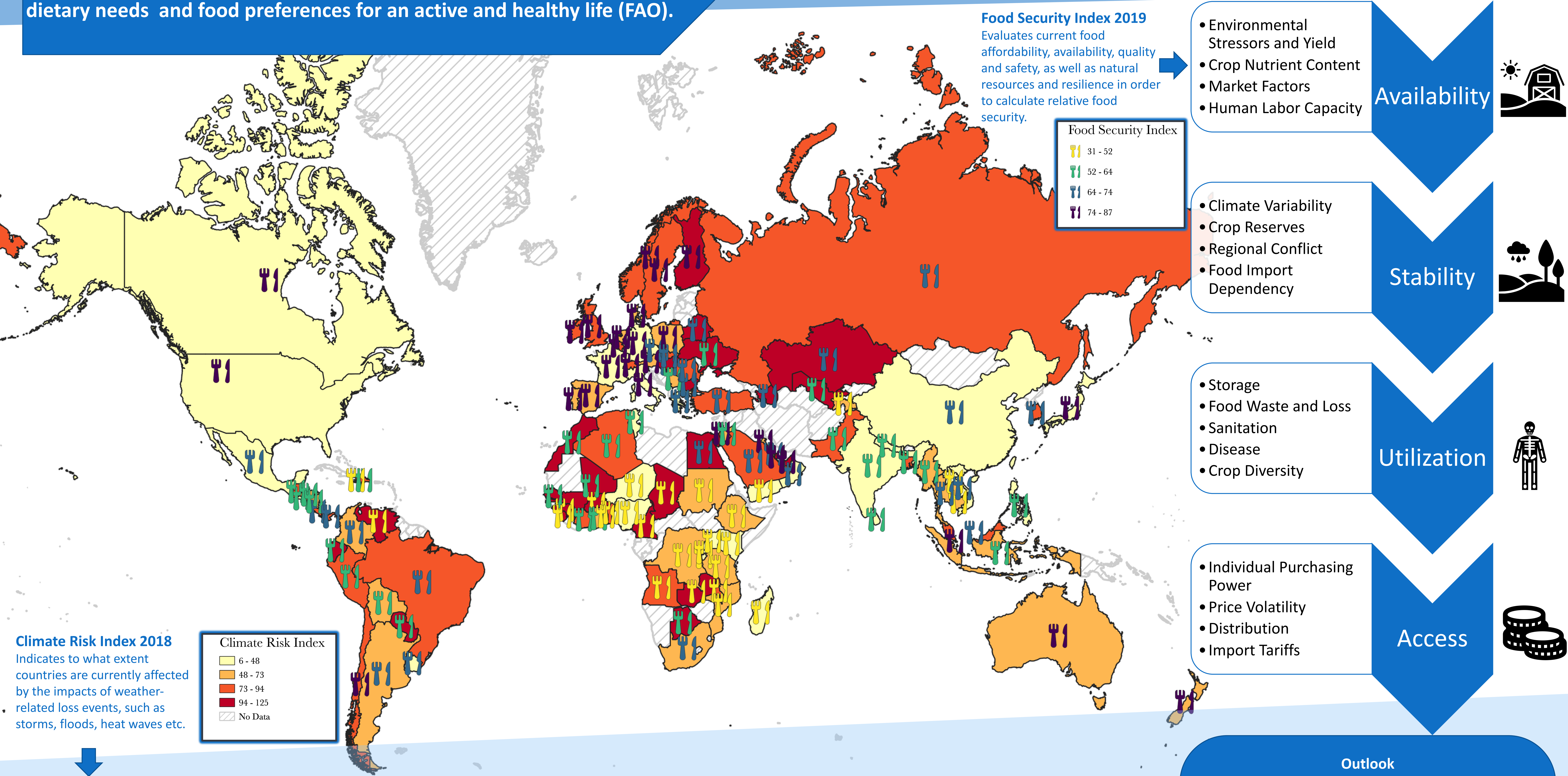


# Climate Change and Global Food Security

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).



Rainfall distribution is increasingly extreme and uneven. Seasonal snow melts are occurring earlier, glaciers are melting, and rising sea level is leading to salt water intrusion in coastal aquifers—all reducing freshwater stores. When and where these changes will occur is uncertain, however it is expected that communities dependent on seasonal rainfall for their livelihoods will be especially vulnerable.

Land temperatures 2006-2015 were on average 1 °C warmer than 20<sup>th</sup> 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.

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.

Increased water scarcity, [CO<sub>2</sub>], and temperature as well as reduced soil quality are projected to alter relationships between terrestrial and aquatic plants, pests, pathogens, and weeds. While heightened [CO<sub>2</sub>] can lead to more efficient photosynthesis and water use, these effects are generally countered 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.

Water

Temperature

Extreme Events

Ecology



# Literature

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# Images

Countries WGS84 [WWW Document], 2021. URL [https://hub.arcgis.com/datasets/a21fdb46d23e4ef896f31475217cbb08\\_1](https://hub.arcgis.com/datasets/a21fdb46d23e4ef896f31475217cbb08_1) (accessed 2.25.21).  
Map generated by Kassia Rudd using QGIS, WGS85, 2019 Food Security Index data, and 2018 Climate Risk data.