

The Kenya Hackathon for Environmental Migrants - IT solutions for the Laikipia Maasai in coping with a changing climate

Feb 2020 - Nanyuki, Laikipia, Kenya



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Introduction

This report presents the process and results of the second Hackathon for Environmental Migrants, organized in February 2020 in Kenya. It builds on the methodology of the first Hackathon for Environmental Migrants held in Bangladesh in 2017,¹ and seeks to strengthen the basis for future work and design on this subject.

The specific focus of this second hackathon has been on building innovative technologies that can help the Laikipia Maasai pastoralist community in Kenya to use their phone to deal with the changing climate. Because of uncertain rainfall and changing weather patterns, this community is forced to adapt its traditional migration patterns and herding practises, whilst having limited space to move due to land restrictions.² The Laikipia Maasai are struggling to keep their mobile livelihoods intact and to keep communities together. People move away because droughts make herding an uncertain livelihood, whilst education offers new opportunities elsewhere.³

The basic assumption for this hackathon is that the Laikipia Maasai are no passive victims. Affected communities help each other, support each other, in the need to adapt and to survive. They share information, or act together to raise awareness of their problems. With this in mind, this hackathon for the Masaai Laikipia has focused on how technology can further empower them in helping each other, in staying mobile, in finding alternative livelihoods, in better mitigating risks and in ensuring that those who migrate elsewhere can continue to support (and receive support from) their community.

A group of 25 participants took part in this hackathon, consisting of more or less equal groups of community members from the Laikipia Masaai, software developers, designers, and matter

¹ Boas, I. and F. Duynstee (2018) Hackathon for environmental migrants in Bangladesh. Available at: https://www.wur.nl/upload_mm/4/1/3/41b1d1fe-f9bc-4e7c-b749-23595e8a9311_Hackathon%20environmental%20migrants_final.pdf. See also Boas, I. (2020). Social networking in a digital and mobile world: the case of environmentally-related migration in Bangladesh. *Journal of Ethnic and Migration Studies*, 46(7), 1330-1347. <https://doi.org/10.1080/1369183X.2019.1605891>

² Pas Schrijver, A. (2019). *Pastoralism, Mobility and Conservation. Shifting rules of access and control of grazing resources in Kenya's northern drylands* (Doctoral dissertation). Retrieved from Diva Portal. <https://www.diva-portal.org/smash/record.isf?pid=diva2%3A1262779&dsid=-875>

³ Based on field research conducted in the area.

specialists. In this report we outline the solutions they created, and the input on which these are based.

Evidence-based input

The input for the hackathon was evidence-based, informed by our field research in Laikipia. We investigated how the Laikipia Maasai were impacted by changing circumstances such as climate change, land restrictions and increasing access to educating; how they exchange information whilst herding or whilst settled elsewhere; what influenced their decisions to leave or stay or on which route to take; and in particular, how they used both traditional knowledge and their (smart)phones in making such decisions. Our focus has been on both men and women, young and old, and low, medium or highly educated, poorer and richer segments of the community, and those with and without access to (smart)phones. The findings were directly used as evidence-based input for this hackathon.

Research findings on personas

Our first step was to make a translation of the findings of the scientific fieldwork to personas. Personas represent some typical groups in and around the communities under study.

We identified five different personas amongst the Laikipia Maasai that we wanted to focus on in this hackathon. The characteristics and needs of each group is described below. This list is not meant to be a complete description of the entire community. They are ideal-type groups that we could extract from the research findings.

Traditional Moran, Age 15-30

- Warrior men
- Little education, often cannot read/write
- Actively assist in herding or security tasks
- Often take on herding jobs at other places, or ranger jobs.
- Remain active in the moran community via phone. Meetings, singing.
- Basic phone. Sometimes smartphone to share pictures or videos

Modern women/men, Age 15-30

- Attending or attended school. At least secondary education, often also additional courses, college or even university
- Live near school or university, away from the community land
- After school get a job, often outside of the community land
- When at work or school, they focus on their job or education
- Come home in weekends or just during holidays. They help with household and livestock
- Can be called in for advice or meetings
- Smart phone, broad use

Modern elderly men, Age 30-45

- Educated, at least secondary education
- Have a job in town or in the nearby region (like a teacher in secondary schools)
- Married, with children
- Pay school fees for children

- Manage livestock from a distance with their phones.
- Feel responsible to guide the community, advice on education, on how to manage the land, land rights, etc.
- Smart phone, broad use, active on WhatsApp groups (these are on politics, grazing, school fees, jobs, weather), etc.

