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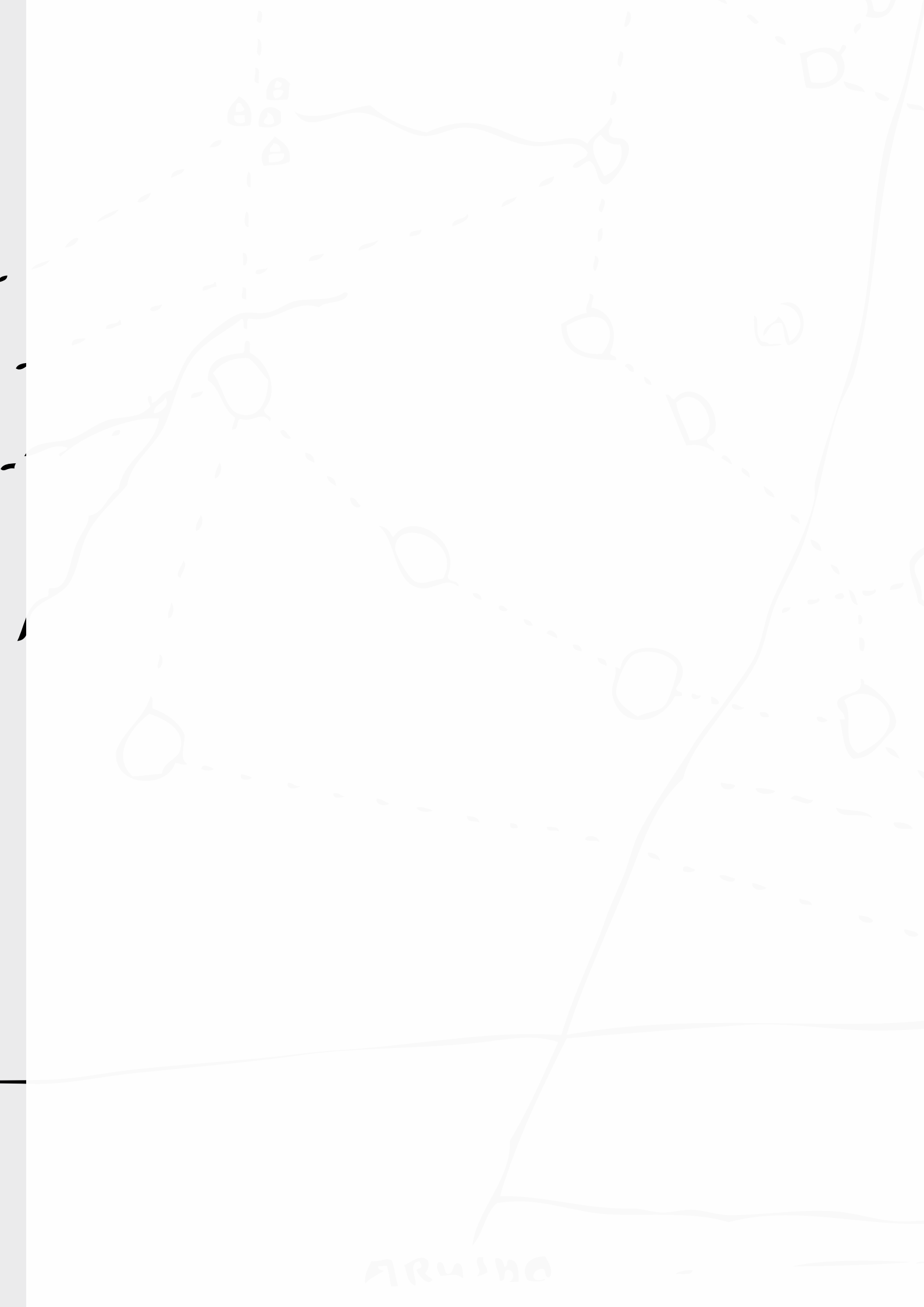
RANGELANDS

Participatory rangeland resource mapping as a valuable tool for village land use planning in Tanzania



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Participatory rangeland resource mapping as a valuable tool for village land use planning in Tanzania

International Land Coalition, IFAD, CARE Tanzania, KINNAPA Development Programme, Ministry of Livestock and Fisheries Development, local government and CSO partners.

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BAOATI

Introduction

The Sustainable Rangeland Management Project (SRMP)

The Sustainable Rangeland Management Project (SRMP) aims at securing land and resource rights of pastoralists, agro-pastoralists and crop farmers, while improving land management by supporting village and district land use planning and rangeland management in Kiteto, Bahi, Chamwino and Kondo Districts in Tanzania. More broadly, it aims at influencing policy formulation and implementation on these issues.

Facilitated by financial and technical support from IFAD (International Fund for Agricultural Development) and the International Land Coalition (through the Pastoralist Basket Fund), key partners include the District Councils of the 4 districts, the Ministry of Livestock Development and Fisheries (MLDF), the National Land Use Planning Commission (NLUPC) and civil society organisations supporting village land use planning and rangeland management including the project host KINNAPA Development Programme.

An important part of this endeavour is to introduce new ideas and suggest improvements to the village land use planning (VLUP) process in order to better contribute to sustainable rangeland management. A key challenge, for example, is ensuring the maintenance of livestock movements for optimising pastoral production systems across village boundaries. Participatory rangeland mapping proved to be a useful tool for documenting and gaining a better understanding of methods for facilitating such movements into the VLUP mapping process. In response, CARE Tanzania and the ILC technical advisor organised a five-day training and pilot process mapping in two neighbouring villages – Ng'abolo and Ndedo villages in Kiteto District.

