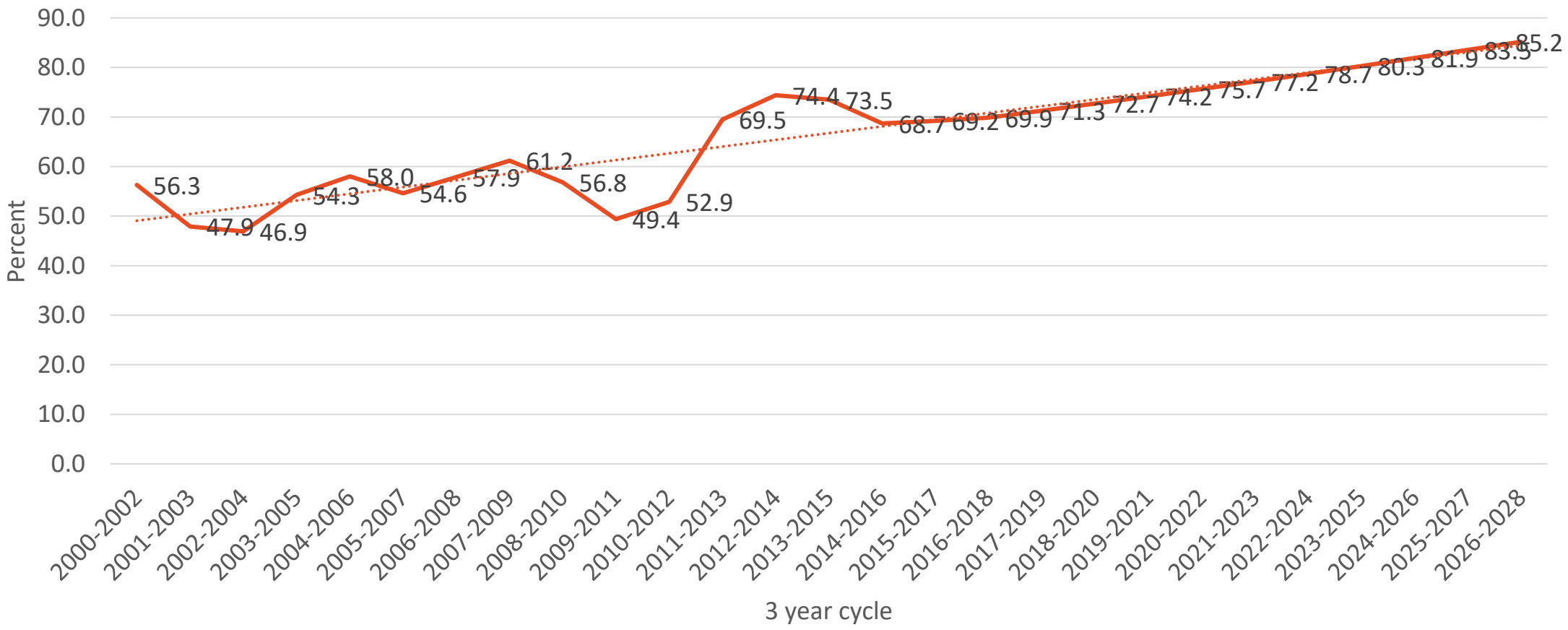
Cost of climate action

- **Cost of inaction greater than the cost of action**
- The Stern Review, an influential inquiry into the issue, said in 2008 that fighting global **warming would cost 2% of global GDP**
- Nonaction could lead to damages equivalent in the **longterm to a 20% reduction in global** per capita consumption
- McKinsey & Company's Pathways to a Low-Carbon Economy in 2009 reported a lower finding that avoiding dangerous climate change can cost as little **as 0.5% of global** GDP
- **Climate change** is now considered one of the greatest threats to **economic** stability
- **Some costs are relatively easily quantifiable in monetary terms but not all**.

Our economy and climate risk

- Increase in temperature and extreme events cause human health problems, **reduces productivity**, negatively affects agriculture, forestry, fisheries and tourism and **increased energy demand water supply stress**.
- We are a **net importer of goods especially food**, and any extreme impacts in our trading partners around the globe affects business through disruption in trade and supply chains.

