Illegal Wildlife Trade (IWT) Challenge Fund Main and Extra
Final Report

To be completed with reference to the "Project Reporting Information Note":
(https://iwt.challengefund.org.uk/resources/information-notes/).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed project end date.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

IWT Challenge Fund Project Information

Scheme (Main or Extra)	Main
Project reference	IWT111
Project title	Reducing IWT through Strengthening Livelihoods and Law Enforcement: Ruaha-Rungwa, Tanzania
Country(ies)	Tanzania
Lead Organisation	Southern Tanzania Elephant Program
Project Partner(s)	Rungwa-Kizigo-Muhesi Game Reserves, MBOMIPA WMA
IWTCF grant value	GBP 386,000
Start/end dates of project	1st July 2022 - 31st March 2025
Project Leader's name	Dr. Trevor Jones
Project website/blog/social media	www.stzelephants.or.tz
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1.   Project summary

The Ruaha-Rungwa ecosystem (see annex C1 for project map) in south-central Tanzania is affected by illegal wildlife trade, especially an increase in bushmeat poaching and human-wildlife conflict. This project aimed to reduce demand for and occurrence of IWT and reduce poverty by diversifying and developing sustainable livelihoods and strengthening household financial resilience, expanding educational outreach, reducing the costs of living with wildlife and strengthening law enforcement capacity in two critical zones of the ecosystem (MBOMIPA Wildlife Management Area (WMA) and Rungwa-Kizigo-Muhesi Game Reserves and adjacent communities). The project sought to reduce IWT for a range of species affected by bushmeat poaching, to guard against a potential resurgence in elephant poaching for ivory, as well as to reduce human-wildlife conflict related to elephants. In 2020-2021, 45% of arrests in MBOMIPA WMA were bushmeat-related. Rungwa, Kizigo, Muhesi Game Reserves (RKM GR) data show that bushmeat poaching comprised the second highest number of arrests (Hariohay et al. 2019). Elephants declined by >50% in Ruaha-Rungwa in 2009-2015, and elephant population numbers were stable between 2015 and 2021. Following gains in reducing elephant poaching, an increase in poaching incidents and ivory seizures in 2020-2021 showed that the risk of a resurgence in ivory poaching remains. Studies from the project area suggested that access to credit and supporting alternative income-generating activities could be an effective way to reduce bushmeat poaching: 96% of poachers surveyed by Knapp et al. (2017) stated they would discontinue poaching if they received enough income to meet their needs. Human-wildlife conflict erodes household financial resilience, contributes to negative perceptions of protected areas, and reduces

incentives for wildlife stewardship. The project aimed to reduce reliance on IWT for supplementing household income by facilitating access to safe credit, diversifying livelihoods, and reducing HWC that affects household income sources and household resilience. Research suggests that bushmeat poaching is opportunistic, occurring in conditions of low perceived risk (Ceppi & Nielsen, 2014). The project sought to increase the opportunity cost for engaging in IWT (by increasing the risk of detection, arrest, and prosecution) by strengthening the law enforcement capacity for Rungwa-Kizigo-Muhesi Game Reserves and MBOMIPA WMA through ground and aerial patrols, improved radio communication and use of EarthRanger for patrol coordination and strengthening of post-arrest judicial procedures. See annex C2 for references cited in this report.

2. Project Partnerships

Project design was informed by priorities of our project partners RKM GR (managed by Tanzania Wildlife Management Authority) and MBOMIPA WMA. Project planning and progress review meetings were held regularly with both partners (minimum quarterly). We used data and reports provided by RKM GR and MBOMIPA WMA to lead the writing of this report. The project partners committed rangers and village game scouts to the project for patrols and human-wildlife conflict response. RKM GR and MBOMIPA WMA helped guide selection of villages/sub-villages for implementation of livelihood activities and VSLAs, based on their knowledge of IWT hotspots, and participated in village meetings introducing the project, while STEP led the implementation of these activities. The RKM GR Community Outreach Officer and WMA Manager participated in community outreach events such as Tembo Cup and MBOMIPA Cup. RKM GR and STEP also conducted joint planning of aerial surveillance missions, provided aerial observers and deployed ranger teams to respond to illegal activities observed. Under our MOU with MBOMIPA WMA, we manage protection activities in the WMA, and as planned, MBOMIPA mandates the management of all Village Game Scouts (VGS) to STEP to conduct ground patrols, collect patrol data, and submit patrol reports for project monitoring. We strategically planned patrols and monitored patrol outcomes in collaboration with the WMA management and conducted quarterly meetings with the protection committee and management. MBOMIPA WMA committed VGS to conduct HWC responses in villages surrounding the WMA and reported on the outcome of HWC response missions. Under a BIOPAMA-funded grant (2023-2024), we partnered with MBOMIPA WMA and Honeyguide Foundation to strengthen the governance and economic viability of the WMA. This work included training for WMA governance structures, the recruitment and training of a WMA Manager and Accountant, as well as development of operational manuals, stakeholder engagement and communications plans, and business plan for the WMA. We collaborated closely with Lion Landscapes, an NGO focused on human-carnivore conflict mitigation, on large-scale outreach events and football tournaments around MBOMIPA WMA in Year 1 and Year 2 and consulted with them on optimal areas for the livelihood activities under the project. We also collaborated with Pathfinder Foundation, whose focus is on expanding and improving community healthcare services, and jointly provided technical support to 7 VSLAs around MBOMIPA WMA. STEP will continue to work with the main project partners (RKM GR, MBOMIPA WMA) beyond project end.

