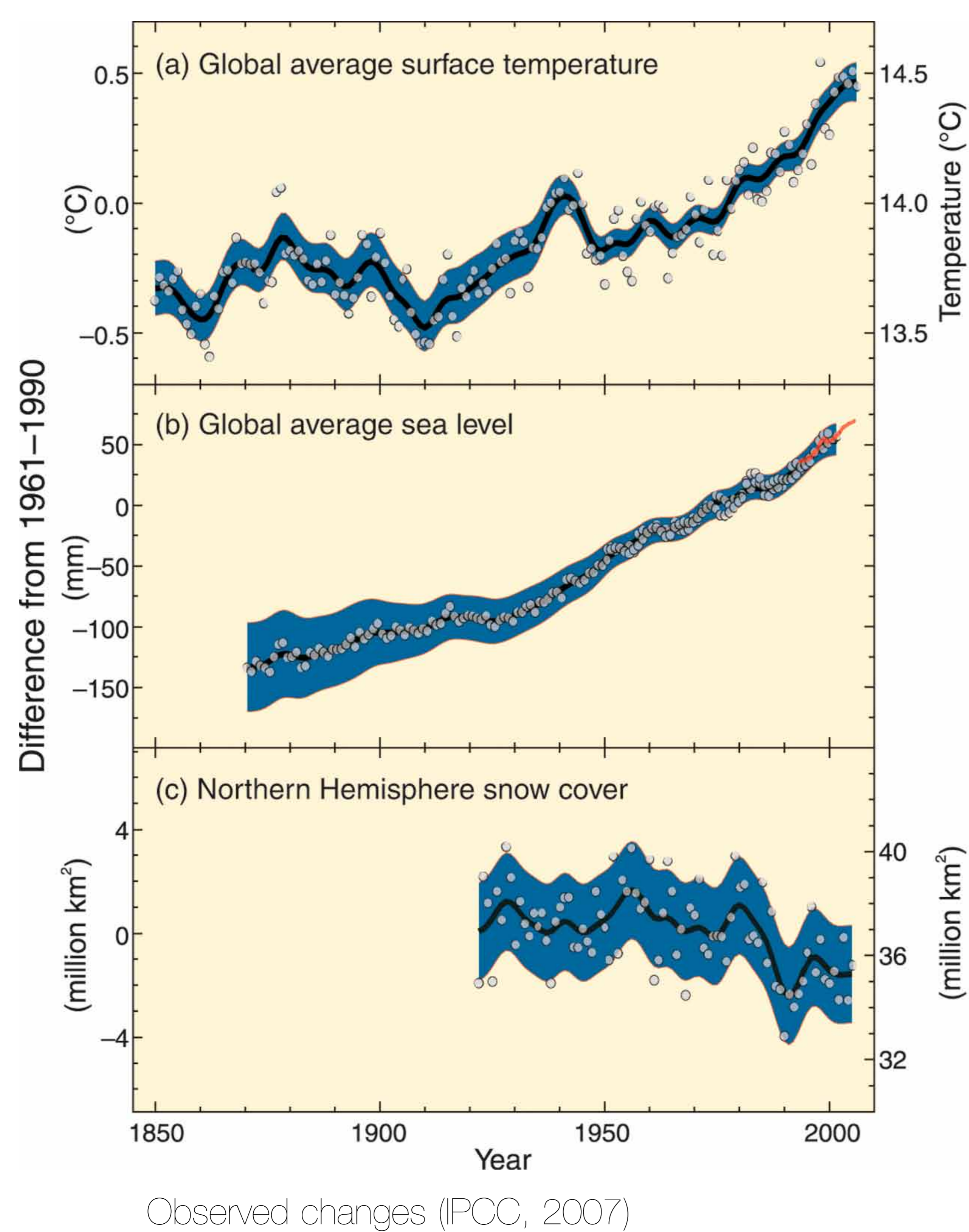


