Introduction to Agriculture and Food Security in the Modern World:

Livestock Systems

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- Overview of Topics
  - Importance of Livestock Systems
  - Status in OIC Countries
  - Challenges
  - FAO Activities
  - Mitigation Measures
  - Capacity Building

Importance of Livestock Systems

Economic Impact
•Contributes ~40% of global agricultural GDP
•50% in high-income countries
•25% in low and middle-income countries (LMICs)

Food Security
•Provides 14.5% - 18% of global calorie intake
•Supplies 25% - 33% of global protein intake

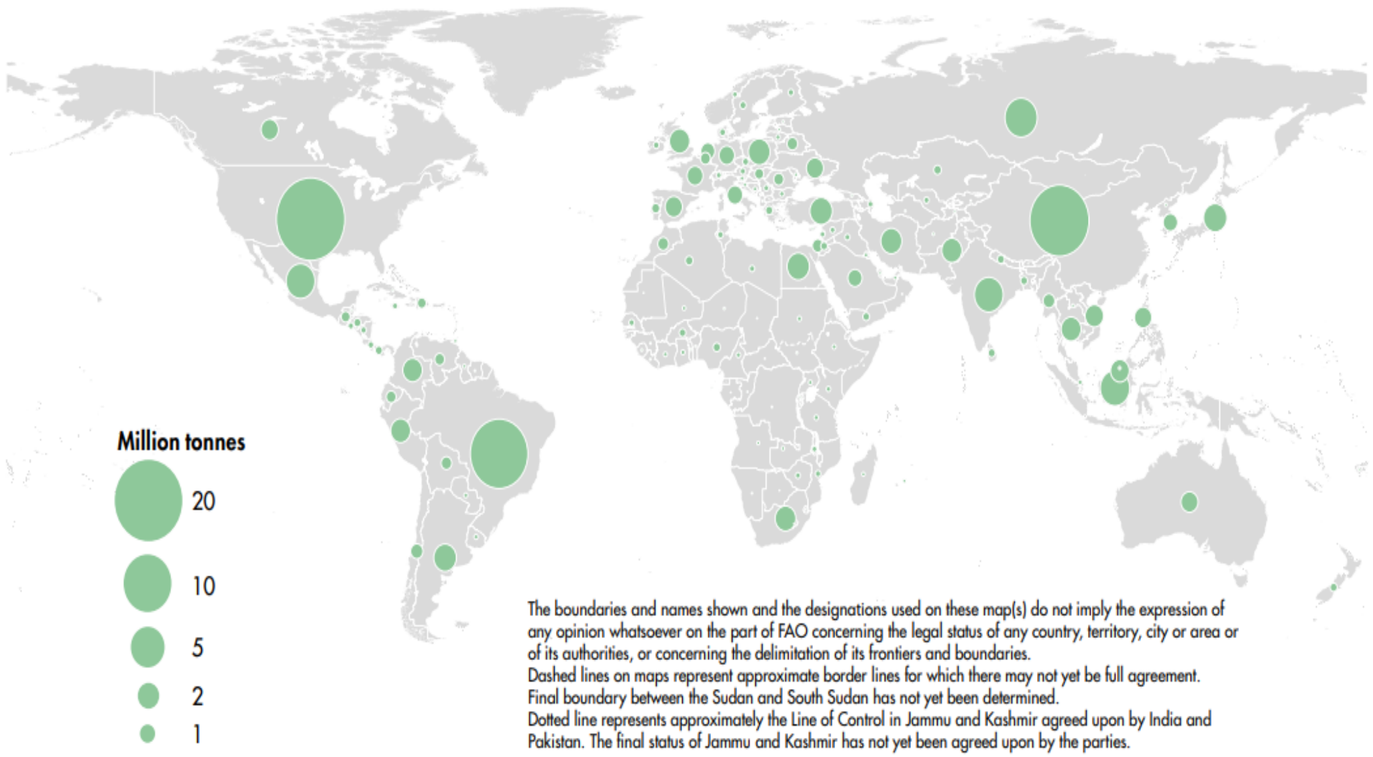
Health and Nutrition
•Rich source of essential nutrients: amino acids, vitamins, minerals
•Important for vulnerable populations (children, pregnant women, elderly)