The objectives of the participatory rangeland mapping

The participatory rangeland mapping in Kiteto served a dual purpose. First, it improved understanding of local resource use, distribution and management. Second, it was an opportunity to introduce a new VLUP mapping tool for those working within SRMP (CARE, CSO and government staff). The mapping exercise aimed at providing information that would feed into the VLUP process. This included:

- Mapping of resources and routes taken to access them;
- Identification of those resources that are key to current livelihood systems;
- Evaluation of how access to these resources has changed and the related causes;
- Determination of current practices for accessing and managing resources; and
- Identification of methodologies for maintaining access to resources that are key to current livelihoods systems, including the option of developing cross-village agreements as part of VLUP.

The mapping process proved to be a useful addition to the VLUP investigation stage prior to negotiations over and definition of land uses, helping to establish the baseline for cross-village agreements. This project demonstrated that such mapping also provides useful input to general community development planning processes such as 'obstacles and opportunities for development' (O&OD).



Participatory rangeland resource mapping was considered to be a useful tool for VLUP
















Mapping in Kiteto

The mapping exercise took place in the Ng'abolo village, one of the three villages in the Kiteto District that implement SRMP. Here pastoralism is the dominant livelihood system.

The mapping teams were made up of Kiteto District PLUM (participatory land use management) team together with Natural Resource, Land and Environmental officers, KINNAPA staff, CARE SRMP staff, the SRMP (ILC) Technical Advisor, and representatives from CSOs implementing SRMP in Bahi, Chamwino and Kondo Districts. The teams underwent a 3-day training facilitated by the SRMP (ILC) Technical Advisor prior to the exercises.

Representatives from the two villages, including Village Council members, villagers and supporting staff from the local village government, carried out the mapping. The next section describes the process that followed in more detail.




















Ndedo Village Livestock Corridors

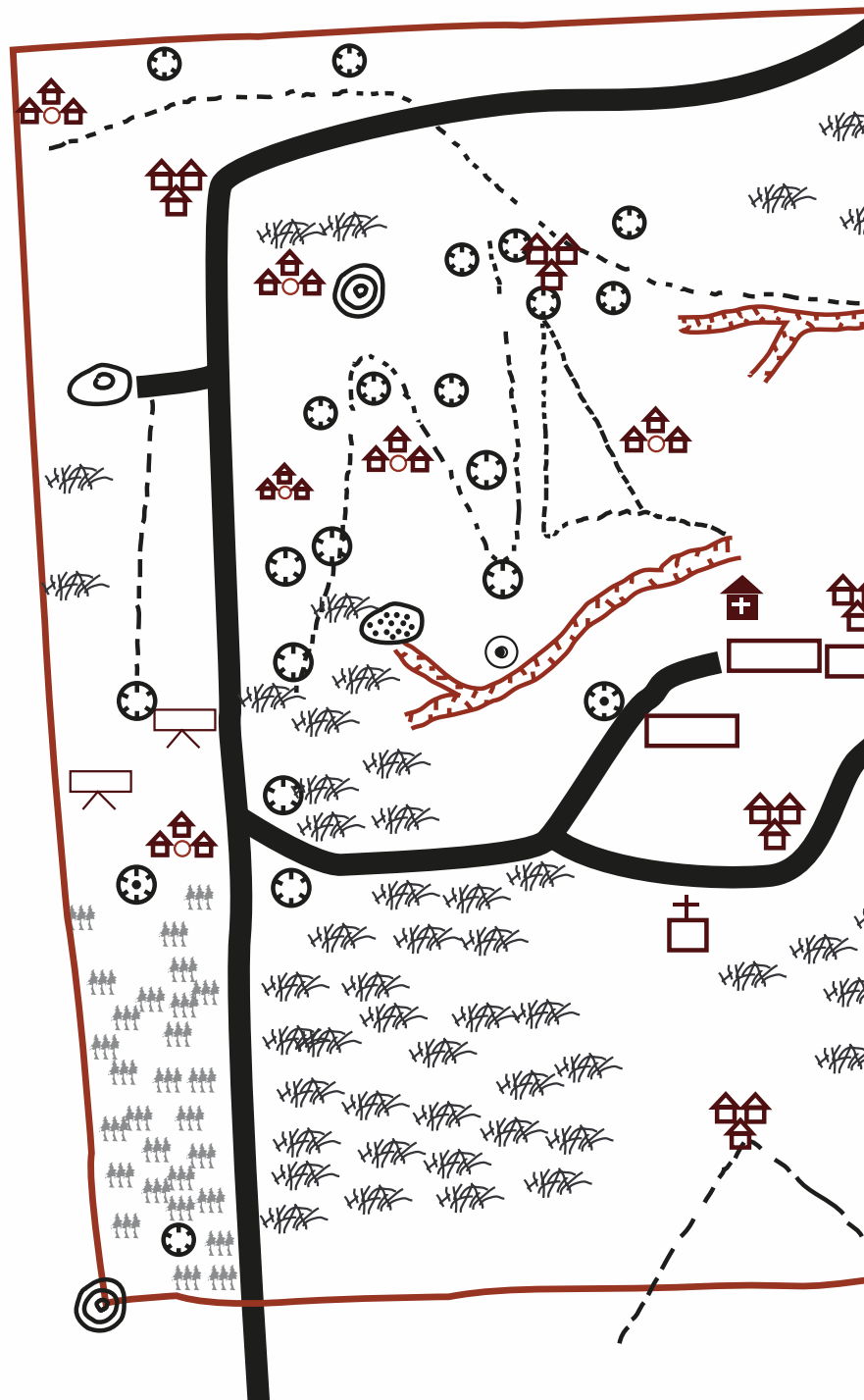
-  Livestock routes, wet season
-  Livestock routes, dry season
-  Well
-  Village boundaries
-  Settlement
-  Household
-  Livestock market
-  Cotton black soil
-  Farming area
-  Gully
-  Mountain
-  Hill
-  Road
-  Agricultural encroachment
-  Water pool

