

IMPACTS AND ADAPTATION STRATEGIES OF CLIMATE CHANGE ON GROWING ZONES OF MAJOR CROPS IN TANZANIA

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CLIMATE CHANGE IN TANZANIA

Climate change scenarios in Tanzania
(UK89)

- increase of temperature of between 3 to 6°
- decrease in rainfall

CC would have impacts on crop yields and
food production:

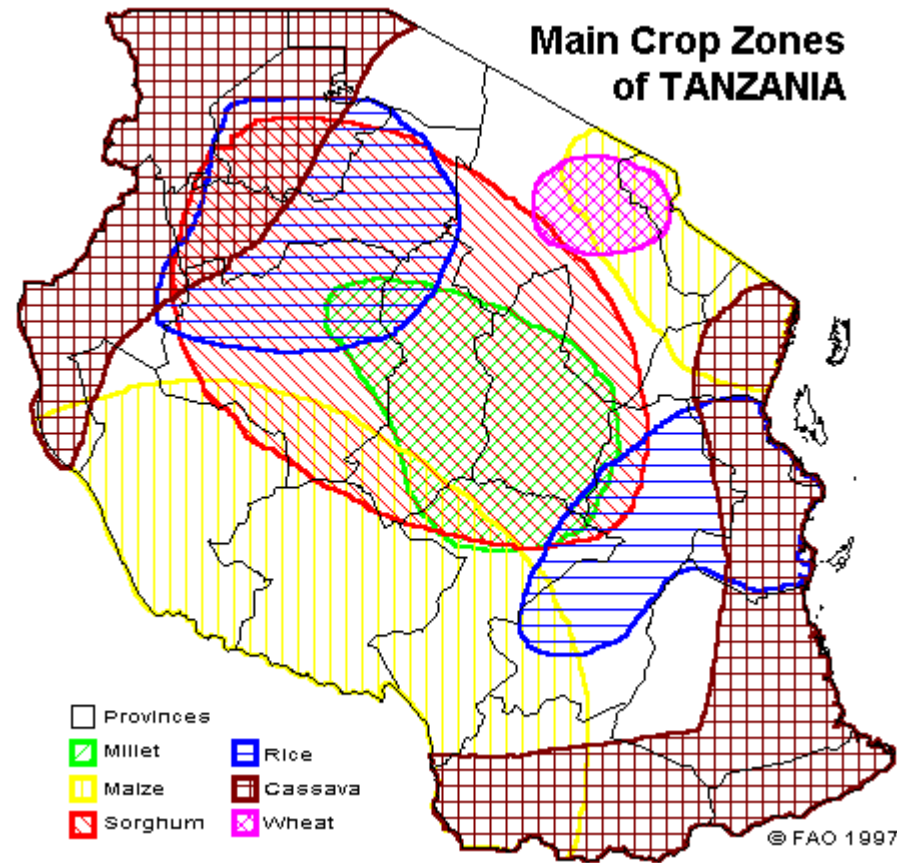
TANZANIA MAIN CROP ZONES

Major food crops:

- Maize
- Sorghum
- Millet
- Cassava (manioc)