Employment and Livelihoods
•Employs over 1.3 billion people worldwide
•Supports livelihoods of 600 million smallholder farmers in LMICs
•Crucial for 70% of the world's rural poor

Environmental Impact
•Accounts for ~14.5% of all anthropogenic greenhouse gas emissions
•Efforts are ongoing to reduce emissions and improve sustainability

Importance of Livestock Systems

MAP 16.
PRODUCTION OF CHICKEN MEAT (2021)



The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.
Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
Final boundary between the Sudan and South Sudan has not yet been determined.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Source: FAO. 2022. Production: Crops and livestock products. In: *FAOSTAT*. Rome. [Cited October 2023]. https://www.fao.org/faostat/en/#data/QCL based on UN Geospatial. 2020. Map geodata [shapefiles]. New York, USA, UN.
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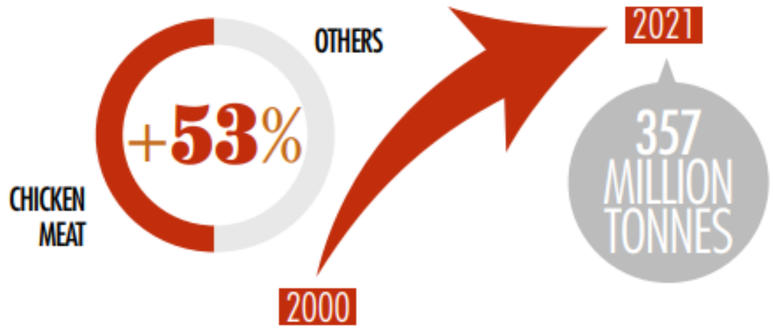
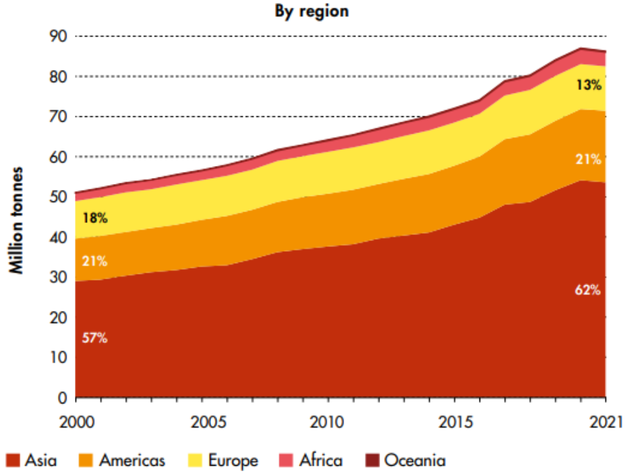
MEAT PRODUCTION



