



Combating the Risks of Climate Change to Food Security: The Insurance Factor

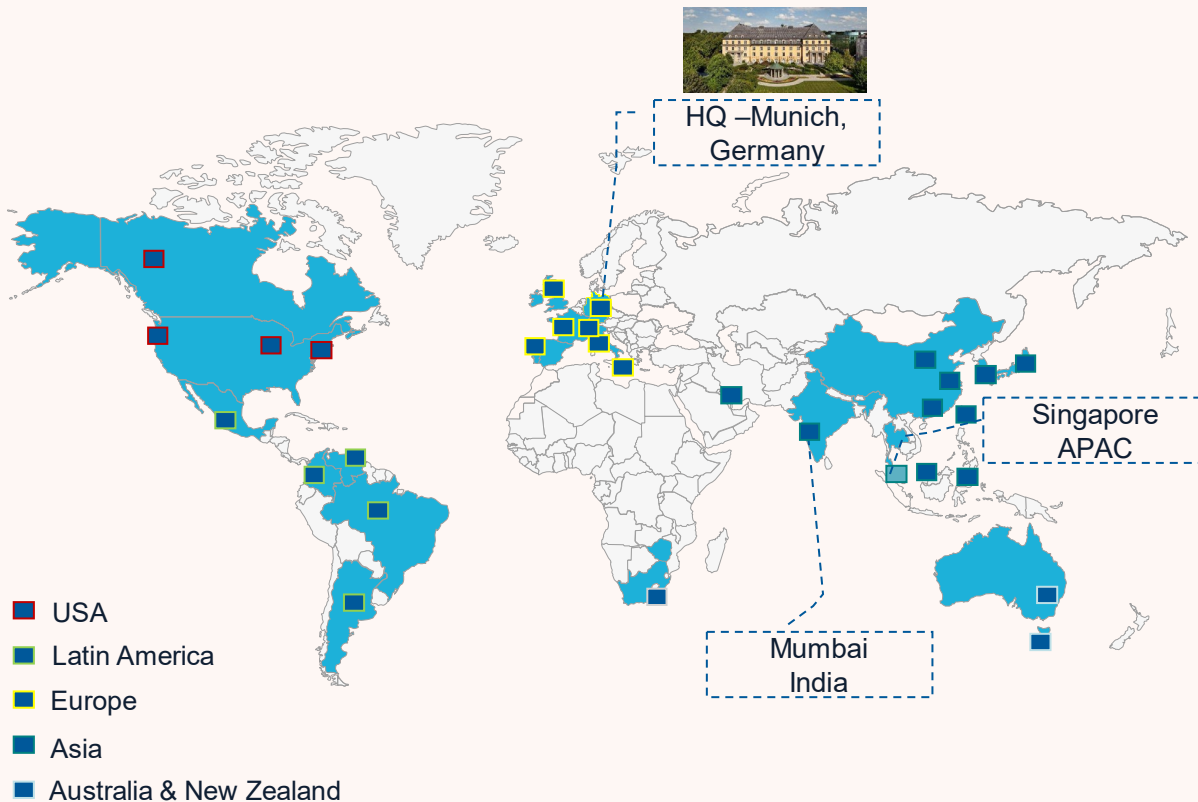
May 2023

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MRoA

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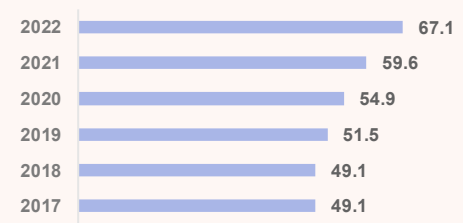
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Munich Re (Group)

- ~Founded 1880
- ~Revenue: € 67.1bn¹
- ~Assets under mgt: € 240.3bn
- ~41,000 employees

Revenue (in € bn)



