

NALIKA WMA

Nalika WMA is located in Ruvuma region, Tunduru District, bordering Selous Game Reserve in the north, a Forest Reserve in the east, being one of five WMAs in the Selous-Niassa Corridor. It was registered in 2007 and granted user rights in 2009. Since then the two hunting investors stopped operating. The ten member villages are Rahaleo, Mbugulaji, Kajima, Twendembele, Kindamba, Hulia, Darajambili, Namwiyu, Namakungwa, Ndenyende. Residents are mostly Yao farmers, likely to be affected by WMA restrictions on access to new land for cultivation. By the end of PIMA's research period Nalika WMA had not yet succeeded in securing a contract with a hunting operator that would generate revenues, nor has a game viewing safari operator invested in the WMA.

The PIMA project dissemination note

The **P**overty and **e**cosystem service **I**mpacts of Tanzania's **W**ildlife **M**anagement **A**reas (PIMA) project is an international research collaboration involving University College London, the University of Copenhagen, Imperial College London, Edinburgh University, the Tanzania Wildlife Research Institute, the UNEP World Conservation Monitoring Centre, and the Tanzania Natural Resources Forum. PIMA collected household-level information on wealth and livelihoods through surveys and wealth ranking exercises, supplemented with WMA- and village-level information on WMA governance, including revenue distribution. This information was gathered in 42 villages, both inside and outside six WMA areas, in north and south Tanzania. Wealth ranking covered over 13,500 households. Wealth, assets, and livelihood strategies from both before and after the WMA were surveyed for men and women in nearly 2,000 households (status in 2014-15 at the time of the PIMA surveys; and in 2007, based on recall). Comparing changes over time in WMA villages with similar non-WMA villages, allows us to know whether changes are caused by the WMA or not (Fig 2).

Map of Nalika WMA



Fig. 1: Map of Nalika WMA (white). Village borders are estimates, based on georeferenced village maps, GIS shapefiles from NBS, WWF, TANAPA. Compiled by J. Bluwstein.

Fact box: Nalika WMA

| | |
|-----------------------------|-----------------------|
| District | Tunduru |
| Member villages | 9 |
| Population | 14,612 |
| Area | 1,432 km ² |
| Year registered | 2007 |
| Authorised Association (AA) | Nalika |

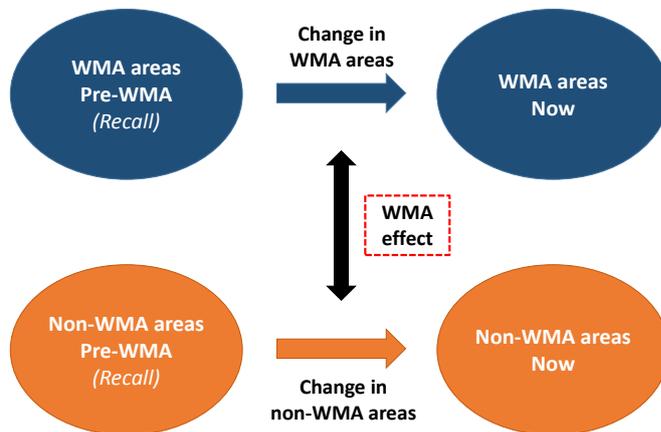


Fig. 2: How PIMA can tell what changes WMAs caused

Revenues in Tunduru Nalika WMA

- The revenues from different types of fees are meant to be distributed according to Wildlife Regulations 2008 and 2012 (Fig 3).
- A share of tourism revenues goes to central (*black*) and district (*white*) government
- The rest is returned to the WMA, which can keep half (*hatched*) and distributes the rest among the member villages (*light grey*)
- WWF (2014) reports annual WMA revenues spanning from USD 2,600 to 17,000 between 2008 and 2012. These revenues are shares from government-run hunting blocks. Nalika villages received around USD 250 annually from the AA in the last three years