3. Project Achievements

Output 1. 500 community members gain access to safe credit and have more diversified livelihoods to offset illegal wildlife use (bushmeat poaching).

1.1 Conducting orientation and sensitization meetings with partners and at village and sub-village level for the establishment of VSLAs, beekeeping and poultry health interventions.
Completed in villages adjacent to RKM GR in Year 1 and around MBOMIPA WMA in Year 2.

1.2 Establish and train 20 Village Savings and Loan Associations (VSLAs) (25 members per VSLA) with 500 members in 10 villages. VSLAs are community-based associations that provide access to loans and facilitate saving. Members purchase shares on a weekly basis (A1) which form the capital for loans. Loans, usually spanning three months, are granted with interest. The group collectively determines the share value and interest rate at the start of each annual VSLA cycle. At the end of each cycle, a share-out session redistributes shares and interest to members. STEP supported these groups with training and our team of local elephant monitors visited VSLAs weekly to support record keeping, loan issuing and repayment planning (A2;A4). The project established 53 VSLAs (including with matched funding; 18 in Year 1, 21 in Year 2, 14 in Year 3) with 1,069 members (45% women, 53% youth). We also provided technical support to 8 VSLAs established prior to the project (202 members, 48% women, 33% youth). In total, the project supported 61 VSLAs with 1,271 members (46% women, 50% youth). Over the project period, VSLAs generated TZS 564,409,000 in capital, issued 3,347 loans, and generated TZS 85,936,500

in profit through interest paid on loans and fines (A3; Y3 amounts are TZS 282,409,000 in capital, 1538 loans worth TZS 319,577,000, and TZS 47,936,500 in profit; Y1-Y2 amounts were previously reported]. Loans were used to start new small business enterprises, support existing enterprises, support (and in some cases improve) agricultural operations, pay for medical expenses, school supplies and fees, and purchase food, livestock or land. Annex A5 showcases several testimonies from VSLA members. Six VSLA groups (152 members, 66% women) received financial literacy skills training using a curriculum tailored to the project area - training for remaining groups has continued beyond the project period with matched funding. See A27 for photos for activities under Outputs 1-2.

1.3 Establish a poultry health intervention trial with 100 participants in 5 villages. In Years 1-2, we completed a year-long Newcastle disease vaccination trial (A6-A7)with 120 households in Rungwa and Doroto villages (86% of whom had not previously vaccinated their chickens). The aim of the trial was to collect and provide farmers with data to demonstrate the benefit of vaccination and advise them to invest in it after a year (e.g. via a loan from a VSLA) of subsidised support for the vaccine. In Year 2, we expanded the poultry vaccine distribution trial to 93 households (55% women) in four villages around MBOMIPA WMA. Of the households around MBOMIPA WMA, 49% had not previously vaccinated their chickens. In Year 3, we supported 71 households (61% women) in accessing the Newcastle disease vaccine with a total of 2,820 vaccinated chickens. Following the completion of the trial, STEP ensured that farmers who wished to continue vaccinating their chickens could do so - STEP assisted with the distribution while farmers paid for the vaccine. Following the end of the trial, 53 farmers (77% women) paid for the vaccine themselves, demonstrating both the perceived value of the intervention and a step toward long-term sustainability.

1.4 Provide 200 beehives and beekeeping training to 100 beekeepers in 5 villages.

The project distributed 500 hives (including with matched funding, 200 around MBOMIPA and 300 around RKM GR) (A8) and trained 10 groups on beekeeping (106 members, 37% women) around MBOMIPA WMA and 12 groups (313 members, 46% women) around Muhesi and Kizigo GRs (A9). At project end, average hive occupancy was 61% across all groups and 16 groups had harvested at least once (A8). Beekeepers harvested 1,833 litres of honey during the project period (644.2 litres in Y1, 592.6 litres in Y2, 1314.5 litres in Y3).

1.5 Ongoing-capacity-building and monitoring of livelihood interventions by community-based teams. During the project, we worked closely with a team of 14 local elephant monitors (LEMs, 18% women) recruited from and based in project communities (A10). All LEMs received training on VSLA management, covering group formation, record-keeping, loan procedures, compliance monitoring, conflict resolution, and weekly reporting via Kobo Collect. LEMs also received training on the use of handheld GPS devices and Kobo Collect for monitoring human-elephant interactions and elephant-related damage. LEMs were also capacitated to conduct one-on-one outreach with farmers as well as household visits involving film screenings and discussions using tablets (A11). In Year 3, with matched funding, 11 LEMs (3 women) were capacitated to deliver financial literacy skills training for VSLAs. This training covered essential skills in managing personal finances, focusing on three key areas: loan management and repayment, household budgeting, and financial management (A12).

