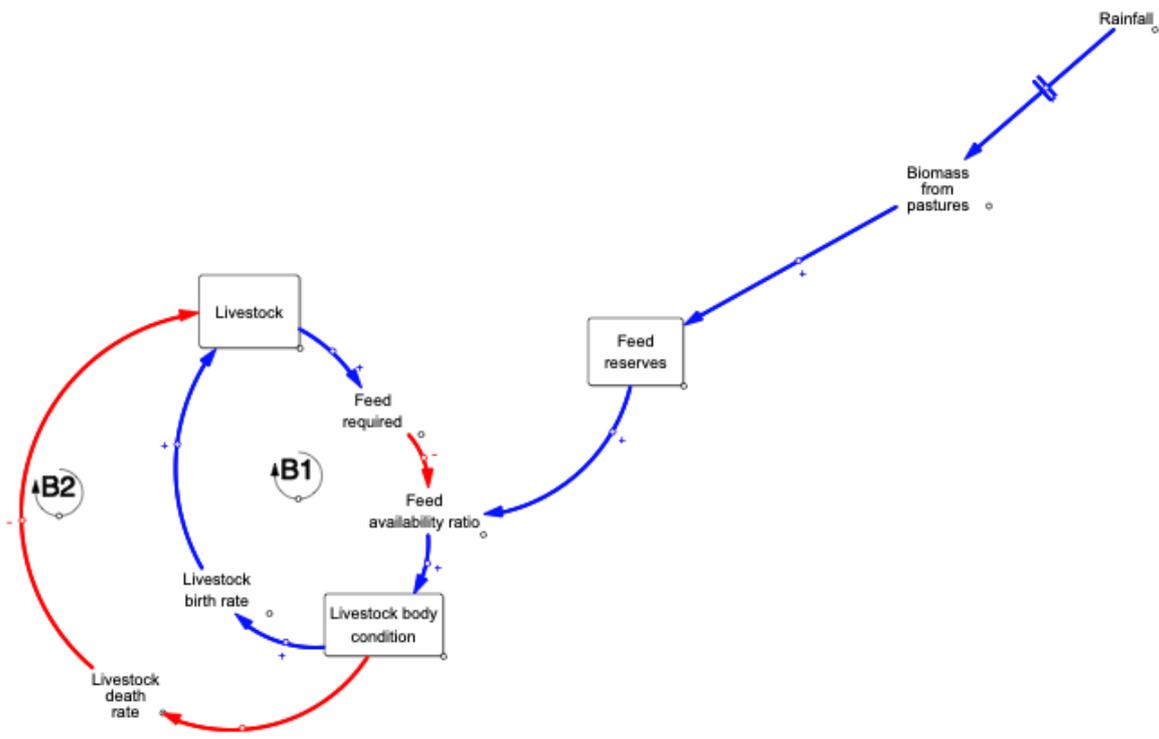


The Agropastoralist Policy Lab (ApPL): analyzing the impacts of drought on rural Somalia and its policy implications