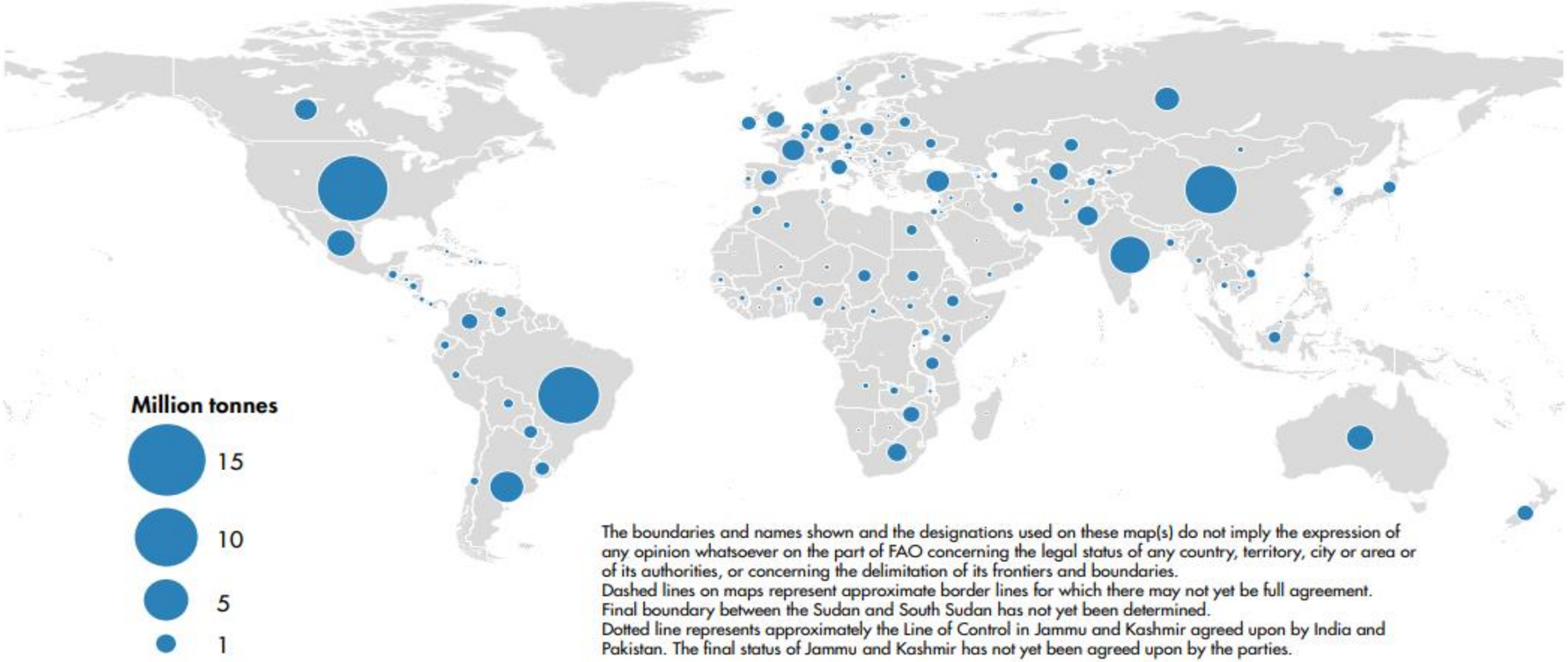
357 million tonnes of meat were produced in 2021, 53% more than in 2000, with chicken meat representing more than half the increase.

FIGURE 29.
WORLD PRODUCTION OF HEN EGGS



Importance of Livestock Systems

MAP 18.
PRODUCTION OF CATTLE MEAT (2021)