Elderly men, Age 45+

- Little education, cannot read/write
- Much knowledge of herding migration routes, and of traditional ways to predict drought and rain
- Manage relations with nearby private ranches and conservancies (especially those in the management committee)
- Married (sometimes several times), have many children
- Supervise the shepherds
- Actively survey the pasture
- Basic phone (no smartphone)
- Listen to the radio for news, and songs

Married women with little education

- Female household member staying with the husband's family
- Little education, often cannot read/write. Get children at a young age, so do not go to college. Or get married young
- Organise everything around the home: manage the goats, repair houses, take care of children, prepare food, fetch water
- Sometimes take care of the herd when the men are not around
- Basic phone, no smart phone

From personas to needs

We constructed some initial user stories from the personas and their needs (see Fig. 1 on the next page for details). These user stories are examples of services that could potentially fulfil the needs of the persona

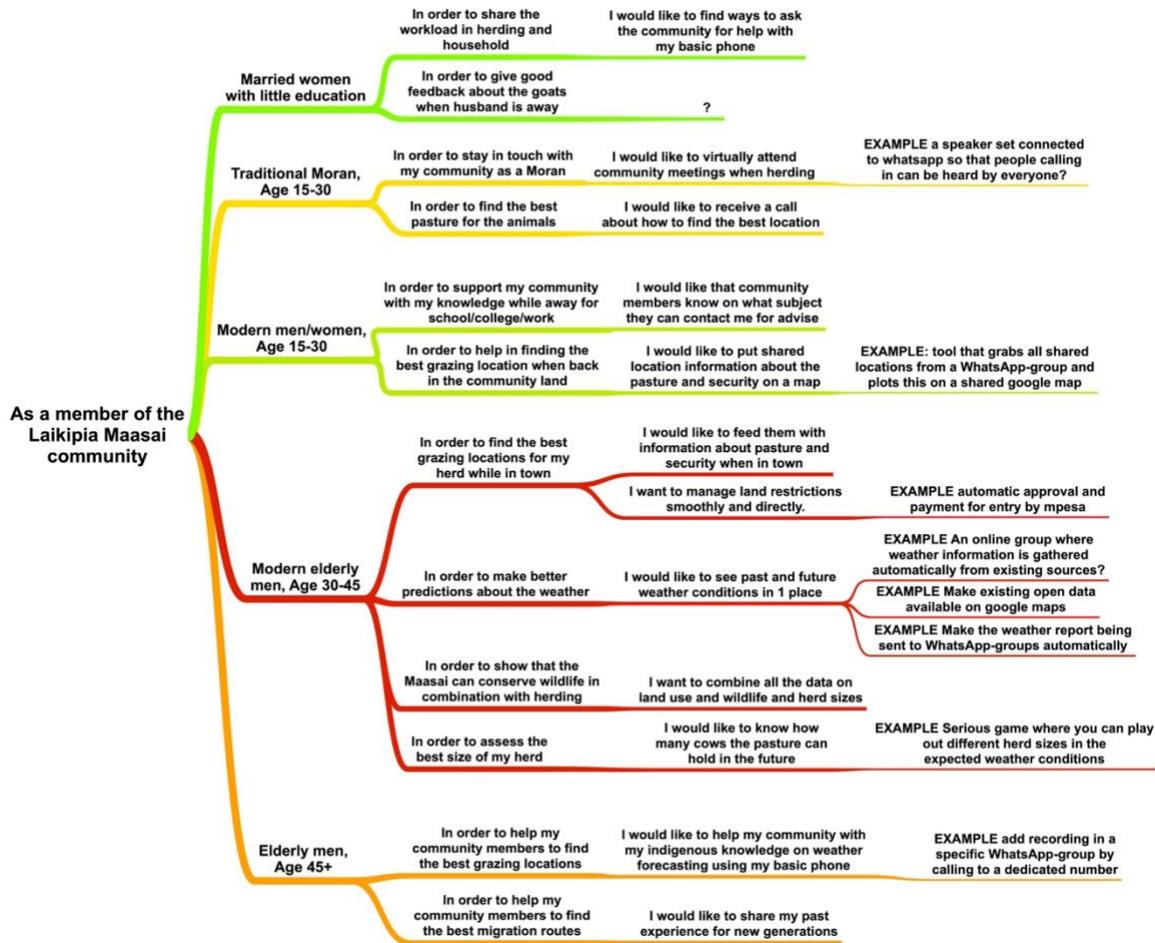


Figure 1: User stories for the Laikipia Maasai.

Solution building

On 22 February 2020, three multidisciplinary teams of community, matter and technology specialists have been working on solutions for the problems the Laikipia Maasai is facing. The teams used the provided persona description, user stories and example solutions as a starting point. However, during the event the teams were encouraged to not just blindly focus on the provided personas and user stories, but to actively engage in a dialogue with the Laikipia Maasai community members in their team, and to adjust the user description, problem and needs as appropriate. 12 Laikipia Maasai participated, including moran, elderly, and young men and women from the so-called “modern” persona categories.



