

IDMC and Climate Interactive are building a livelihoods and displacement tool for the Horn of Africa. In the real world and in the simulation tool, when floods and droughts occur, pastoralists can lose their ability to pursue a viable pastoralist livelihood resulting in a phenomenon of displacement. Based on a system dynamics model, this interactive, real-time tool incorporates climate, environmental, economic and human variables, and can be used to:

- **Simulate the impacts of droughts and floods on pasture quality/productivity and livestock health, and measures the knock-on effects on pastoralist livelihoods;**
- **Assess the scale and patterns of internal and cross-border displacement associated with past droughts in this region;**
- **Prepare for humanitarian responses prior to forecasted droughts or floods; and**
- **Evaluate scenarios of climate change impacts, as well as humanitarian and development interventions, on pastoralist income, food security, displacement and resilience.**

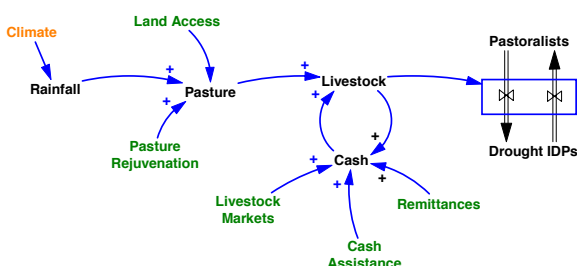
Background

In the spring of 2012, IDMC decided to address one of the evidence gaps that had been identified in the production of IDMC's *Global Estimates* report: drought-induced displacement. The estimation methodology used in *Global Estimates* was not well suited to assessing drought-induced displacement because of the complex, multi-causal and often delayed impact of droughts on displacement outcomes.

After extensive consultation with experts, IDMC concluded that a methodology based on system dynamics modeling would be the best way to assess displacement associated with droughts or other slow-onset phenomena. A system dynamics-based methodology would be able to incorporate the complex interactions between the variables and the feedback loops within the environmental and human systems, and it would be able to explain how a slow-onset hazard such as a drought could induce a livelihood crisis, which in turn precipitated a displacement outcome.

Phase 1: The Kenya Pastoralist Simulator

As a pilot, IDMC chose to focus on drought-induced displacement of pastoralists in Kenya's North Eastern province so that the model would complement a conceptual report on pastoralist displacement being produced concurrently. To build the model, IDMC began a partnership with Climate Interactive, a well-regarded NGO that specializes in system dynamics-based problem analysis and the development of real-time decision-support tools customized to suit the needs of policymakers and other relevant stakeholders.



Based upon inputs from experts from IFRC, IOM, IUCN, ILRI, UNFPA, REGLAP, the University of Nairobi, the Kenya Red Cross Society, Tufts University's Feinstein International Center, as well as pastoralists themselves, IDMC and Climate Interactive developed a conceptual model of drought-induced displacement (Figure 1), and an interactive simulation (Figure 2).

Figure 1 High-level diagram of displacement dynamics

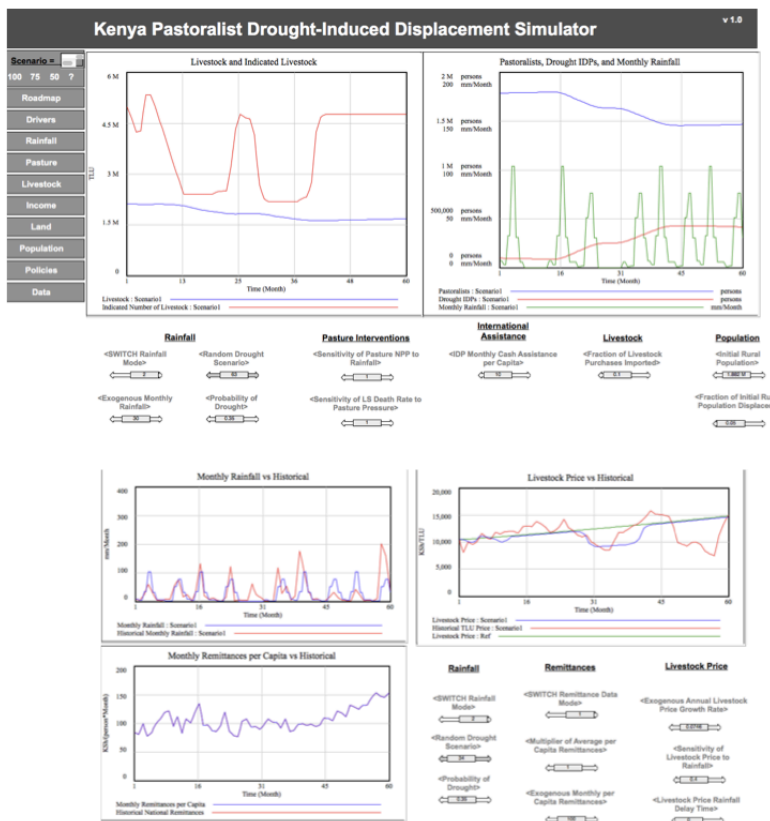


Figure 2 Images of Pilot Kenya Pastoralist Simulator

the future to capture the effects of medium- and long-term climate and environmental changes, demographic trends, development and adaptation policies and humanitarian interventions.

Project impact

By the end of Phase 2, decision-makers will be able to use the simulator to identify adaptation priorities and chart a pathway toward a more resilient future for this region. The simulator will inform the multilateral Nansen Initiative process and it can serve as a tool for government authorities, regional institutions, development actors, humanitarians and communities. By providing a common/unified conceptual framework, the simulator can serve as a vehicle to facilitate dialogue and joint planning among these different sets of stakeholders.

Contacts

IDMC

The Internal Displacement Monitoring Centre (IDMC) is the leading international body monitoring internal displacement worldwide. By providing free access to information on internal displacement, IDMC raises awareness of the plight of people who have been forced to flee their homes as a result of conflict, violence, disasters.

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Climate Interactive

Climate Interactive is a US-based non-profit that uses cutting-edge analytic techniques to help government, business and civic leaders see the impacts of their decisions. These easy-to-use, tangible, scientifically-grounded tools help leaders manage their systems to create the future they want.

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The model captures the key drivers of drought-induced displacement (e.g., rainfall, pasture availability and quality, livestock numbers) and reports amount and rate of displacement under different scenarios. As such, it provides a quick, transparent and interactive way for communities and policymakers to test strategies for preparing for droughts.

Phase 2: Addition of Northern Kenya, Ethiopia and Somalia and floods

With funding from the European Union, IDMC and Climate Interactive are currently expanding the Kenya pilot model to encompass more of northern Kenya as well as internal and cross-border displacement within bordering regions of Ethiopia and Somalia. Floods and their impact on pastoralist livelihoods are also being incorporated, and we are extending the model's time horizon 40 years into