



ICPALD



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REPORT ON

PARTICIPATORY MAPPING OF KEY SHARED RESOURCES AND ECOSYSTEMS IN CROSS-BORDER AREAS OF KAABONG UGANDA, KAPOETA EAST SOUTH SUDAN, KURMUK ASSOSA ETHIOPIA

Uganda, South Sudan & Ethiopia
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1.0 Background

The IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), in collaboration with partners, is currently carrying out a project focused on Sustainable Ecosystem Management (SEM) for pastoralism in cross-border areas of the IGAD region. The primary objective of the project is to enhance the resilience of pastoralist and agro-pastoralist livelihoods through sustainable management and the use of shared rangelands in cross-border areas of the IGAD region. The project is specifically being implemented in the cross-border areas of Kapoeta East County (South Sudan)-Kaabong District (Uganda) and Benishangul-Gumuz Region (Ethiopia)-Blue Nile State (Sudan), corresponding to the shared ecosystem and transhumance routes.

Shared Communal Resources and Need for Mapping

The movement patterns of pastoralists in the project target areas are mainly influenced by effects of climate change. These effects are forcing pastoralists to cross international borders in search of better pastures and resources. This has led to a decline in the quality and quantity of vegetation, as well as water scarcity.

Pastoralists and agro-pastoralists traditionally cross international borders to access rangeland resources, especially during severe drought. However there has been little attention given by member states to promote better utilization of such shared communal rangeland resources. The rapid degradation of cross-border natural resources like rangelands, wildlife habitats, forest ecosystem, wetlands, and water bodies undermines the long-term resilience of the ecosystem and communities. It is important to document historical land cover and usage over time.

It is crucial to map out shared resources such as water, forests, rivers, grass, shrub, wetlands and minerals, and associated infrastructure in SEM project target areas. This will help to initiate or strengthen communal management and governance system to facilitate sustainable rangeland use. Developing a management plan implemented by groups of pastoral and agro-pastoral users will help define how the shared resource is used, accessed, and managed. Mapping cross-border rangelands and other resource will help in developing agreements to ensure that the use, access, and management of the areas covered by shared resource are well planned and not abrupt.

Main Objective

Conduct a collaborative mapping of key shared resources and related infrastructure in cross border project areas.

Specific Objectives

- a) Conduct participatory mapping of shared resources like water bodies, grazing areas, forests, wetlands, minerals etc., considering past and present trends and the effects of climate change, including the extend of degradation in the last three decades.
- b) Map out associated infrastructures like roads, water facilities (pans, valley tanks, boreholes, dams etc.), livestock markets [formal & informal] etc and alternative/ diversified livelihoods availability.
- c) Map out livestock movement patterns to and from shared resources.

2.0. Scope of the Study Area

The field exercise focused on the cross-border areas of Kapoeta East County (South Sudan)-Kaabong District (Uganda) and Assosa, Benishangul-Gumuz Region in Ethiopia. The primary livelihood in these arears is pastoral and agropastoral, with a relatively high population of livestock, including cattle, sheep, goats, and camel. The communities rely heavily on the existing natural resources that span across the country borders. The vegetation in these arears primarily consists of shrubs, woodlands and grasslands, making them suitable for animal grazing.

3.0 Methodology

The data collection methods for the exercise included participatory GIS mapping, group discussions, field interviews, expert opinions, GPS mapping, remote sensing technologies, and secondary spatial data.

Participatory Mapping

Participatory GIS mapping aims to reveal the connection between land and local communities and provide a better understanding of land and resources in order to improve management practices. It has proven to be an effective technique for collecting data, as it captures the perspectives of communities and how they interact with the environment. The sessions involved participants from district/county level, including technical officers from local administration, line ministries/departments (Livestock, Natural resource, Health, Water, Education, Agriculture, Veterinary, Community Development), and local organizations. The community sessions consisted of local pastoral community-elders, as well as women and men within the localities.



Community participation in the mapping exercise in Kurmuk, Assosa



Technical officers' consultation in the mapping exercise in Kaabong

GPS Mapping

The Germiné GPS device was used to record location coordinates of associated infrastructure facilities, livestock trade facilities in Kaabong, Kapoeta East and Kurmuk, Assosa. The GPS data was used to generate thematic maps.



