Linking time and space in understanding pastoral mobility in the drylands of Eastern Africa

This discussion is based on the pastoralists production systems from the drylands of East Africa with specific example from southern Ethiopia. In these drylands, pastoralism is the main livelihood system depended on by over 70% of the population because due to the high variability in rainfall, it cannot sustain crop agriculture except in small pockets of areas. In this region, pastoralism is not only a livelihood source but closely linked with the people's cultures and identify. The production system remains the most sustainable form of livelihood as the livestock track nutrient fluxes that occur across the rangelands following the highly variable rainfall patterns.

Figure 1: Photos showing variability in fodder availability in different seasons (photos: Hussein Tadicha)

In these highly variable environments, keeping the livestock mobile is the main production strategy that enables the pastoralists to provide the livestock with required nutrient. The practice of livestock mobility is complex and is guided by extensive knowledge of the grazing land and the livestock. The understanding of livestock mobility of space and time has been generally limited mainly by the methods used to understand it. Often livestock mobility is portrayed in various writings using arrows that depict the seasonal movement patterns which oversimplifies and cannot provide the proper context. Such simplified presentation of mobility limits understanding of linkage between herders and their knowledge of places that guides mobility. There is need therefore for methods to contribute to understanding of mobility in details and at multiple scales over time.

In one of our research projects, we used Google earth image that provided a visual prompt for the herders to establish a detailed understanding of the grazing areas and seasonal mobility across was mapped using GPS devices that were carried by the herders. The use of Google earth provided visual basis for understanding of how the grazing areas are divided into units with different characteristics and the units were geo-referenced.

The method revealed the different degrees of mobility constraints that herders from different sections of the grazing areas faced and they reorganized the use of the grazing lands based on

the constraints. The areas that are highly constrained showed the livestock being grazed in all the areas around the year, with shorter mobility distances during the day. The communities respond by setting out areas where grazing is avoided over a certain period to preserve for later use.

Using the GPS tracking, we were able to visualize the grazing constraints by showing the grazing tracks on the grazing units mapped by the herders on the Google earth image. The grazing tracks also provided understanding of the use of social controls in access to grazing units and water points in order to manage the seasonal availability, which elaborates the daily decisions by herders as they manage livestock feeding in the highly variable environments. It also helped to bring out the disparities between regulations and practice and explanation sort.

In conclusion. We submit that the participatory nature of the methods used in the study enabled herders involved in helping us understand livestock mobility in different contexts. The different methods, from mapping to understand rangeland units and its characteristics to GPS mapping that provided daily mobility patterns, built on to each other thus enhancing the results. Looking at the varied scale – communal and individual levels of herd mobility provided better insight towards understanding of herding and mobility decisions. This is important as even individual households within the same system, specialize in making use of different sets of scales. Such studies can further benefit from improvement in tracking devices for real time itineraries over extended periods.