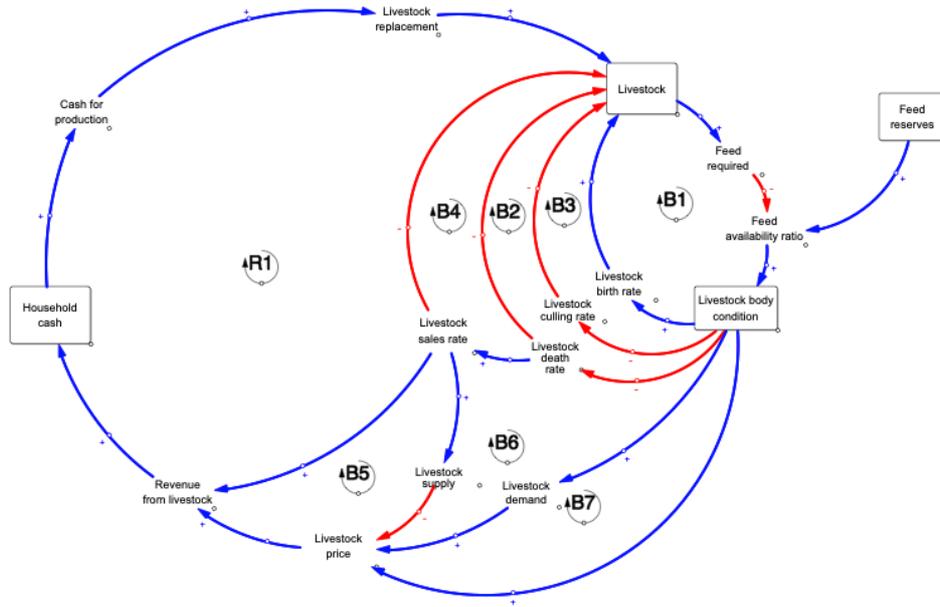
Supplementary Material: CLD description

Keywords: WIP, Humanitarian dynamics, Food security, Resilience, livestock, Small-farmers, Quantitative modelling, Qualitative modelling, Policy analysis, Stochastic optimization

Loop #	Loop name	Illustration
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B1	Herd growth on pastures	The more animal feed there is, the better the body condition is (based on a 5-point PET scale), the higher the birth rate of livestock, and vice versa
B2	Herd lifespan on pastures	The higher the body condition, the lower the chances are an animal will die, and vice versa



B6

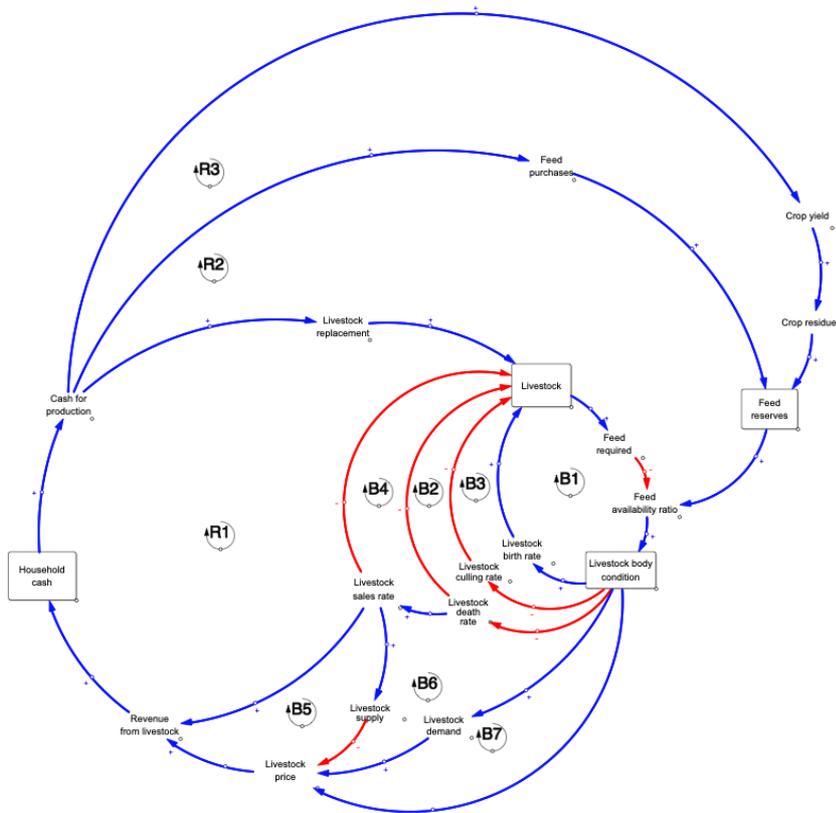
Livestock demand effect on price

Intermediaries are less likely to purchase low body condition livestock, thus demand usually drops when agropastoralists are destocking, and vice versa.