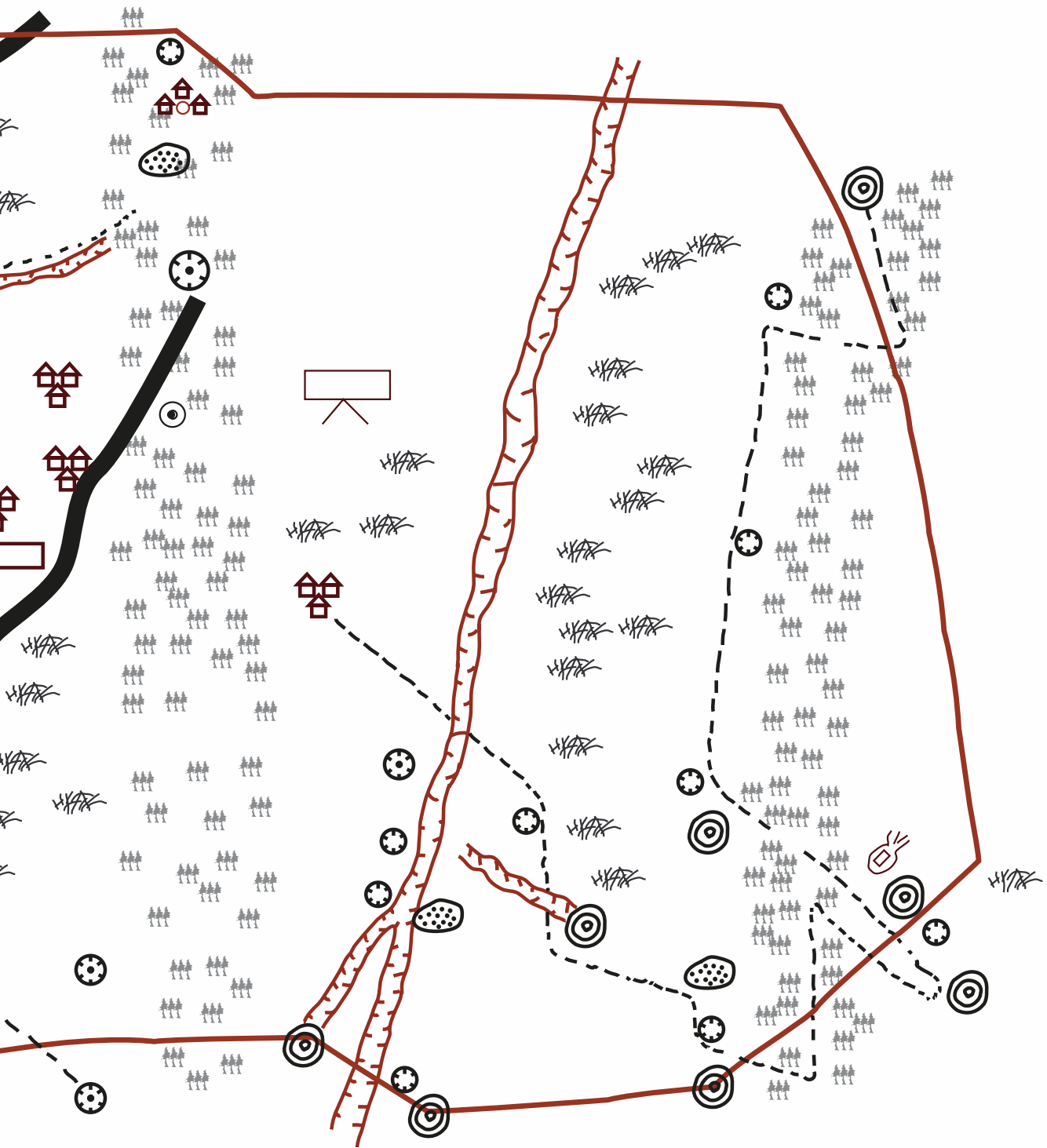




Ngabolo Village Natural Resources

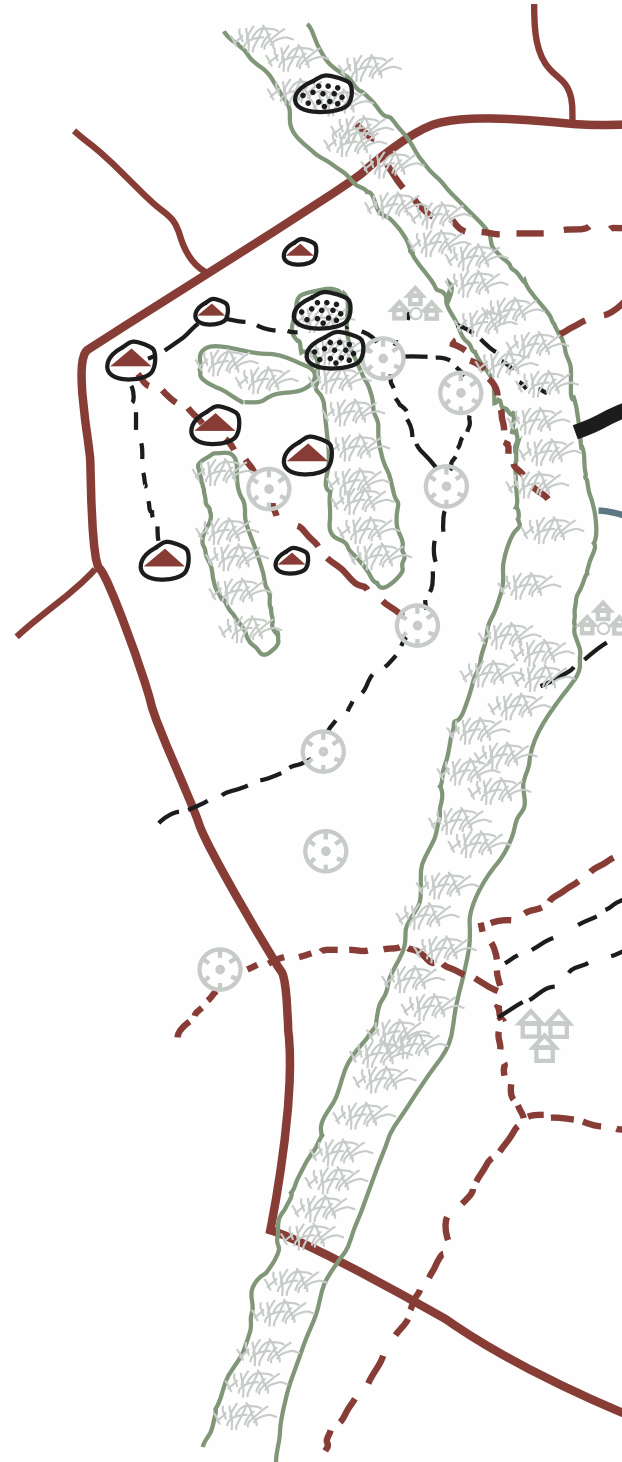
-  Livestock routes
-  Well
-  Village boundaries
-  Settlement
-  Household
-  Caves
-  Cotton black soil
-  Farming area
-  Gully
-  Mountain
-  Pond
-  Dam
-  Deep borehole
-  Saltlick area
-  Church
-  Area for mobile phone calls
-  Area Lililovamiwa and farmers
-  Road
-  Dispensary

