# AFRISCOUT
A PCI social enterprise

PCI is revolutionizing the way pastoralists in Africa find pasture and water for their animals using the power of satellite and mobile technology.

The Shepherd's Eye in the Sky

Traditionally, pastoralists rely on word of mouth, indigenous knowledge, and scouting to find pasture and water for their herds in vast open rangelands that cover thousands of kilometers. These methods are inherently limited and often unreliable given the impacts of climate change and ongoing droughts. Economic losses resulting from this inefficiency can be devastating. On average, families in the areas we work are loosing over a third of their herds every year, which represents over $3,000 in local market value (Fordham, 2017). In addition, pastoralists spend hundreds of dollars on scouting to find pasture, and substantially more on supplemental feed when pasture can't be found. With approximately 250 million pastoralists across the continent of Africa, this represents billions in expenditures and lost resources, which has a crippling effect on the health and well-being of the poor and marginalized families that rely on pastoralism as a livelihood.

Recognizing that data could enhance indigenous knowledge and practices, we created AfriScout. The AfriScout app provides pastoralists with updated information on forage and water availability specific to their community grazing areas enabling them to make more accurate and cost-effective migration decisions. While masking conditions on areas outside accepted traditional grazing lands, it significantly expands the user's field of vision within their grazing areas. This improves capacity for pasture management within while deterring excursions outside of accepted grazing areas that can lead to conflict. Users can also monitor past forage conditions so that they can analyze climatic changes in their local areas over time. In addition, the unique crowd-sourcing system of geolocated alerts enables pastoralists to enhance collaboration on land management and warn each other about potential conflict, animal disease, or other matters that may impact the safety and security of their herd and their families.
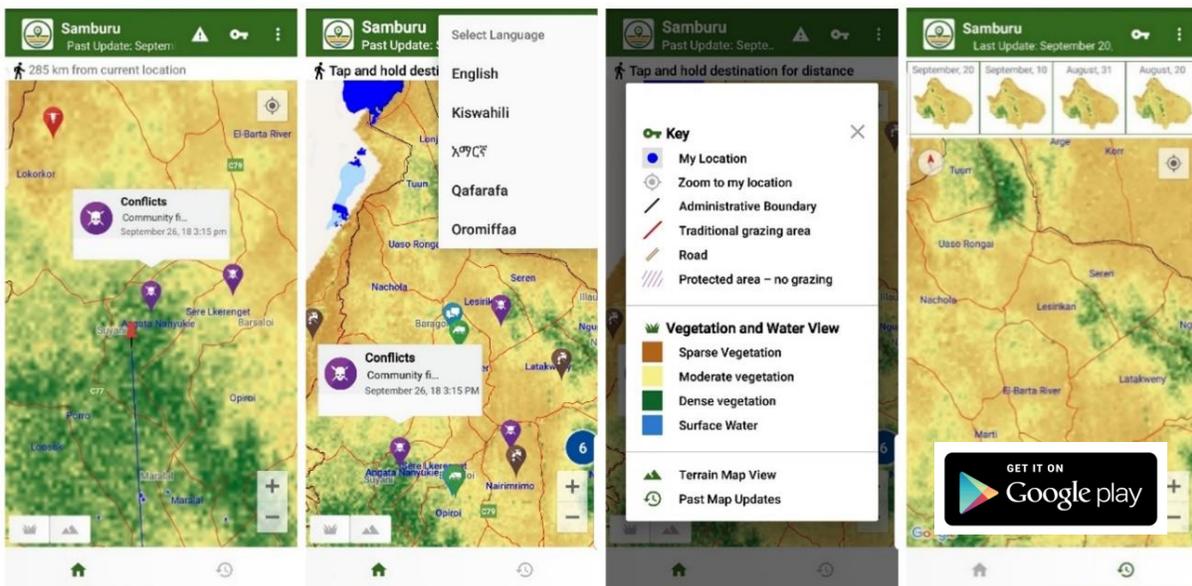
The app is backwards compatible to all Android operating systems, is fully functional offline, and available in five regional dialects. Since the 2017 beta release, PCI has made several user-driven improvements. The latest release displays vegetation and surface water resolution down to 10 suare meters and simultaneously reduces the data burden to only 20kb per map update (from 600kb), allowing cheaper and faster downloads on unstable 2G networks. AfriScout is integrated with six mobile money operators across three countries (Airtel Money Kenya and Tanzania, Safaricom mPesa, Tigo pesa, Vodacom, and Commercial Bank of Ethiopia).
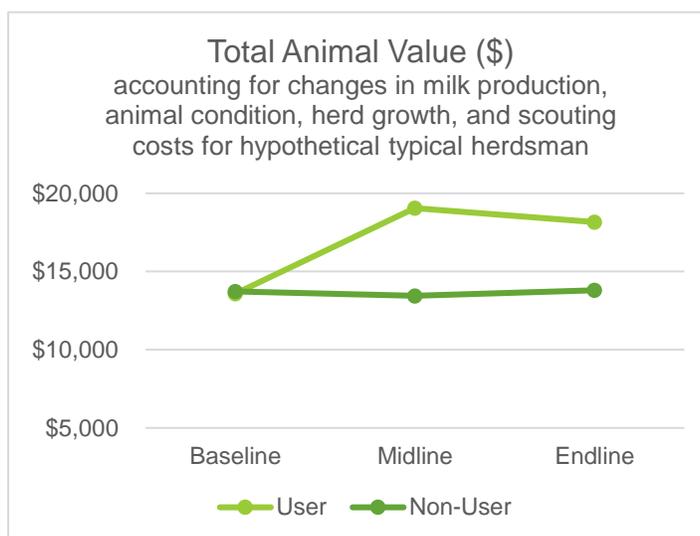
www.pciglobal.org/afriscout