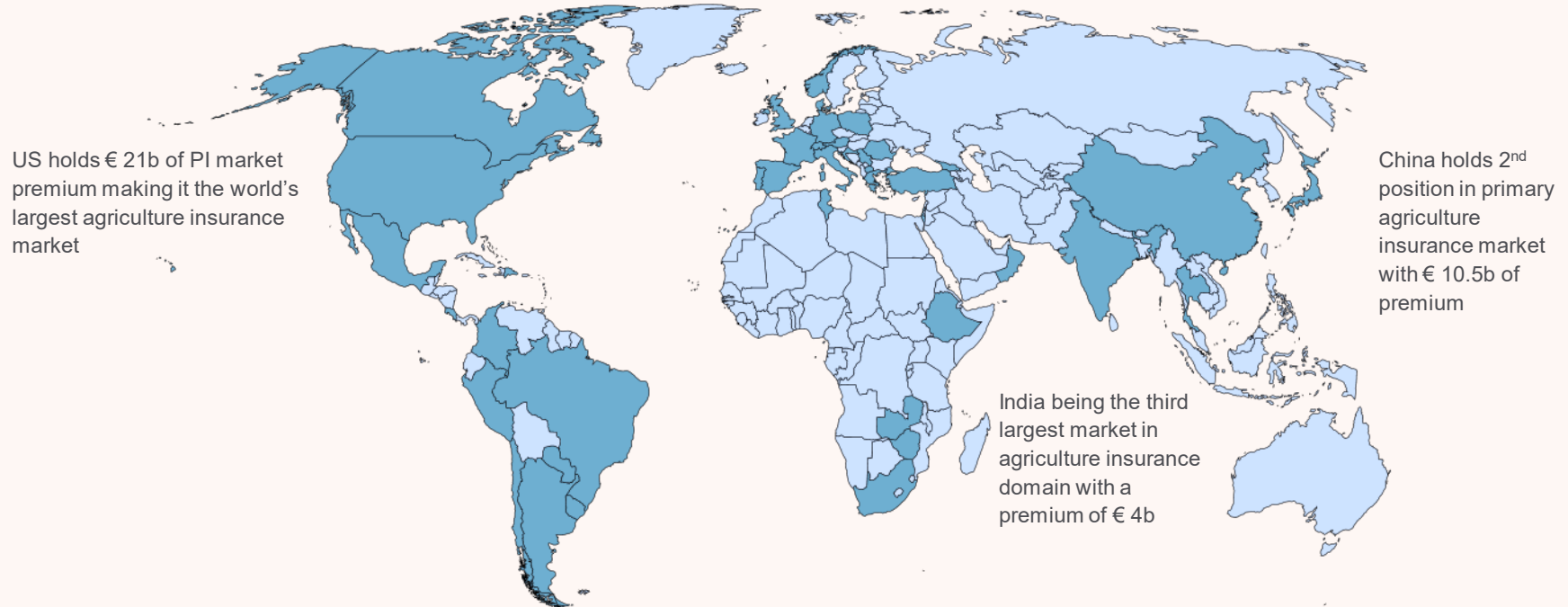
Rating

A.M Best	A+ (Superior)	stable
Fitch	AA (Very Strong)	stable
Moody's	Aa3 (Excellent)	stable
S&P	AA- (Very Strong)	stable

1. Nos. as of 31st Dec 2022

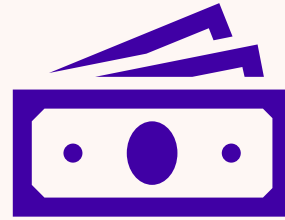
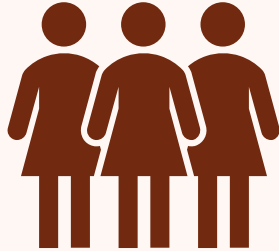
Munich Re Global presence in Agriculture

Strong presence in over 40 countries across the world – top 5 being USA, India, Brazil, China and Thailand



Agriculture and Economy

An overview



World

This sector provides food supply to sustain the global population, which is projected to reach 9.7 billion by 2050.

26% of the global workforce is engaged in agriculture, providing livelihoods for 1.3 billion people

Agriculture sector contributes approximately 4% to the global GDP in 2022

The total value of global agricultural exports amounted to around \$1.5 trillion.