Output 2. Human-wildlife conflict is reduced through improved rapid HWC response by RKM GR and MBOMIPA WMA and increased knowledge among community members.

2.1 Provide vehicle for increasing human-wildlife conflict response capacity to RKM GR, together with training on effective use of vehicles for HWC response. In Year 1, STEP purchased and handed over a vehicle to Muhesi Game Reserve (with matched funding from the USFWS African Elephant Conservation Fund). During the project, the vehicle was used to respond to 419 human-wildlife conflict incidents [69 in Y2, 350 in Y3) (B2a-b). With matched funding, we supported the rehabilitation of a vehicle for Kizigo GR and provided a customized STEP vehicle to MBOMIPA WMA for HWC response

2.2 Enable HWC response by MBOMIPA VGS and RKM GR Rangers through fuel provision. The project provided 25,023 litres in fuel to Rungwa-Kizigo-Muhesi Game Reserves for human-wildlife conflict response and community outreach (including via matched funding). RKM GR responded to 987 HWC incidents over the project period (100 in Y1, 410 in Y2, and 477 in Y3). The number of HWC incidents responded to by each Game Reserve for Y1-Y2 was previously reported. In Year 3, Rungwa Game Reserve responded to 21 HWC incidents in 8 villages; Kizigo Game Reserve responded to 106 HWC incidents in 10 villages; and Muhesi Game Reserve responded to 350 HWC incidents in 17 villages (B1-B3). Fuel provided by the project enabled MBOMIPA VGS to respond to 153 HWC incidents in 22 villages

(B17). The project also provided sets of HEC toolkits (LED torches, air-horns, chilli crackers and roman candles) to RKM GR and MBOMIPA WMA.

2.3 Train 32 RKM Rangers and 16 MBOMIPA VGS in safety around elephants and more effective elephant deterrent techniques. In Year 1, STEP facilitated training for 31 RKM GR rangers (13% women) on effective elephant deterrent methods (A24) In Year 2, we organized training on safety around elephants with the Kichaka Environment Expedition Program (KEEP) for 27 rangers from RKM GR (11% women) and 9 VGS (11% women) from MBOMIPA WMA and surrounding villages (9 from Muhesi Game Reserve, 6 from Kizigo, 9 from Rungwa, 3 from TAWA Central Zone, 4 MBOMIPA VGS, 2 rangers from Iringa KDU and 3 VGS from Pawaga). Also in Year 2, 12 MBOMIPA VGS (33% women) received training on the HEC elephant deterrent toolkit (a Honeyguide Foundation design) which the community and VGS around Randilen, Mburunge and Makame WMAs in northern Tanzania have used since 2017 (B15). The toolkit includes sequential use of LED torches, air-horns, chilli crackers and roman candles, with each subsequent step representing an escalation to be deployed only if the previous step did not deter the elephant(s). In Year 3, 12 MBOMIPA VGS (42% women) received training from Honeyguide Foundation in the use of 'noisy balls', a novel active elephant deterrent (B15) Via matched funding, we facilitated elephant rescue training for 48 RKM rangers (19% women) in Year 2 to enable rangers to respond effectively when elephants are trapped in village wells. This enabled 9 successful elephant rescues over the project period (B18).

2.4 Local Elephant Monitors conduct one-on-one training for 3,000 community members at home and at farms on elephant behaviour and safety around elephants. Our team of 14 LEMs were equipped to deliver one-on-one farmer training in Year 1. LEMs provided this training when they visited farmers at their home or farms and they engaged in discussion while they collected data on elephant movement and crop damage within village land. LEMs cover topics such as elephant behaviour, benefits of elephants, wildlife corridors, farming away from corridors, and mitigation methods. The film used during household film screenings was specially developed for this landscape by STEP (with match funding). The film features local farmers and LEMs, and provides a relatable, informative overview of human-elephant interactions. It offers guidance on safety and mitigation around elephants and highlights the direct benefits provided by the RKM GR to neighboring communities. The LEMs use the KoboCollect mobile application to collect data on one-to-one training and household-level film shows, including what topics were covered during the training and feedback from the training recipient (A13 and A14). LEMs reached 1,626 people (31% women) in Y1; 2,510 people through one-to-one training and 1,137 people (30% women) via household-level film shows in Y2; 9,415 farmers (22% women) through one-to-one training and 6,149 people (37% women) through household-level film screenings (A15-A16). This is a total of 20,837 people reached through household visits.

