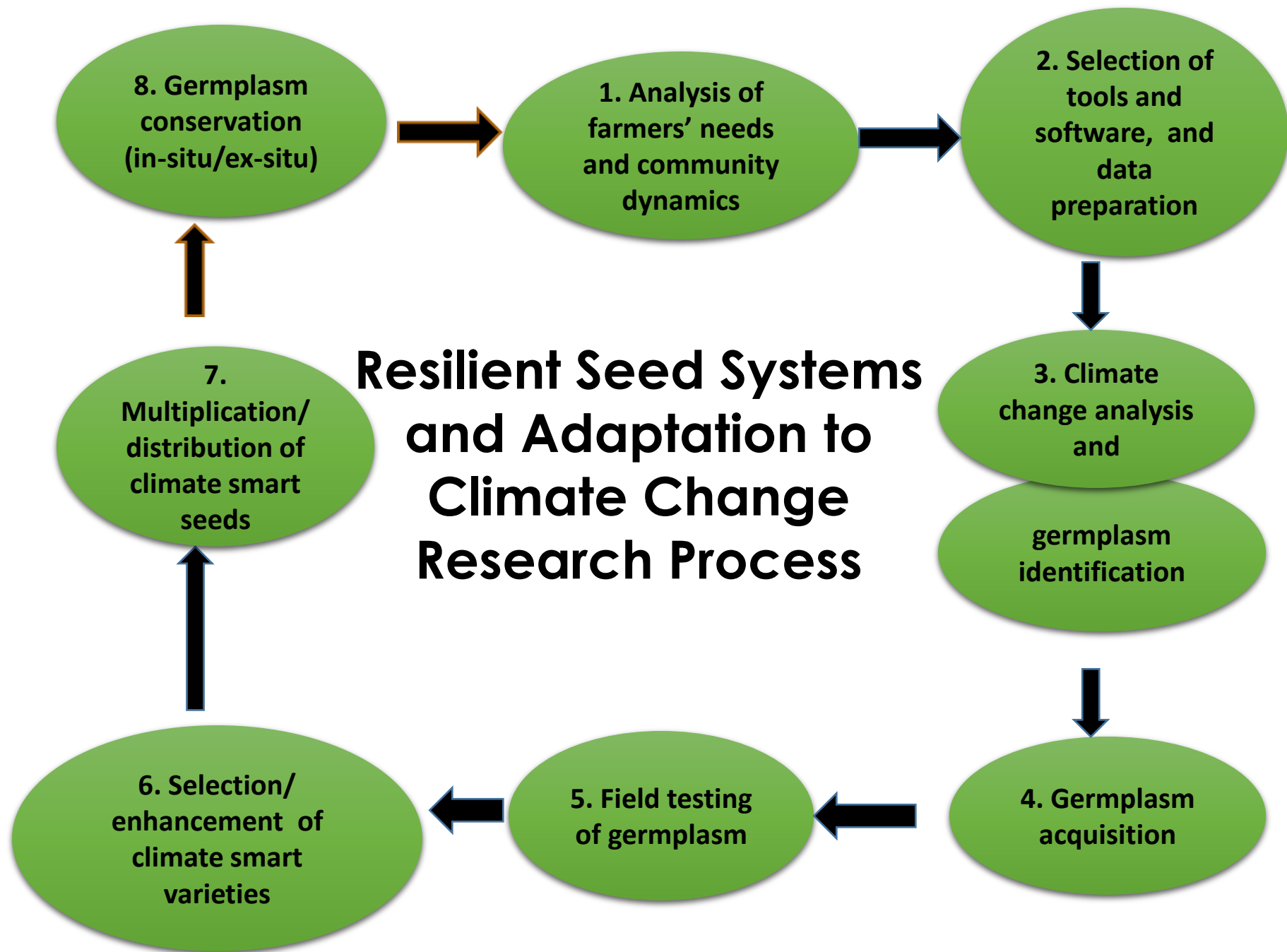




Resilient seed systems and Adaptation to climate change: Some Results from Participatory Climate & Crops Suitability modeling in 8 African Countries

Otieno Gloria

Date: 16-20th November 2015, Addis Ababa



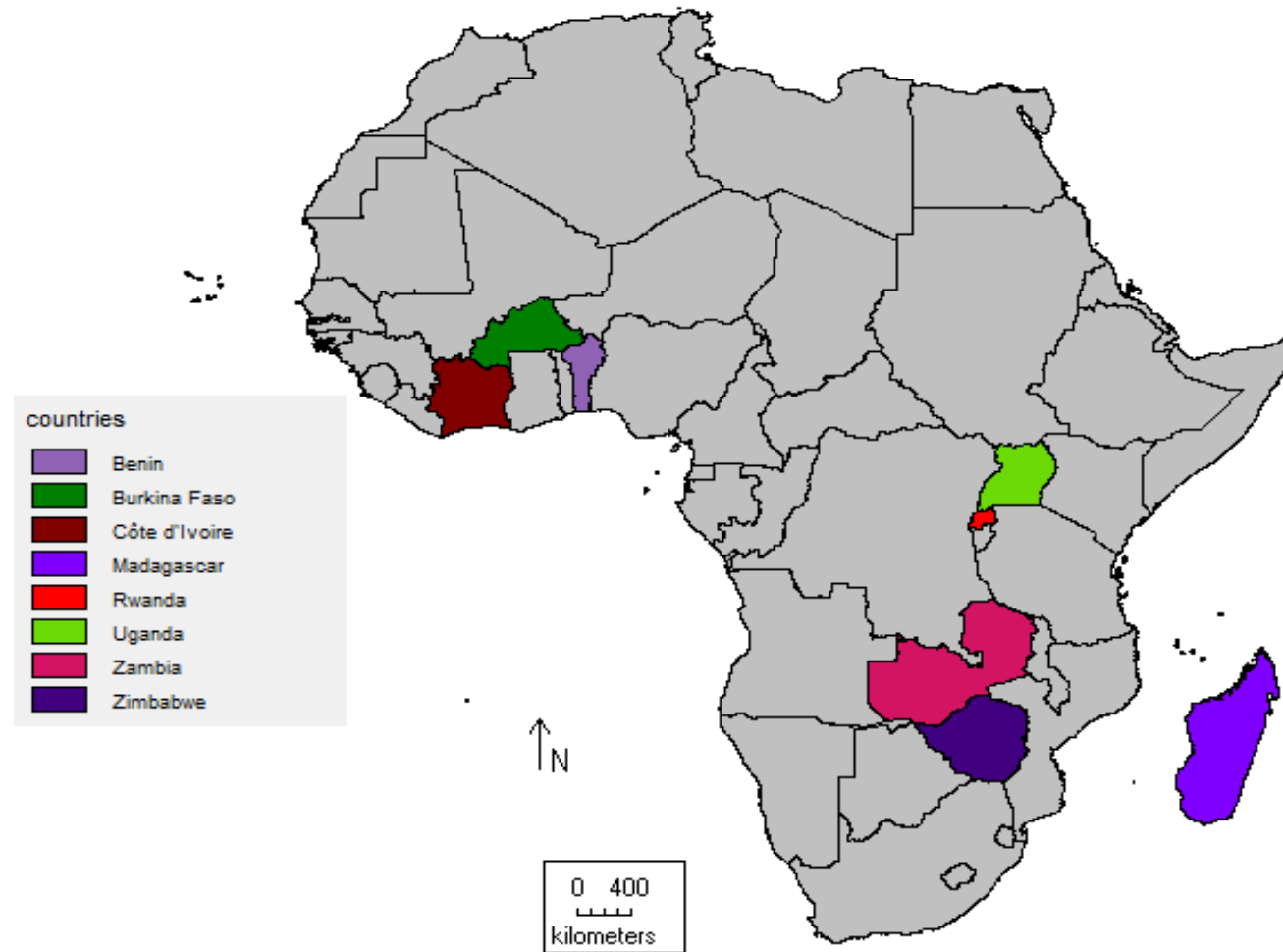
Methodology 1: Climate change Analysis

- Past to present:
 - Meteorological data and
 - Focus group discussions with farmers (local indigenous knowledge)
- Future climate change: predictions from World Clim (www.worldclim.org)

Methodology 2: Identifying suitably adapted germplasm

- GIS + Climate modeling: matching Accessions with climates
- Identifying specific climate challenges
(present and future)
- Identifying Accessions through GIS and crop suitability modeling
 - National gene bank accessions
 - International gene bank accessions (www.genesys-pgr.org)
 - Locally adapted germplasm (Local indigenous knowledge)