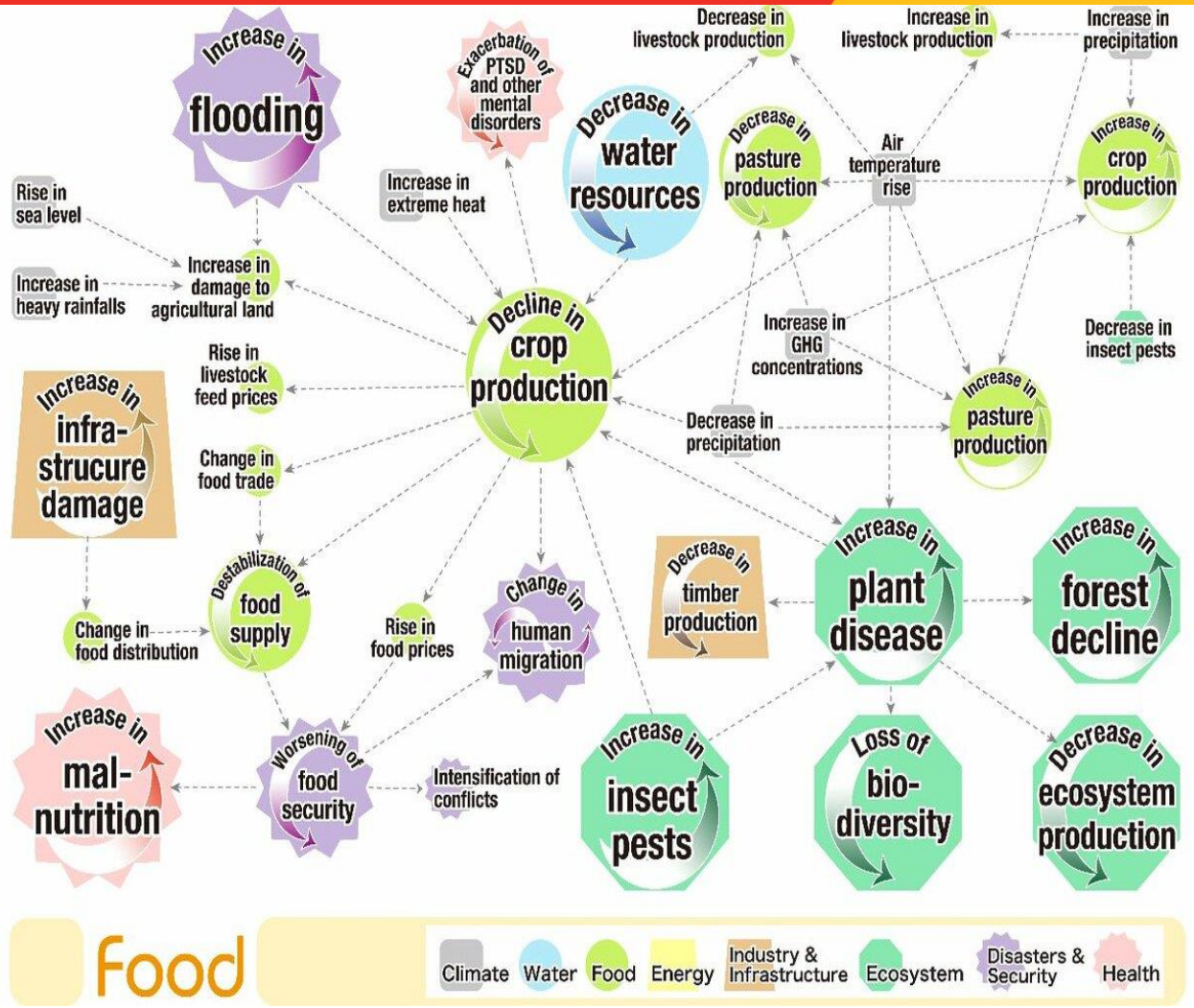
Cereal import dependency ratio (percent) (3-year average) (Source: FAOSTAT, 2020, Own computations) with extrapolation for no adaptation!

