Spatial targeting of adaptation efforts in the livestock sector

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Targeting tools

The tool is user-friendly web-based GIS tool that comes packaged with a spatial database, making it ideal for use by students, educators, and development practitioners.

The tool has three sub-components:

- **Land Suitability.**
- **Land Similarity.**
- **Land Statistics.**

Through the suitability function, the users can identify areas with high climate risk, while the characterisation function of the tool allows them to estimate the extent to which people, animals, and crops are exposed to these climate risks. As such, they can **identify priority areas** for adaptation action.

Context

Climate change has emerged as a significant threat to livestock and the ecosystem goods and services on which they depend. With projections of rising temperatures and CO2 levels, changing rainfall patterns, and increased climate variability and occurrence of extreme events, the direct impacts of climate change on livestock can be seen through behavioural and metabolic changes, including reduced feed intake, increased energy requirement, and decreased conception rates. Additionally, indirect impacts are felt through various channels, including a mismatch between increasing water demand and decreasing water supply, increased pest and disease pressure, biodiversity losses, changes in quantity and quality of feed resources, and changes in overall system productivity and livelihood patterns.

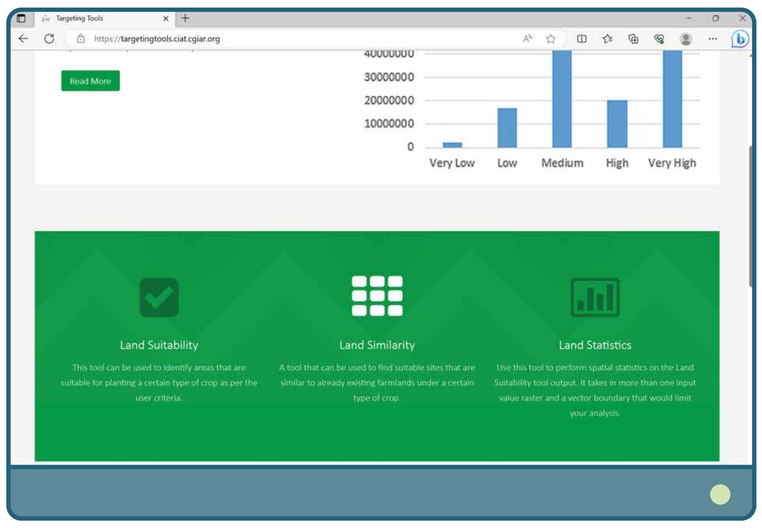
Regions identified as the most vulnerable to climate change, such as sub-Saharan Africa and South Asia, also rely heavily on livestock for food, income, and livelihoods. Thus, adaptation is critical for these regions to cope with the multiple stresses caused by the rapidly changing climate. To address this need, we compiled spatially-explicit climate risk layers for Ethiopia, Tanzania, Kenya, Senegal, Mali, Tunisia, and Colombia and uploaded them to the Targeting Tools platform for easy access.

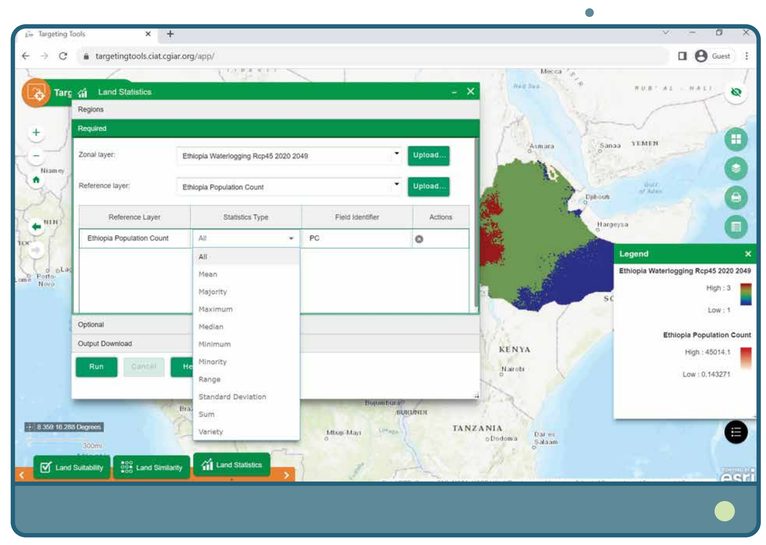
Targeting Tools is a web-based GIS tool (targetingtools.ciat.cgiar.org/) that facilitates the combination of different climate risk indicators, including bio-climatic variables, risk of droughts, floods, heat stress, flooding and waterlogging, into risk hotspot maps. The tool is user-friendly and packaged with a spatial database, making it ideal for use by students, educators, and development practitioners. Through the characterisation function of the tool, users can estimate the extent to which people, animals, and crops are exposed to climate risks and identify priority areas for adaptation action. In summary, our study provides a practical solution for supporting adaptation efforts in vulnerable regions by providing easy access to spatial climate risk information.

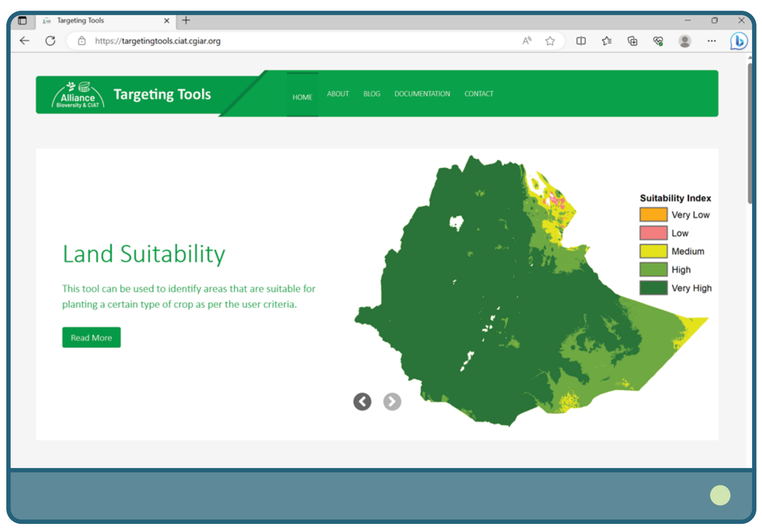
Our approach

In response, we, the spatial analysis community, have actively collaborated to create a diverse set of livestock-related climate risk maps, which include depictions of bio-climatic variables, the potential for droughts, floods, heat stress, waterlogging, pests, and diseases.

The **Targeting Tools** facilitates the combination of different climate risk indicators, including bio-climatic variables, risk of droughts, floods, heat stress, flooding, and waterlogging, into risk hotspot maps.







Outcome

Functioning as indicators, these maps, play a crucial role in identifying hotspots of climate risk and assessing the extent to which individuals, animals, and crops are susceptible to these risks. This valuable information can then guide the identification of priority regions for implementing adaptation strategies.

References

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