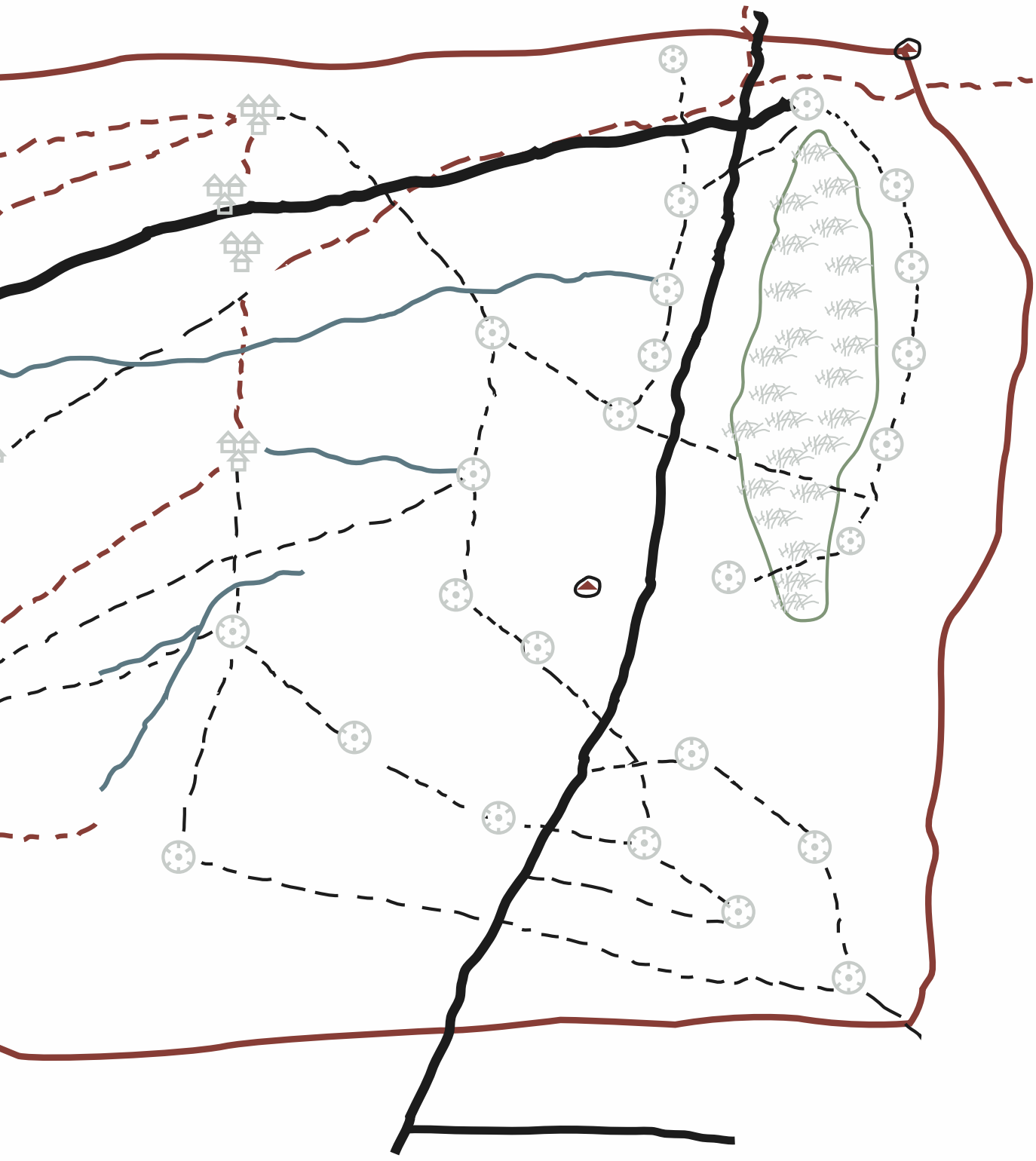




Ngabolo Village Mobility

- Livestock routes, wet season
- - - Livestock routes, dry season
- Village boundaries
- 🏠 Settlement
- 🏠 Household
- 🌾 Farming area
- Seasonal stream
- ⊙ Dam
- 👉 Saltlick area
- 📍 Hill
- Road





Participatory mapping: the process

Why do participatory rangeland mapping?

Participatory mapping of rangelands has proved to be a vital and powerful information-generating tool for identifying and understanding the use of rangeland resources and access to them (see Box 1). Discussions that take place during the mapping process provide opportunities for identifying challenges and problems, as well as potential solutions.

The map can be used in negotiation processes during the definition of different land use zones and access arrangements. It is a key piece of documentation in rangeland management plans, providing a visual summary of the area and its relevant resources. The map can also form a baseline for monitoring and evaluation, and within adaptive management processes. A resource map, and all its supporting information, serves as a benchmark to track changes over time.

Resource mapping is best led by a trained practitioner capable of facilitating the highest level of participation from the community. Practitioners need to have a working knowledge of pastoralism, map-making, participatory development processes, community facilitation and organisation skills. Implementing rangeland resource mapping without these skills will make the process ineffective and can create confusion and conflict.

Key stages in participatory rangeland mapping

In rangeland resource mapping practitioners are advised to undertake the process in three distinct stages – preparation, facilitation and documentation. Practitioners should follow the series of steps within each of these stages before moving onto the next one. Taking a step-by-step approach will ensure that the mapping process is effective and participatory, and the resulting resource maps will become central to the rest of the rangeland management process.

Key stages and steps for participatory rangeland resource mapping:

Stage 1 – Preparation

- Step 1: Setting the mapping objectives
- Step 2: Establish the facilitation team
- Step 3: Identifying the mapping participants

Stage 2 – Facilitation

- Step 4: Producing a rangeland resource map
- Step 5: Adding more details to the map
- Step 6: Completing the mapping process

Stage 3 – Documentation

- Step 7: Obtaining feedback from other stakeholders
- Step 8: Writing the mapping report
- Step 9: Taking the map and report back to the community

Getting started

In Kiteto because the facilitating team was large (due to the training nature of the exercise) it was divided into two. Each team member was given a role for the mapping i.e. facilitator, associate facilitator, note-taker, map copier or mapping kit.