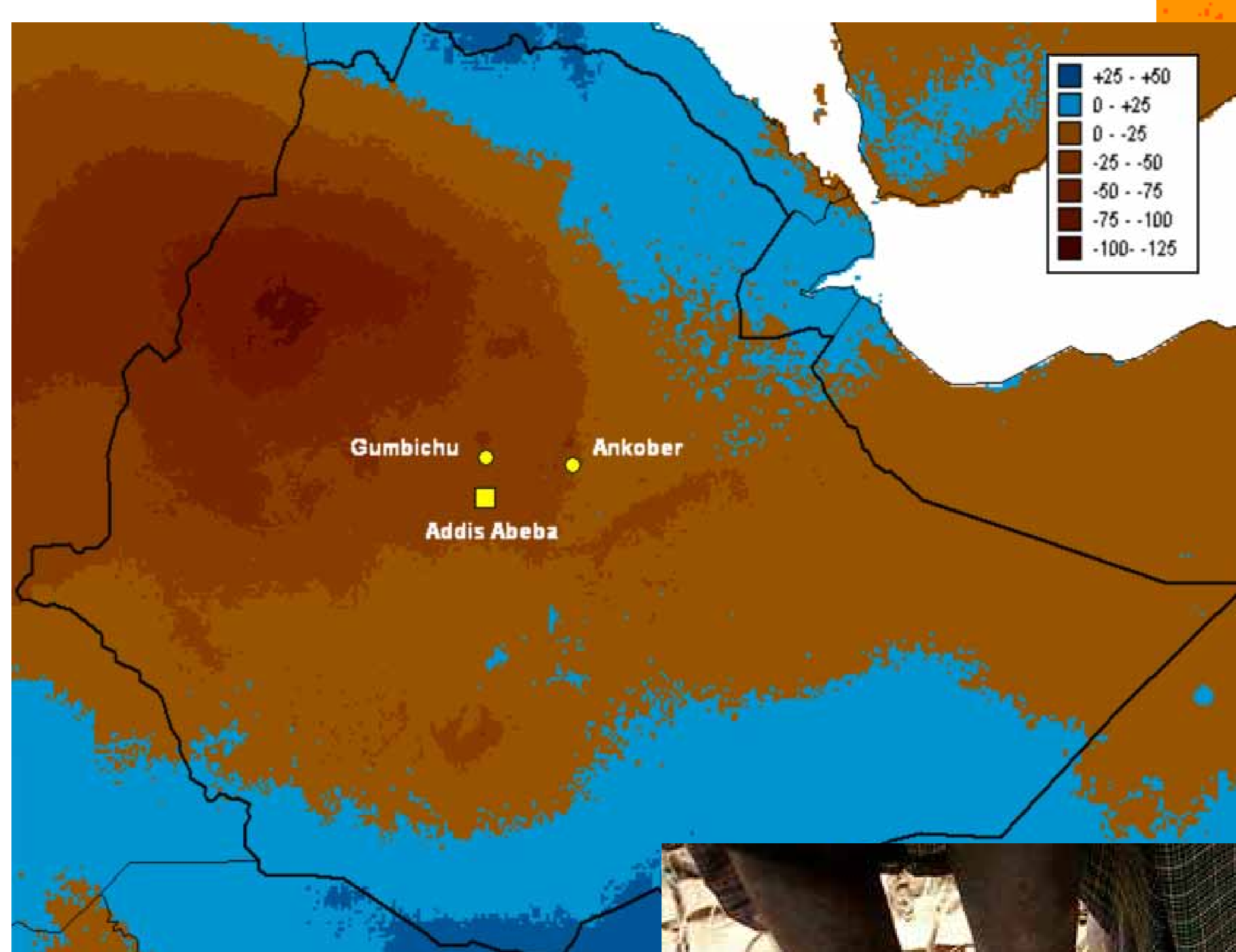