The countries



Zambia Results: Chikankata

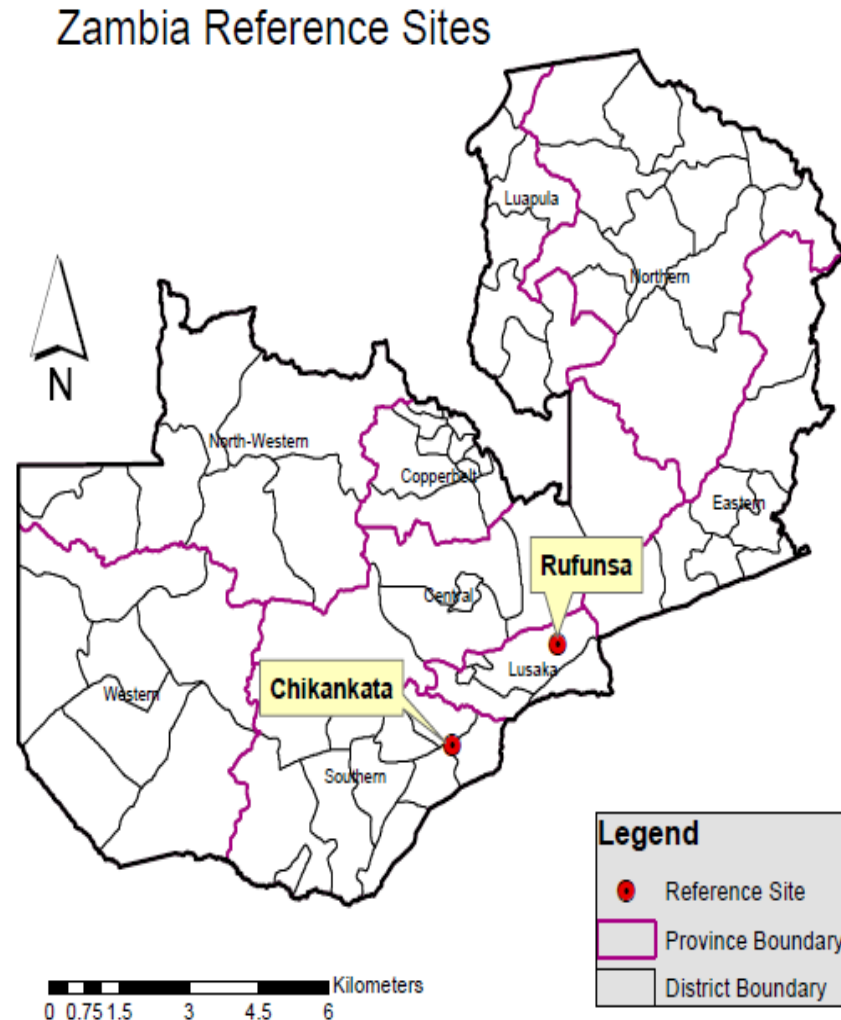
Located in SW part of Zambia

Rainfall amounts - 600-1000mm

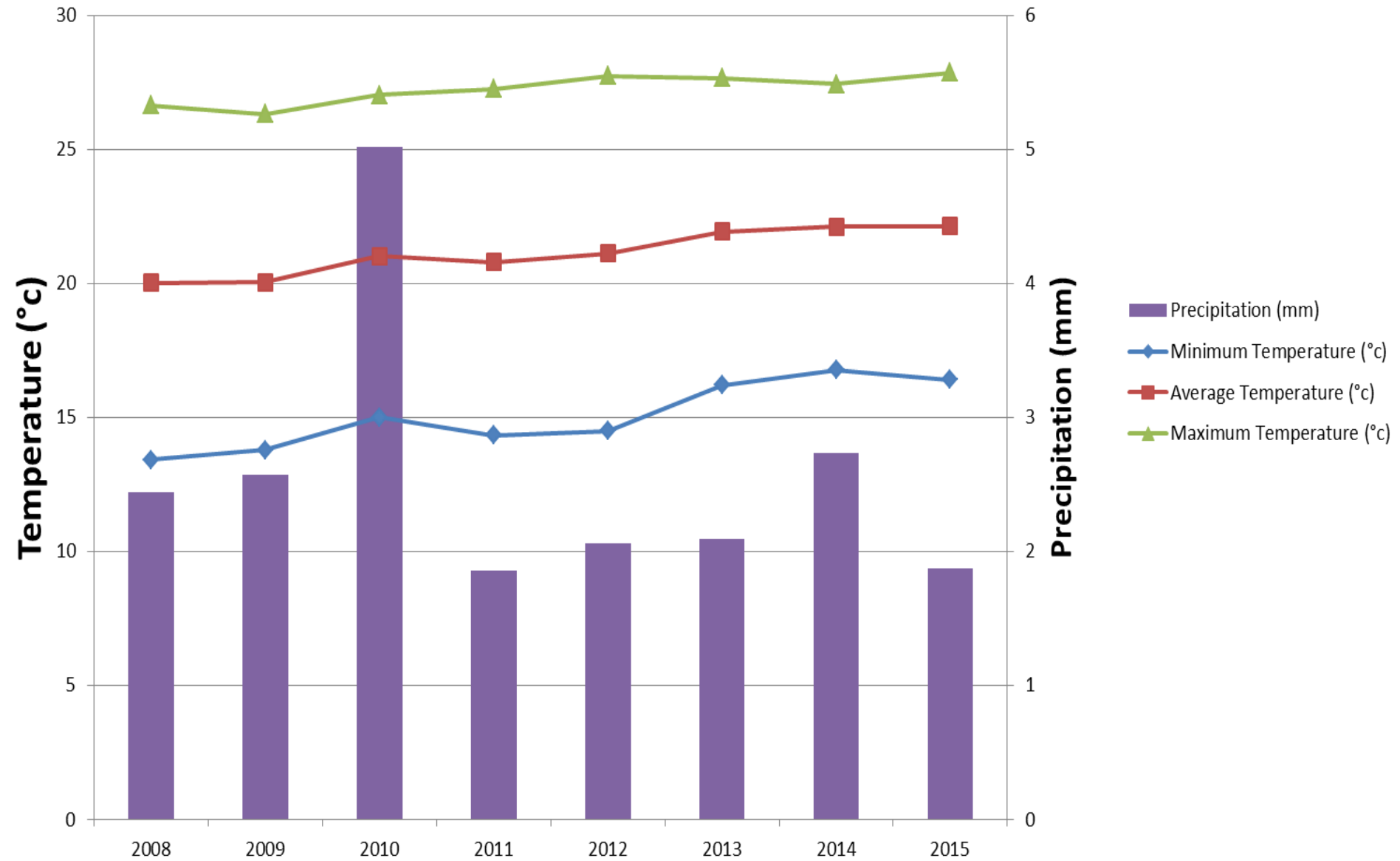
Average temperature -13-27°C

Mixed cropping systems – livestock, maize (staple), sorghum, bambara nut, beans, pumpkins, yams....

Climate challenges: Shorter rainy season, Erratic rainfall and prolonged dry spells