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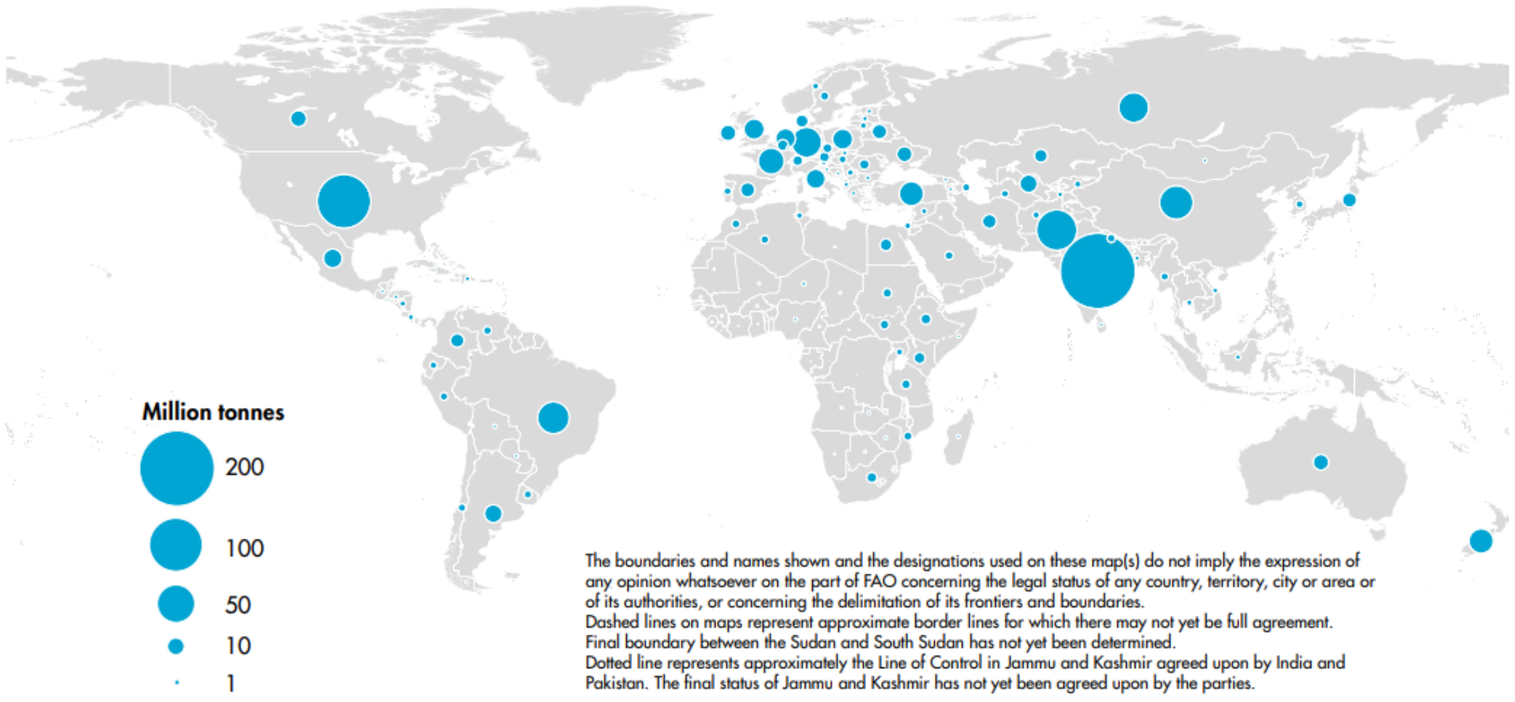
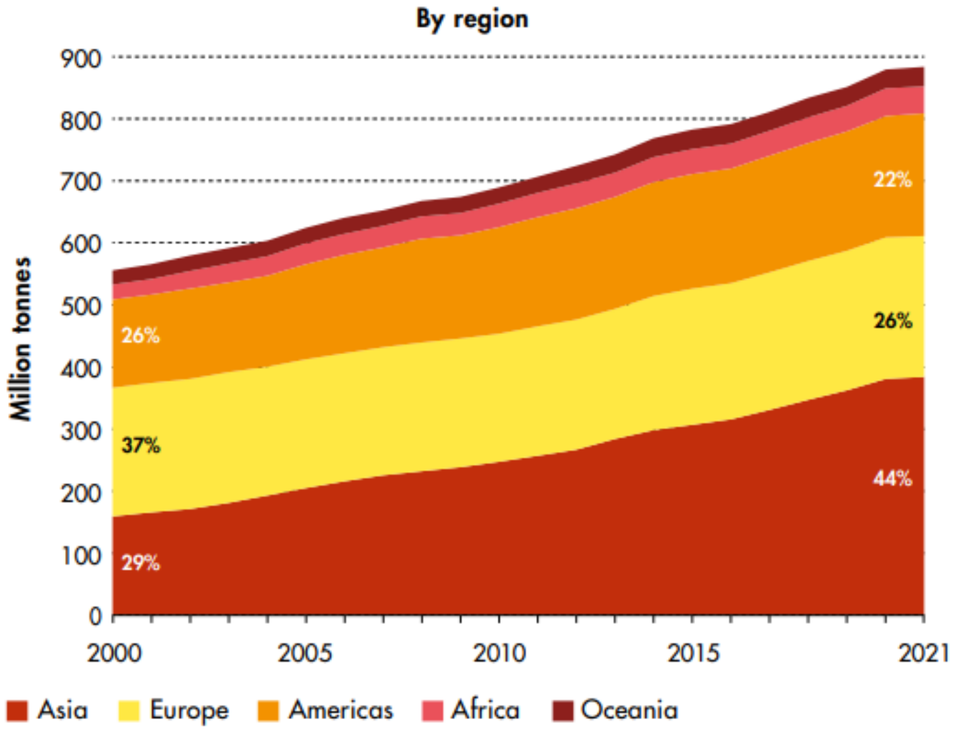
Importance of Livestock Systems

MAP 19.
PRODUCTION OF BOVINE MILK (2021)