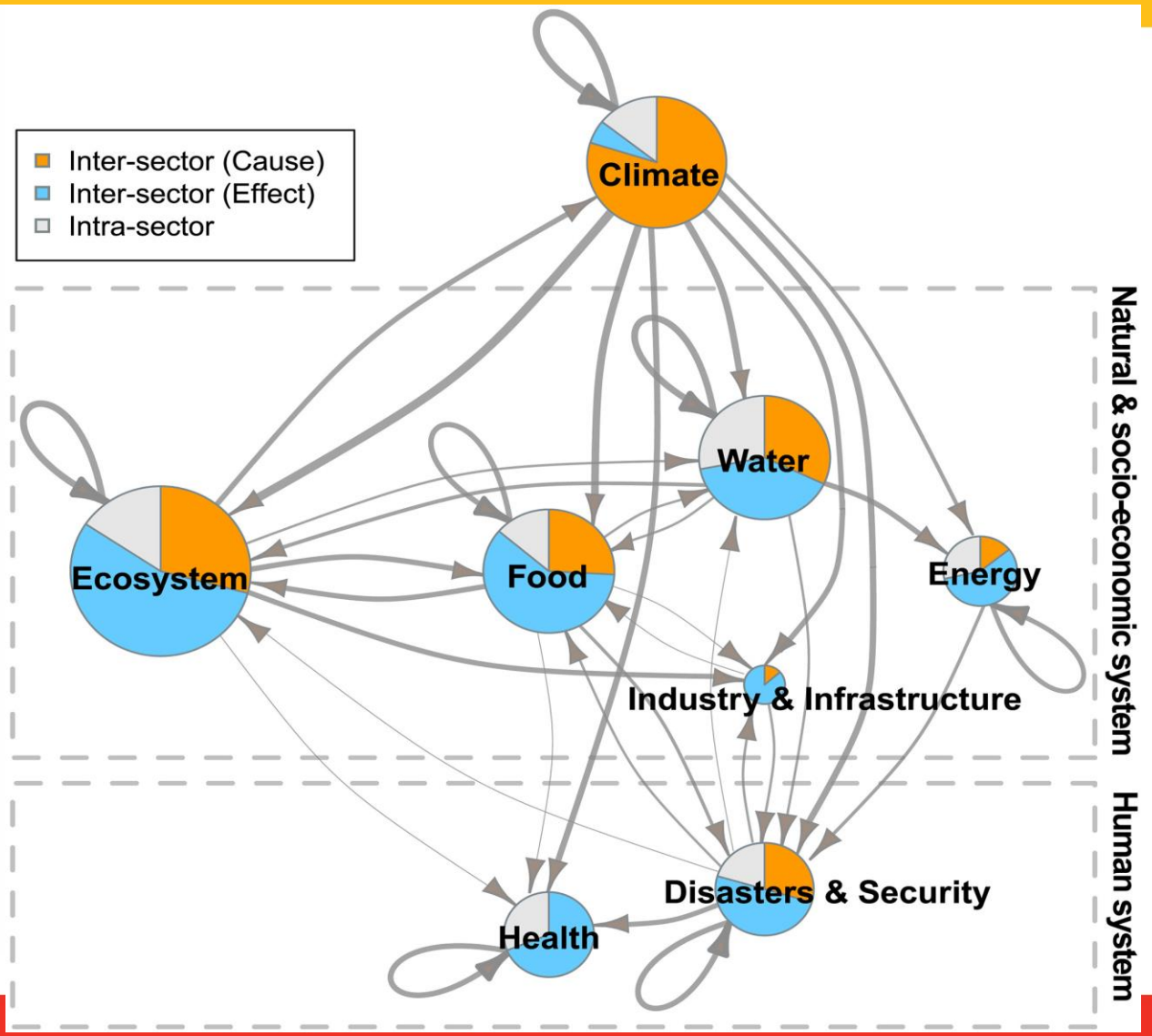


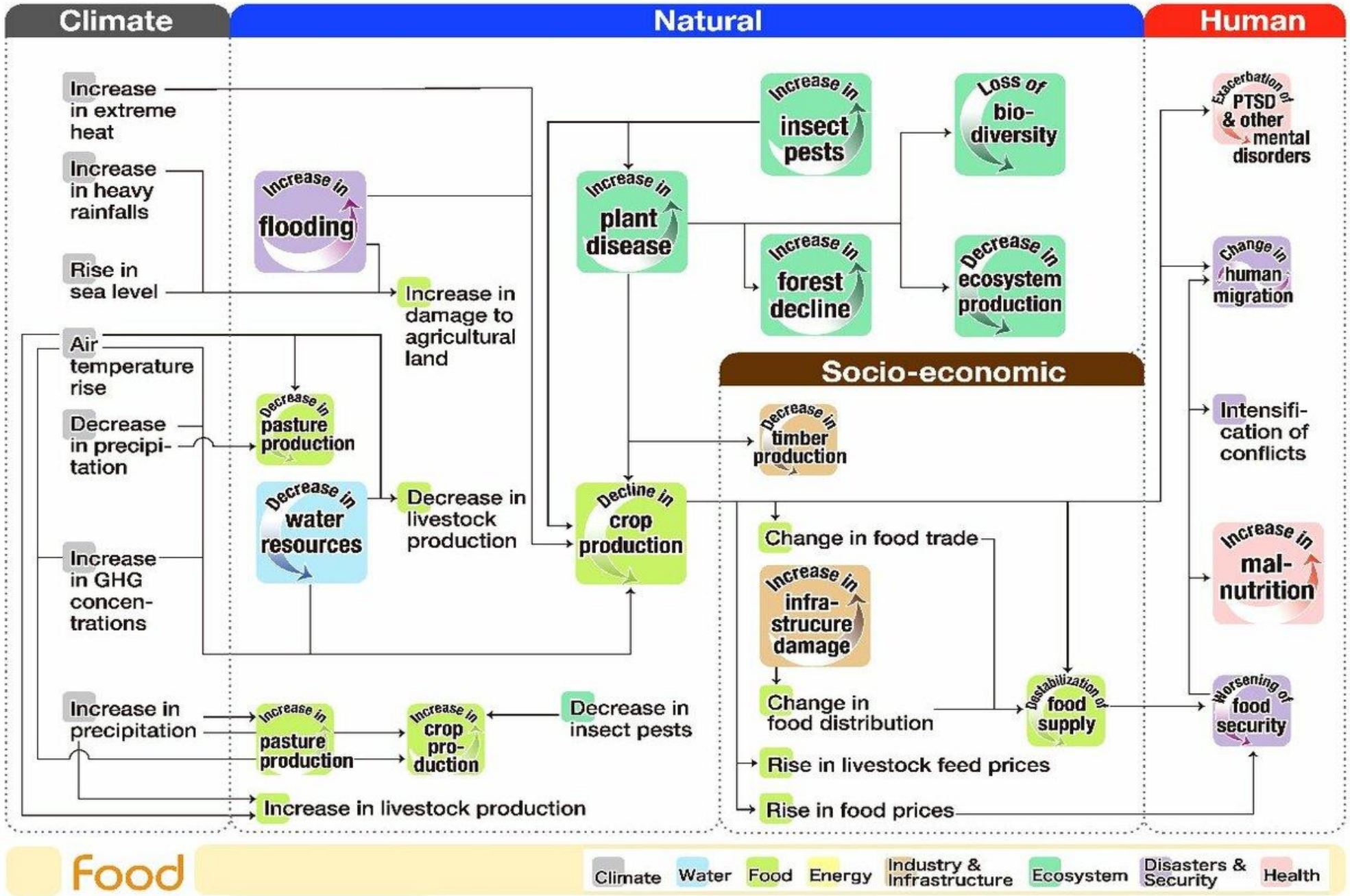
Climate risks

- Climate change presents added risks to interconnected systems that are already exposed to a range of stressors such as
- aging and deteriorating infrastructure,
- land-use changes, and
- population growth.
- Extreme weather and climate-related impacts on one system can **result in increased risks or failures in other critical systems**, including water resources, food production and distribution, energy and transportation, public health, international trade, and national security.
- The full extent of climate change risks to interconnected systems, many of which span regional and national boundaries, is often **greater than the sum of risks to individual sectors.**

