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“Solidarity in a competing world —  
fair use of resources”

## Relationships of Ecosystem Services in Pastoral Economy

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### Abstract

Pastoral market integration has been encouraged with different levels of success. Using the community capitals framework, we assessed direct and indirect ecosystem service (ES) fluxes between natural capital, human well-being (HWB) and market economy in order to better understand which ES can be transformed. Through a survey involving 315 households in 8 pastoralist territories, pastoralist practices, ES and services from the HWB towards the natural capital, have been categorised and partly quantified. Indirect ES, those which are being transformed once entering the economy as marketable product (milk, meat, charcoal), are competing in a pastoral economy with free accessible direct ES. To which extent a pastoral economy would be elastic to substitute direct with indirect ES and at which point value addition would become economically efficient? The pastoral system is characterised by low degrees of dependency towards external inputs. From the assessed pastoralists, 51 % did not have a livestock market nearby, while 27 % had between 2–6 sales outlets for their animals. While livestock itself was not frequently sold, other livestock commodities, such as cheese, milk, or ghee, were more frequently traded. Although 12 % of the pastoralist did not trade livestock products, the bulk (75 %) sold their animal products in 2 to 7 outlets. The majority of the households sold their produce in rural markets, with exception of butter, ghee and cheese which was sold in urban markets, showing that urban markets are accessed with livestock products including value addition.

The framework assists to recognise that the interaction of humans and natural capital is the basis of pastoralists livelihood: there are plenty of ES that supply the HWB system, while HWB is providing services to protect the nature. Indirect ES, transformed in market economy, are sometimes opportunistically used, where economic efficiency and elasticity proofs to have an advantage. This occasions are not frequently found, since opportunity costs are often not favourable. In the case of ghee, cheese, however, pastoralist found niches that are increasingly exploited. In order to pursue and support pastoralist integration, we recommend an economic analysis on efficiencies and trade-offs of various promising ES based commodities.

**Keywords:** Community capitals framework, ecosystem services, market integration, pastoralism, trade