GPS coordinates recorded for a dam in Kurmuk, Assosa

Land Cover Change Analysis

The analysis involved obtaining satellite image from Landsat 8 of 30-meter spatial resolution, and a download of time series imagery for Kapoeta East, Kaabong and Kurmuk. Satellite image preparation involved layer stacking of band, band composite, and mosaicking for each area of interest. The satellite images were then classified into meaningful features of land cover types. Supervised classification in ArcGIS software.

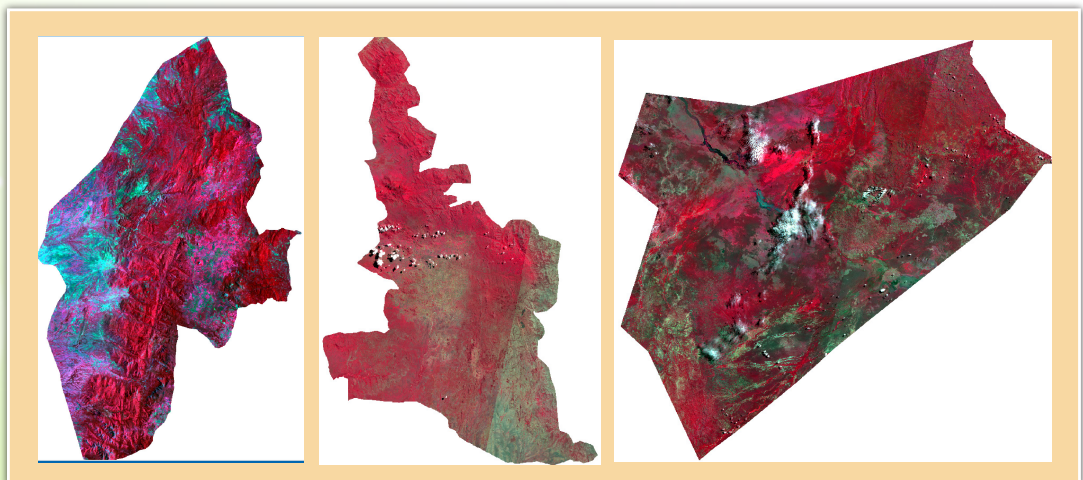


Figure 1: Landsat satellite data of Kurmuk, Kaabong and Kapoeta for land cover analysis

4.0 Findings

4.1 Mapped Shared Rangeland Resources:

Grazing Areas

Pastoralists typically access grazing areas located along riverbanks, hill/mountain ranges, swamps, or areas near permanent water source. These areas are usually utilized once the normal and wet season grazing areas have been depleted.

To identify and map the animal grazing areas, a participatory approach was adopted. Technical Officers and local elders from Kaabong District, Kurmuk District and Kapoeta East County convened a meeting to identify such areas on a map of such targeted areas. The resulting maps will aid in developing management plans for the communal grazing areas to ensure proper use and management by pastoral users.