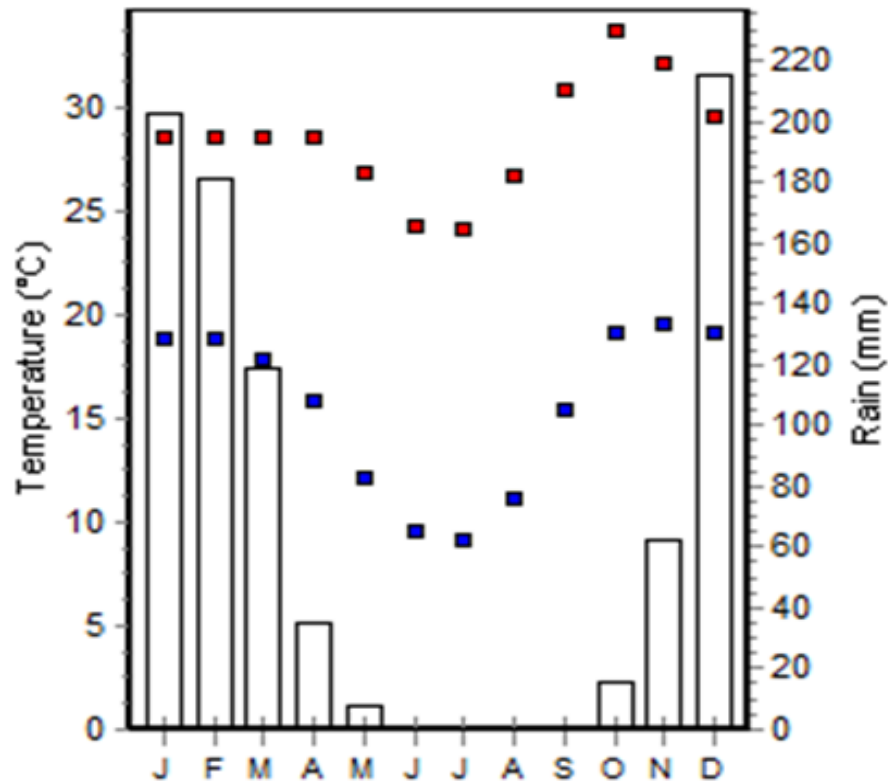


A graph Showing Temperature and Precipitation from 2008 to 2015 in Chikankata

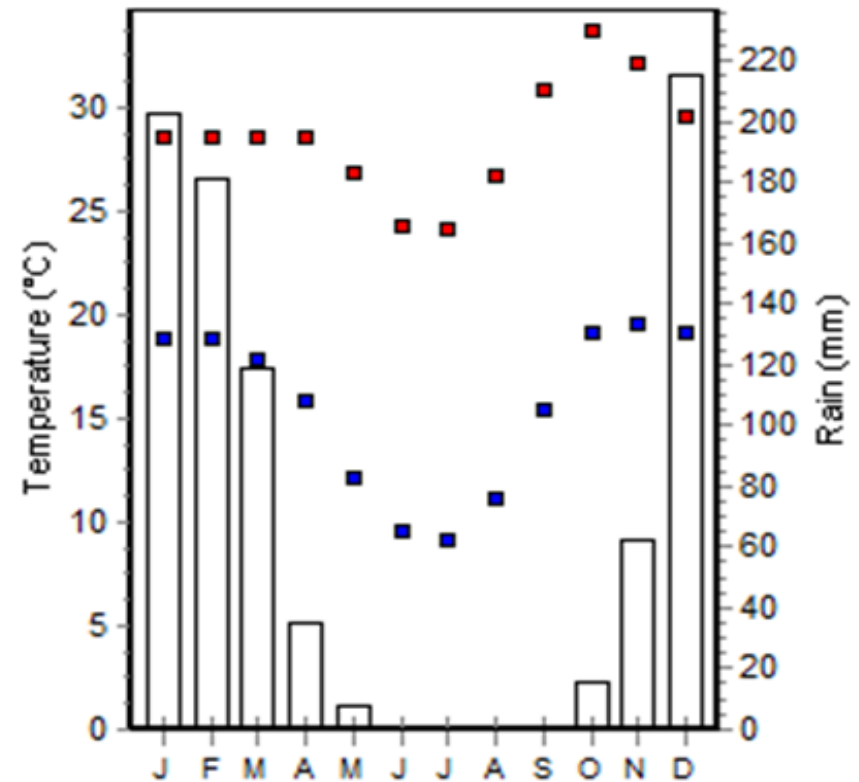


Present & future climate challenges

Present Temperature & Precipitation



Temperature & Precipitation for 2050's

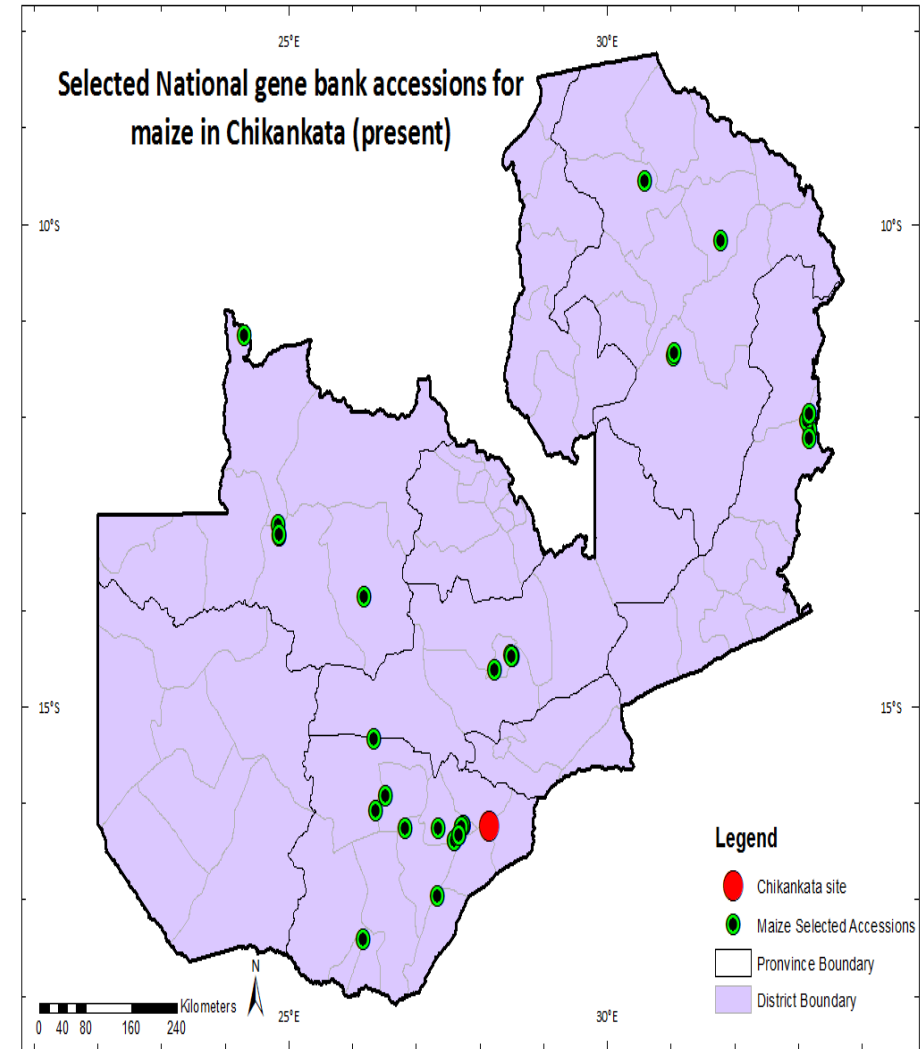
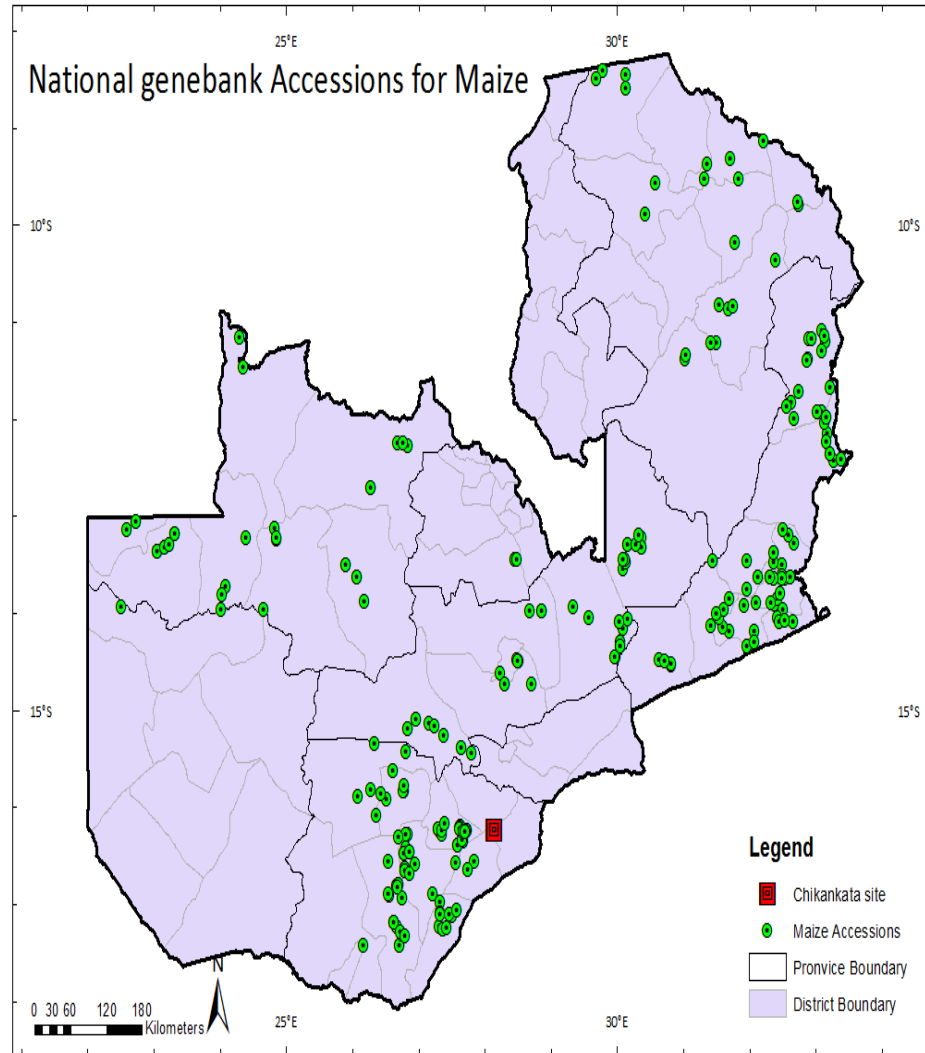