Interconnected systems and impact on food



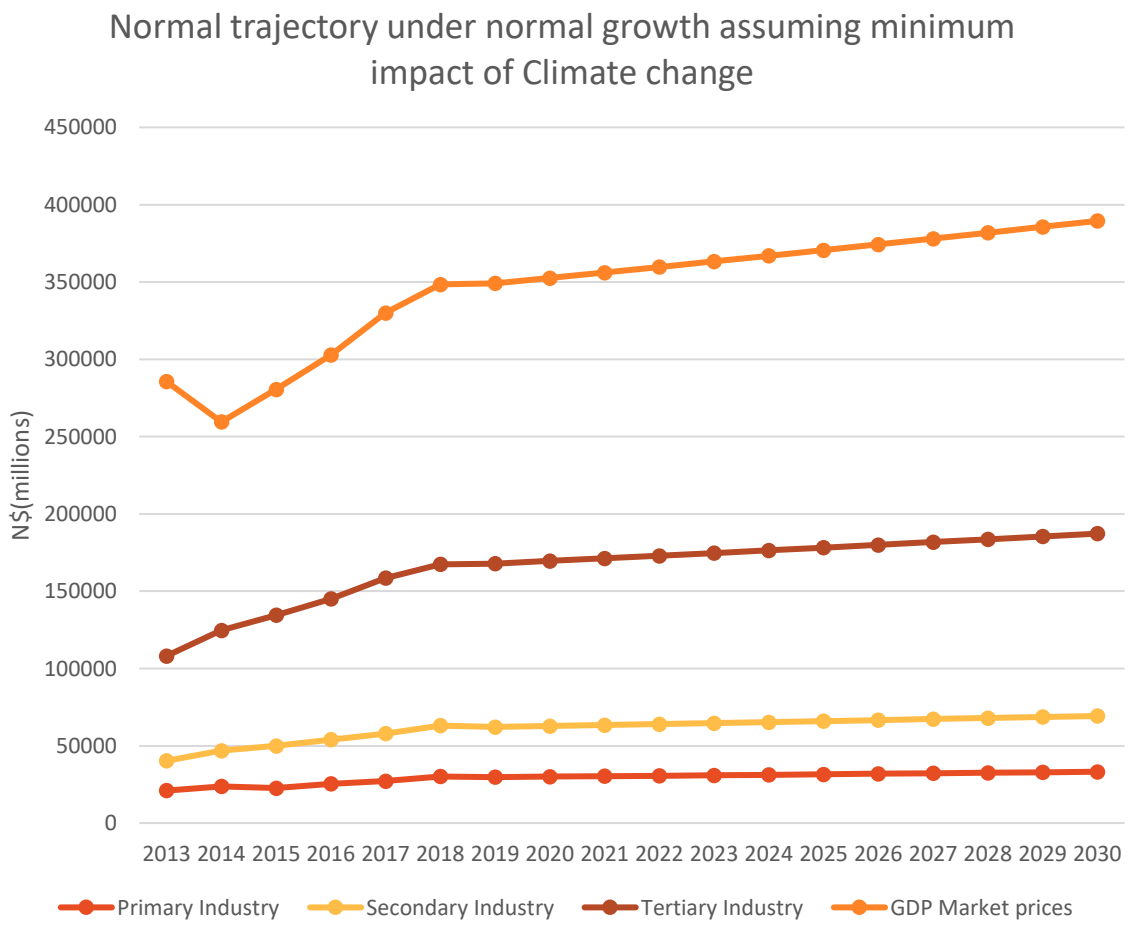


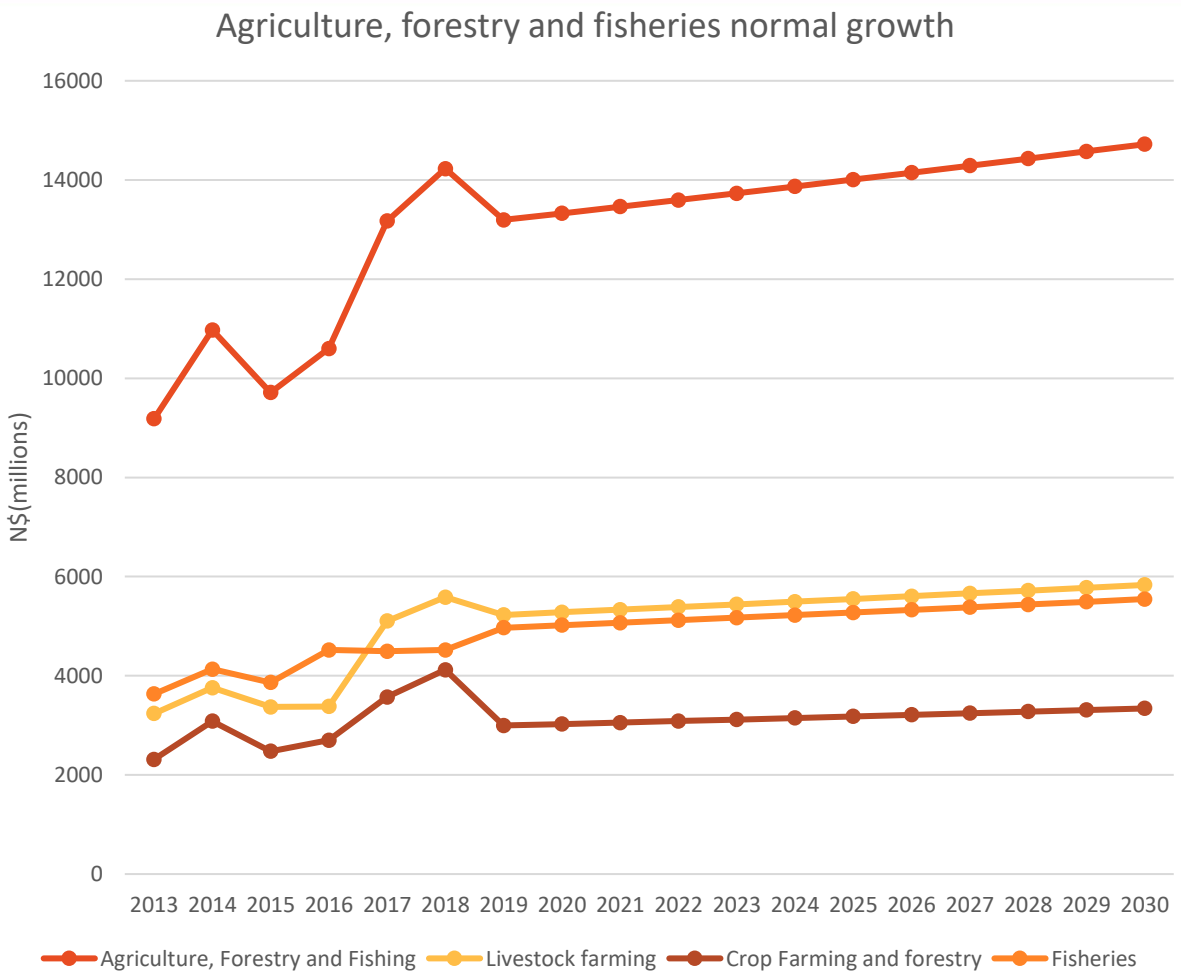

Climate
Natural
Human
Increase in extreme heat
Increase in heavy rainfalls
Rise in sea level
Air temperature rise
Decrease in precipi-tation
Increase in GHG concen-trations
Increase in precipitation
Increase in flooding
Increase in damage to agricultural land
Decrease in pasture production
Decrease in water resources
Decrease in livestock production
Increase in pasture production
Increase in crop pro-duction
Decrease in insect pests
Increase in livestock production
Increase in plant disease
Decline in crop production
Increase in insect pests
Increase in forest decline
Loss of bio-diversity
Decrease in ecosystem production
Socio-economic
Decrease in timber production
Change in food trade
Increase in infra-strucure damage
Change in food distribution