Note: Bovine milk comprises cattle and buffalo milk.
Source: FAO. 2022. Production: Crops and livestock products. In: *FAOSTAT*. Rome. [Cited October 2023]. https://www.fao.org/faostat/en/#data/QCL based on UN Geospatial. 2020. Map geodata [shapefiles]. New York, USA, UN.
Download: https://doi.org/10.4060/cc8166en-map19

FIGURE 28.
WORLD PRODUCTION OF BOVINE MILK



Status in OIC Countries

Opportunities for OIC countries:

- High Growth Rates in Certain Regions
  - High demand for animal product
  - Economic growth

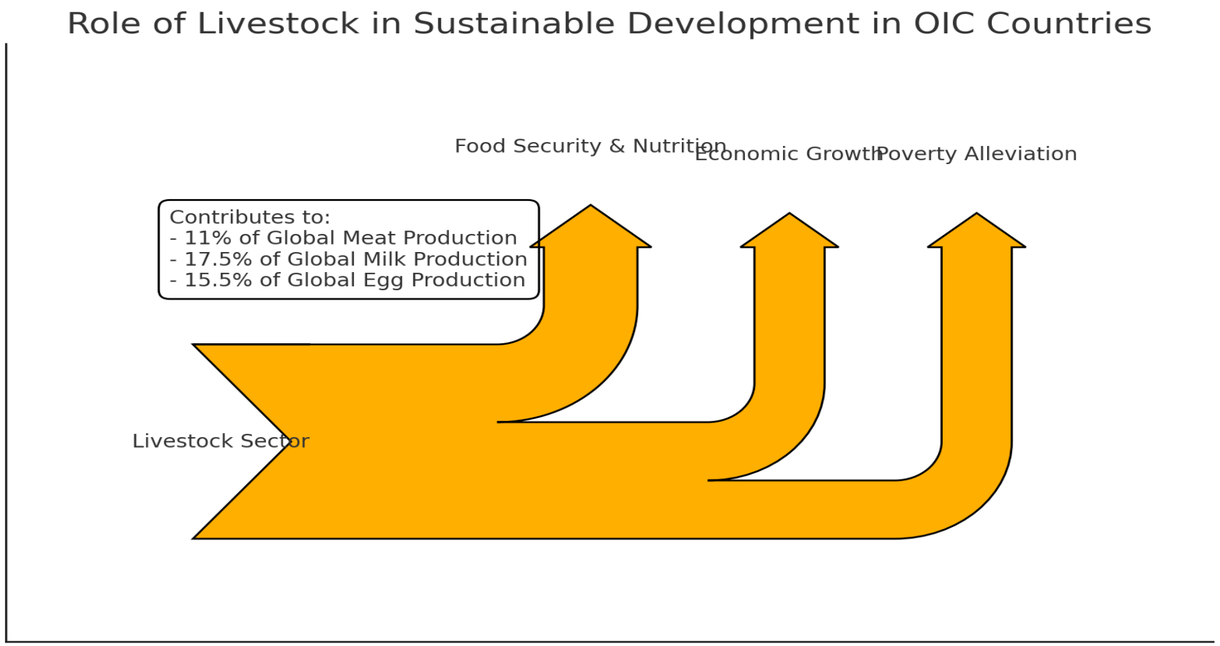
- Labor supply
  - Workforce
  - More innovation and development

Threats for OIC countries:

