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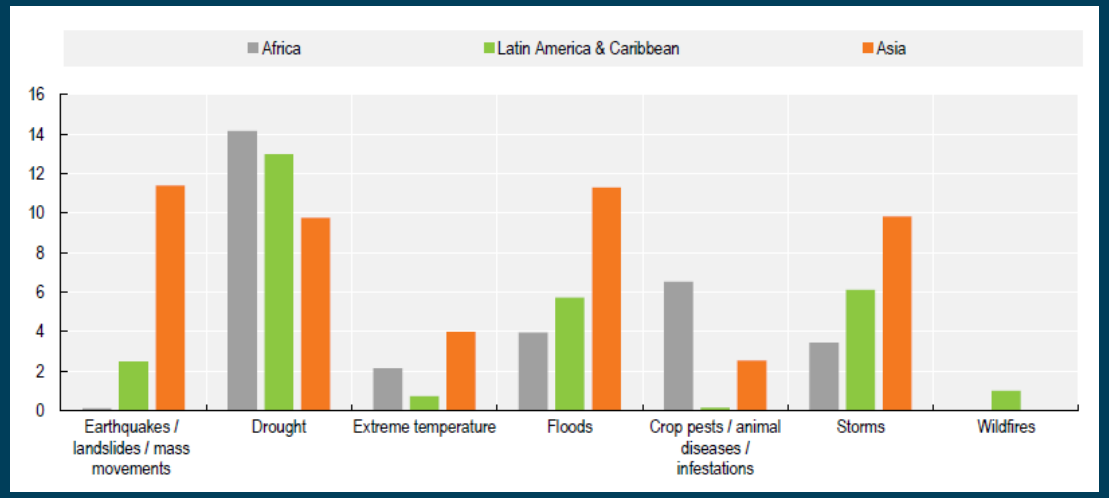
UN environment programme | CTCN UN Climate Technology Centre & Network

Best farming practices for resilience

Resilience in agriculture

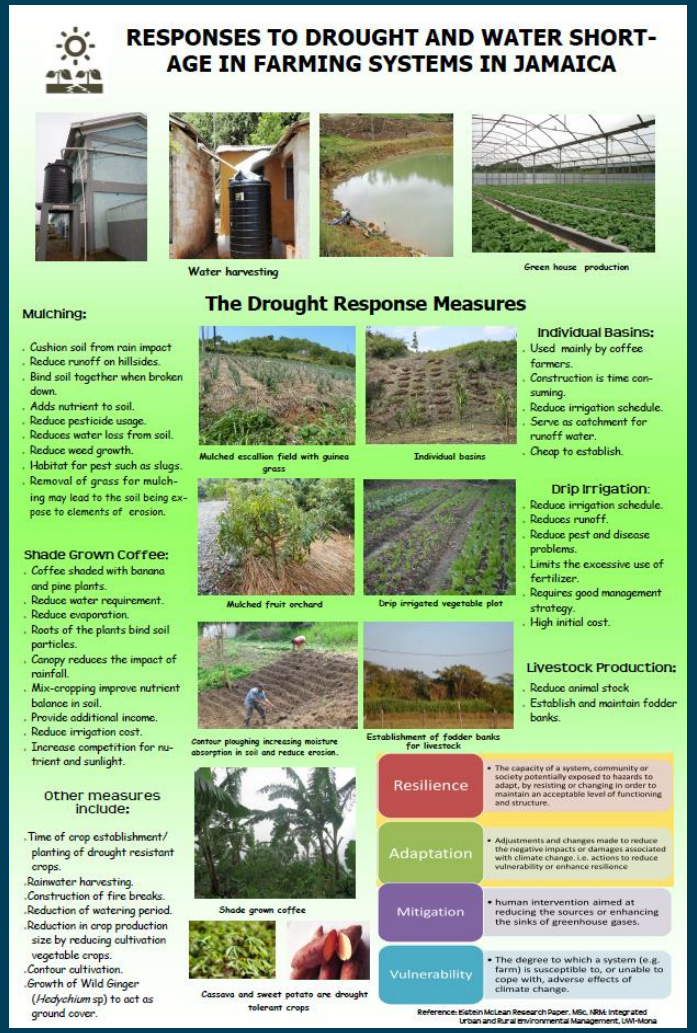
The ability to adapt and thrive despite environmental challenges

Total crop and livestock production loss by region and per disaster, LDCs and LMICs, 2008-2018



Source: FAO (2021)

The Ministry of Agriculture and Fisheries in Jamaica has documented various drought response measures, including the planting of drought-resistant crops and rainwater harvesting



Soil management

- Optimising crop rotations
- Organic matter maintenance
- Maintaining good drainage
- Aiming for better nutrient balance
- Peatland management
- Reviewing cultivation methods
- Reducing compaction
- Agroforestry

Mulching and its benefits

Mulching involves covering the soil with organic or inorganic materials, such as straw, wood chips, or plastic.

Benefits of mulching:

1. **Moisture retention**: Reduces evaporation, keeping soil moist and supporting crop growth during dry periods.
2. **Weed suppression**: Limits weed growth, reducing competition for nutrients and water.
3. **Soil temperature regulation**: Helps maintain optimal soil temperatures for root development.
4. **Nutrient enrichment**: As organic mulch breaks down it adds valuable nutrients back into the soil.

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Terracing to reduce erosion

Terracing involves creating stepped levels on sloped land to slow down water runoff

Benefits of terracing:

1. **Erosion control**: Reduces soil erosion by slowing down water flow and allowing for better absorption.
2. **Improved water infiltration**: Enhances water retention in the soil, making it available for crops.
3. **Increased arable land**: Maximizes the use of hilly terrains for agriculture, expanding productive land area.
4. **Enhanced biodiversity**: Terraces can create diverse microenvironments that support various crops and wildlife.

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Agroforestry: integrating trees for biodiversity and protection

Benefits of agroforestry:

1. **Biodiversity enhancement**: Increases habitat for various species, promoting ecosystem health.
2. **Soil health improvement**: Tree roots help stabilize soil and improve nutrient cycling.
3. **Wind protection**: Trees act as natural windbreaks, reducing wind speed and protecting crops.
4. **Carbon sequestration**: Contributes to climate change mitigation by capturing carbon dioxide.

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Wind management

Windbreaks are rows of trees or shrubs planted to reduce wind speed and protect crops.

Benefits of windbreaks:

1. **Reduced wind damage**: Protects crops from strong winds and reduces physical stress.
2. **Microclimate creation**: Helps maintain a more stable environment for crops, improving growth conditions.
3. **Soil conservation**: Reduces soil erosion and moisture loss.
4. **Wildlife habitat**: Provides shelter and food for various species, enhancing biodiversity on the farm.

Raised beds

Benefits of raised beds:

1. **Improved drainage**: Enhances water management, reducing waterlogging during heavy rains.
2. **Soil warmth**: Warmer soil temperatures promote early planting and faster crop growth.
3. **Accessibility**: Easier access for planting, weeding, and harvesting, reducing physical strain on farmers.
4. **Increased yield**: Optimized soil conditions can lead to higher crop yields.