Rise in livestock feed prices
Rise in food prices
Destabilization of food supply
Exacerbation of PTSD & other mental disorders
Change in human migration
Intensifi-cation of conflicts
Increase in mal-nutrition
Worsening of food security
Food
Climate
Water
Food
Energy
Industry & Infrastructure
Ecosystem
Disasters & Security
Health

Impacts to the economy by 2050 on different warming thresholds

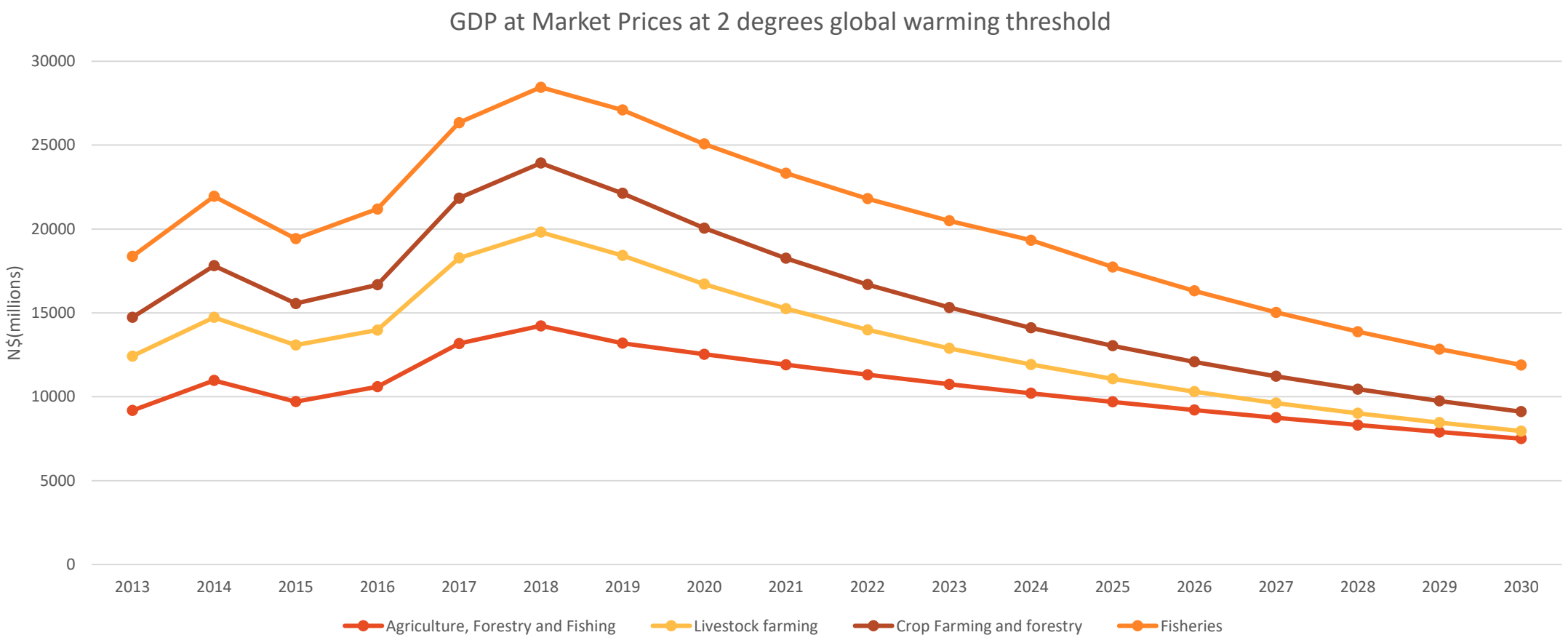
- Expected global GDP impact by 2050 under different scenarios compared to a world without climate change:
  -18% if no mitigating actions are taken (3.2°C increase);
  -14% if some mitigating actions are taken (2.6°C increase);
  -11% if further mitigating actions are taken (2°C increase);
  -4% if Paris Agreement targets are met (below 2°C increase)
- Intergovernmental Panel on Climate Change, Fifth Assessment (2014) Approximately 2.0°C A loss of 0.2%-2.0% of GDP per annum

