



Mazingira Centre: A state-of-the-art environmental research infrastructure in Eastern Africa

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Measurements of greenhouse gases (GHGs), performed in various terrestrial and marine ecosystems have led to a fundamental understanding of the Earth System during the last century. While there are numerous extant long-term measurements of GHGs across the globe, these are mainly located in developed countries of the northern hemisphere, leaving large regions such as Sub-Saharan Africa (SSA) without a consolidated observational network. Moreover, in SSA also infrastructures capable of measuring GHGs following best scientific practice are lacking.

The Mazingira Centre – a state-of-the-art environmental laboratory – hosted by the International Livestock Research Institute in Kenya has been established in 2013. The laboratory is equipped with state-of-the-art GHG measurement technology (gas chromatographs, animal respiration chambers, laser absorption spectrometers) and aims at providing fundamental environmental data (e.g. GHGs and auxiliary information) from the most common land-cover types in Eastern Africa and beyond. Thereby a special focus is given to mixed crop-livestock systems managed by smallholders. The first results from the activities of the Mazingira Centre show much lower GHG emissions from manure management and arable systems as commonly assumed using emission factor approaches (EFs). This highlights the need of direct, in-situ measurements from all land-cover types and agricultural systems in Eastern Africa.

The Mazingira Centre is furthermore a core training facility for undergraduate and graduate students, technicians as well policy makers that report GHG emissions to the UNFCCC with reliable and accurate emissions factors.