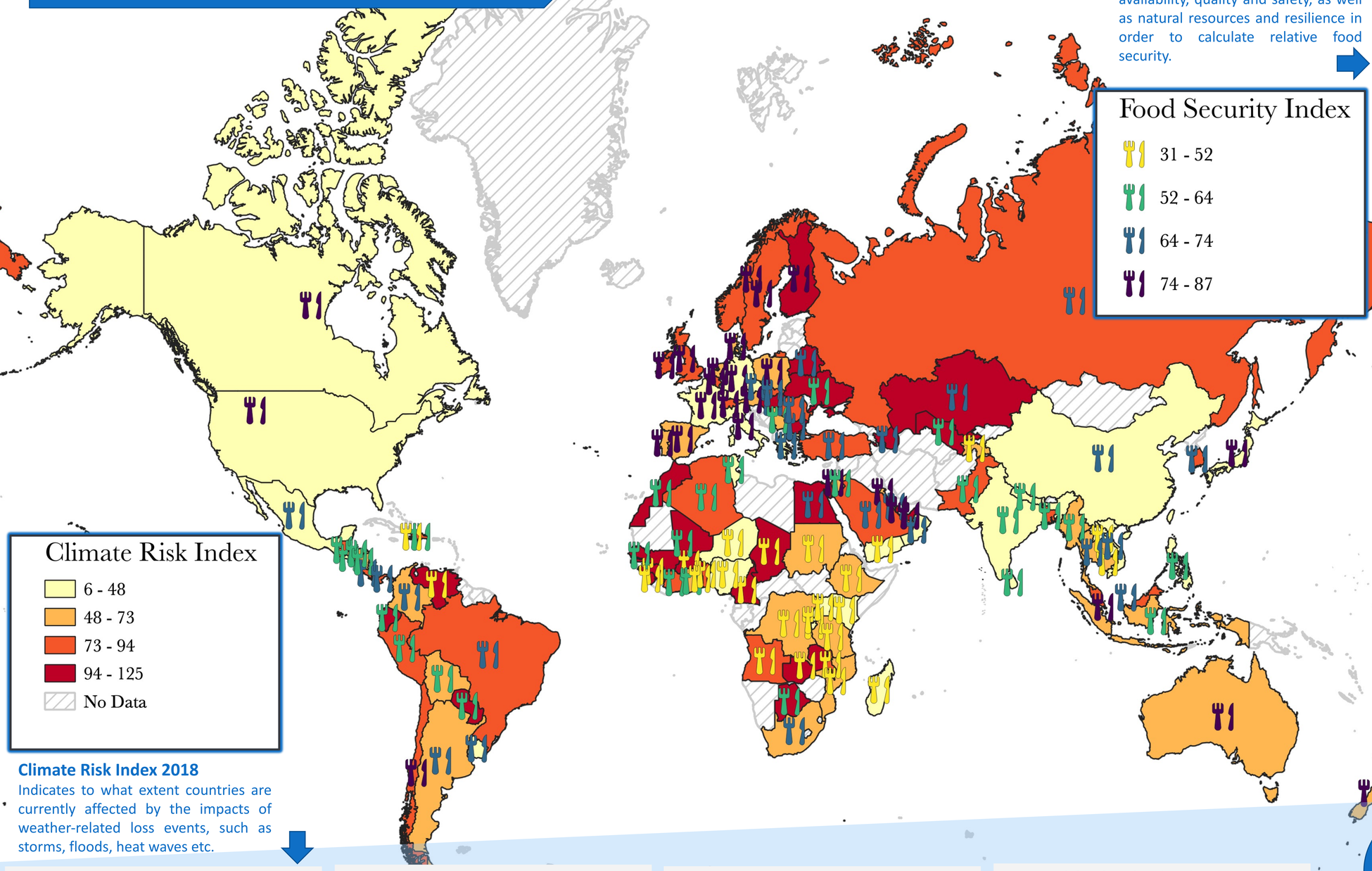
Climate Change and Global Food Security

Food Security is when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO).



Climate Risk Index 2018
Indicates to what extent countries are currently affected by the impacts of weather-related loss events, such as storms, floods, heat waves etc.

Food Security Index 2019
Evaluates current food affordability, availability, quality and safety, as well as natural resources and resilience in order to calculate relative food security.

Availability
- Environmental Stressors and Yield
- Crop Nutrient Content
- Market Factors
- Human Labor Capacity

Stability
- Climate Variability
- Crop Reserves
- Regional Conflict
- Food Import Dependency

Utilization
- Storage
- Food Waste and Loss
- Sanitation
- Disease
- Crop Diversity

Access
- Individual Purchasing Power
- Price Volatility
- Distribution
- Import Tariffs

Water

Rainfall distribution is increasingly extreme and uneven. Snow melts are occurring earlier, glaciers are melting, and rising sea level is leading to salt water intrusion in coastal aquifers. Despite low predictability, it is expected that communities dependent on seasonal rainfall will be especially vulnerable.

Temperature

Land temperatures 2006-2015 were on average 1 °C warmer than 20th century averages, and are expected to continue to increase in the next century by 1.9-4°C. This may increase plant production at higher altitudes, but is expected to lead to decreasing plant production in arid and tropical regions.

Extreme Events

Droughts, floods, and cyclones affected over 220 million people per year 2000-2009. These events are difficult to predict and can damage important infrastructure, cause extensive damage to flora and fauna, and can reduce water quality and access.

Ecology

Increased [CO_2] and reduced soil quality are projected to alter relationships between plants, pests, and pathogens. While heightened [CO_2] can lead to more efficient photosynthesis and water use, these effects are generally countered by the negative effects of higher temperatures, which include cell damage and reduced nutrient content

Outlook

790 million people worldwide experience **food insecurity** daily. Food demand is expected to increase globally, while the impacts of **climate change** on food security face an uneven distribution, determined by differences in biophysical resources, management practices, and socio-economic factors. Proactive responses include shifting to more resilient and less environmentally sensitive crops. Tracking climate risk and food security provides insight into current conditions, and provides a base level for future food security predictions under different climate scenarios. Ensuring food security for all is a **social justice** issue, and it is essential that **climate adaptation** measures consider the effects on agriculture, fisheries, livestock, food storage and distribution through a **vulnerability** lens.

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