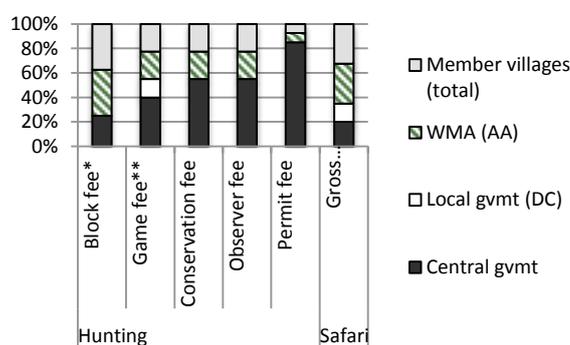


Fig. 3: allocation of total income from hunting and photographic tourism fees according to Wildlife Utilization Regulations 2008 and Wildlife Regulations 2012

Livelihood changes in Tunduru Nalika WMA

Wealth

- Based on local perceptions, Nalika households were classed as 'very poor', 'poor', 'normal' and 'rich' for 2014 and (by recall) for 2007
- Fig. 4 illustrates how, on average, more households in WMA villages have become richer between 2007 and 2014, than in non-WMA villages
- Especially, more WMA households in the 'very poor' and 'poor' category increased their wealth compared to non-WMA households

* The WMA can negotiate higher block fees, of which it can keep 100% of the premium they negotiate. **The highest game fees are for elephant trophies: between US\$10,000 - US\$25,000, depending on the size. *** collected by central government, then distributed to WMA after taxation. Fees include concession fees, bed fees, wildlife activity fees, vehicle entry fees, etc

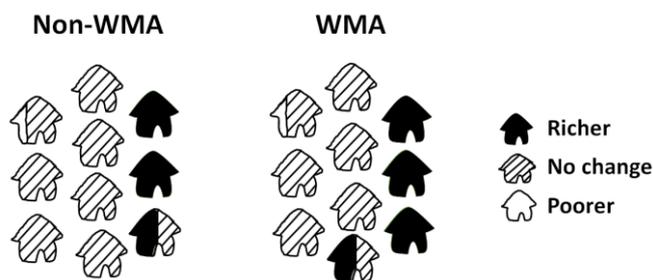


Fig. 4: Changes in wealth between 2007 and 2014. In WMA areas approximately 3.5 in 10 households have become richer and <1 poorer. In non-WMA areas, for every 10 households, approximately 2.5 have become richer and <1 poorer.

Access to NRs and environmental income

- Access to natural resources (NRs) means the extent to which rules and regulations constrain or help households' use of wild products such as firewood, poles, honey, wild foods etc. for consumption or sale 'Environmental income' means income from collection and/or sale of NRs.
- Relative to other environmental goods, income from construction material decreased more in WMA than in non-WMA villages between 2007 and 2014. By contrast, income from firewood increased more in WMA than in non-WMA villages (Fig 5)
- With almost no use of charcoal, wild fish, wild honey, timber and bushmeat reported, these are not shown in Fig. 5
- According to some residents, access to firewood, construction material, livestock grazing and water has become worse in both WMA and non-WMA villages. Others report access has stayed the same.

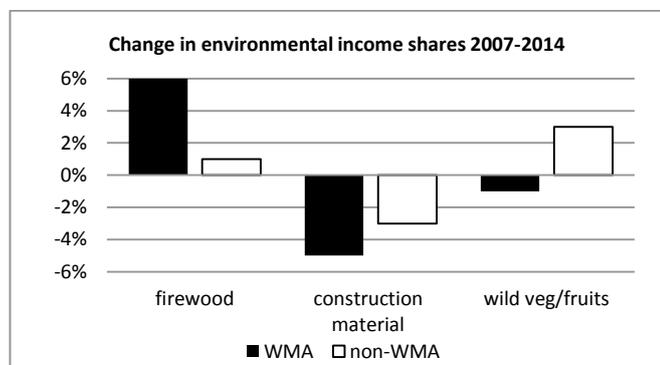


Fig. 5: Change in environmental income shares 2007-2014

Livelihoods

- NR-based activities (agriculture, livestock keeping, wild products) contributed 84% of total income of Nalika WMA households in 2014, and 76% in non-WMA households (Fig 6)
- Between 2007 and 2014 there is a more marked decrease in non-WMA than in WMA villages in the proportion contributed to livelihoods by NR-based activities (Fig 7)
- The loss of income share from agriculture, livestock and wild products is partly compensated by increased reliance on wages, business and remittance income (Fig 7)