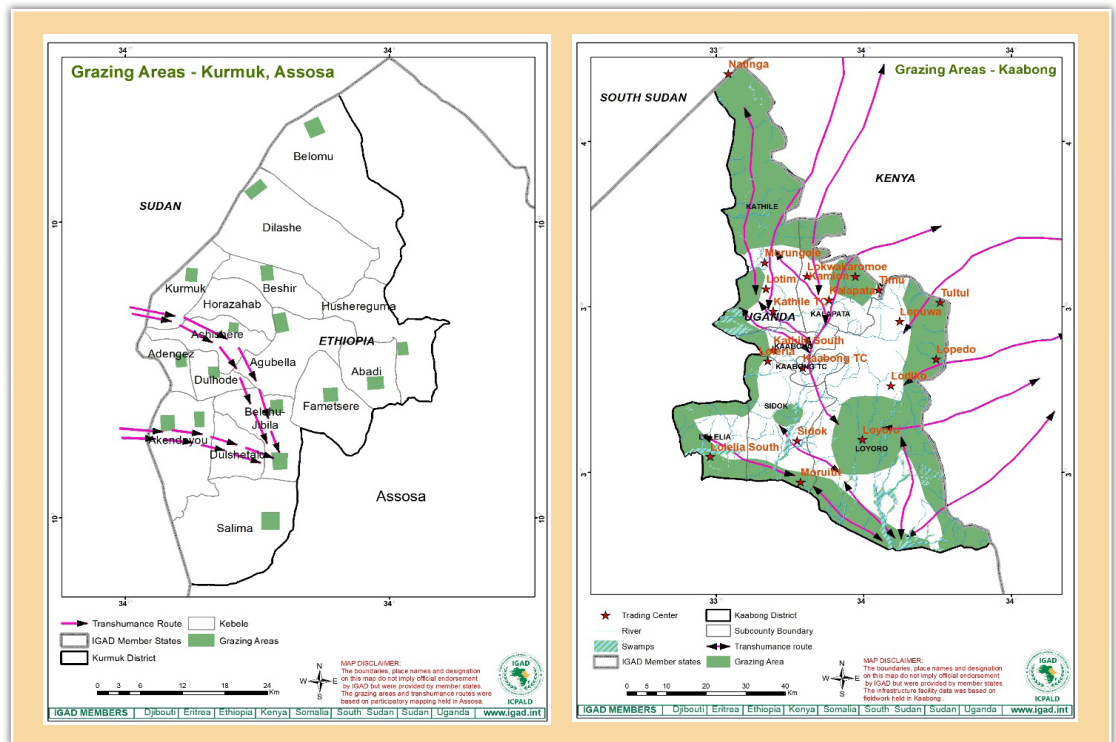


Figure 2: Mapped grazing areas in Kurmuk and Kaabong

4.2 Infrastructure Facilities

Associated Infrastructures

Mapping of associated infrastructure will help to visually display the distribution of various infrastructure components within the cross-border areas and livestock movement corridors. This will provide valuable information for proposed investment options in these areas. The associated infrastructure includes water facilities such as pans, valley tanks, boreholes, dams, as well as livestock markets (both formal & informal, border points, sale yards, warehouse, holding grounds, slaughter yards, primary & regional markets) and alternative/ diversified livelihoods availability.