Participatory exercises with farmers

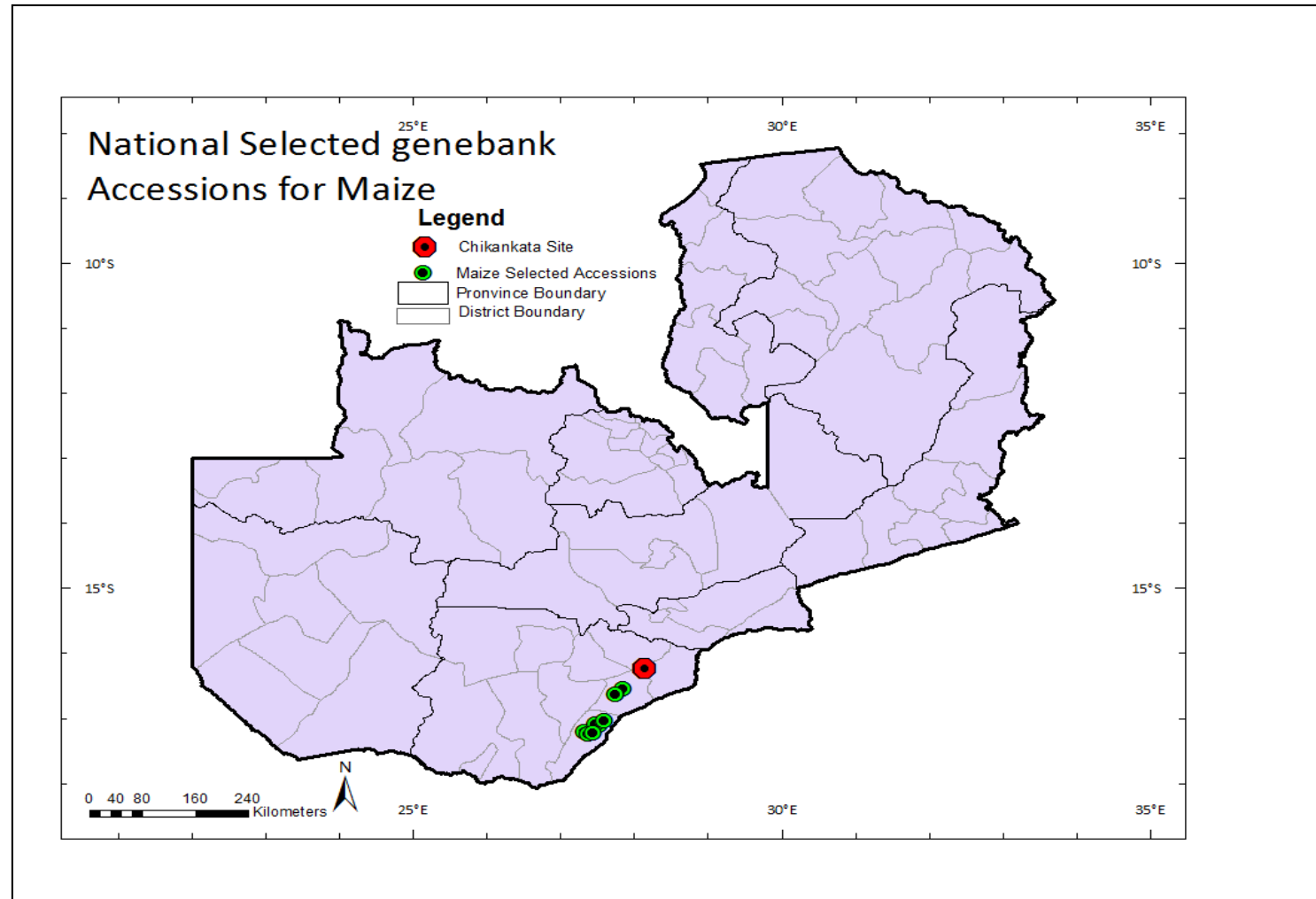
- Climate change perception
 - shortening of the growing seasons (less number of rainy days)
 - Erratic Rainfall
 - Prolonged dry season
- Loss of diversity (due to climate change)
- Preference for earlier maturing varieties
- 3 out of 14 local maize varieties identified for climate change



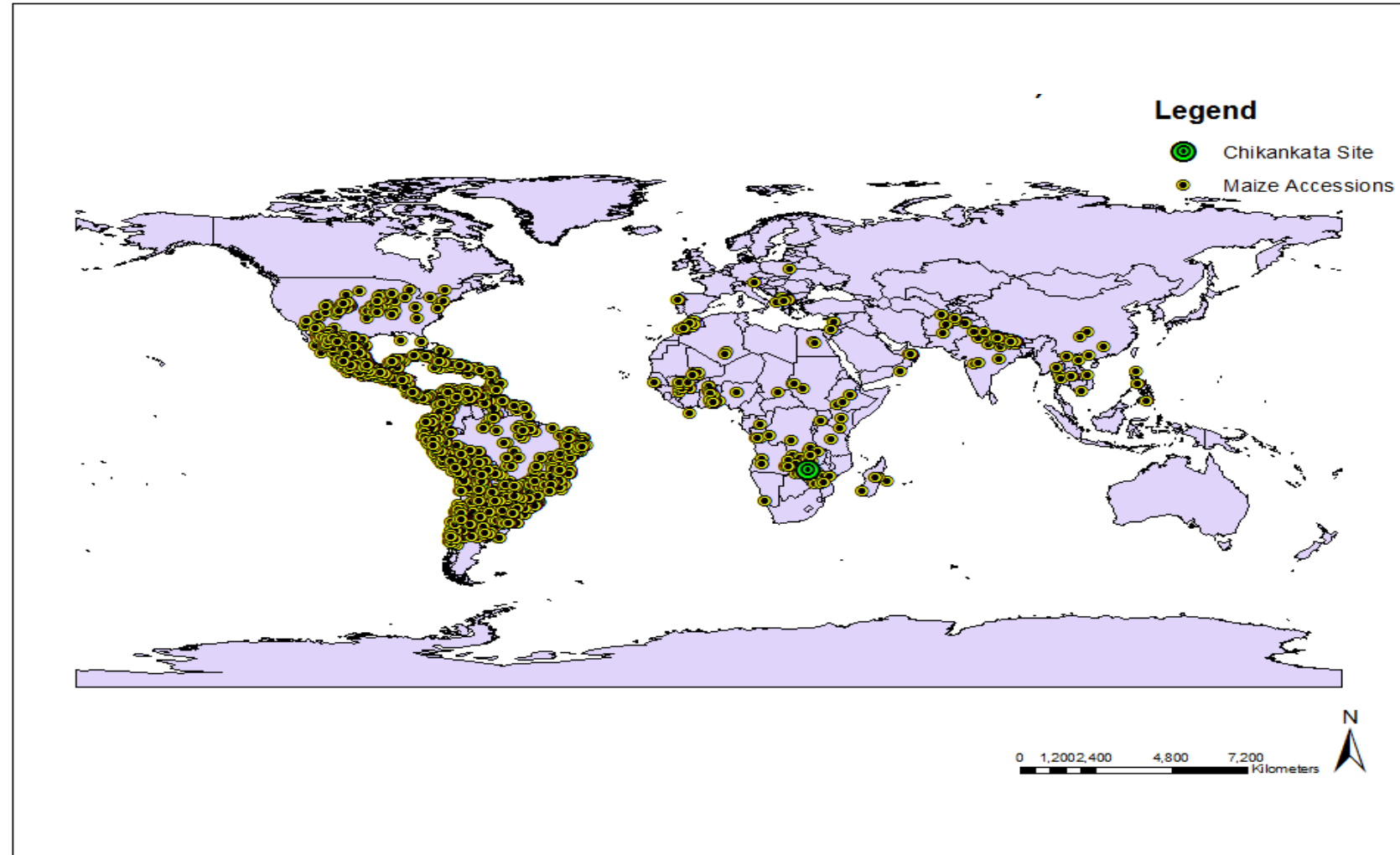
Potentially adapted material from national gene bank (present) (34 out of 98 Accessions)