2.5 Conduct wide-scale education and outreach programs (Tembo Cup Football Tournament).

We conducted wide-scale education and outreach through an annual football and netball tournament ("Tembo Cup") in villages around Muhesi Game Reserve, Kizigo Game Reserve, Rungwa Game Reserve (Y1 only) in Y1-Y3 and the MBOMIPA Cup football tournament around MBOMIPA WMA (jointly with Lion Landscapes) in Y1-Y2 (a total of 9 tournaments). At these tournaments, we reached an estimated 138,155 community members, including 74,258 football spectators (reached through small group discussions before, during and after matches), 35,229 students in 42 schools and 28,668 attendees during film screenings held after the matches (A17). We distributed >5,600 fliers (A18-A20) and copies of our human-elephant coexistence booklet (A21), "Tembo na Watu" ("Elephants and People") through this event. The pitch-side discussions in small groups focused on deepening understanding of human-elephant interactions—exploring their causes, impacts, and practical management strategies—while also creating space for open dialogue and community questions. Our school-based activities aimed to foster empathy and curiosity about wildlife among students, helping prepare them as future conservation-minded decision-makers. Film screenings aimed to reinforce messages from both the school sessions and community discussions, while offering a safe, engaging setting for learning about elephants, carnivores, and their behavior.

Output 3. Radio communications system is upgraded and EarthRanger is rolled out in MBOMIPA WMA, facilitating real-time tracking and improved coordination and mobilization of VGS teams.

The focus of this output was changed (following approval of our change request to the BCF) to upgrading radio communications infrastructure and rolling out EarthRanger protected area management software for MBOMIPA WMA.

3.1 Install upgraded radio communications system in MBOMIPA WMA and provide all VGS teams and aircraft with InReach devices for real-time location tracking

In Year 3, we established a Control Room with satellite internet used to monitor VGS teams in real time using InReach devices and the EarthRanger platform (B13). The facility also supports an upgraded radio communications system installed in MBOMIPA WMA, improving coordination and safety among patrol teams. All VGS teams and the aerial surveillance aircraft were equipped with Garmin InReach devices, enabling real-time location tracking and two-way communication in remote areas. The integration of these communication tools into EarthRanger has significantly enhanced patrol oversight, enabled faster incident response, and improved coordination between ground and aerial units, thereby strengthening accountability and field team security.

3.2 Train 40 MBOMIPA VGS (6 women) in radio operation and patrol data collection using the EarthRanger mobile application, and InReach devices for real-time tracking

A total of 28 VGS, (6 women) received training on the EarthRanger mobile application for collecting patrol observations in Year 3. The training covered data entry protocols and submissions. This capacity-building enhanced the VGS teams' ability to collect standardized, high-quality field data, supporting real-time monitoring, adaptive patrol planning, and timely reporting of illegal activities and wildlife sightings across MBOMIPA WMA.

3.3 Conduct real-time tracking of aerial and ground patrol teams in the Control Room and coordinate VGS mobilizations in response to illegal activity alerts

A dedicated Control Room had already been established at STEP main offices equipped with solar power, internet, a computer, and a large display screen. In Year 3, this facility was fully operationalized to coordinate field patrols using Garmin InReach tracking devices and EarthRanger software, allowing real-time tracking of VGS and the STEP aircraft. This enhanced both the communication and coordination capacity across the WMA. The radio communication system upgrade equipment was procured from South Africa, aiming to enhance the reliability and range of field-to-base communications. The currently installed system has significantly strengthened the capacity to mobilize VGS teams, coordinate aerial surveillance, and respond effectively to incidents across the WMA.

3.4 Monitoring, analysis, and reporting of aerial and ground patrols using the EarthRanger System

Aerial and ground patrols in MBOMIPA WMA were tracked via EarthRanger using InReach devices, as well as through handheld GPS devices. VGS teams recorded wildlife sightings, carcasses, illegal activities, and HWC incidents using the EarthRanger mobile app. In Year 3, STEP produced 23 reports and over 60 maps showing patrol coverage, poaching hotspots, and wildlife observations (B4-B6, B8). These were shared with key partners to support planning and response. Regular aerial and monthly ground patrol summaries improved coordination, threat response, and decision-making across the landscape.

Output 4. Capacity for aerial surveillance and strategic ground patrol is strengthened and the professionalism of RKM GR rangers and MBOMIPA VGS is enhanced

4.1 Train 5 RKM GR rangers and 2 MBOMIPA VGS (2 women) to become aerial observers

In Year 2, we trained 8 MBOMIPA WMA VGS (3 women) to become aerial observers (B6a-b). This brings the total number of trained observers in the project area to 11, with two previously trained rangers in RKM GR, one in Lunda-Nkwambi Game Controlled Area, and one in Ruaha National Park. Led by STEP's Protection team and pilots, the training focused on accurate observation; data collection using a paper form, handheld GPS unit and camera; species and carcass identification; and communication protocols. 50% of the trained observers have since participated in aerial missions. No additional RKM GR rangers were trained to become aerial observers. This is primarily due to a change in the base out of which the STEP aircraft operates. For access reasons, we decided to fly aerial missions in the Game Reserves based out of airstrips in MBOMIPA WMA and Ruaha National Park (with assistance from aerial observers from these areas), rather than out of more remote airstrips in Game Reserves. This change of operating base reduced costs and streamlined resupplies and aircraft checks and maintenance.