AfriScout has mapped over 239,000km^2 of communal grazing lands in Kenya, Ethiopia, and Tanzania. There are currently more than 6,000 registered app users. On average, each week 100 new users will download the app and register for a 6-month free trial. Once the free trail period ends, the user is prompted to opt-in and purchase an annual subscription for approximately $30 (varies by country), roughly the equivilant of one goat.

Impact

Pastoralists are using AfriScout to manage their risk in a variety of ways: 1) aiding in the timing and destination of migration; 2) improving pasture conservation and management; and 3) improving collective, informed decision-making regarding migration. AfriScout has eliminated the need for 'trial and error' searching or settling on substandard locations due to limited knowledge. In addition to using the app to help determine where and when to migrate, pastoralists also use the information to delay or hasten migration, conserve grasses for when conditions worsen, or forgo migrating altogether to preserve the caloric expenditure of their animals. App users are able to further avoid degraded pastures leaving them fallow until they have rejuvenated enough to return. When areas look similar, pastoralists can allocate different areas to different herders to ensure effective management and prevent overgrazing. Better pasture management and conservation leads to long-term resilience.

Originally distributed and tested as paper maps, PCI has conducted four separate studies (two internal; two external) over the last five years. Results have consistently found that the maps have a significant positive impact on migration decisions, herd condition, and conflict. Aggregate results show:

- 80%-97% of users claim that migration decisions were significantly different since using the maps.
- 52-76% of users state that the maps are now their most important resource for migration decisions. These decisions include:
    o Where to move herds (66-78%)
    o When to move herds (28-62%)
    o How many animals to move (13-48%)
- 98-100% of users found the maps to be accurate or very accurate.
- 77-100% of users found the maps helpful. Utility included:
    o Saves time (68-98%)
    o Reduces workload of scouts (38-66%)
    o Reduced livestock death (46%)
    o Improves livestock condition (58%)
- 17-42% of users believe the maps have reduced conflict with host communities (only 2% believe that it increased conflict)

Total Animal Value ($)
accounting for changes in milk production, animal condition, herd growth, and scouting costs for hypothetical typical herdsman

When asked whether or not the maps had any impact on livestock loss, 92.5% of users in an internal study asserted that it reduced livestock loss. For more than half, reductions ranged from 50% to 75% and above. Users indicated high loyalty and satisfaction, giving AfriScout a Net Promoter Score of 75 compared to a 58.3 average for IT/Services. A three-year study by Fordham University found that taking into account milk production, animal condition, herd growth, and reduced scouting costs, the overall benefit attributed to the maps was $4,356 USD when comparing users to nonusers (see inset above). Much of the value was due to improved animal condition for users and deteriorating animal condition for non-users over the study period. Fordham University found that for every cow that transitioned from poor or moderate condition to good condition (or vice versa) represented a $194-$264 change in market value. Every sheep or goat transitioning from poor or moderate to 'good' condition represented a $20-$40 change in market value.