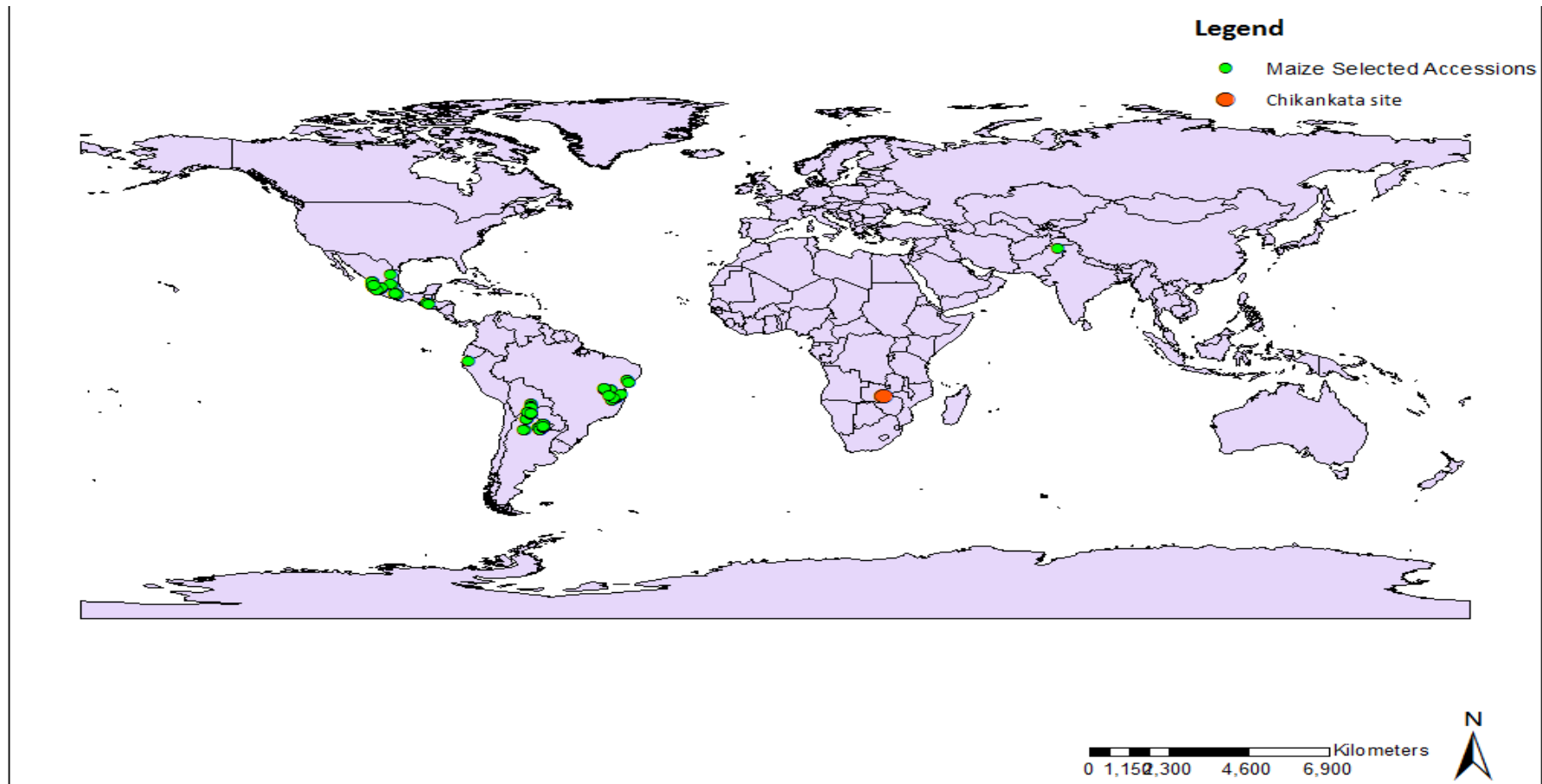
Potentially adaptable material from national gene bank (2050's) (11 Accessions)



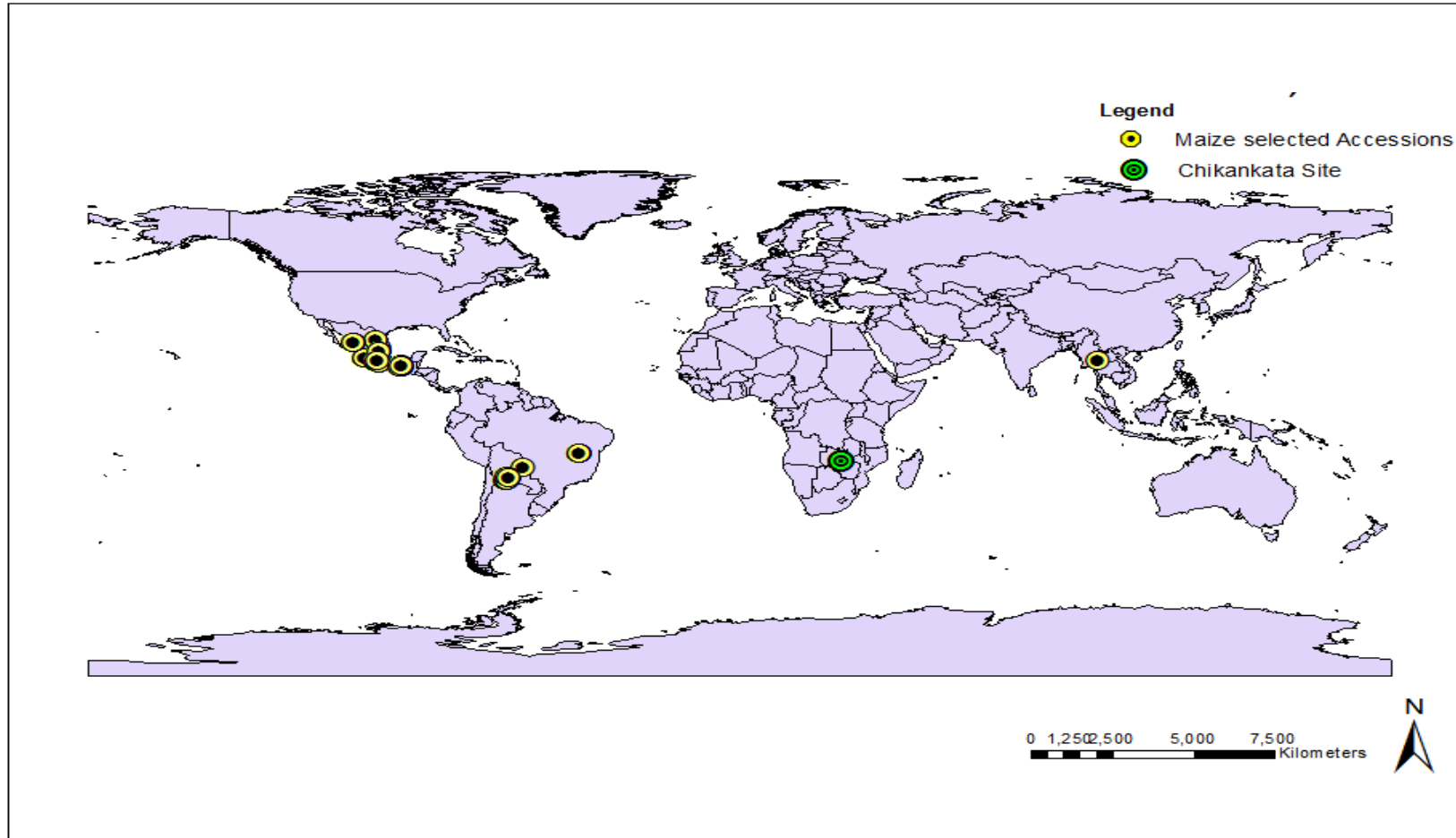
Geographic origin of 22,000 accessions of maize in collections around the World