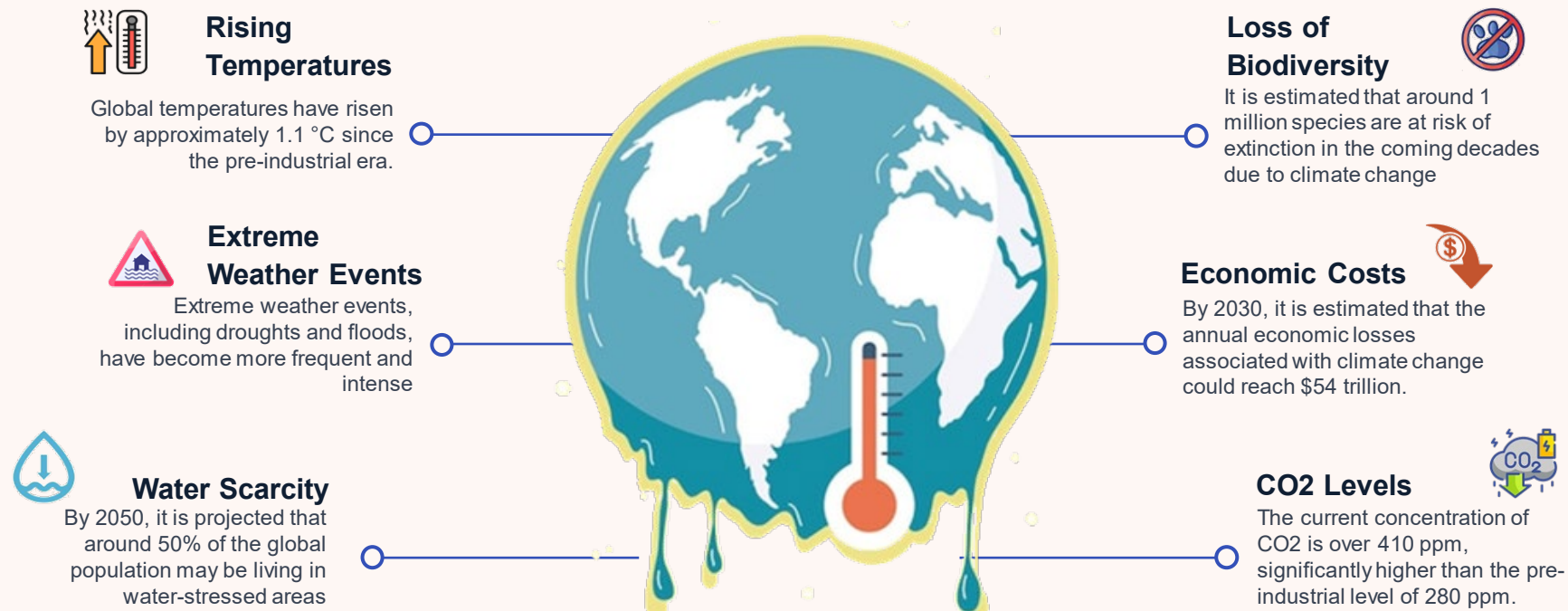
Africa

Africa has 60% of the world's arable land representing humanity's best hope for future food security

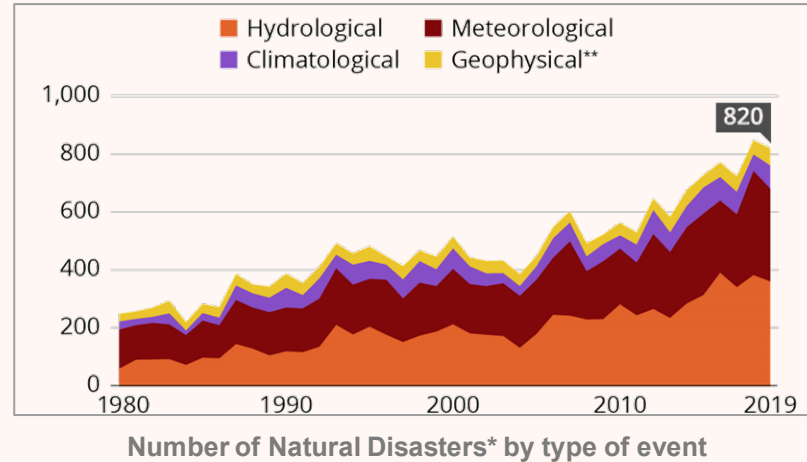
Approximately 60% of Africa's population is engaged in agricultural activities

Contribution of Agriculture to GDP ranges between 15% - 35% in most African countries.

The total value of agricultural exports from Africa per annum is approximately \$70 billion.



The number of disasters has increased by a factor of five over the last five decades, driven by climate change and more extreme weather

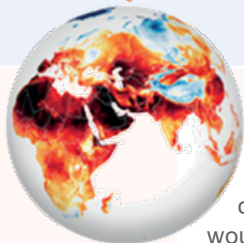
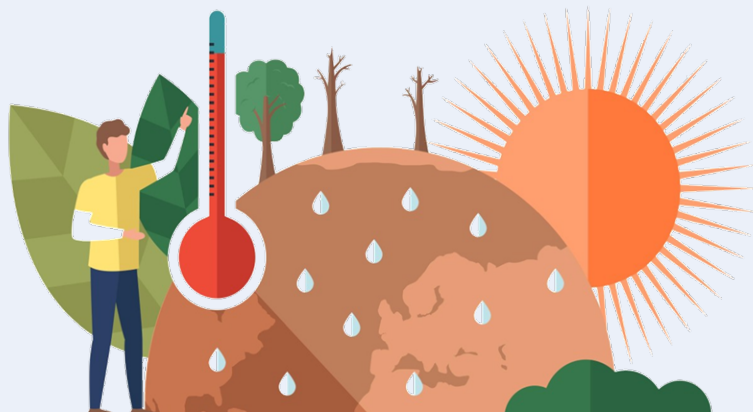


- Climate change is amplifying the occurrence of extreme weather events, such as storms, floods, heatwaves, and droughts.
- Rising global temperatures lead to more energy in the atmosphere, increasing the likelihood of intense and prolonged weather events.
- Warmer ocean temperatures fuel stronger and more destructive tropical cyclones, while higher temperatures and drier conditions contribute to the severity and frequency of wildfires and droughts.