B7

Body condition effect on price

Lower body condition of livestock means it is sold for a lower price, and vice versa



R2

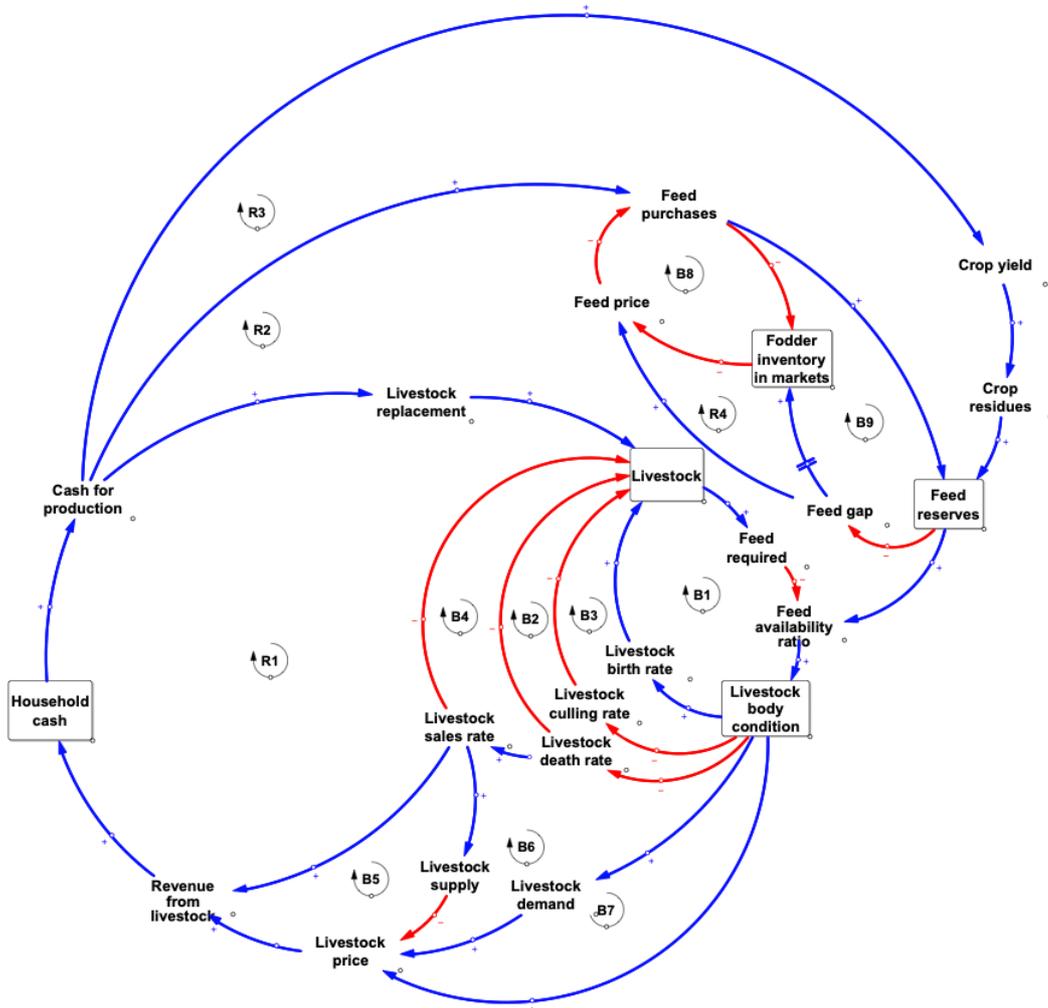
Alternative feed

Households can purchase fodder in the marketplace, subject to household cash resources as well as fodder price during drought (can go up to x5)

R3

Agricultural animal feed

Crop residues can be used to provide a source of animal feed for livestock, complementing rangelands