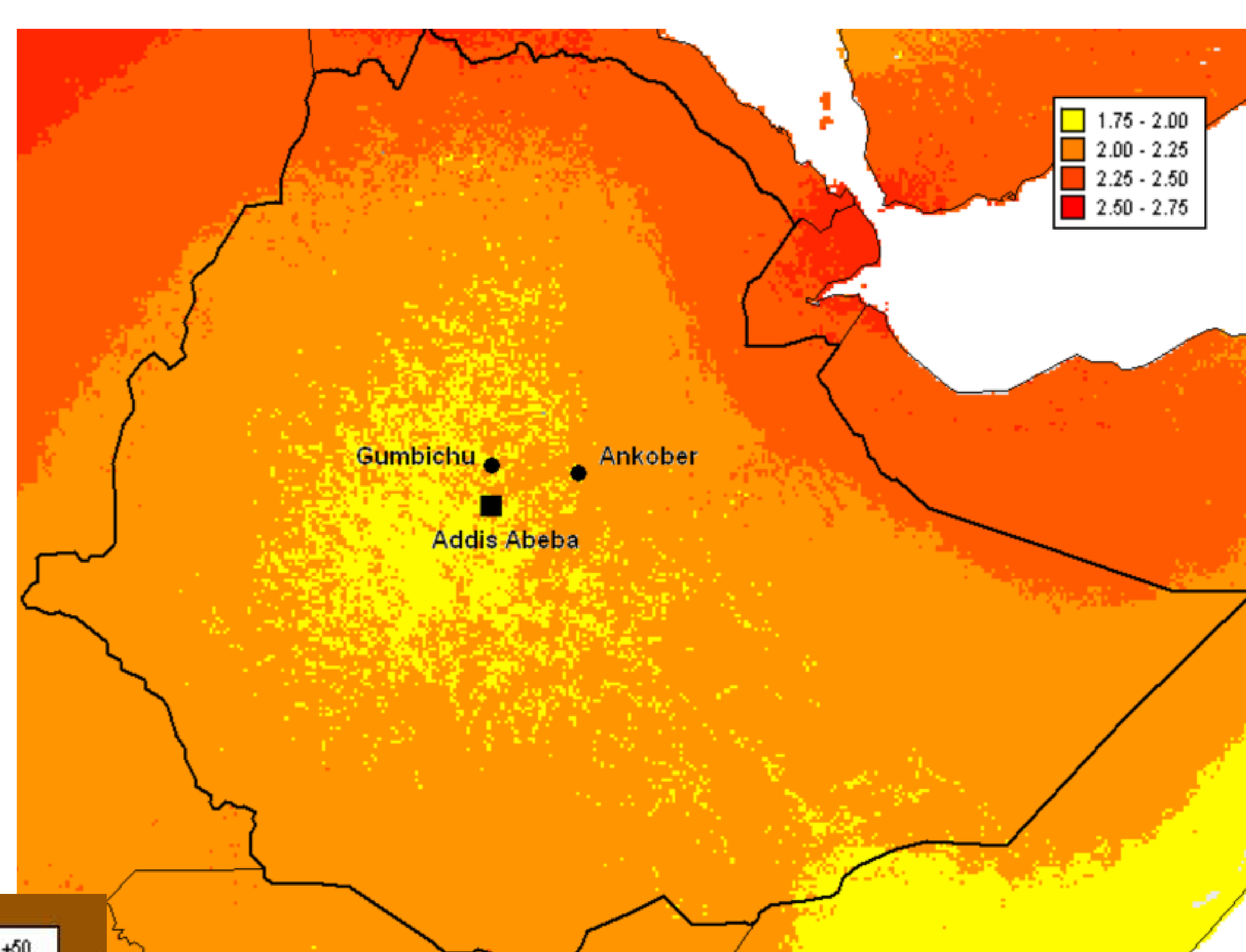
Coping with climate change