Results

The solutions built by the teams during the Hackathon show different concepts, functionality and technology. Important to note is that the solutions created are not finished products, nor set in stone, but ideas and prototypes that could be further developed. They are briefly outlined below. Every concept is followed by a short discussion reflecting the jury feedback on the added value of the proposed solutions. The jury team consisted of: Dr. Ingrid Boas (Wageningen University); Freek Duynstee (Duynstee Consultancies), James Kaparo also known as Koinari (community representative), Fabian Kithusi and James Wahome (Leave Interactive and Ujuzi Code)

Messaging service for emergency situations

Problem as defined by the teams

All community members of the Laikipia Maasai have to find good pasture for their herds. Whether it is their own herd, of family members or of your employer. Good pasture means not only that the grass is good for the cows to feed on, but also that the place is not too crowded in order to avoid conflict with neighbouring pastoralists. Many Whatsapp-groups are in place to exchange such information, but they are polluted with diverse information, political discussions, and many pastoralists do not own a smartphone or cannot read.

Solution

An information service that is providing dedicated information on good pasture to both basic phones and smartphones. Information either from open data sources or from peers that share observations in the field. Variants:

- A SIM-service where community member can post information so that all interested members get informed by SMS, in line with traditional practices of sharing news, called Serian. See figure 2 for an example.
- A SIM service with general information on the weather, grazing locations and wildlife.