To add interest and highlight the different dynamics one might face in such an exercise, in the first village one group mapped mobility routes and the other mapped natural resources. In the second village, resource mapping was carried out by both groups but split into men and women (for a discussion on the benefits of splitting groups see Box 2). In each case the two groups came together at the end and compared maps with much discussion. All team members were surprised at women's wealth of knowledge in particular on grazing areas, migration routes and livestock water points.

It had already been decided during a planning visit which members of the community should take part in the mapping, on the basis of having as wide a representation of different groups in the community as possible. Around 10 community members made each map (an average number for such an exercise though if well-facilitated more can take part). A site for drawing the map on the soil was chosen close to the local government offices, reasonably sheltered, flat

Box 1: Why is participatory mapping valuable?

Maps are more than pieces of paper, they are stories, conversations, lives and songs lived out in a place and which are inseparable from the political and cultural contexts in which they are used (Source: Warren 2004 quoted in IFAD 2009).

Participatory maps allow communities to express themselves spatially through their own understanding of their landscape and its natural resources. The maps can provide an alternative to the languages, images and written word of those who may hold more power in society. The process itself is a valuable and empowering exercise. A large number of community members can take part including men, women, young, old, rich and poor.

A lively and 'informal' forum encourages information exchange. Other actors can also be involved including local government. The process is important in terms of social development: because it is community members who create the map themselves, they feel more ownership over the map and maintain an interest in its use. It can contribute to building community cohesion: helping stimulate community members to engage in resource and land-related decision-making.

Participatory mapping is a good starting point for discussing sensitive resource and land-based issues. It enables communities to display and document resource distribution and identify key and important features that they use. This may help to legitimise such use in the eyes of government. Participatory mapping tends to be low-cost and is not dependent on complicated technology. Maps can be produced in a relatively short timeframe, and can then be documented, reproduced, built upon and updated, and/or used as a baseline for measuring change.

and protected from wandering livestock. Both facilitating teams ensured that the ground was well cleared of debris prior to the start of the exercise. A mapping kit was gathered including a selection of sticks, stones and ribbon, which could be used by participants to mark key landmarks and migration routes: cards and markers were available for named features. Each mapping team developed a set of guiding questions prior to the exercise, to stimulate the discussion and ensure that no important groups of features were missed.