- Resource Strain
  - Land and Water Competition
  - Feed Shortages

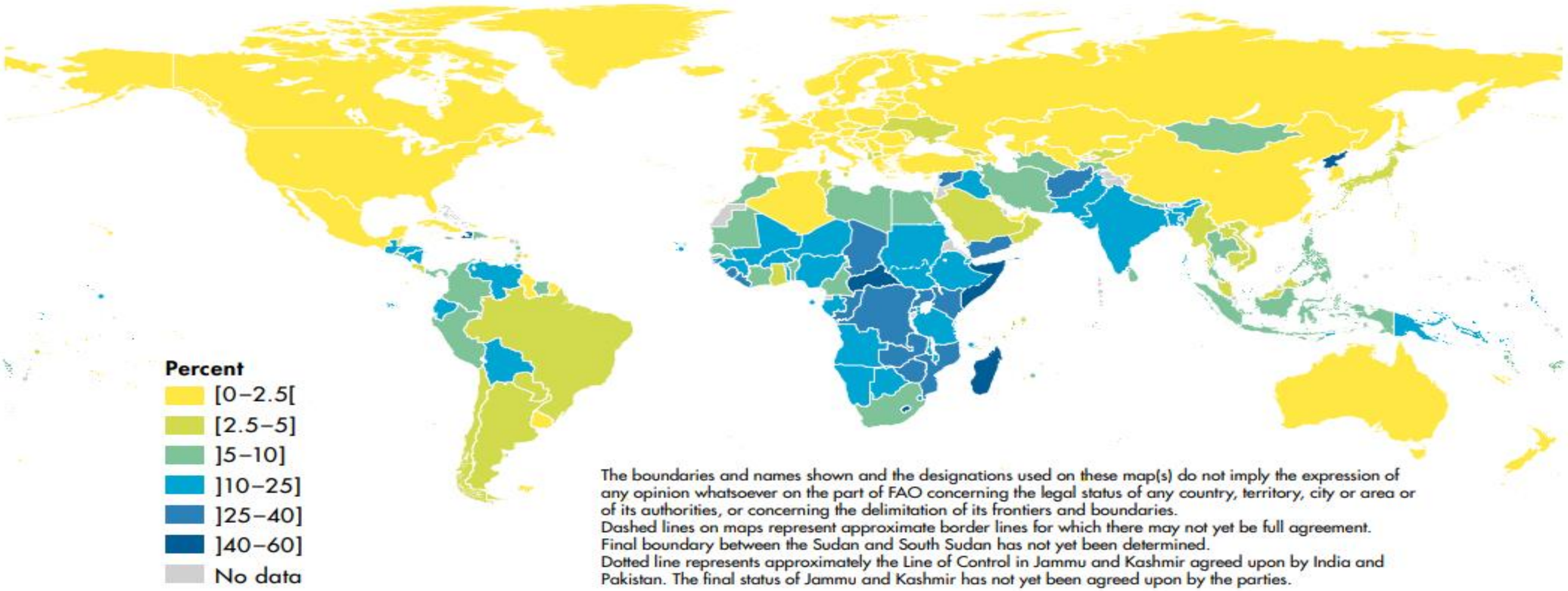
- Environmental Impact
  - Overgrazing and Land Degradation
  - Pollution

- Health and Disease Management Challenges
  - Increased Disease Risk
  - Public Health



Status in OIC Countries

MAP 25.
PREVALENCE OF UNDERNOURISHMENT (2020–2022 AVERAGE)



Note: The values for 2020 to 2022 are projections based on the projected midranges.

Source: FAO. 2023. Suite of Food Security Indicators. In: *FAOSTAT*. Rome. [Cited October 2023]. https://www.fao.org/faostat/en/#data/FS based on UN Geospatial. 2020. Map geodata [shapefiles]. New York, USA, UN.
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Challenges

