
INTERNATIONAL SEMINAR ON DROUGHT AND AGRICULTURE

PREDICT, PLAN, PREPARE: STOP DROUGHT BECOMING A FAMINE

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SESSION 2: CONNECTING FARMERS TO TECHNOLOGIES – CHANGING THREATS TO OPPORTUNITIES

2. SATELLITE ASSISTED PASTORALIST RESOURCE MANAGEMENT

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A confluence of factors are creating a growing demand for innovative solutions to address community resilience generally and climate change adaptation more specifically. Pastoralists across the continent are desperately seeking alternatives to traditional methods for finding pasture. In order to understand the demand, it's important to know current conventions and the challenges they present. Indigenous Knowledge (IK) is a dominant tool of agrarian and pastoral communities around the world for making critical decisions on planting, herd migration, asset conservation and natural resource management.

In 2006 Project Concern International (PCI) team lead by Chris Bessenecker, was posted to Ethiopia to help respond to a prolonged drought in the Somali region. While driving across a parched expanse of the affected areas, the team encountered a man and his family and their emaciated herd. Chris Bessenecker was so curious to know what the man was doing there, the team stopped and asked. The man shared that they had just traveled for 14 days to arrive at that very location based on verbal assurances that there was pasture there. What the PCI team realized, and the moment, was witnessing was the place where the man's animals would soon die and his meager livelihood lost.

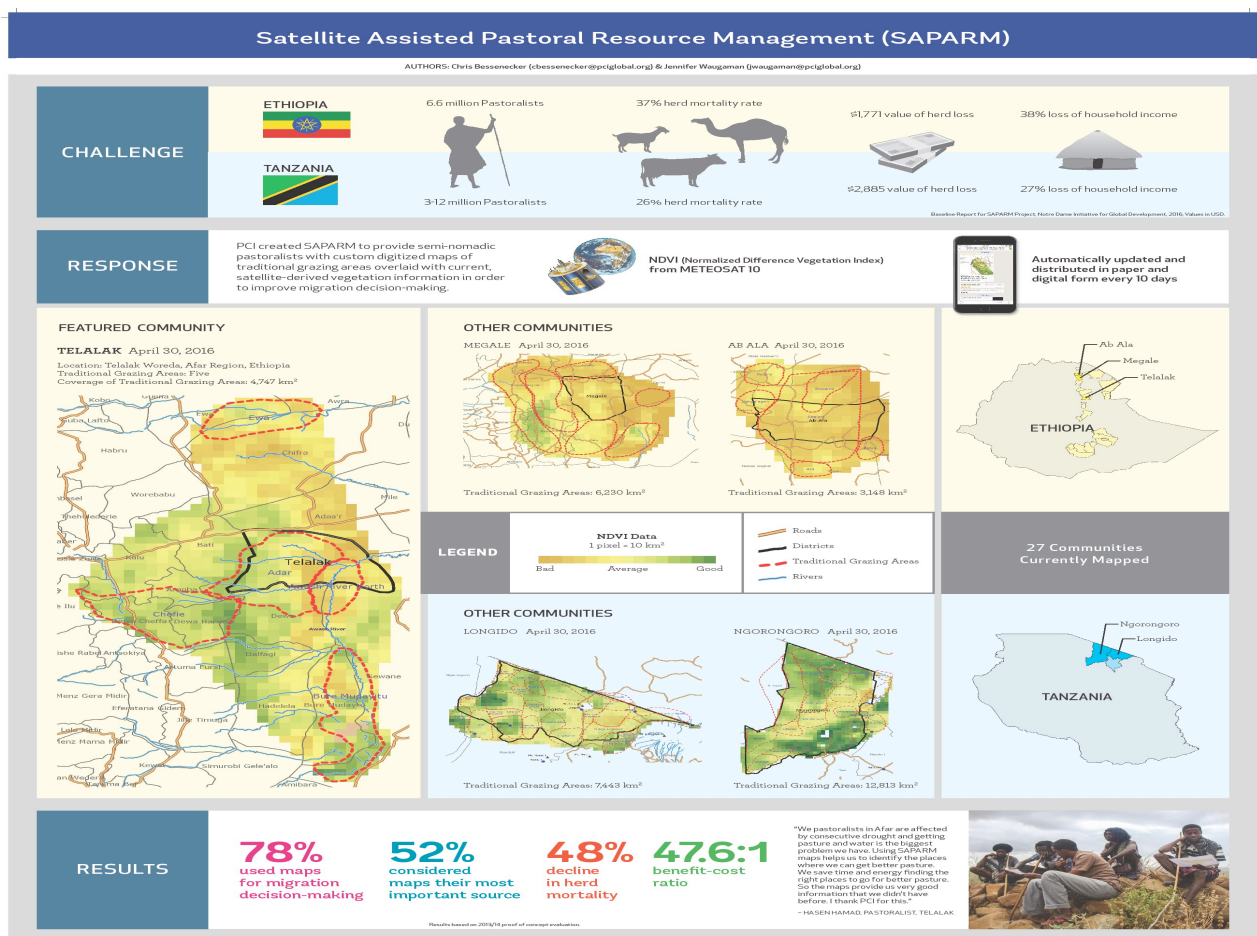
Over time Chris Bessenecker, PCI VP for strategic initiative, came to discover that most of Africa's pastoralist make these same consequential decisions each year, decisions that can mean the difference of survival or destitution, even life and death. And they use the same basic methods - scouts, word of mouth and indigenous knowledge. Methods that are becoming increasingly unreliable due to climate change and shifting ecological patterns. Yet 23 thousand miles above them sits a geostationary satellite that's taking high resolution photos every 15 minutes which allows one to measure something called normalized difference vegetation index – which is just a fancy word for photosynthesis.