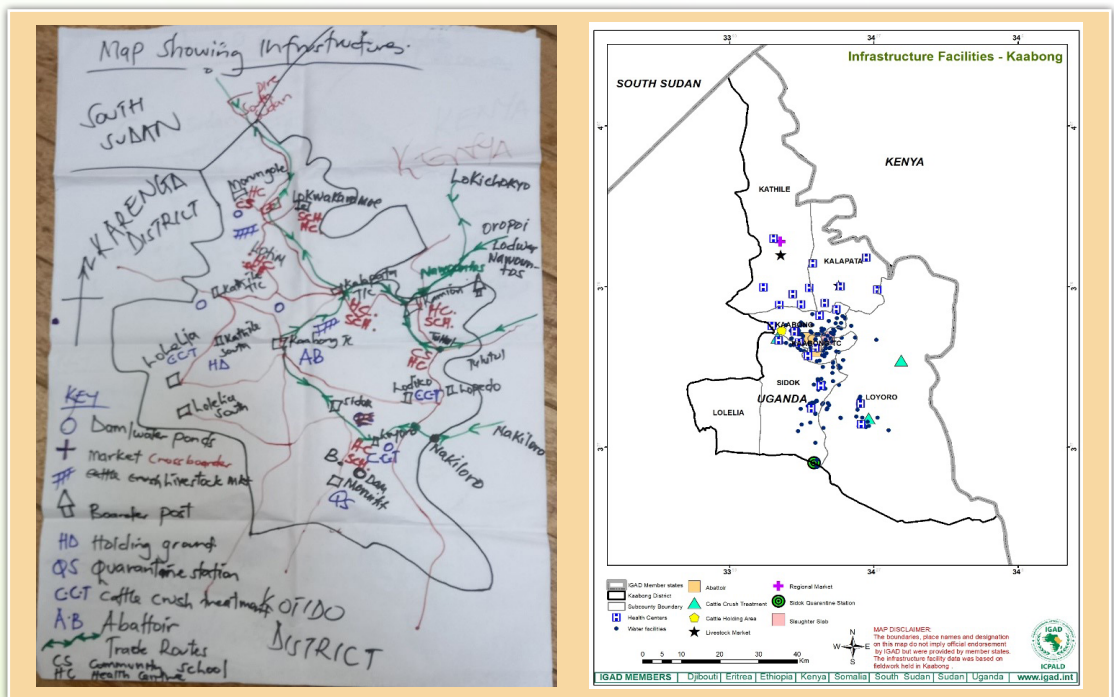


Figure 5: Map of infrastructure facilities in Kaabong

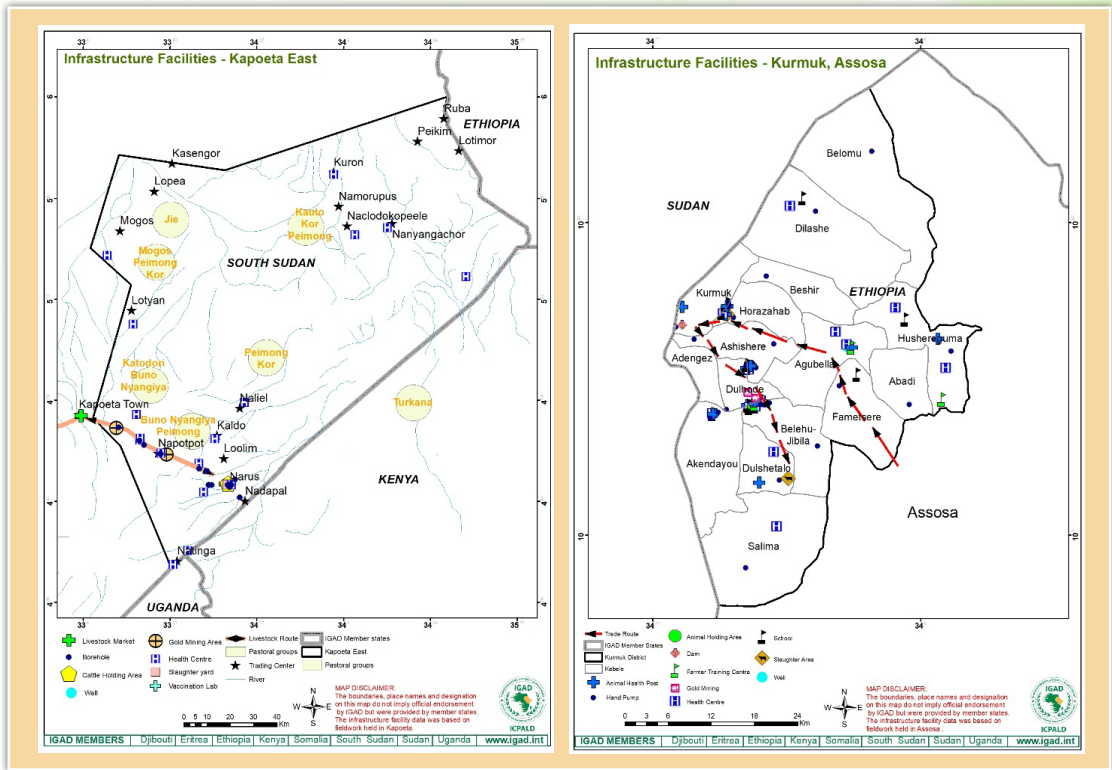


Figure 6: Map of infrastructure facilities in Kapoeta East and Kurmuk District

Trade Routes (Livestock Trade Routes)

The livestock market in the region are accessible to pastoralists via trade routes, as illustrated in figure 6. The major livestock markets include Kapoeta town, Narus and Dulshetallo. Livestock from Assosa are brought to Dulshetallo through Horazahab, while the livestock maret in Kapoeta East is accessed from Nadapal through Narus to Kapoeta town, Boma, Kuron through Lotiyam to Kapoeta town.

Transhumance Routes and Pastoral Mobility Conflicts

It was considered important to map the transhumance routes as a pre requisite for identifying the cross-border routes, services and resources using GIS and participatory mapping approaches. This will allow pastoralists to take advantage of predictable changes in pasture quality and availability. By being mobile, pastoralists can make the most of a resource base that varies in both space and time, leading to improved productivity and healthier livestock and rangelands. Corridors, by providing passage routes, help pastoralists maintain access to dispersed resources during different seasons, thus playing a central role in maintaining the complementarity and integrity of pastoral resource.