Using genebanks to protect farmers' livelihood



Climate change will impact on food production (IPCC, 2007)

By 2020, IPCC estimates that yields from rain-fed agriculture may be reduced by up to 50%. Agricultural production and access to food is projected to be severely compromised in many African countries, adversely affecting food security and exacerbating malnutrition.

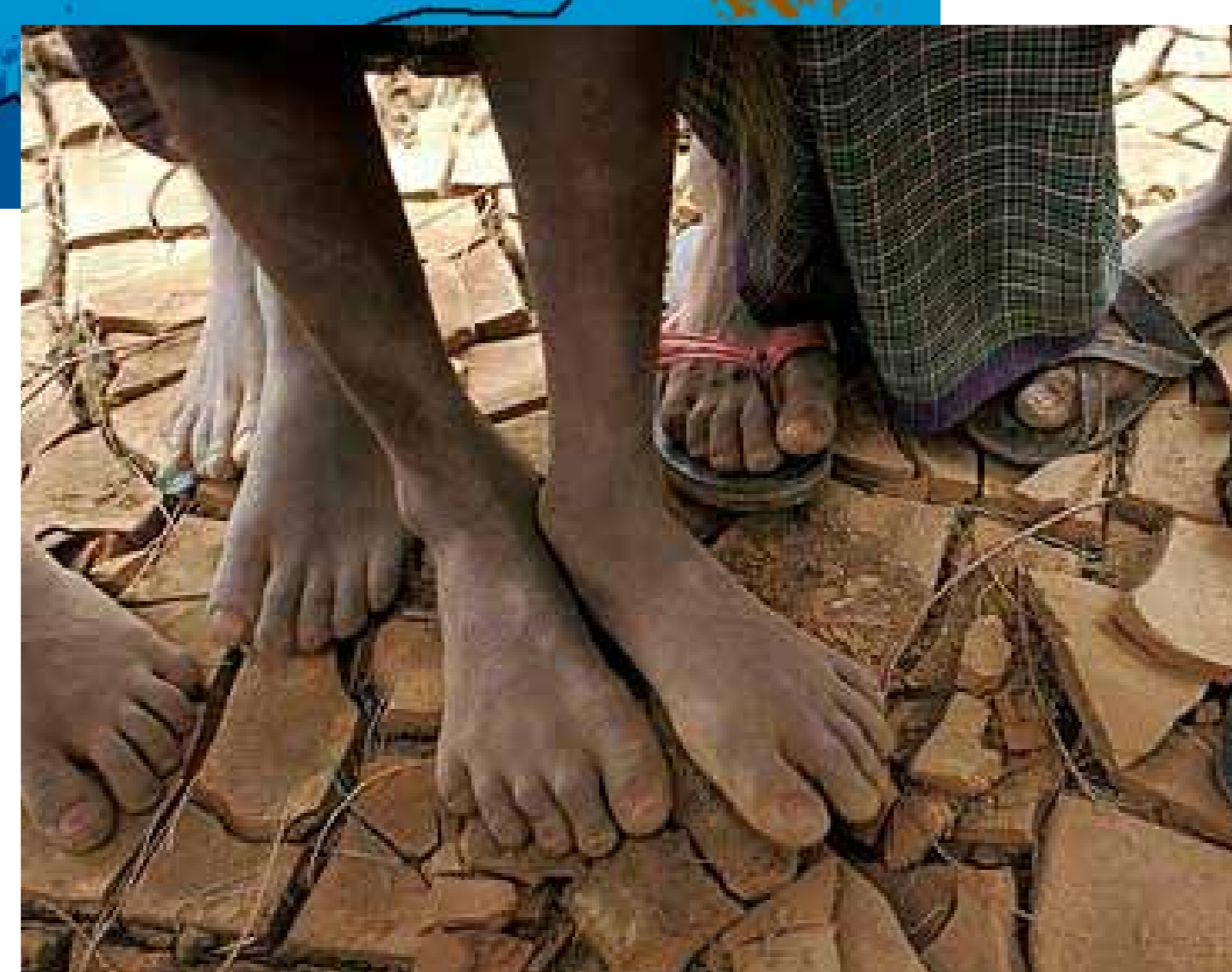


Ethiopia is drying up

as temperatures increase and annual rainfall levels decrease, affecting 5 -15 million people every year.

With climate change, farmers will need new germplasm

Changing climatic conditions are negatively affecting the performance of traditional crop varieties presently grown in Ethiopia. Farmers need new locally-adapted varieties, resistant to heat and drought, to protect their livelihood and ensure continued agricultural production.



Why women? Women are key producers, yet are the most vulnerable.