The challenge was how do one the get normalized difference vegetation index information from the geostationary satellite down to some of the most remote populations on earth and do it continuously because pastoralists aren't farmers – they are interested in forecasts but what's happening on the ground now.

Therefore, that where the idea started – a considerable problem affecting millions of people, a conceptually simple solution of bringing together space technology and indigenous culture for social good but one which had never been tested and from an execution standpoint would present considerable challenges. To do that would take partnerships: USAID had just set up the Development Innovations Ventures office specifically designed to fund untested ideas that could potentially impact millions. They gave PCI \$100,000 to try and prove it could work. WFP had supported the development of a web based platform in Ethiopia for government

policy makers to analyze drought. While it had satellite data it wasn't in a format or even contemplated for pastoralists. This platformed was developed by a small Dutch company called Hoefsloot Spatial solutions (HSS) who was intrigued with the problem the team in PCI were trying to solve and wanted to support the backend of it. And then the community themselves had critical insights into their own traditional grazing grounds to be mapped which had never been done before. Then PCI call it - SAPARM which stands for Satellite Assisted Pastoral Resource Management. SAPARM is an innovation well suited to respond to the needs of multiple stakeholders.

Under the Stage I baseline for SAPARM, almost 70% of pastoralist reporting using IK for migration decision-making. There are multiple reasons for this, including long-standing traditions as well as a moderate degree of reliability over generations. In spite of the heavy reliance on IK and its importance as a management tool, it has significant limits with regard to reliability, which is acknowledged by pastoralists themselves.



The potential of SAPARM to reduce or eliminate these deficiencies, without assuming unacceptable burdens, risks or costs, is inherently logical and easy to grasp by pastoralists based on our experience. What is notable is that SAPARM doesn't seek to replace the conventional approaches to migration decision-making, but works in synergy with them making them more effective.

In the pilot, funded by the USAID Dev Lab, herd deaths were cut in half. And the Google stepped in with seed money, then a larger award from USAID, and now another \$1 million from Google. SAPARM is, not only demonstrate the complementarity between indigenous knowledge scientific methods but also a greatly demonstrated public private partnership.