B8

Price effect on feed demand

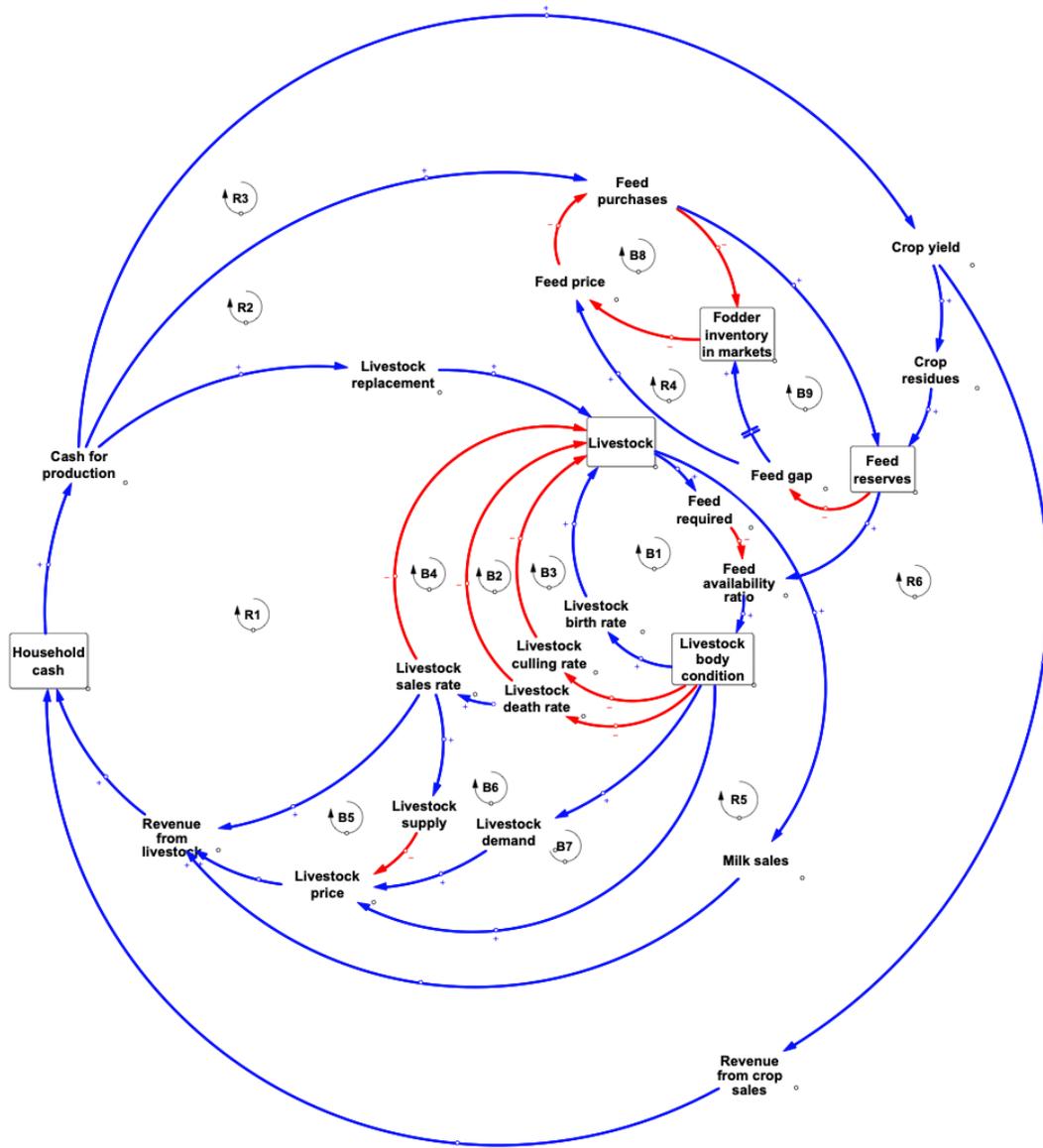
B9

Supply capacity adjustment

R4

Effect of feed purchases on price

The increase in demand for alternative feed results in the price of fodder increasing. This, in turn, reduces the ability of households to purchase feed per unit of cash. The increase in feed reserves increases feed gap, signaling to the markets to adjust their inventories and vice versa. Markets adjust to changes in demand for fodder but at a delay. Increased supply reduces price which increases the fodder tonnage bought by agropastoralists per unit of cash.