GDP growth scenarios with minimal impact of climate change





Scenario Analysis of reduced productivity in the economy
Agriculture decreases by 15% by 2050, Crops decrease by 10%, Livestock decrease by 20% by 2050



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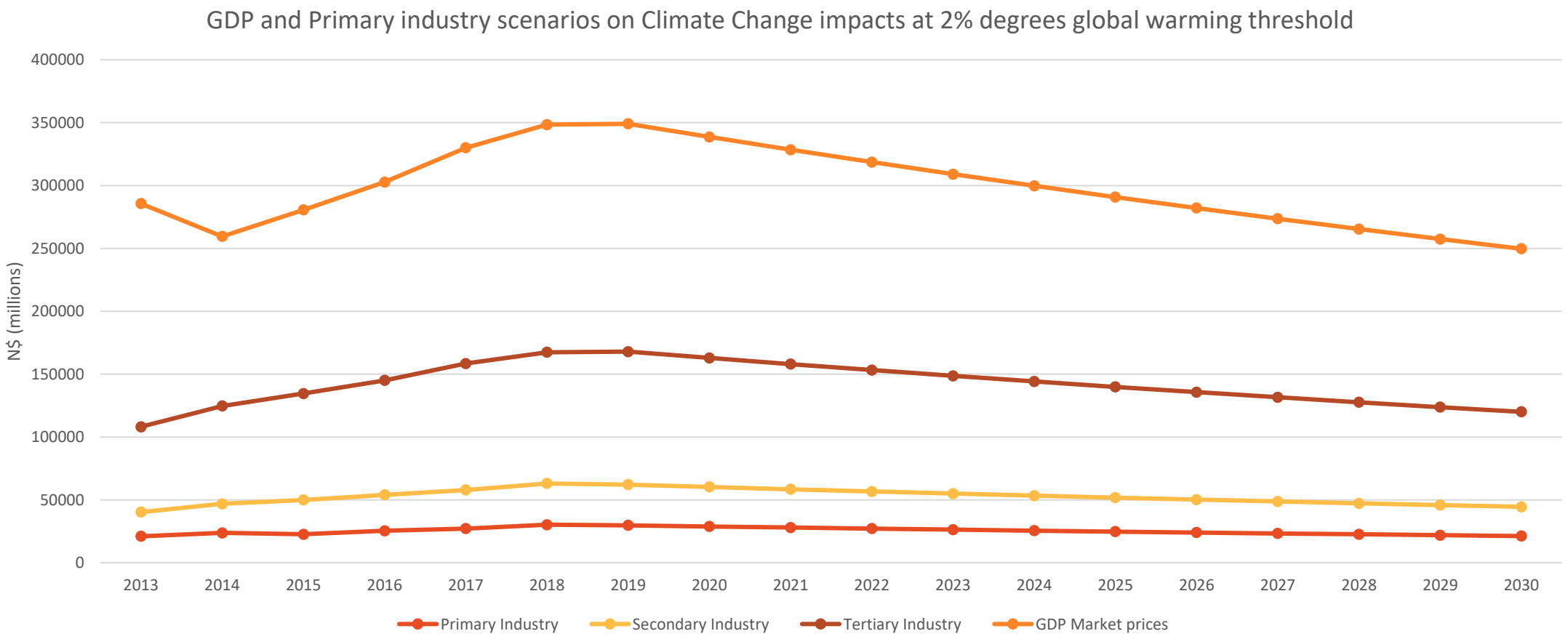


NAMIBIA IS HEATING UP: WHAT DOES GLOBAL WARMING OF 1.5°C MEAN FOR US?