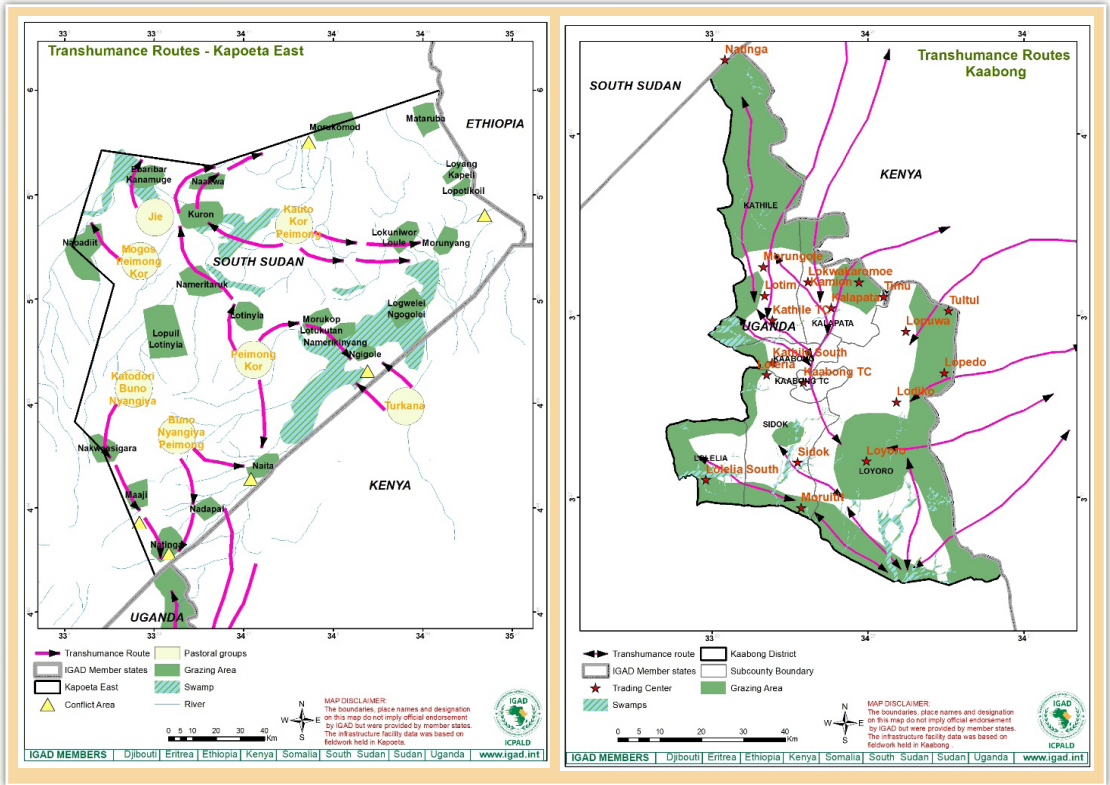
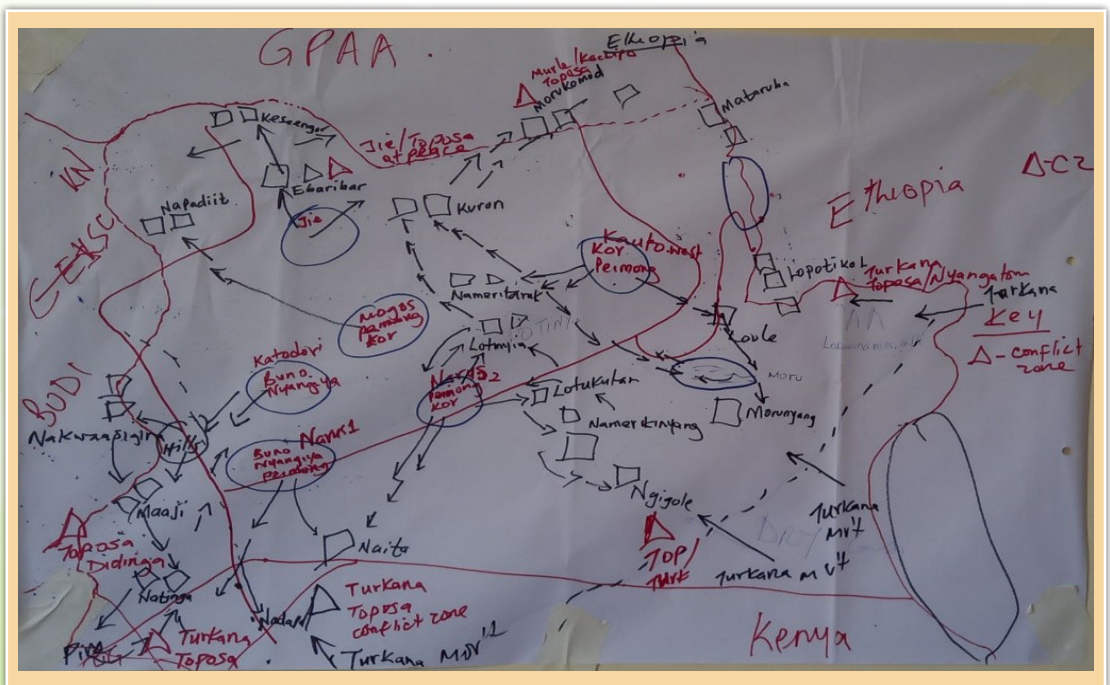


