

# Poverty and ecosystem service impacts of Tanzania's Wildlife Management Areas (PIMA)

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## Evaluating CBNRM

How well does community-based conservation work, for whom and under what circumstances?

Community-based natural resource management (CBNRM) and payments for ecosystem services (PES) initiatives are proliferating throughout the Global South. In theory, they enable conservation and development goals to be met simultaneously in poor rural areas, but there are conflicting views as to how well they work, for whom and under what circumstances.

Several factors contribute to the lack of clarity over CBNRM/PES effectiveness:

- Ecosystem services and poverty are **complex, multidimensional concepts**
- **Trade-offs** between different types of outcome, different stakeholder groups and individuals are common
- **Limited use of qualitatively or quantitatively rigorous impact evaluation approaches**
- Outcomes are **politically sensitive** and contested, and the experiences of marginalised groups are often poorly represented

## Tanzania's Wildlife Management Areas

A country-wide CBNRM initiative

The 1998 Wildlife Policy of Tanzania promoted CBNRM on village lands, leading to the creation of Wildlife Management Areas (WMAs). **By 2012, 17 pilot WMAs had been established**, covering 27,430km<sup>2</sup> of land and involving 148 villages with a population >440,000 people. Twenty-two further WMAs are moving towards formal registration, potentially affecting a further 1.5 million people and bringing ~7% of Tanzania's land area under WMA management. To date, however, the impacts of WMAs remain poorly understood.

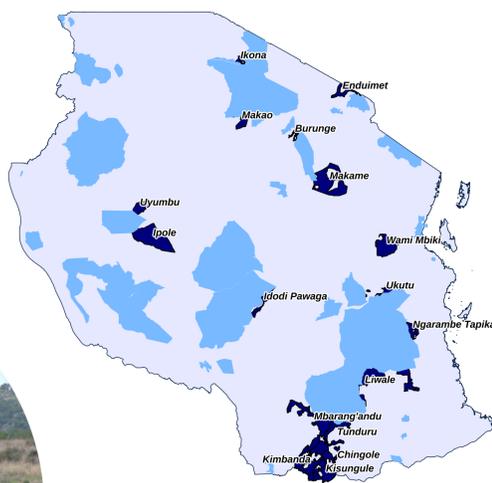


Figure: The location of the 17 pilot WMAs (dark blue) and protected areas (light blue) within Tanzania.



## The PIMA project

An interdisciplinary, mixed-methods impact evaluation using a quasi-experimental design

The PIMA project aims to evaluate:

- The **nature, quantity and quality of ecosystem services** benefits WMAs deliver
- **Governance of ecosystem services** in terms of access to and distribution of benefits from WMAs
- Effects of WMAs on **livelihoods, poverty and wellbeing**

### Interdisciplinary, mixed methods

To address these aims, the project uses:

- GIS-based analysis of **remotely sensed data** and **aerial counts** of wildlife and livestock
- **Focus group discussions, questionnaire-based livelihood surveys** and **resource use histories**
- **Key informant interviews** with local government, WMA representatives and individual users

### Quasi-experimental design

To understand the effects of WMAs, we are employing a **BACI (before-after, control-impact) design**. To construct a valid counterfactual, we are **matching a stratified sample of WMA villages and households to comparable non-WMA units** based on observable socio-demographic, economic and biophysical covariates. Matching reduces the influence of potential biases arising from non-random allocation of WMA benefits and restrictions.

### Improving community-based conservation

PIMA will deliver insights and best practice lessons generalizable to the millions of individuals whose livelihoods and wellbeing are shaped by WMAs and comparable CBNRM/PES initiatives. Our findings will empower rural people making collective and individual resource use decisions and inform national governments and international donors deciding how to invest scarce resources for ecosystem services and poverty alleviation.

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