1.5°C is too much for Namibia

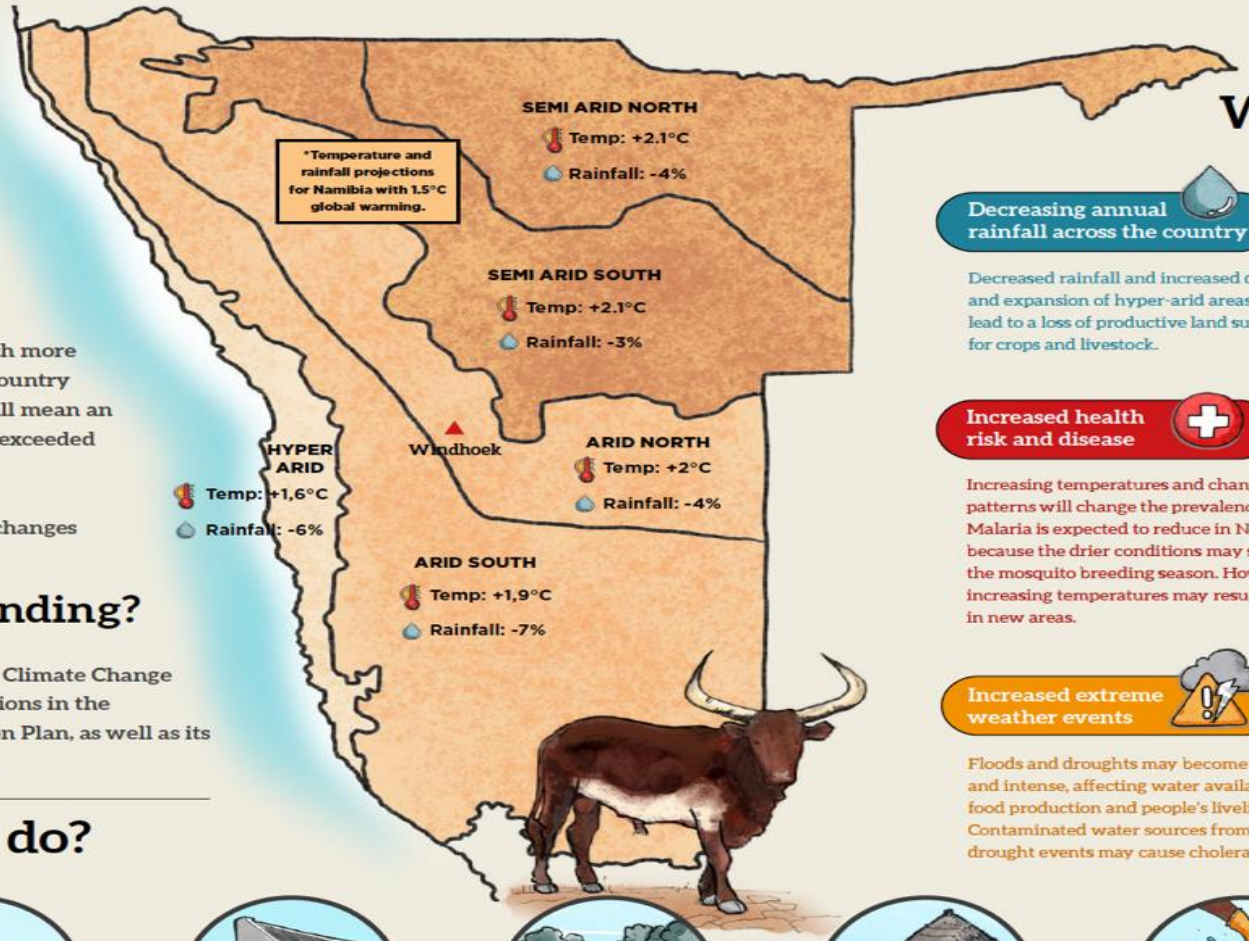
The world's temperatures have increased by 1°C since pre-industrial times. Global leaders have agreed to limit global warming well below 2°C, ideally 1.5°C.

Temperatures in Namibia are set to rise much more rapidly than the global average. As an arid country with a hot climate, a 1.5°C global increase will mean an increase of 2°C for Namibia, which could be exceeded as early as 2024.

Namibia needs to act now to adapt to rapid changes in local weather and climate.

How is Namibia responding?

Namibia has developed a National Policy on Climate Change and identified adaptation and mitigation actions in the National Climate Change Strategy and Action Plan, as well as its Nationally Determined Contribution (NDC).



What to expect

Decreasing annual rainfall across the country

Decreased rainfall and increased drying and expansion of hyper-arid areas may lead to a loss of productive land suitable for crops and livestock.

Increased health risk and disease

Increasing temperatures and changing rainfall patterns will change the prevalence of diseases. Malaria is expected to reduce in Namibia because the drier conditions may shorten the mosquito breeding season. However, increasing temperatures may result in outbreaks in new areas.

Increased extreme weather events

Floods and droughts may become more frequent and intense, affecting water availability, food production and people's livelihoods. Contaminated water sources from flood or drought events may cause cholera and hepatitis E.

Increasing local temperatures and heat waves

The semi-arid regions will experience the highest temperature increase, with extreme heat and water scarcity affecting crops and people's livelihoods. Heat waves will be longer and more frequent, making people more vulnerable to heat stroke and heat exhaustion.

Increased loss of local species and expanding desert zones

An estimated 30% of species will be lost, and expanding desert and shrublands may replace savannah grasslands. Biodiversity impacts may affect livestock production (due to reduced grazing), malnutrition, and the tourism industry.

What can you do?

Seek out regular climate-forecast information to inform your farming practices and adapt to the changing climate.

Diversify your farming to include drought and flood resistant crops, heat-tolerant livestock breeds, and try to earn income from non-farming activities.