4.2 Conduct 60 hours of aerial surveillance per year in coordination with rapid response ranger and VGS ground teams.

A total of 484.7 flight hours were completed during the project (54.6 in Y1, 209.8 in Y2, and 218.5 in Y3), exceeding our target of 180 hours (B16). Flights were conducted in coordination with ground response teams and observers from MBOMIPA WMA, RKM GRs, and Lunda-Nkwambi GCA. Flights detected a

range of threats including sites of timber cutting, charcoal production, mining and poaching camps. Ranger and VGS mobilizations to threats observed from the air resulted in the arrest of 25 suspects over the project period engaged in bushmeat poaching, elephant poaching, illegal timber extraction, illegal charcoal production, and illegal grazing.

4.3 Enable 23 days of strategic patrols by 4 Village Game Scout teams every month in MBOMIPA WMA. In Year 1, MBOMIPA WMA VGS conducted 1,530 effective person-patrol days of foot patrols, covering a distance of 8051.5 km, and 164 days of vehicle patrols, covering a distance of 8579.6 km. In Year 2, VGS conducted 1,713 effective person-patrol days of foot patrols covering a distance of 11,199.8 km, and 132 days of vehicle patrols, covering a distance of 3,117.1 km (B10). In Year 3, VGS conducted 2,005 effective person patrol days of foot patrols, covering a combined distance of 9,569.5 km, and 235 days of vehicle patrols, covering 5,487.8 km. Over the project period, VGS apprehended a total of 91 suspects: 32% for bushmeat, 34% for illegal livestock grazing, 11% for illegal fishing, 9% for charcoal production, 4% for ivory, and 3% for firearm-related offenses. VGS also confiscated 8 muzzleloaders, 3 rifles, and 1 pistol, recovered 2 tusks from a poached elephant and 6 tusks from elephants killed due to conflict or from natural causes, thereby preventing these tusks from entering the illegal ivory trade.

4.4 Train 8 MBOMIPA VGS (3 women) in basic tactical anti-poaching skills with PAMS Foundation. In Year 2, 8 MBOMIPA VGS (3 women) received one month of advanced training from PAMS Foundation at the Likuyu-Sekamaganga training facility. The training enabled participants to learn key skills through both practical sessions and classroom instruction. The training included physical fitness exercises, GPS usage, understanding laws and regulations concerning wildlife and natural resources in Tanzania, managing human-wildlife conflicts, mastering patrol techniques with a focus on ambush strategies, first aid training, protocols for conducting effective searches, differentiating poaching methods across various regions of the country, and effective radio communication. Seven of the eight VGS (two women) successfully passed the course (B14).

4.5 Generate ground and aerial patrol maps and trend analysis reports for protected area managers. We generated maps and ground patrol reports as planned (36 maps and 9 reports in Y1, and 48 maps and 12 reports in Y2-Y3; B4-B6) for MBOMIPA WMA managers (. We also produced reports and maps that highlighted key wildlife sightings and illegal activities detected from aerial patrols which were shared with protected area managers (3 in Y1, 6 in Y2, and 16 in Y3).

4.6 Conduct refresher training for 39 VGS and 14 RKM GR rangers in human rights, just arrest and post-arrest procedures.. In Y1 and Y2, all 36 active VGS of MBOMIPA WMA received refresher training and signed a code of conduct. The code outlines clear expectations on respect for human rights, as well as appropriate procedures for arrest and post-arrest handling. In Year 3, MBOMIPA WMA recruited 15 new VGS (5 women). STEP supported this recruitment by facilitating training sessions on the code of conduct and human rights, and by assisting with the signing of contracts between the new VGS and the WMA. This ensured that all new recruits are well-versed in human rights principles and committed to upholding professional standards in the field. Refresher training for 14 RKM rangers was not conducted due to scheduling. However, an expected code of conduct and human rights guidelines were shared with and accepted by protected area managers.

4.7 Support MBOMIPA WMA VGS to provide witness testimony in court cases.

In total, the Iringa Magistrate Court opened 10 cases (B9) related to bushmeat (5 in Y1, 1 in Y2, 4 in Y3). The project also supported MBOMIPA VGS to testify in 11 court hearings (3 in Y1, 5 in Y2, 3 in Y3). The details of cases opened in Y1 and Y2 were submitted in prior reports. The details for the cases opened in Year 3 are as follows. Case 1: one suspect arrested with 1 muzzleloader, 1 animal trap, 40 kg of kudu meat (valued at approximately $1,000), 120 pieces of giraffe meat (valued at $3,600), and a bicycle and motorcycle. Case 2: two suspects caught with 200 pieces of bushmeat (including dikdik, greater kudu, and impala) valued at $5,000, 1 muzzleloader, two 20-litre buckets of fish valued at $300, 150 kg of additional bushmeat (impala, dik-dik, and warthog) valued at $3,750, 50 pieces of impala meat (valued at $1,250), and 3 motorcycles. Case 3: one suspect found in possession of 42 pieces of bushmeat (porcupine and dik-dik) valued at $1,050. Case 4: one suspect arrested with 62 pieces of kudu meat valued at $1,550, along with 2 knives. All items, including firearms, bushmeat, and vehicles, were seized and officially forfeited, and remain under the custody of MBOMIPA WMA and relevant authorities while investigations are ongoing.