Maize grown everywhere



MAIZE MILLET RELIABILITY ZONES

Legend



Zone I : reliable for maize



Zone II : marginally reliable for maize but reliable for sorghum

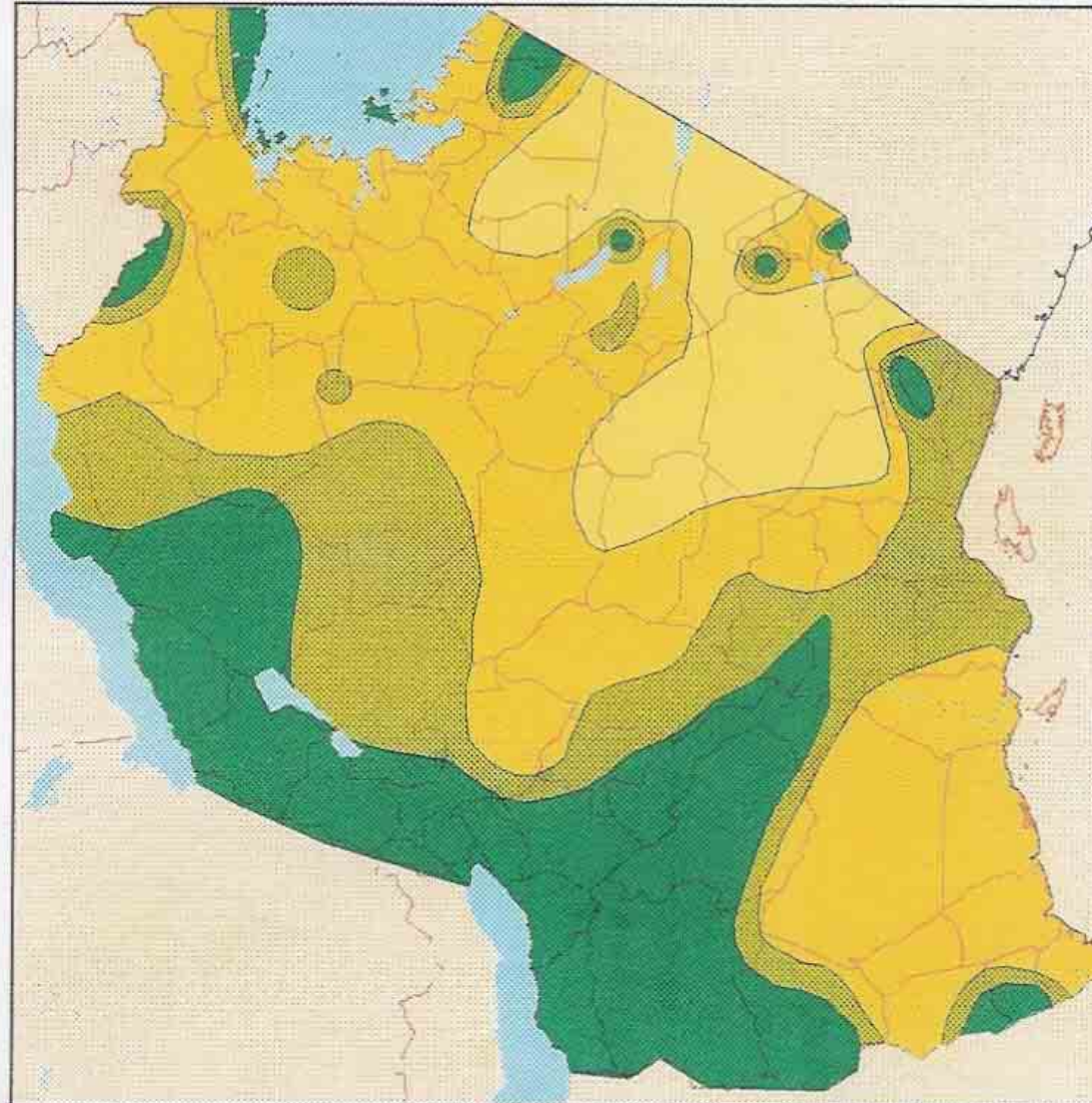


Zone III : reliable for sorghum only



Zone IV : marginally reliable for sorghum and reliable for grazing

— District Boundaries



Source : Gommès and Houssiau, FAO/Kilimo. 1982

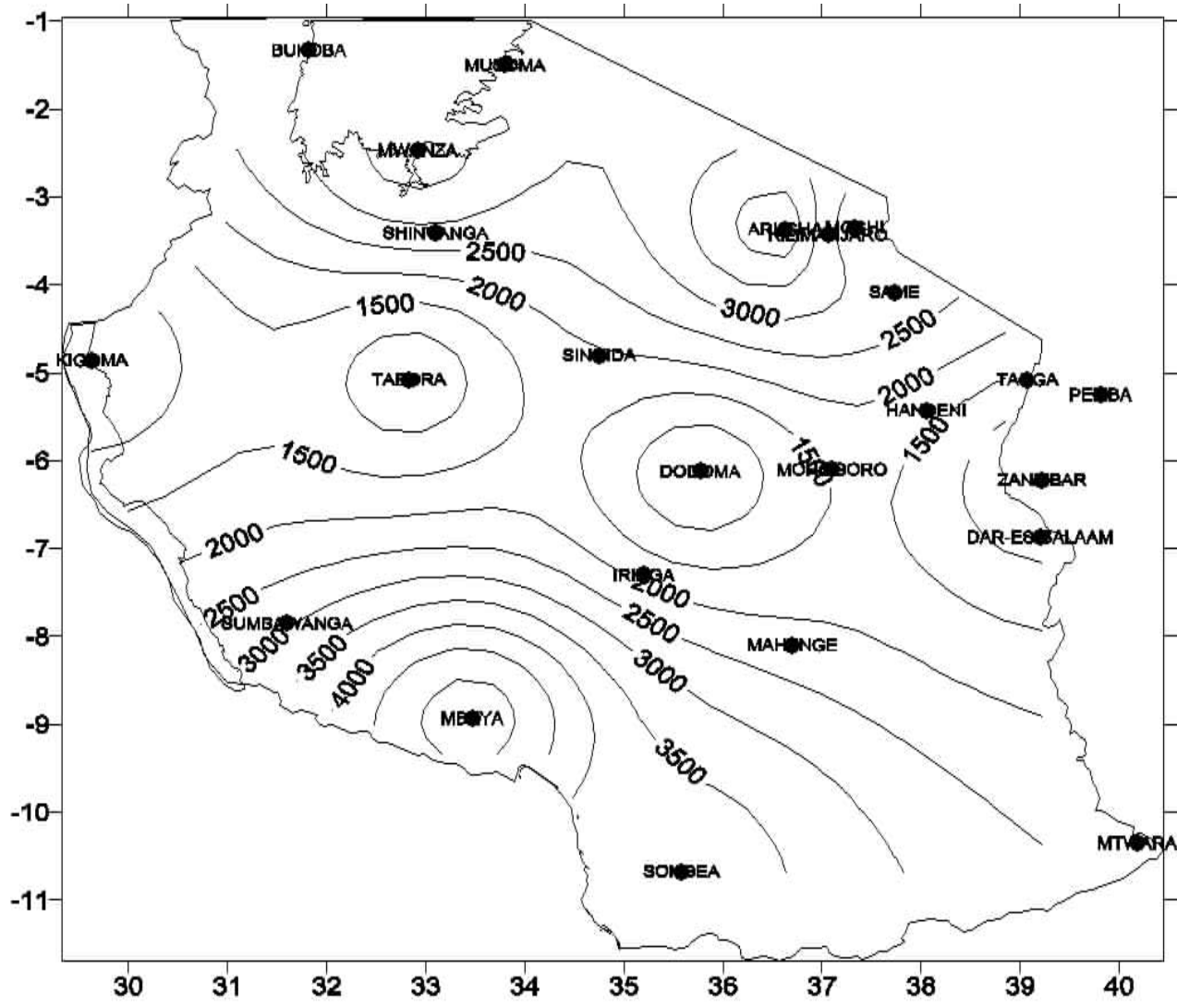
CC YIELD PREDICTION

- CERES-Maize model (DSSAT3)
- Results:

Yield Decrease

- 83% in central areas
- 22% in north-eastern parts
- 15% in southern highlands
- 17% Lake Victoria zone

2xCO2 MAIZE YIELDS (kgs/ha)



IMPACT ON CROP ZONES

Decrease in yields will lead to redrawing of the crop suitability zones map, with poorer zones encroaching the suitable zones

- maize suitable zones intruded by sorghum and cassava and other drought tolerant varieties
- sorghum zones invaded by grazing zones
- Maize suitable zone reduced and confined to high ground in sw and ne highlands

ADAPTATION STRATEGY

Signs of shift in suitability zone are apparent in central and other regions where maize yields are declining, but habits die hard

Adaptation:

Anticipatory, no-regrets strategies:

- Grow sorghum or cassava where there was maize.
- Need govt intervention led by Min of Agric.
- Extension on crop husbandry
- Processing technologies and marketing services

ADAPTATION

- Awareness by farmers on negative impacts of CC on crop production
- Identification and promotion of suitable crops (new varieties and their husbandry package) to changed AEZ
- Promote grazing where sorghum would no longer be suitable
- Confine maize to highlands where temps would be mild/cool

CONCLUSION

Tanzania and other LDCs should take CC as reality and take anticipatory adaptive measures

- Farmers CC awareness
- Irrigation infrastructure and technology
- Rain water harvesting techniques
- Drought resistant variety breeding and crop husbandry packaging
- Agribusiness diversification (horticulture, animal husbandry) instead of tradition
- Market for agribusiness