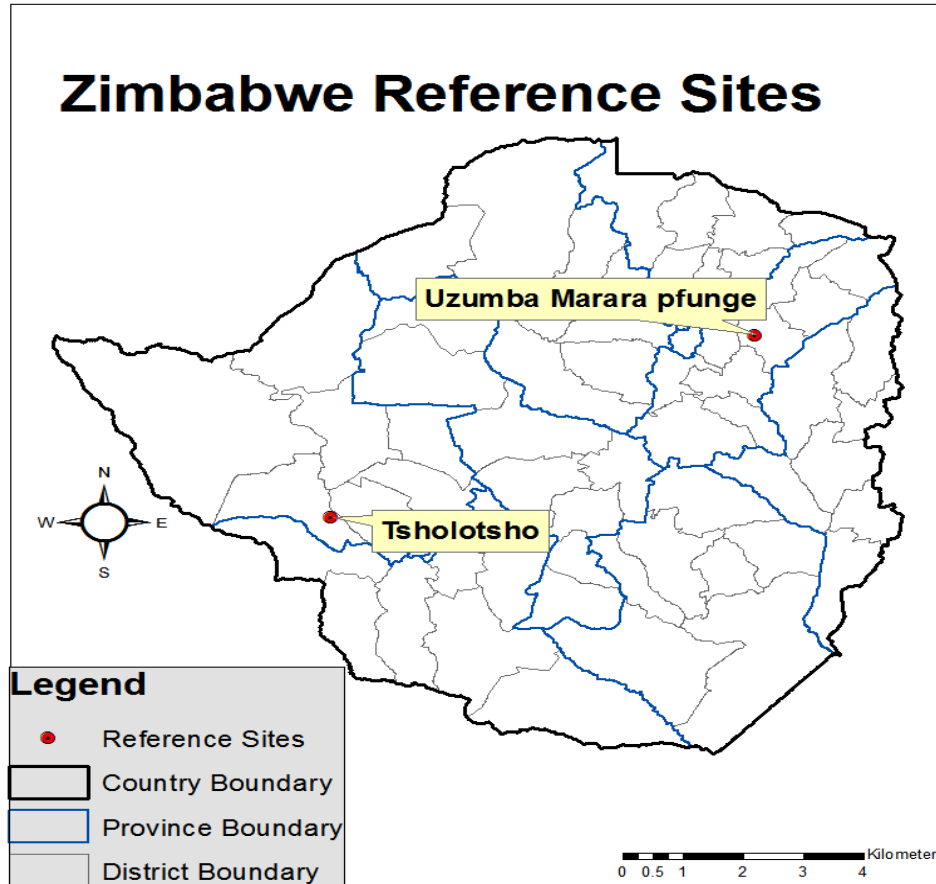
Potentially adaptable material for present climate conditions (280)



Potentially adapted material for future climate conditions for Chikankata, Zambia (109)



Results Zimbabwe: Tsholotsho



Located in SW part of Zimbabwe

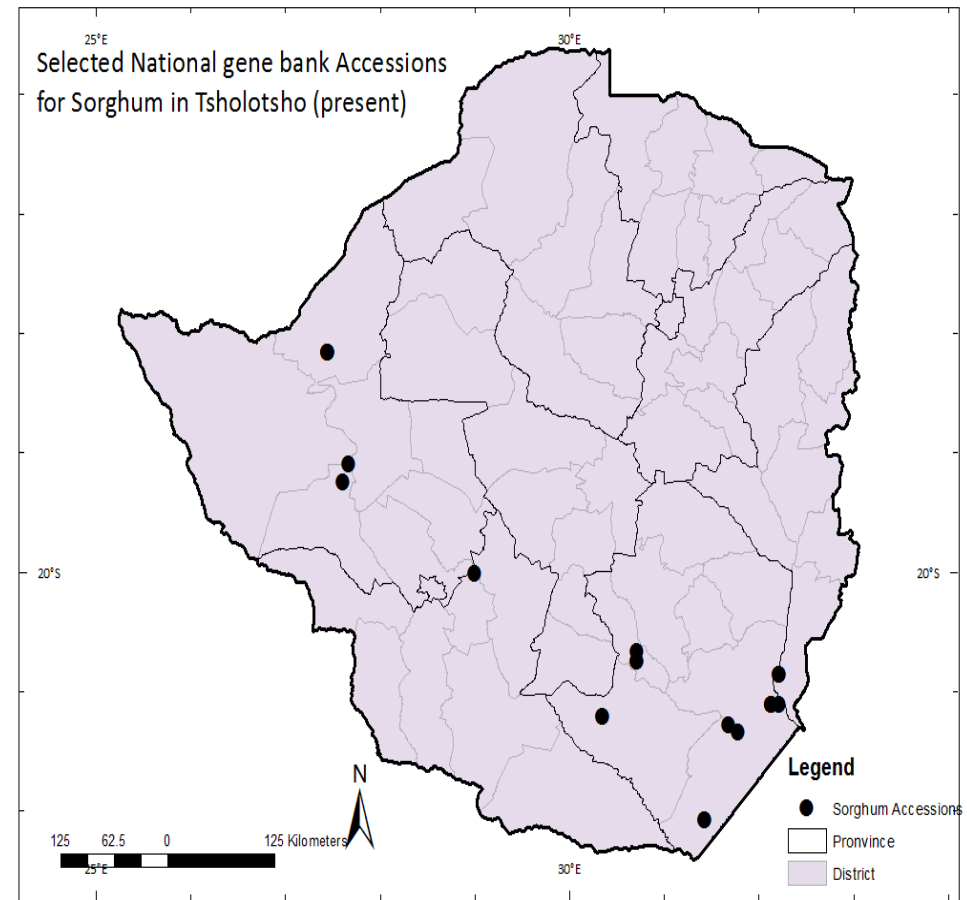
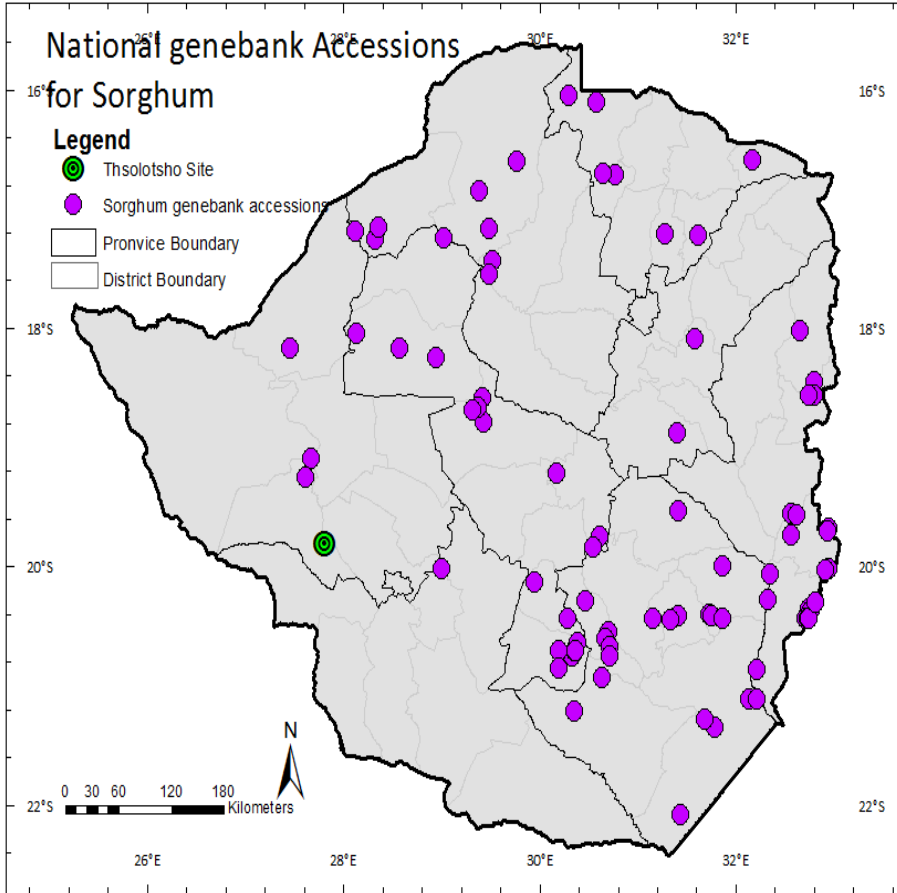
Rainfall amounts - 400-600mm