3.1 Outputs

Output 1: 500 community members gain access to safe credit and have more diversified livelihoods to offset illegal wildlife use (bushmeat poaching)

The project has largely achieved this Output. Output indicator 1.1 was the percentage of VSLA members who are actively engaged and have accessed loans. A total of 1,069 community members (45% women, 53% youth) gained access to credit via VSLAs as a result of the project. Surveys with VSLA members (n=197) indicate that 94% of project beneficiaries were not previously a member of a VSLA (A22). Prior to joining the VSLA, 25% of VSLA members said they did not take loans from any source, 31% said they took loans from family or friends, and 33% said they took loans from informal lenders. The number of loans issued by VSLAs (3,347 over the project lifetime; Year 1: 686. Year 2: 1,123. Year 3: 1,538) proved easier to monitor than the number of VSLA members accessing loans. However, endline surveys (A25a-c) indicated that 95% of VSLA members took loans (97% of women, 93% of men). Overall, 31% of members took 1 loan (29% of women, 33% of men), while 64% took 2-3 loans (68% of women, 59% of men). In 2023-2024, 56% of VSLA loans were used to support either new or existing small businesses, 27% for farming activities, 8% for medical treatment, 3% for school fees, and <1% each for house improvements, food, and other household needs. Investment in small businesses and agricultural activities generate additional revenue for households, allowing families flexibility to meet their needs. Output indicator 1.2 was the percentage of VSLA members who resort to selling more than 30% of harvest at harvest time. Of a sample of VSLA members interviewed who were not VSLA members in the 2022-2023 farming season (n=37), 11% sold 30% or more of their harvest within a month of harvesting in the 2022-2023 farming season (baseline) (A23). Of a sample of VSLA members interviewed who had been VSLA members for one year in the 2022-2023 farming season (n=18), 6% sold 30% or more of their harvest within a month of harvesting in the 2022-2023 farming season. The average proportion of harvest sold within one month post-harvest was also higher for non-VSLA members (41%) than farmers who had been VSLA members for one year (35%). At endline in RKM GR, there was no difference between VSLA members and non-members in the percentage that sold 30% or more of their harvest within a month of harvesting (20%) (A25a). At endline in MBOMIPA, 26% of VSLA members sold 30% or more of their harvest within a month of harvesting, compared to 33% for non-members (A25b). Another activity under Output 1 was a trial of poultry vaccination for Newcastle disease. Output indicator 1.3 was the percentage increase in poultry survival rate among vaccine program participants. Results from a year-long poultry vaccination trial in two villages adjacent to RKM GR indicate that chicken mortality due to disease (measured over a three month period prior the first round of vaccination as the baseline and again in the three months after the third round of vaccination, based on farmer recall) decreased from 21.6% to 1.1% in Rungwa village and 34.2% to 2.8% in Doroto village (A6). In addition, the average number of chickens per household doubled in Doroto village and tripled in Rungwa village after three rounds of vaccination compared to the pre-vaccine baseline. All participating households said that there were benefits to vaccination. The (unprompted) benefits that households mentioned included good chicken health and reduced incidence of chicken disease and mortality (57% of households), an increase in the number of chickens (44%), and increased income and access to meat (15%). 78% of households said that they would be able and willing to pay for vaccination after trial end. The trial was extended to 94 households in MBOMIPA WMA in Y2-Y3, with chicken mortality due to disease declining from 6% prior to vaccination to 1 and 2% after the second and third round of vaccination. In MBOMIPA WMA, 95% of households said they would recommend the vaccine to other households that keep chickens. In addition, 95% of households said their household income had increased since vaccinating their chickens, and 90% said they would be willing to pay for the vaccine. VSLA members in 34 groups also took part in beekeeping. Output indicator 1.4 is the percentage of engaged beekeepers who increase their honey harvest and see a minimum 10% increase in income from honey. By project end, 53% of groups had harvested at least once, and total income from honey sales was a modest TZS 3,096,500 (an average of TZS 88,471 per group) (A8). The planned indicator was difficult to monitor, as all the groups that harvested decided to add the income from honey sales to the group's capital for loans or group income-generating activities, rather than to distribute funds to individual members. 26% of VSLA members (26% of women, 26% of men) said their income had increased from beekeeping, while 73% said that their income had not changed (74% of women, 71% of men). Among the subset of VSLA members who had harvested at least once, 45% stated that their household income had increased as a result of beekeeping (50% of women, 41% of men), while 55% stated their household income had not changed (50% of women, 59% of men) (A23). Endline surveys (n=61 interviewees) suggest that VSLAs contributed to livelihood diversification, as 62% of VSLA members (59% of women, 67% of men) said they gained a new source of income since joining the VSLAs (A25a-b) . Of these members, 45% said they had started a new business such as small shops, food establishments and trading

goods, 22% had bought cattle or small stock, 7% had started keeping chickens and 5% pigs. 85% of VSLA members (94% of women, 74% of men) stated that their household income had increased since joining the VSLA.