- Women play a critical role as the primary seed custodians, helping to protect local crop varieties.
- They are instrumental in both food preparation and local agricultural practice, using traditional varieties of barely and durum wheat.
- Women farmers are already active in local crop conservation associations.
- Nonetheless, women are increasingly marginalized in Ethiopia as the gender gap grows, influencing the unequal distribution of both income and assets.



What are genebanks?

- Genebanks are repositories of genetic material of crop varieties and their wild relatives.
- They ensure local varieties and landraces underpinning our food supply are both secure in the long term and are available for use by farmers, plant breeders and researchers.
- Genebanks are key to identifying and storing adapted germplasm to help cope with the impacts of climate change on agricultural livelihood and to support efforts to ensure food security.
- In Ethiopia, the national genebank holds 20,000 accessions of barley and durum wheat collected from different agro-ecological areas in Ethiopia.



Our proposal

Locally-adapted crop varieties to the rescue?

Objective

To develop an innovative low-cost strategy for managing risks to agricultural systems posed by the adverse effects of climate change through the use of locally-adapted crop varieties conserved in genebanks, in order to protect the lives and livelihood of vulnerable women farmers.

What will the project achieve?

- Promising locally-adapted varieties from genebanks will be identified in collaboration with 200 women farmers participating in the characterization and evaluation of barley and durum wheat varieties.
- Women farmers and national germplasm scientists will build their capacities to better respond to climate change, working in partnership to develop options and strategies to mitigate the risks to agricultural livelihood.
- A system of seed dissemination will be established to ensure farmers' access to germplasm and to support the scaling-up of the project.
- An atlas of genebank materials showing current and future distribution of production areas of target crops based on climate-projection models will be produced.
- A set of policy guidelines and awareness materials on risks posed by climate change and the use of germplasm to protect local livelihood will be created.

How will the project be implemented?

The project will focus on local varieties of durum wheat and barley, the principal crops supporting food security in Ethiopia.



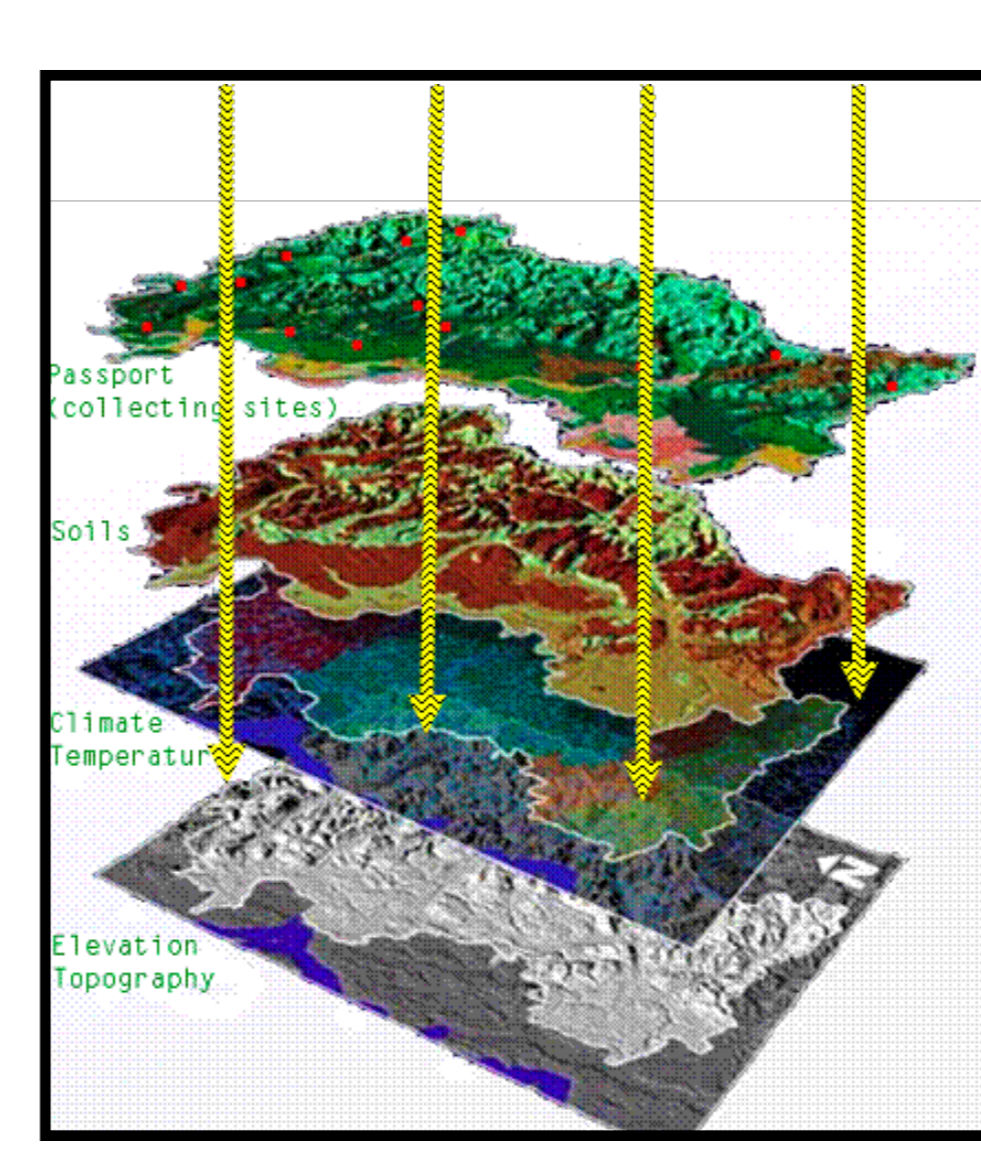
Screening genebank accessions using passport information from genebank information systems