Box 2 Should mapping be done in mixed groups, or with men and women separated?

There is some disagreement about whether it is better to ask men and women to make one map together or whether it is better to have men and women make maps separately, and then to combine them with a joint discussion and agreement. A possible disadvantage of men and women mapping together is that men may dominate the process. This can result in women's views, knowledge and ideas being under-represented. Also, women may not feel comfortable contributing in the presence of men due to social, cultural or religious reasons. However, mapping in separate groups may also present disadvantages and may in fact create unnecessary divisions. Moreover, separate mapping may result in less accurate information, while merging these two maps may be complicated and time consuming. Alternatively the process of men and women mapping together could produce dynamic and discursive means to agree over what should or should not be included. It may also create an opportunity for men and women to learn from each other – something that might not occur on a daily basis under normal circumstances.

Good facilitation is key

The mapping exercise commenced with a blessing from the local leader. Objectives were explained in more detail to the community. The team confirmed that everyone knew the purpose and importance of the meeting and its objectives. They also confirmed that everyone was happy to take part, and explained the agenda for the day.

The facilitating team initiated the process guiding it with a checklist of questions including: "What resources do you use within your livestock production system and where are these found? What movements do you make with the different types of livestock and who takes them on these movements? What challenges do you face in accessing resources that you need?"

The discussions that took place during and after the mapping exercise was recorded by note-taker(s).

Adding details

The details placed on the map by the participants are described in more detail in the next section. The participants used different materials to do this including ash from the fire, leaves, sticks, stones, water bottles for water points and ribbon to show migration routes.

An important and final feature to add was the boundary of the village. This was left on purpose until the other contents of the map had already been placed/drawn, as drawing it too early may limit the development of the map unnecessarily and may result in important features outside the boundary being ignored. Areas of forest or grazing, for example, that are used irregularly by



A finished map with key and direction marked. A variety of materials were used including sand, ash, ribbons to show migration routes, water bottles and donkey droppings

the community may be found beyond the boundary, and thus a map with a boundary marked early on can present a false picture of resource availability, access and use. In addition, by starting with the administrative (or other) boundaries, the facilitators may unwittingly imply that these boundaries are particularly important. In all cases, the village leaders provided assistance to the participants to mark the village.

Finalising

The mapping activity took two days, but it may be extended if issues are complex. A photograph was taken of the map upon completion. The map copier also made an accurate hand-drawn copy of the map, verifying the details with community members.

The paper map was presented to a larger group of community members in the afternoon of the second day, which led to animated discussions about the challenges that the community faces in relation to accessing resources and securing land. These are discussed in more detail in the next section. A copy of the map should be laminated and returned to the community for their own use.

The results: participatory mapping as an effective tool for village land use planning

Local resources and reciprocal arrangements

The maps provided valuable details on the distribution of resources in the villages, including grazing areas, shallow and deep wells, and different types of soils, determined by local names. When the group was divided by sex, it was shown that women were as knowledgeable as men on natural resources, grazing and water points. Women were unable to effectively identify administrative boundaries but both men and women needed help from village leaders to draw the village boundaries.

In Ng'abolo Village, livestock routes and movement during wet and dry seasons were mapped (together with topographical and infrastructure features). Ng'abolo has relatively rich resources, including important salt licks. In 'normal' years, the village has enough pasture and fodder during both wet and dry seasons.

Crop farmers have invaded some of the wetter areas from neighbouring Kondoa District, and increasingly some villagers are involved in crop farming too. The Nngumwa wet season grazing area has now been completely cultivated. One farmer alone cleared 750 hectares in the Eneyan rangeland. There are also a number of Ndorobo hunter-gatherers living in the area, and the Olesondo Boabab caves were marked on the map. Historic cultural sites were also highlighted including an underground cave joining the Loongitukiae hill and pond, as well as the Orpul site – a place where Maasai men used to go to eat meat for medicinal purposes.

There tends to be enough water in the area during the wet season for local needs, assisted by a number of small dams and over 20 shallow pans. However, during the dry season water is scarce, and it is common for pastoralists from Ng'abolo to take livestock to the neighbouring village of Ndedo to access water. The only alternative is to purchase water – a 20 litre jerry is sold for between 1-1500 TShs. Households may spend up to 200,000 TShs per dry season on water – the equivalent of a yearling cow.

Reflecting the changing times, participants also mapped a point where the mobile phone network is. Accessible communication technologies are increasingly important as pastoralists explore new opportunities such as livestock marketing.

Ng'abolo Village has a reciprocal arrangement with Ndedo Village during the dry season; Ng'abolo is provided with access to Ndedo's permanent water points (including the Oloiypasei charco dam), and Ndedo is provided with access to Ng'abolo's dry season grazing. Despite the agreements, conflicts between land users may occur between visiting pastoralists and resident crop farmers. Customary institutions are not able to facilitate agreements with the farmers who

do not respect traditional mechanisms for accessing land. In addition, uncontrolled movement of livestock is leading to the spread of livestock diseases, resulting in the death of livestock and increased production costs for pastoralists.

The mapping exercise also showed how the villages share resources with other neighbouring villages. Though these agreements are upheld through traditional mechanisms, increasing pressures on land in the area are likely to challenge them. Formalising such agreements may prevent such challenges from occurring.