Output 2: Human-wildlife conflict is reduced through improved rapid HWC response by RKM GR and MBOMIPA WMA and increased knowledge among community members.

The project largely achieved this output. As summarized under activities 2.1-2.3, RKM GR and MBOMIPA WMA were provided with fuel, non-lethal deterrent tools, training and vehicle support for HWC response. Output indicator 2.1, the percentage of reported HWC incidents where rangers/VGS arrived at the site of the incident within 3 hours of reporting, proved difficult to monitor. Instead, we monitored how many incidents were responded to, and assessed ranger and community perceptions of the timing of HWC response. RKM GR rangers and MBOMIPA VGS responded to 100 HWC incidents in Y1, 466 incidents in Year 2, and 574 HWC incidents in Year 3 (B1-B3). Interviews (A24) with RKM GR rangers (n=13) indicate that 85% of rangers feel they arrive on time, while interviews with community members (n=70) indicate that 56% feel that rangers arrive on time. Additional M&E involved collecting data on where the non-lethal deterrent toolkit was deployed, at which point the elephants were intercepted (before entering the farm area or driven away once in the farmland), and which tools in the toolkit were deployed and how elephants responded to them (A26). Data from Muhesi GR rangers indicates that the toolkit was effective in 70% of cases (n=36) in which it was deployed to deter elephants from farmland. 100% of rangers interviewed said the HEC toolkit was effective or very effective for chasing elephants from farmland, and that the toolkit was useful for HEC response. Of the 97 HWC incidents responded to by MBOMIPA VGS in Year 3, elephants were deterred before they had entered farms in 22% of cases, while in 76% of cases, VGS arrived after elephants had already entered farms, and then successfully removed them from farms. Output indicator 2.2 was the percentage of rangers/VGS who report that they feel safer and better prepared for HWC response. Interviews with a sample of RKM GR rangers who received training (n=13, interviews conducted >7 months post-training) indicate that 77% of rangers feel safe when conducting HEC response, 92% say they have the right tools for HEC response and know how to use those tools, 100% say they have the necessary knowledge, and 85% say they have the necessary experience to conduct HEC response (A24). Interviews with VGS (n=7) trained in Year 2 indicate that 80% of VGS feel safe when conducting HEC response, 100% say they have the necessary knowledge and 100% say they have the necessary experience to conduct HEC response (A24). Our target that 80% of rangers reporting that they feel better prepared for HEC response was therefore largely met. Output indicator 2.3 was the percentage of rangers who pass a test measuring key aspects of elephant deterrence. 89% of rangers and VGS trained in Year 2 (n=10) achieved a score of 70% or above on a test measuring key aspects of elephant deterrence (pre-training baseline was 68%), exceeding our target of 75%. Other activities (2.4-2.5) contributing to this output were one-on-one training for community members on elephant behaviour and safety around elephants and large-scale outreach events through Tembo Cup football tournaments. Output indicator 2.4 is the percentage of community members who are able to articulate key aspects of safety around elephants and large carnivores. Endline surveys indicate that around RKM GR (A25a), 47% of people engaged by STEP's outreach program agree that it is important during an elephant encounter to stay quiet and move away slowly in a downwind direction from the elephant, compared to 28% for people not engaged. Around MBOMIPA WMA (A25b), 92% of people engaged by STEP's outreach program agree that it is important during an elephant encounter to stay quiet and move away slowly in a downwind direction from the elephant, compared to 76% for people not engaged. While we did not meet our target of 75% (based on a 2021 baseline of 48%) for RKM GR, awareness of safety principles was higher among people reached by the project's outreach program than those that were not. Furthermore, around RKM GR, 64% of people engaged by STEP's outreach program say they know how to maintain their safety during an elephant encounter, compared to 24% for people not engaged. Around MBOMIPA WMA, 54% of people engaged by STEP's outreach program say they know how to protect themselves from elephants, compared to 31% for people not engaged. Around RKM GR, 28% of people engaged by STEP's outreach program say they know how to maintain their safety during a lion encounter, compared to 4% for people not engaged (A25a); this likely reflects the greater emphasis placed on elephant behaviour and safety in STEP's outreach content.

Output 3: The radio communications system is upgraded and EarthRanger is rolled out in MBOMIPA WMA, facilitating real-time tracking and improved coordination and mobilization of VGS teams.