Average temperature - 13.5-28°C

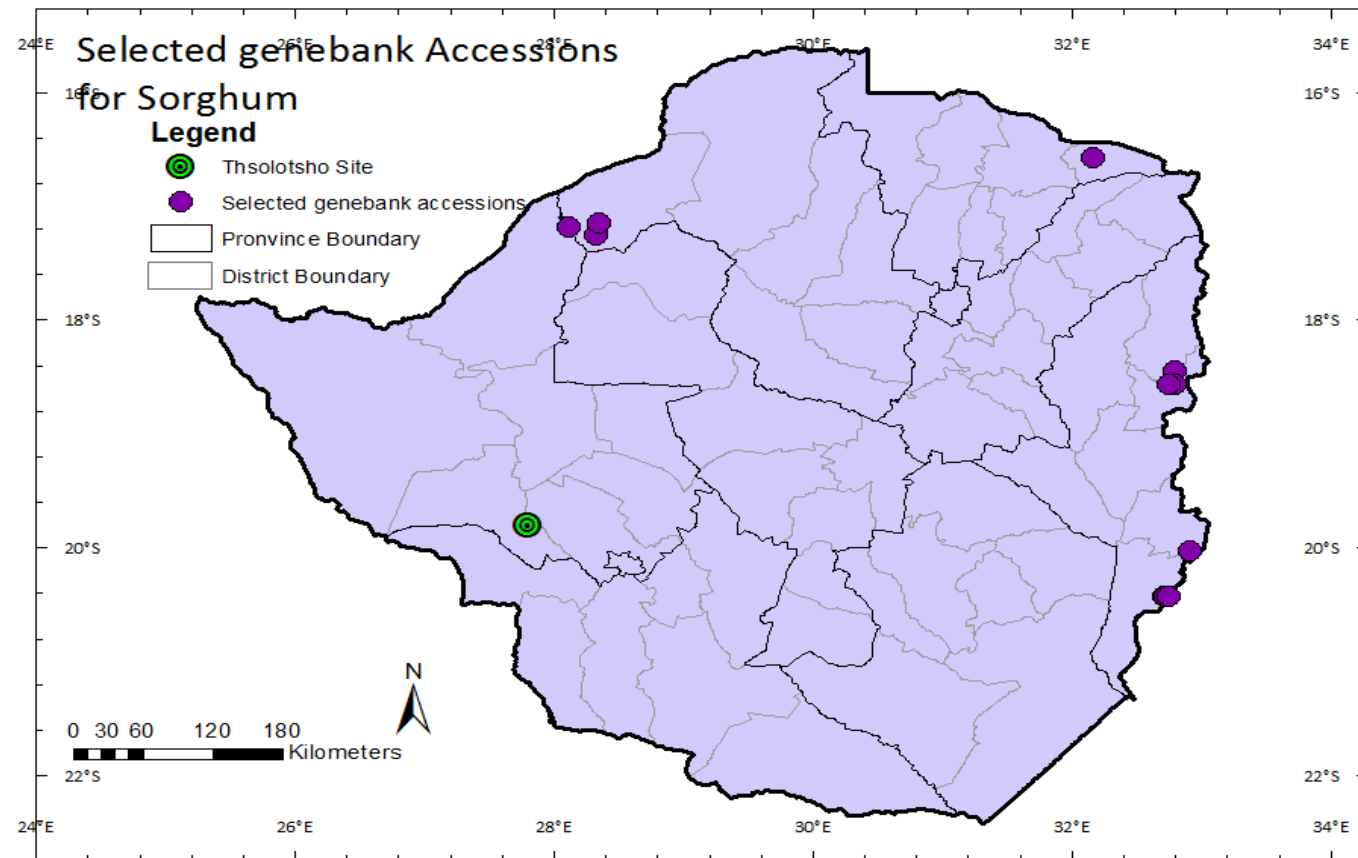
Mixed cropping systems – livestock, sorghum, millets, maize

Climate challenges: Erratic rainfall and prolonged dry spells

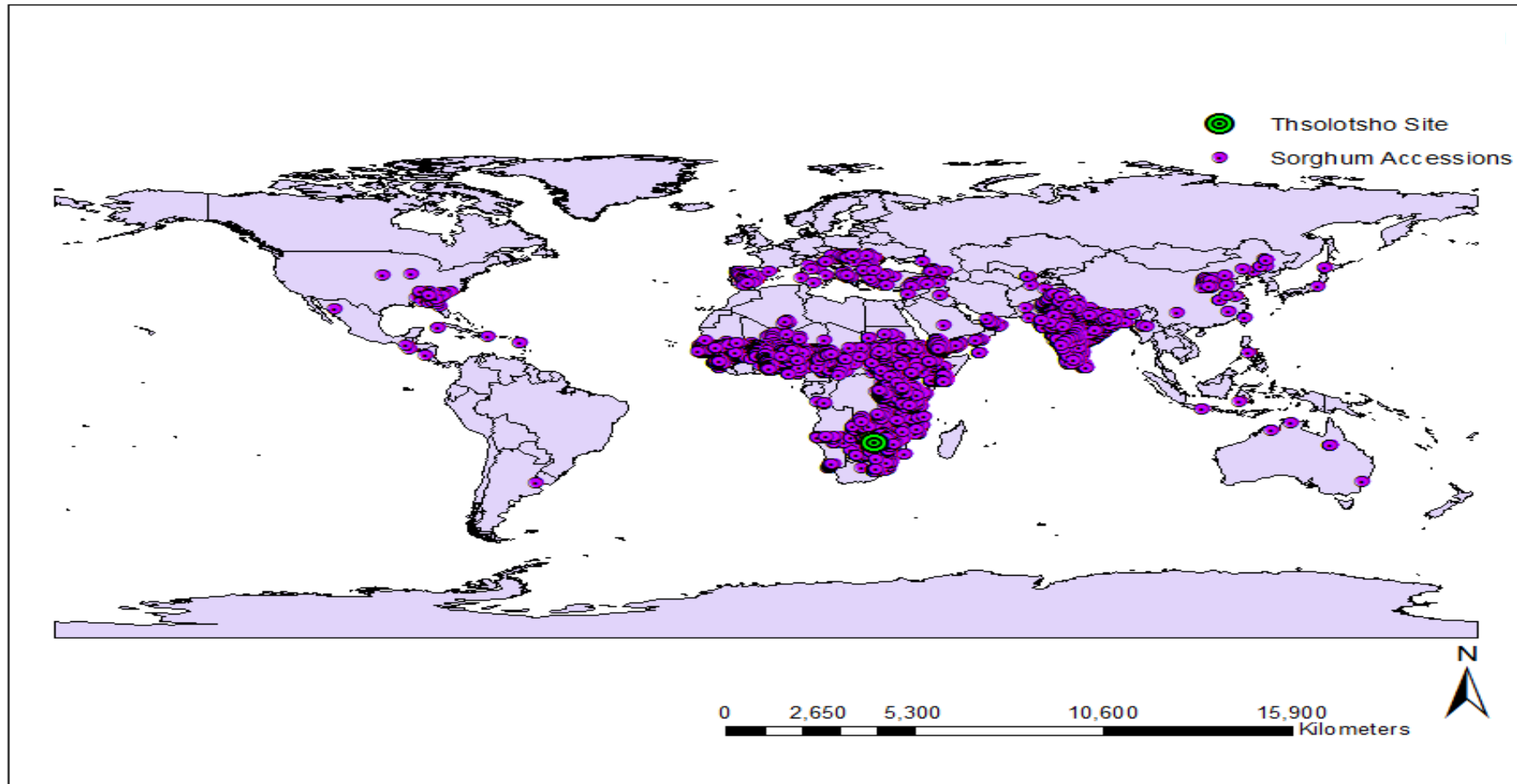
Potentially adaptable sorghum materials from national gene bank (34 out Of 98)