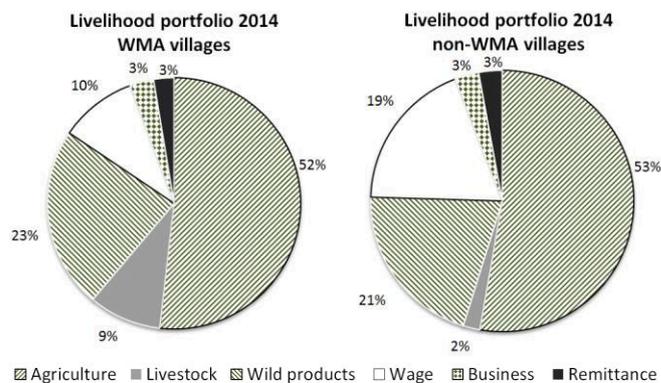


Fig. 6: Shares (%) of total income (full circle) earned from different activities in Nalika WMA and non-WMA villages in 2014

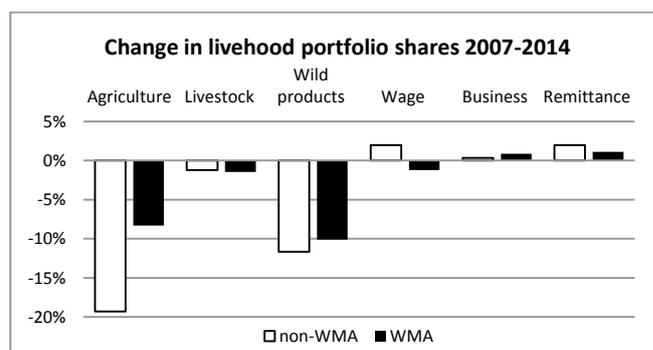


Fig 7: Change in livelihood portfolio contributions from 2007 to 2014 in WMA and non-WMA villages

Farmland

- Agricultural land is measured relative to household size and composition, and reported in terms of area per 'adult equivalent' (AE)¹
- WMA and non-WMA households on average have a similar amount of farmland per adult-equivalent (WMA: 0.69 acres/AE, non-WMA: 0.62 acres/AE)
- In WMA villages, people have less land to farm in 2014 than they did in 2007 (0.77 acres/AE). Non-WMA villages experienced similar changes

Grazing land

- Half of the WMA respondents say that access to grazing land has become worse, while half say it is the same as before.
- Most report that access to grazing is not worse than in non-WMA villages. Only a few think the WMA has caused loss of access to grazing land
- However, one in ten respondents think that the WMA has affected people's mobility

Livestock

- The term 'Livestock' includes all domestic animals but poultry. To make it easier to compare holdings made up of different types and sizes of livestock (e.g. goats, calves, cows) PIMA converts them to the equivalent number of 'livestock units' (LUs)²
- Between 2007 and 2014 the number of livestock per household on average decreased in the WMA but increased in non-WMA areas. Some individual WMA and non-WMA villages showed different patterns but changes were small.
- The main reason mentioned for having fewer livestock in 2014 was cash needs

Human – wildlife conflict in Tunduru Nalika WMA

- Human-wildlife conflict means human and livestock injury and death because of wildlife, as well as crop raids and property damage. This imposes large costs
- Significantly more crop damage was reported in WMAs than non WMA areas, with 9 out of 10 households in WMA villages experienced crop raiding in the 12 months preceding the 2014 survey (5 out of 10 households in non-WMA villages) (Fig 8)
- Darajambili village is most affected, with every household reporting crop damage (Fig 8)
- There is a significantly more reported crop damage in WMA villages, compared to non-WMA villages
- In WMA villages, respondents reported that crop damage has become worse, while in non-WMA villages it has stayed the same
- The average value of crops lost in the past 12 months is significantly higher in WMA than in non-WMA villages (Fig 9)