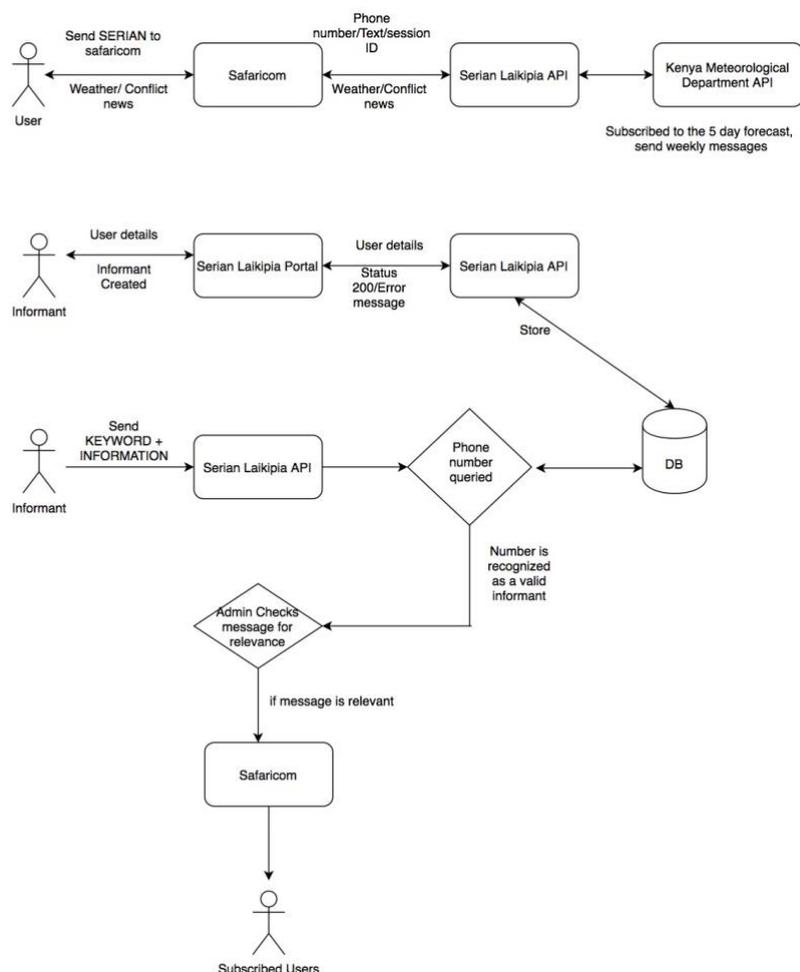


Figure 2: Example of a SIM-service, made by the winning team.

Jury feedback

There is already a substantial amount of information exchanged between the pastoralists via Whatsapp. Yet, given this information is often a mixture of discussions around various subjects, it can be hard to find exact and essential information. As such, it seems a good idea to strive for a simple and trustworthy source of information. This is more difficult than it sounds though. In the developed solutions by the teams it remained unclear who would provide the information and why. On the side of the information consumer it remained unclear what the information could be used for and why this information would be trustworthy, which are important questions for such a service. Also, a SIM-service does not per se help some of the target groups (Moran and elderly) to better accessing information as it is still based on written text. Furthermore, as opposed to having a service on weather, wildlife and grazing, it could be more effective to design a focussed on one specific problem of a target group. For example, this could be a service about pasture quality meant to support Moran's mobility. Focusing on one problem and one target group can enhance the quality and effectiveness of the service.

Cattle trading platform

Problem as defined by the teams

There are too many cows in the area, especially when there is a lack of rain, which is increasingly becoming a problem. The herd-owners know this and might want to sell some cows when they see the drought coming, but for them it is often difficult to get a good price. Therefore, they are often reluctant to sell their cows.

Solution

An online cow trading app where sellers will get a reasonable price for their cows without having to deal with the buyers themselves.

Jury feedback

The jury doubts whether this is actually a problem for the herd-owners. It is often policymakers, private landholders, and NGOs that claim there is an excessive amount of cows, but do the herd-owners perceive the same problem? The goal of the app might lead to suspicious reactions and therefore may threaten the use of it. It seems to want to prevent pastoralism as opposed to supporting it.

The idea is nicely focussed on the elderly men as owners of the herd. It covers a very specific problem for them: cow-trading and tries to solve this using a smartphone-app.

However, a generic online trading app is too generic a solution for the problem. It would be good to put the cow-trading in context for the herd-owners so they know this is focussed on enabling them to keep a healthy herd size. What's more, the elderly men usually do not own a smartphone and often cannot read or write. This problem is not addressed.

Conclusion and future steps

This hackathon was the first event in experimenting with how technology could help to further empower the Maasai Laikipia in coping with environmental changes affecting their mobile livelihoods and culture. It has resulted in an overview of personas and user needs that

future solution-builders can work with, and with some first steps towards technological solutions to help them face these challenges.

We make a case for the use of evidence-based input in hackathon events like these. The research-based input and the presence and continuous feedback of the researchers and community members, helped to make the hackathon exceed the level of a nice technological exercise. Instead, it was an event in which technological solution builders and the community members from the Laikipia Maasai together discussed community needs and together reflected on the use and relevance (or the lack thereof) of technical solutions.

To further develop or implement the ideas, analysis and concepts, this report is to be spread to stakeholders and investors in the sector. When interested, please contact us (see Acknowledgements for contact details). We are able to create links with all involved in coming up with the concepts and can help to build on the proposed solutions.

Acknowledgements

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Jury members were Dr. Ingrid Boas (ENP, Wageningen University); James Kaparo also locally known as Koinari (community representative); James Wahome and Fabian Kithusi (UJUZI CODE and LEAVE Interactive).

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