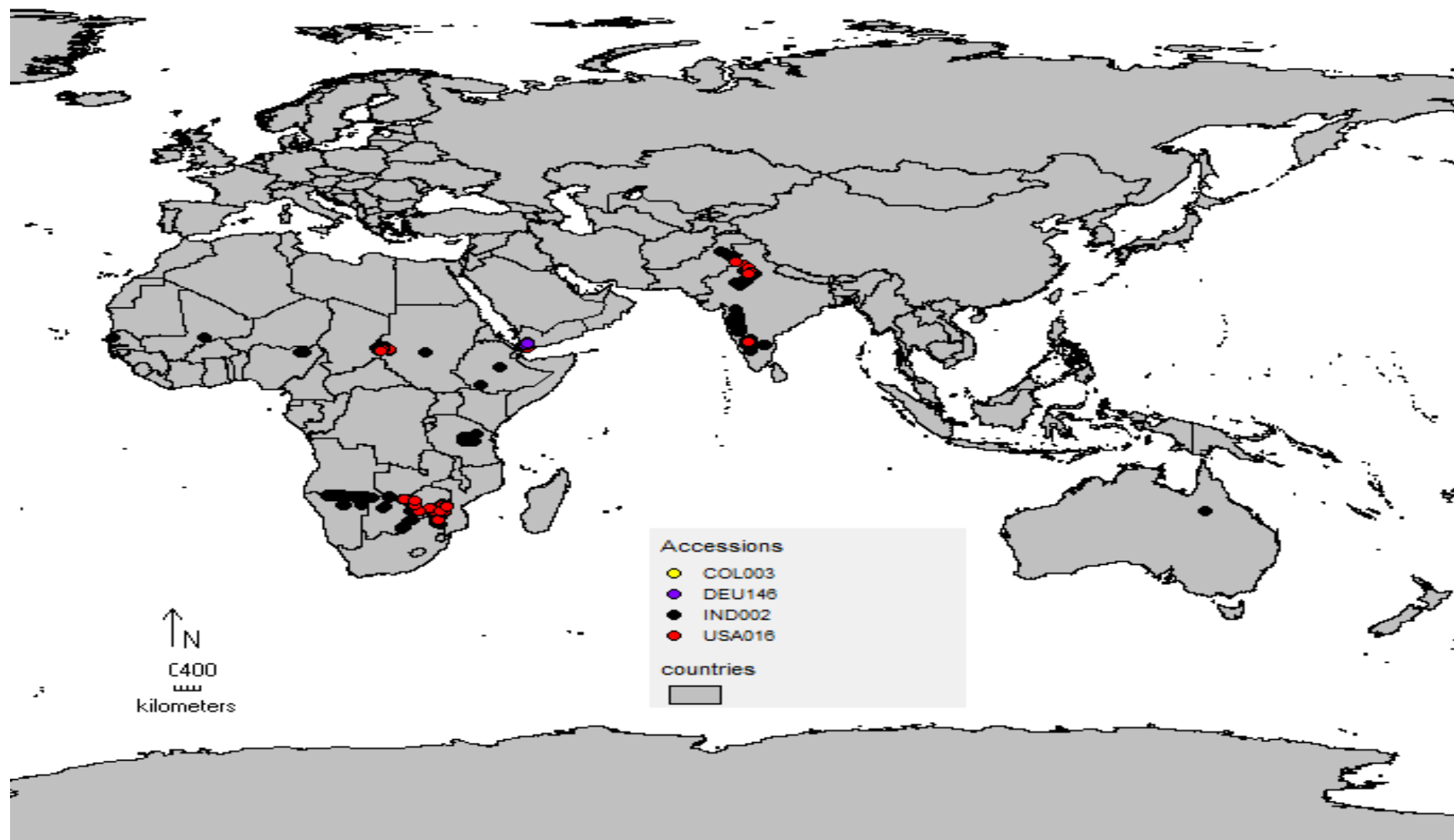
Potentially adaptable material from national gene bank (2050's) (11 Accessions)



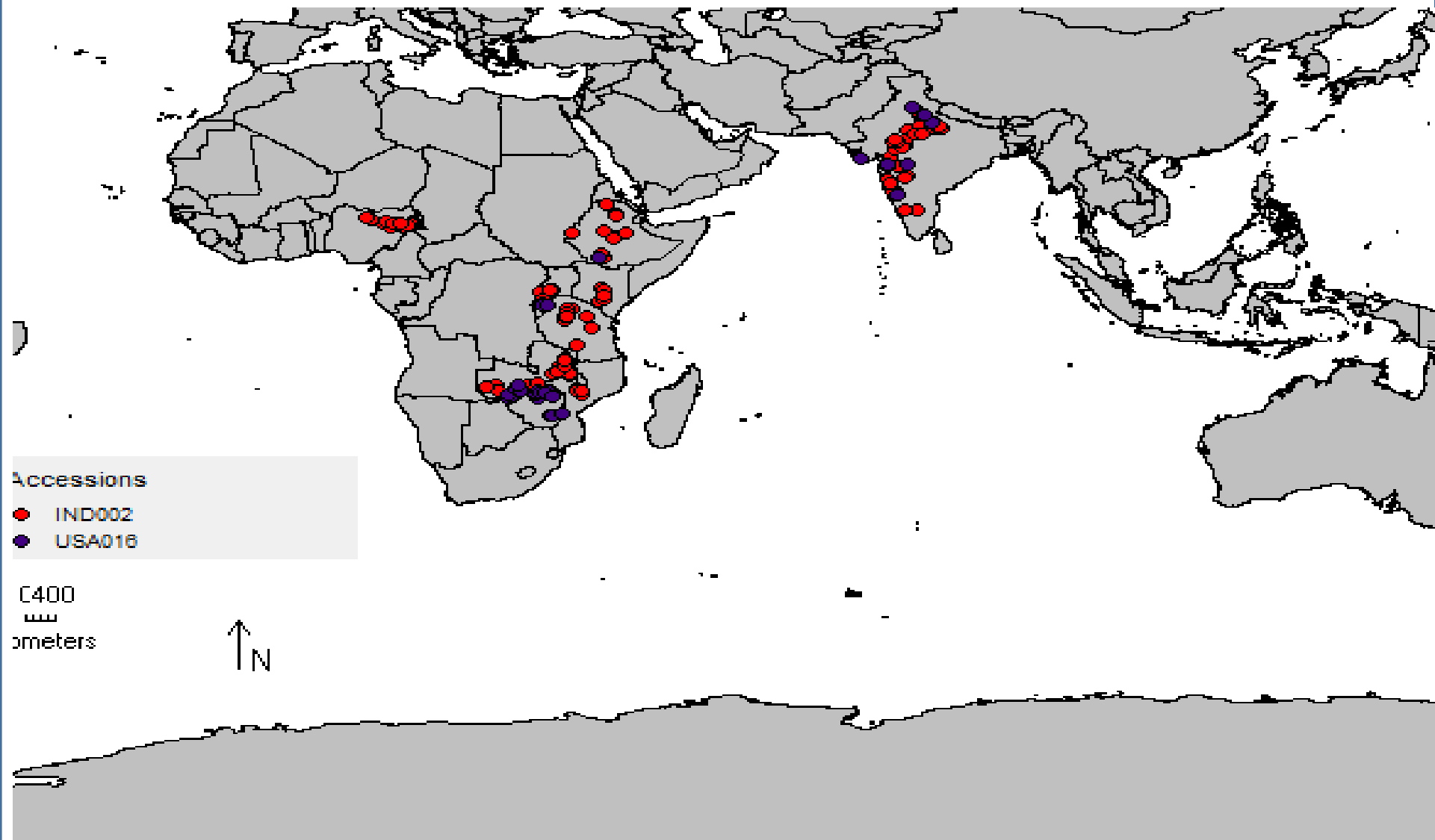
Geographic origin of 22,000 accessions of Sorghum in collections around the World



Potentially adapted material for Present climate conditions for Tsholotsho, Zimbabwe(1593 Accessions)



Potentially adapted material for future climate conditions for Tsholotsho, Zimbabwe (1232 Accessions)



Implications for ABS

- What does this imply for future climate change and adaptation? (countries may need materials from elsewhere, and countries may be asked to provide)
- ACCESS
 - MLS material – (CIMMYT and ICRISAT) accessible through the SMTA (ITPGRFA)
 - Non –MLS material (NAGOYA PROTOCOL)
 - For example held by USDA (national law – not ITPGRFA or CBD or NP members)
 - Materials in Farmers Hands (national implementing the NP if they are NP member state)

Benefit sharing

- Access to adaptable germplasm
- Partnerships
- Tech transfer
- Capacity building
- Benefit sharing fund
- Monetary if NP



Thank you

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