Practise soil and water conservation, through conservation agriculture, agroforestry, drip irrigation and water-demand management.

Implement rangeland management practices such as thinning of encroacher bush, reforestation, planting fodder grasses and avoiding overstocking.

Store surplus grain and fodder to use during periods of poor harvest.

Undertake controlled harvesting of local species such as mopani worms, mopani trees and fresh-water fish, to preserve species diversity.

Share resources and join or establish community support groups, such as cooperatives, and credit and savings associations.

Take preventative measures to protect yourself against heat exposure and water-borne diseases, for example using mosquito nets and keeping hydrated.

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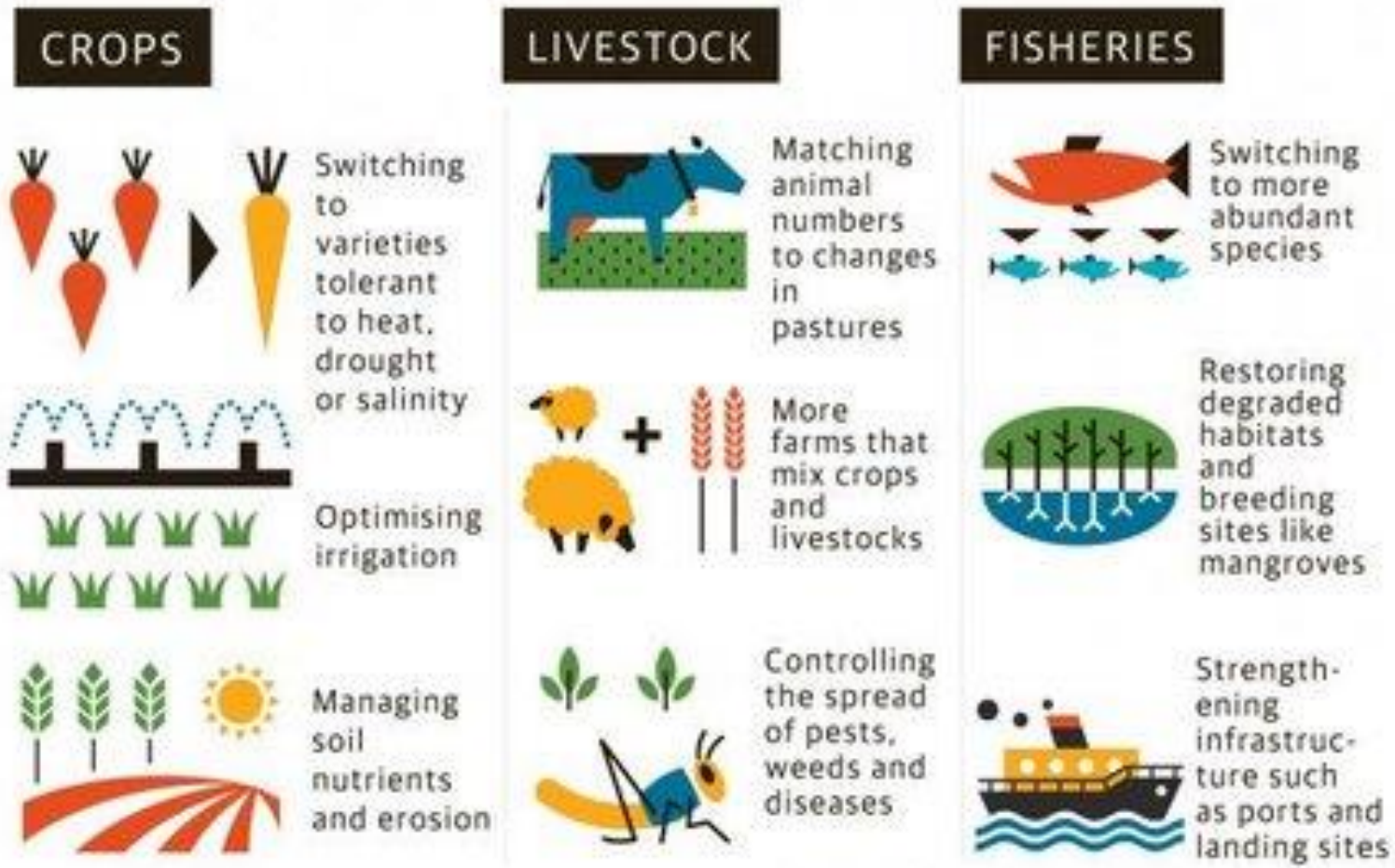
* Read more: The information in this graphic is based on in-depth research by the Adaptation at Scale in Semi-Arid Regions (ASSAR) project from 2014-2018. To find out more you can read the longer brief: 'What global warming of 1.5°C and higher means for Namibia', University of Cape Town, South Africa www.assar.uct.ac.za/sites/default/files/images_tool/images/138/1pointfivedegrees/ASSAR_Namibia_global_warming.pdf

Some measures to start adapting



Some questions to think about!

- How much will climate change cost local, national, and regional economies?
- What are the sizes of the economic impacts in different sectors and economy-wide?
- How do the costs of action compare to the benefits of alternative responses—is it worth it to take action?
- To what extent and when should these actions start?
- What actions are most cost-effective and have to be taken first?
- What are the levels of investment and financing needed?
- What policies will incentivize the adoption of clean and resilient options and raise their potential for coping with climate change?
- What policies will help ensure synergy in adaptation and mitigation?

THANK YOU