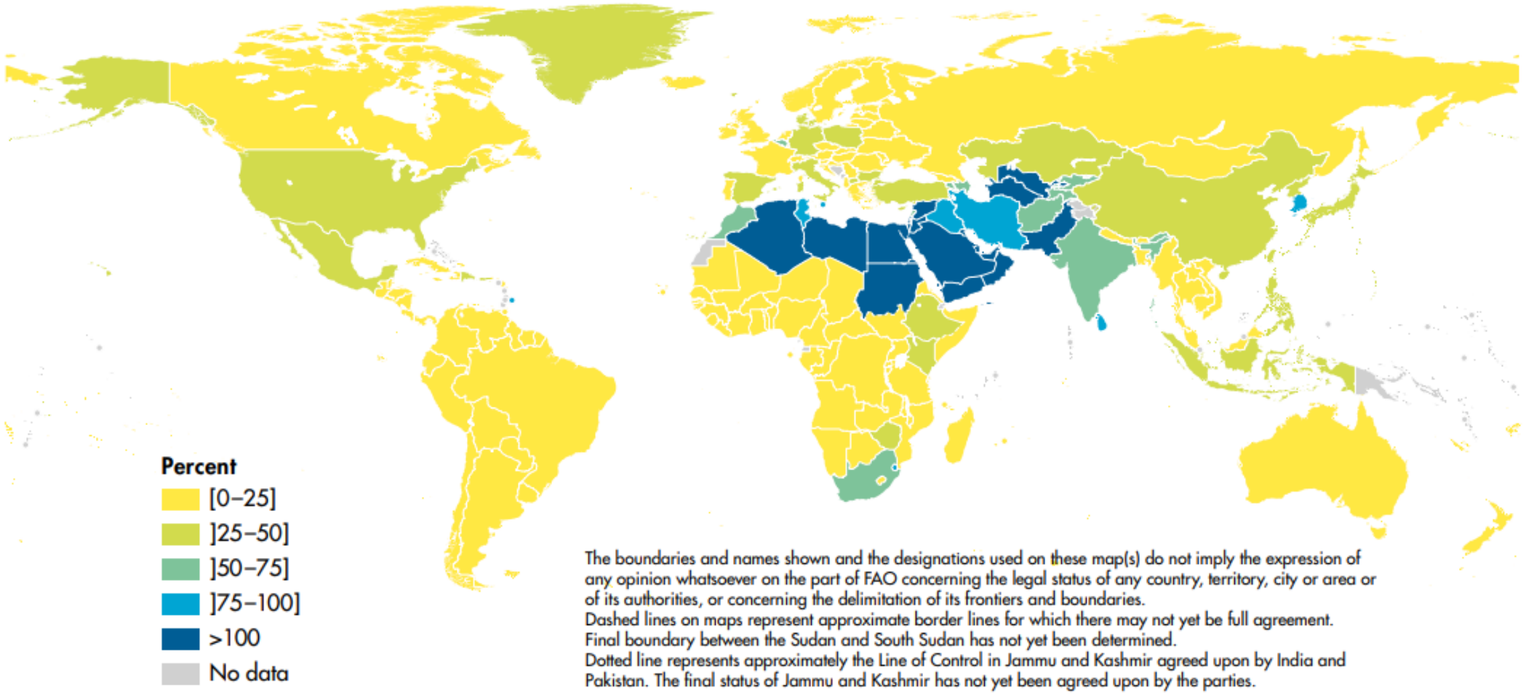
1. Climate Change and Environmental Impact
- Rising temperatures,
- Changing precipitation patterns, and extreme weather
- Water stress

2. Disease and Health Management
- Poor veterinary services,
- limited access to vaccines,
- inadequate disease surveillance control measures

3. Innovation and technology
- High Initial Investment Costs
- Limited Access to Technology
- Resistance to Change

4. Rural to urban migration

MAP 31.
WATER STRESS (2020)



FAO. 2023. AQUASTAT Dissemination System. In: *AQUASTAT*. Rome. [Cited October 2023]. https://data.apps.fao.org/aquastat/?lang=en based on UN Geospatial. 2020. Map geodata [shapefiles]. New York, USA, UN.
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FAO projects

- **Support for Determination of Agricultural Business Typology Engaged in Livestock Activities,** which aims to better understand and support diverse livestock farming operations.

- **Urgent Rehabilitation of the Critical Local Supply Chains Essential to Strengthen the Sustainability of Agricultural Production and Rural Livelihood for Smallholder Farmers in the Earthquake-Affected Region in Türkiye,** focusing on restoring and sustaining agricultural production in disaster-affected areas.

- **Strengthening Goose Meat Production Through Rural Tourism and Gastronomy,** which leverages local gastronomy traditions to boost rural economies and promote sustainable farming practices.

- **Improving Efficiency of Small Ruminants Production for Reduction of the GHG Emission Intensity,** aimed at enhancing productivity while reducing the environmental footprint of livestock farming

Capacity Building

1. Education and Training
•Farmer Education Programs
•Extension Services
2. Technology Adoption and Utilization
•Subsidized Technology Access
•Mobile Applications
3. Veterinary Services and Disease Management
•Veterinary Training
•Mobile Veterinary Clinics
4. Infrastructure Development
•Improved Facilities
•Transportation Networks
5. Research and Development
•Collaborative Research
•Field Trials and Demonstrations
6. Policy and Regulatory Support
•Supportive Policies
•Regulatory Frameworks
7. Environmental and Sustainability Initiatives
•Sustainable Practices
•Climate Adaptation Strategies
•8. Community Engagement and Support

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Thanks for your attention…