Prototype global accession level information system

ID	Accession Number	Name	Acquisition Source	Acquisition Date	Country	Availability
DE0146	HCR 11104	Hardem sp.	Other	1992—	Ethiopia	
DE0146	HCR 11105	Hardem sp.	Other	1992—	Ethiopia	
DE0146	HCR 11476	Hardem sp.	Other	1994—	Ethiopia	
DE0146	HCR 13686	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13688	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13689	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13690	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13691	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13692	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13693	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13702	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13698	Hardem sp.	Other	20030117	Ethiopia	
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DE0146	HCR 13704	Hardem sp.	Other	20030117	Ethiopia	
DE0146	HCR 13706	Hardem sp.	Other	20030120	Ethiopia	
DE0146	HCR 13711	Hardem sp.	Other	20030120	Ethiopia	
DE0146	HCR 13720	Hardem sp.	Other	20030120	Ethiopia	
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DE0146	HCR 13879	Hardem sp.	Other	20030121	Ethiopia	
DE0146	HCR 13880	Hardem sp.	Other	20030121	Ethiopia	
DE0146	HCR 13881	Hardem sp.	Other	20030121	Ethiopia	
DE0146	HCR 13882	Hardem sp.	Other	20030121	Ethiopia	

Focus Identification of Germplasm Strategy (FIGS)



- This techniques uses information about the environment from which germplasm accessions with specific traits have been collected to predict where selection pressures for adaptation traits may occur.
- FIGS predicts which varieties are able to grow in areas with similar climate.

Innovative Participatory Methods

- Innovative framework that combines farmer's knowledge on traditional crop diversity with available scientific data on traits of local crop varieties to better cope with climate variability.
- Use of innovative 'stated preference choice experiments' to assess the socio-cultural, economic and institutional factors affecting the vulnerability of women farmers to climate change.

Bioversity International

Bioversity was established in 1974 as part of the CGIAR to ensure the conservation and sustainable use of agricultural biodiversity to create more productive, resilient and sustainable harvests. It aims to promote well-being by helping to achieve food security, improve health and nutrition, boost incomes and conserve natural resources.

Institute of Biodiversity Conservation (IBC), Ethiopia

Established in 1998, IBC is a government organization whose mission is to collect, conserve, characterize and evaluate indigenous plants and landraces in Ethiopia. As host of the National Genebank, IBC monitors the sustainable use of the country's biodiversity.

Crop Conservation Associations at Gumbichu and Ankober

The project will collaborate with local women's crop conservation associations at the grassroots level to ensure project activities and anticipated results are both appropriate and sustainable within the local context.

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