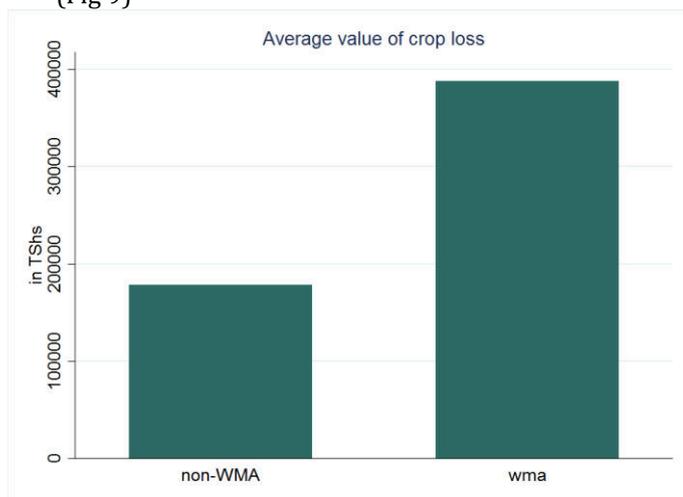


Fig. 9: Average value of crop loss per household in WMA and non-WMA villages. Note: Based on estimated area affected, crop yield, and estimated sales value of the harvest

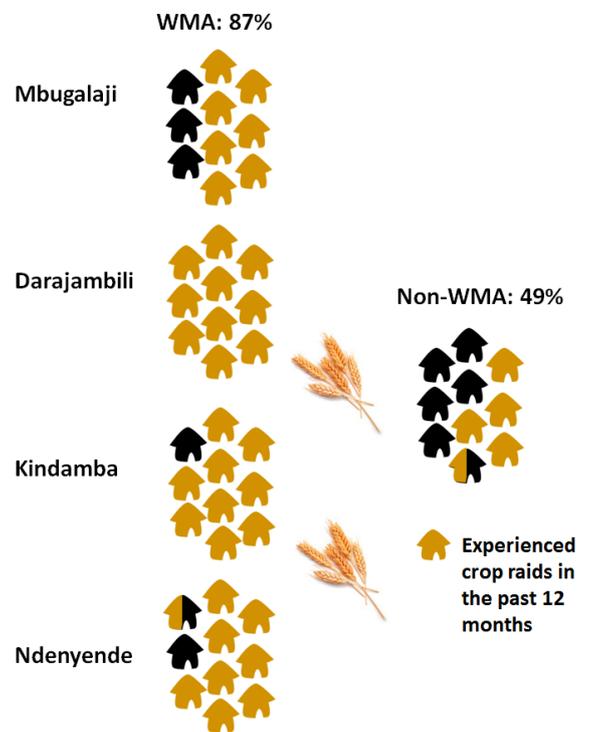


Fig. 8: Averaged proportions of households in WMA (87%) and non-WMA villages (49%) that have experienced crop damage by wildlife in the 12 months prior to survey

Conclusion

Our wealth rank data suggests WMA household wealth status did better 2007-2014 than did non-WMA households. However we cannot directly attribute this observation to WMA revenues. This is because historically – before WMA implementation - there has been a mix of money flows into Nalika villages due to Selous Conservation Program in the 1990s, the overlap with a government-run hunting block and mining activities in the area. The central government shared parts of hunting revenues with the communities while the hunters and conservation NGOs donated money and in kind from time to time to ensure good relations with local people. By the end of PIMA's research period the WMA had still not secured viable tourism investments to generate its own revenues. The central government and donors have continued contributing small amounts of money (<USD 1,000/year) and in kind to WMA villages.