Lessons learned

Village land use planning is seen as a key factor in securing rights to resources and land for rangeland users. Village representatives have demonstrated keen interest in finalising the VLUP process and securing certification of village lands.

Allocation of grazing areas and sharing of resources within the village and also with outsiders were discussed. The mapping exercise across contingent villages confirmed the need for cross-village agreements as part of village land use planning processes, in order to better protect traditional reciprocal arrangements for resource sharing.

The mapping highlighted the large area that has been encroached by agricultural settlers which triggered an animated discussion amongst participants and a call for assistance from the local government and NGOs to deal with the issue. It also highlighted the need for involving all actors, including new community groups such as 'illegal' settlers, in negotiations over boundaries and land use. The in-depth knowledge of the local land users about their lands and resources was confirmed during the mapping process. Consequently, the importance of incorporating this knowledge into land use decision making processes became evident.

The discussions that followed the mapping highlighted many community needs including dip-tanks, cattle troughs, reliable sources of water, and vaccination and treatment centres.

There is also need for strengthening the authority of customary institutions and leaders to work with government bodies to control access to village resources, and to enforce boundaries and by-laws. This includes provision of information on land rights and how they can be enforced.

Benefits of the process/methodology

The community members who took part in the mapping exercise agreed that the process allowed them to reflect on their resource use and the challenges facing them, together with the opportunity to confirm their village boundaries. Groups were surprised at in-depth knowledge that women in particular had of resources in the area and their use. Though Village/District Councillors were relied upon to draw the official administrative boundaries of the villages on the map, it was clear that the perception of the villagers (both men and women) was closely related to these boundaries showing the in-depth spatial knowledge that they have. It was agreed that the exercise was a good starting point for village land use planning.

The government representatives also felt that the exercise would make a useful addition to the process of evaluating opportunities and obstacles to development (O&OD) and VLUP, allowing a better understanding of resource distribution and use of resources, offer a good starting point for discussions and negotiations over zoning of different land uses.

Recommendations and next steps

Recommendations

The rangeland resource mapping undertaken in Kiteto proved to be a valuable exercise. It highlighted and added value to the wealth of knowledge that local communities have about their land, its resources and their use. This knowledge should form the basis of decisions about how such land and resources are used and developed in future. This may be within O&OD exercises and VLUP.

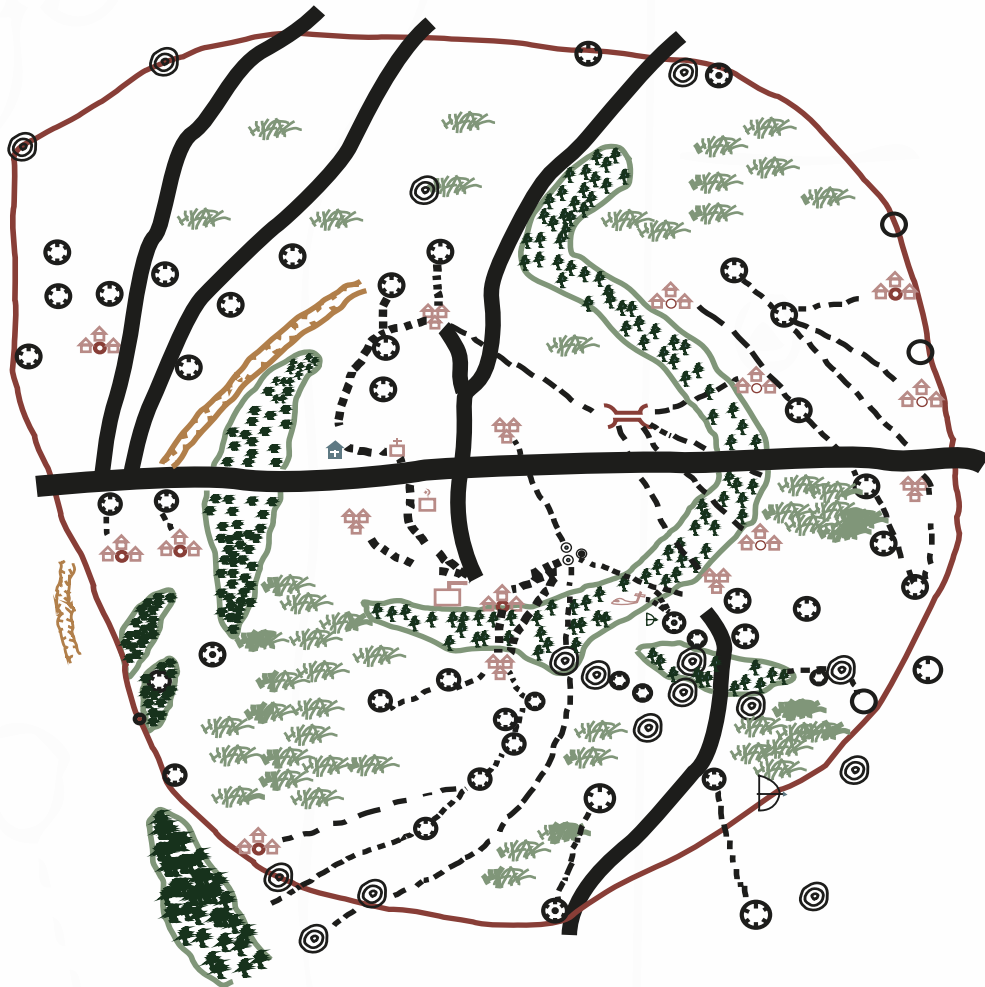
The mapping exercise also showed how cross village movement of livestock and pastoralists continues despite administrative borders; sustainable pastoral production requires access to a range of resources at different times of the year highlighting the need for a landscape planning approach. Though such an approach may be challenging from an administrative perspective, encouraging villages and government officials responsible for administering such villages to work together and to understand, establish and, where necessary, formalise cross village agreements represent a very positive step in this direction.