Impact of Climate Change on Agriculture and Food Security

Climate change affects agricultural production in many regions

Sub-Saharan Africa and South & South-east Asia are the regions likely to be most impacted by climate change



It is estimated that 80% of the impact of climate change would be concentrated in the regions of Sub-Saharan Africa, Southeast Asia and Latin America

A single drought can lower an African country's medium-term economic growth potential by 1 percentage point, as per IMF research

More than 140 million economically disadvantaged people from developing economies will be forced to migrate internally due to climate change impacts by 2050

Climate change poses a serious threat to food security

Altered Growing Conditions

Wheat-growing areas are expected to shift, with a potential decline of 46% in production areas by 2100

Decreased Crop Yields

For every 1-degree Celsius increase in temperature, crop yields can decline by 5-15%

Lost Livelihoods

Farmers' livelihoods are threatened as they suffer from significant losses due to extreme weather events

Rise in Food Prices

Climate change impacts on food production can contribute to a 30% increase in food prices by 2050

Role of Insurance in Managing Climate Change and Combating Food Security

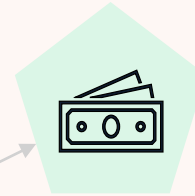
Risk Management

Insurance helps farmers mitigate risks associated with climate change. It provides a safety net by indemnifying for crop losses.



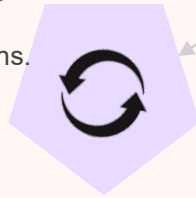
Access to credit

Insurance coverage improves farmers' access to credit and loans by mitigating risks of default in case of a calamity



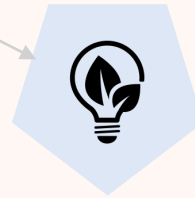
Business Continuity

Insurance helps minimize income fluctuations allowing farmers to recover & continue their operations.



Sustainable Development

Insurance can enable farmers to sustainably manage resources by encouraging them to adopt environmentally friendly practices.



Case Study - India

In the year 2019, India saw the most delayed withdrawal of monsoon in it's recorded history. This trend of late monsoon withdrawal is increasing due to climate change disturbing the seasonal cycles.

Event



In 2019, late withdrawal of monsoon resulted in unseasonal heavy rains. Typically, rainfall occurs until mid-September, but it rained heavily in October, coinciding with the harvesting period leading to the destruction of crop.

Loss



Crop on 10.7* million ha of agricultural land was damaged. States in Central India were the worst-hit. Losses amounted to well over € 2 bn.

Insurance



Crop insurance claims of ~ € 1 bn were disbursed to around 5 million farmers providing crucial support for revitalizing their livelihoods.



Case Study - Thailand

In 2011 due to the early onset of monsoon season, the La Nina effect and remnants of multiple tropical storms, rainfall in Thailand reached its highest level in 50 years. The flooding was **also exceptional** in terms of duration.

Event



Thailand experienced heavy floods from July to Nov 2011. The event is still one of the country's worst disasters and the most expensive flood loss on record for the global insurance industry.

Loss



The floods damaged 10.4 mn rais* (~17,000 sq.km) of agriculture area. Out of total livestock population of 94 mn, over 24 mn were affected. The total loss to Agriculture sector amounted to € 800 mn.

Insurance



Farmers across all provinces were compensated with € 600 mn under the Crop Insurance Scheme.



Case Study – South Korea

In 2019, typhoons over the western North Pacific occurred as expected, but the number of typhoons affecting the Korean Peninsula (KP) was the highest in the last 60 years owing to Climate change. Lingling, the thirteenth TC that occurred in 2019, was the 7th strongest event recorded in South Korea.

Event



In 2019, three typhoons Lingling, Tapha and Mitag hit Korea within a span of two months from September to October.



Loss



Losses incurred due to typhoons Lingling, Tapha and Mitag were to the tune of € 199mn (affecting western part), €138mn (affecting South-east part during harvest season) and € 44 mn respectively.



Insurance



The insurance industry disbursed approximately €350 million in claims, providing vital support to farmers and enabling them to recover and sustain their livelihoods

Case Study – South Africa

In 2016, South Africa experienced its warmest summer period in recorded history. This period of unprecedented high global temperatures is thought to have been the result of systematic global warming under the enhanced greenhouse effect in combination with natural variability in the form of an intense El Niño event.

Event



South Africa has been frequently affected by droughts in the recent years and one of the major drought events occurred in 2016 which was regarded one of the worst droughts on record in South Africa, exacerbated by a powerful El Niño weather pattern.



Loss



South Africa's agriculture sector incurred losses of about € 752 million due to the severe drought.



Insurance



Although the number of insured farmers for Drought is extremely low in South Africa limited, The largest Insurance loss in one year amounted to € 37 million

Thank You!