Figure 7: Pastoral movement patterns and conflict zones in Kapoeta East and Kaabong



Pastoral movement patterns and conflict zones in Kapoeta East

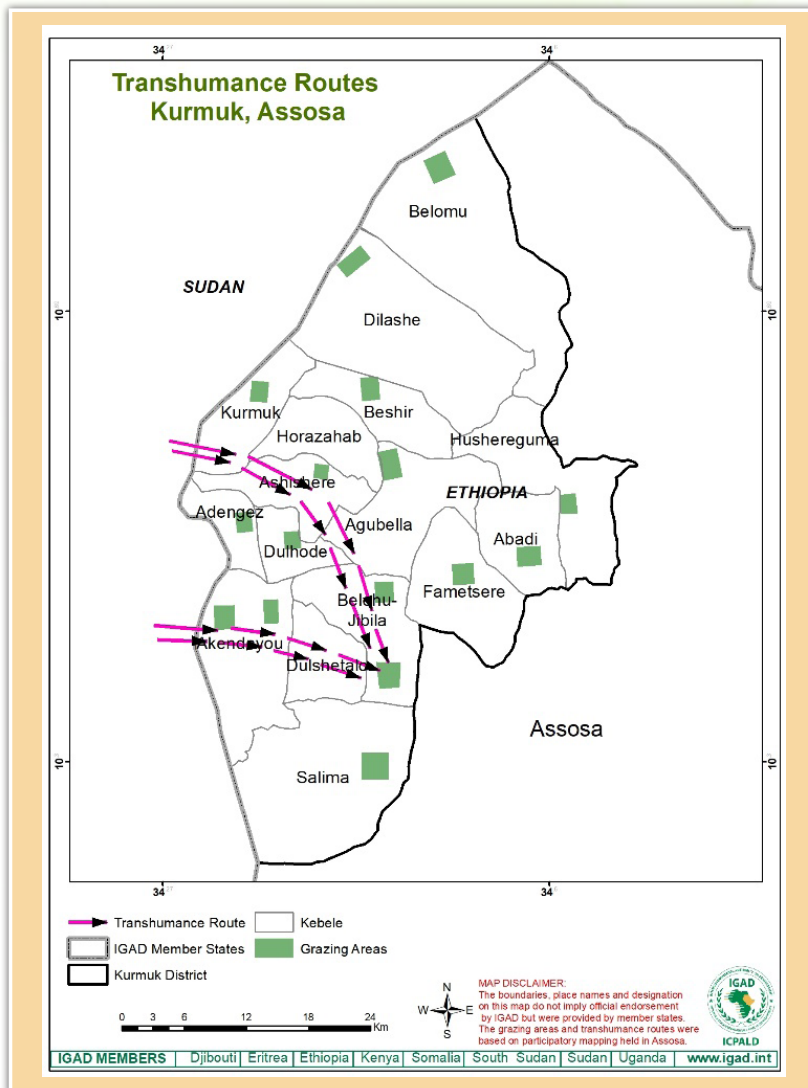
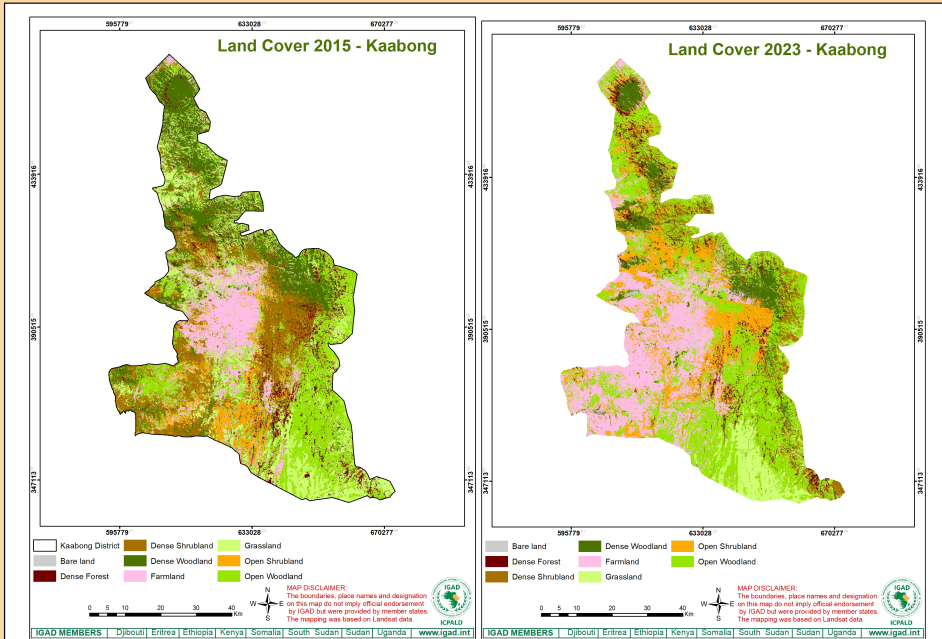
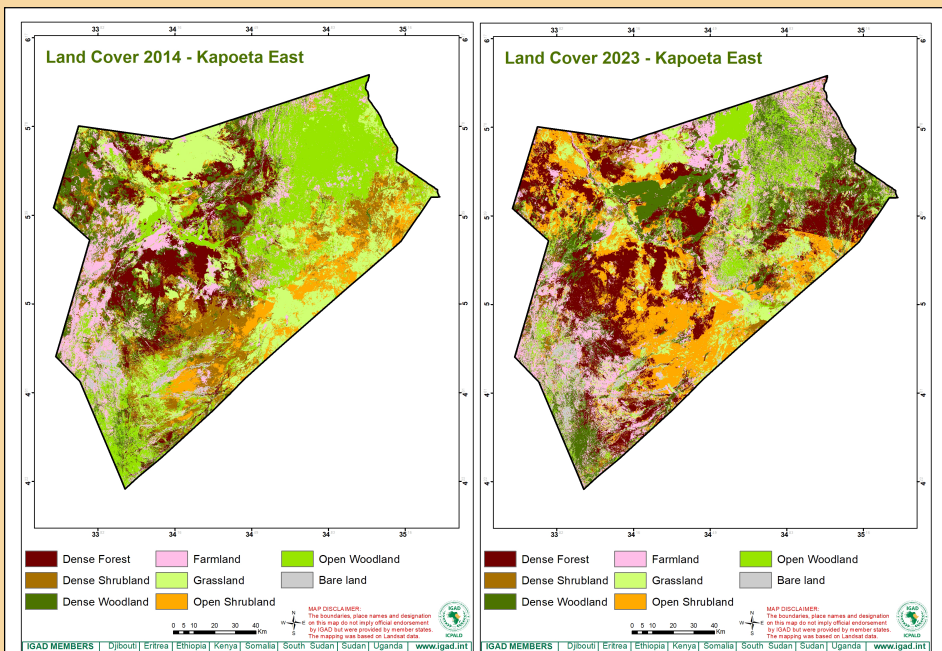


Figure 8: Pastoral movement patterns Kurmuk, Assosa

4.3 Land Cover Change Analysis



Results of the analysis revealed that during the last eight years, Kaabong has undergone an extensive land cover change. A shift from open woodland, shrubland and grassland into farmlands. Thus, quantitative land cover change detection revealed that open woodland, shrubland and grassland, and bare areas have declined. This could be attributed to the decline in the number of livestock where herdsmen have resorted to crop farming.



Over the past nine years, the analysis revealed that there has been a change in land cover in Kapoeta East. This change mainly involves transition from open woodland and grassland to farmlands. There has been an increase in dense shrubs to open shrubland and bare land in certain areas possibly due to over grazing.

5.0 Conclusion and Recommendation

The participatory mapping approach has been effective because it involves a wide range of stakeholders. It is community-based and allows participants to interpret, discuss, identify, map, and harmonize key cross border routes, resources, and associated infrastructure within these cross-border areas. This information will strengthen communal management and governance system to facilitate sustainable range land use.

Detailed mapping of degraded hot spots and threats to the identified resources to inform priority interventions during preparation of management plans.



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