Fig 10: Darajambili village. Picture taken by J.Bluwstein

Southern Nalika villages were a later addition to the WMA with the land set aside having formerly been under cultivation. This created conflicts with WMA authorities. WMA restrictions likely did not take full effect until 2012 when village land use plans were established and people were asked to confine their agricultural activities within the new plans. For now PIMA findings do not show WMA effects on people's access to land for cultivation, but this could change in the future.

Overall crop damage is a bigger problem for WMA villages, likely because they are closer to Selous GR compared to non-WMA villages. Since local guns were taken away from people during Operation Tokomeza at the end of 2013, people have not been able to protect themselves from crop-raiding elephants as they did before, by shooting in the air. Proximity to the Selous makes special protection necessary for farmer's crops, but the WMA cannot provide this unless they prioritise crop protection by WMA village game scouts and the WMA generates substantial revenues to compensate people for their crop losses. We have major doubts that Nalika WMA and the other WMAs in the Selous-Niassa Corridor can attract sufficient

hunting or safari tourism to generate the kind of revenues that would be needed to at least offset the costs that WMA communities experience from crop raiding and constraints on access to resources and land for cultivation. Another main concern for WMA communities is around legal access to bushmeat, promised as a benefit of being part of the WMA. However, the resident hunting quota has not been issued for several years, for reasons that have not been made clear, and access to bushmeat remains insecure, which does not promote a positive attitude towards the WMA.

Notes

¹In these findings, farm land is related to household size and composition, because men, women, and children of different ages need different amounts of food, and so the same area of land means very different levels of food provision for different households. Using a standardised system, we add up household members to a total in terms of 'adult equivalents', which makes it easier to compare household farmland relative to consumption needs.

²Just as PIMA uses a standard 'adult equivalent', we use 'livestock units' to make it easier to compare herds made up of different numbers and sizes of different kinds of livestock, and their food energy needs. One livestock unit is equal to a mature cow of 250kg. A goat or sheep, for example, is calculated as equivalent to around one-tenth of a cow.

Acknowledgements

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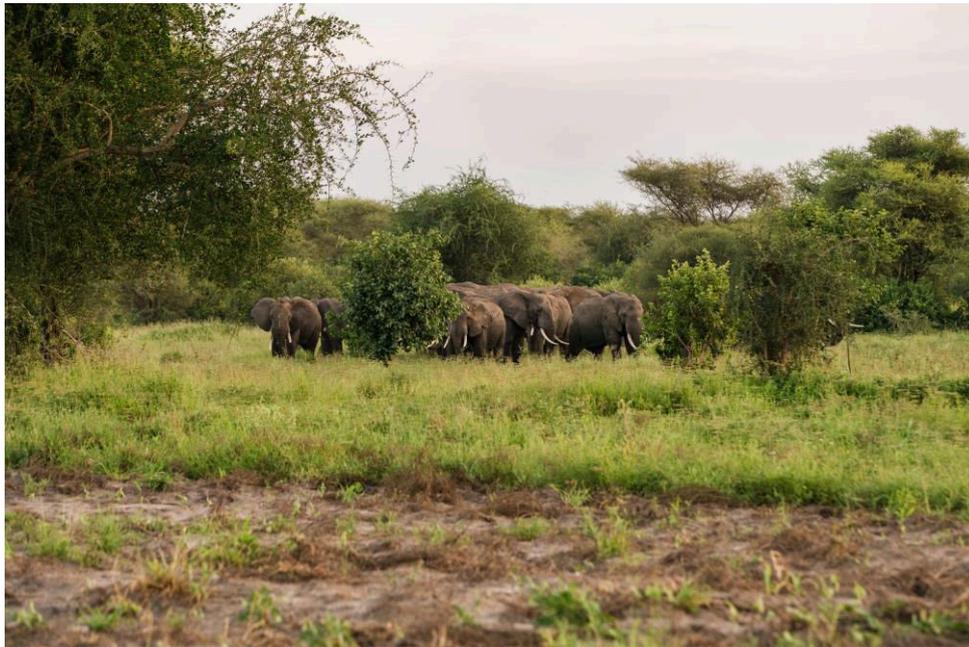


Fig 11: Elephants. Picture by Alex Wunsch



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