Participatory rangeland resource mapping should be incorporated into VLUP guidelines, as a valuable second step in the process so improving understanding of current land/resource use and thus decisions made pertaining to it.

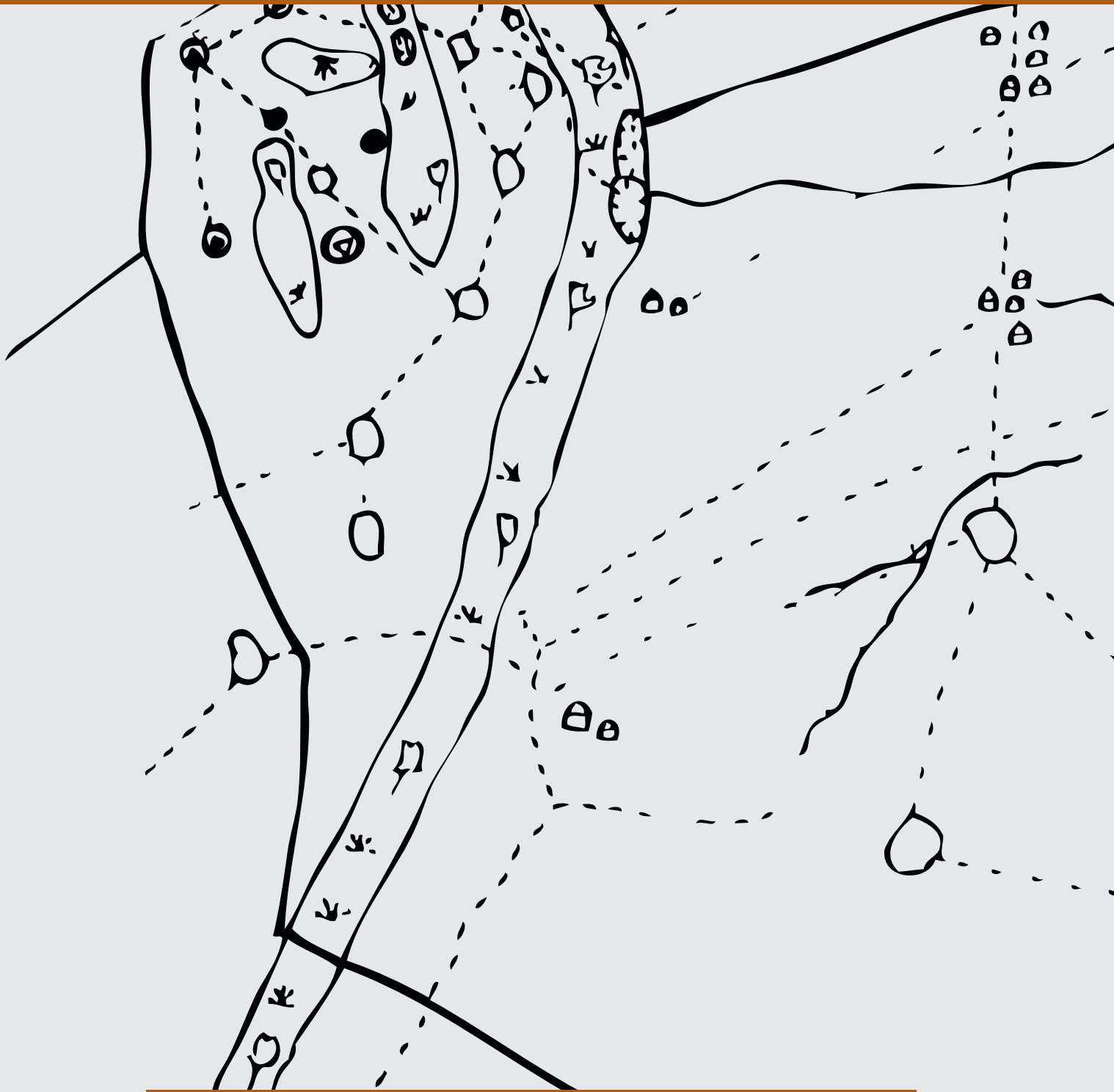
Next steps

The SRMP, through the Pastoralist Basket Fund, will continue to work towards improving the implementation of VLUP in order to improve pastoral systems and sustainable rangeland management. It aims to facilitate further participatory rangeland mapping in the other Districts where it works. It is also assessing the opportunity of 'ground-truthing' the participatory maps and digitising them through GIS. In doing so it may further legitimise the maps in the eyes of the government, and make them more suitable as an ongoing and useful planning and monitoring tool.

Ndedo Village Livestock Resources



	Livestock routes		Gully
	Hills		Mountain
	Village boundaries		Pond
	Settlement		Dam
	Households		Deep borehole
	Livestock market		Mosque
	Water tank		Church
	Airport		Dispensary
	Grazing area		Hunting block
	Farming area		Road



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