R5

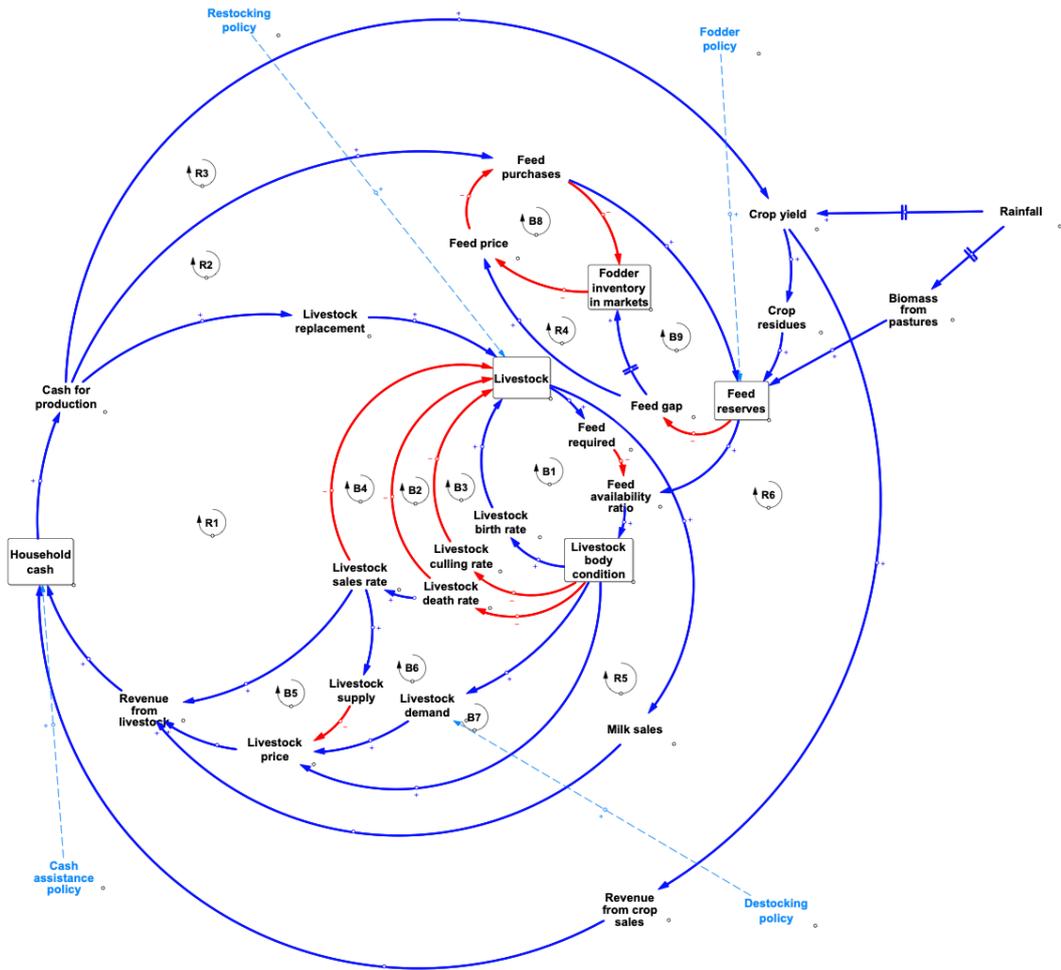
R6

Livestock products

Agricultural production

Milk produced and sold are a function of the number of female livestock are in the herd, in addition to other factors (e.g. calving ratio: if no livestock give birth in a specific season they would not produce milk)

Growing crops generates income for the household, which can be reinvested into agricultural activities or used to invest in livestock activities



- P1**
- P2**
- P3**
- P4**

Cash assistance policy Supporting households directly via cash transfers

Fodder assistance policy Supporting households directly by purchasing fodder and granting it to agropastoralists

Destocking policy Supporting households indirectly by providing cash for intermediaries to boost demand for livestock when households are destocking

Restocking policy Supporting households directly by providing them with livestock with the first rain after a drought season.