Output 3 was fully achieved in Year 3 of the project (following an approved change request that altered the focus of this output). Radio communications have been improved and the EarthRanger platform has been rolled out in MBOMIPA WMA, leading to improvements in patrol coordination, response, and oversight. At baseline (2023), MBOMIPA WMA had limited communication infrastructure, with only 25% of days seeing problem-free radio operation, no real-time tracking of patrols, and only 20 VGS trained in using radio and digital monitoring tools. The project (including with matched funds) facilitated the installation of a dedicated Control Room at STEP's main office fully equipped with solar power, internet, a computer, and a large display screen. This Control Room serves as the central hub for real-time tracking of patrols using Garmin InReach devices integrated with EarthRanger (B13). In parallel, upgraded radio equipment procured from South Africa significantly enhanced communication reliability and range across the MBOMIPA WMA. Output indicator 3.1 was the percentage of days that the radio system operates problem-free. The radio system functioned problem-free on 86% of days in Year 3, surpassing the 80% target (compared to 25% at baseline). Output indicator 3.2 was the percentage of aerial and VGS ground patrols that are tracked in real-time. In Year 3, 100% of aerial and ground patrols were tracked in real time using InReach devices and EarthRanger, compared to 0% prior to the project and exceeding our 90% target. Output 3.3 was the number of MBOMIPA WMA VGS that have 100% of the required skills to operate the radio, track patrols using InReach devices, and log daily patrol observations using the EarthRanger mobile application. In Year 3, 28 VGS (6 women) were trained and assessed to be fully capable of operating radios, tracking patrols, and logging data via the EarthRanger mobile application, bringing the total number of VGS trained to 40 (including those trained prior to Year 3). Output indicator 3.4 was the number of illegal activity incidents reported via radio to the control room that resulted in a VGS mobilisation. In Year 3, 43 illegal activity incidents were reported via radio and resulted in VGS mobilisations (exceeding our target of 24). Output indicator 3.5 was the percentage of VGS mobilizations in response to illegal activity incidents reported to the control room that resulted in encounters. In Year 3, 81% of VGS mobilizations in response to illegal activity incidents reported to the control room led to direct encounters (exceeding our target of 50%) and a total of 39 arrests. These results reflect not just activity, but significant change in the effectiveness, responsiveness, and coordination of protection efforts in MBOMIPA WMA.

Output 4: Capacity for aerial surveillance and strategic ground patrols is strengthened and the professionalism of RKM GR rangers and MBOMIPA VGS is enhanced.

This Output was largely achieved. Output indicator 4.1 was the percentage of MBOMIPA WMA and RKM GR covered by aerial patrol missions (B20a-b). Coverage of aerial patrols in MBOMIPA WMA was 94% in Year 1, 95% in Year 2, and 94% in Year 3 (baseline, 2020: 82%), exceeding our target of 90% in each year. Coverage of aerial patrols in RKM GR was 31% in Year 1, 33% in Year 2, and 43% in Year 3 (baseline, 2020: 49%); our target of 40% coverage was therefore only met in Year 3. Output indicator 4.2 was the percentage of aerial surveillance patrols that result in a same-day ranger/VGS ground mobilisation. In Year, 25% of aerial patrols resulted in same-day VGS mobilizations in MBOMIPA WMA (baseline, 2020: 0%), and 60% of aerial patrols resulted in same-day ranger mobilizations in RKM GR (baseline, 2020: 63%); as such, the Year 1 target of 50% was only achieved in RKM GR. In the 96 aerial patrols that required mobilization in Years 2-3 across all PAs, 74 were responded to (77%), while 22 were not (23%) - exceeding the 70% target for Years 2-3. Information from aerial patrols resulted in the arrest of 25 poachers during the project period and provided practical information for subsequent VGS and ranger patrols. Output indicator 4.3 was the percentage of MBOMIPA WMA covered by monthly VGS ground patrols (Baseline (2021): 33%). The spatial extent of patrol coverage in MBOMIPA WMA was 34% in Year 1 (not meeting the target of 60%) and 36% of Year 2 (not meeting the target of 75%). Seasonal access issues and poor road conditions affected our ability to meet these targets, but improvement in patrol coverage was made in Year 3, when VGS patrols achieved 71% spatial coverage of MBOMIPA WMA, slightly below the 75% target (B10, B19). Patrol effort as measured through effective person-patrol days increased in each project year (1,530 effective person-patrol days in Y1, 1,713 effective person-patrol days in Y2, and 2,005 in Y3). Output indicator 4.4 was the number of VGS who, through training, attain the working standards of the International Ranger Federation. 7 VGS (2 women) out of 8 VGS trained during the project attained the working standards of the International Ranger Federation (B14). As a result, the number of VGS with this skillset has increased from 8 VGS (2021 baseline) to 15 (2 women); our target was 16 (3 women) but one participant did not pass the course. Output indicator 4.5 was the number of RKM rangers and MBOMIPA VGS who, through training, attain the necessary skills to serve as aerial observers. The project trained 8 MBOMIPA VGS (3 women) (B6a) to attain the necessary skills to serve as aerial observers (baseline was 0), exceeding the target of 2 VGS. However, no RKM GR rangers were

trained (target was 5). This was due to a change in the base out of which the STEP aircraft operates. For access reasons, we flew aerial missions in RKM GR based out of airstrips in MBOMIPA WMA and Ruaha National Park (with assistance from aerial observers from these areas), rather than out of more remote airstrips in the Game Reserves. Output indicator 4.6 was fully achieved (B11), as 100% of suspects arrested by VGS attested in the presence of an independent witness that they were treated fairly during post-arrest procedures in all project years (Baseline (2021): 100%). Output indicator 4.7 was also achieved, as 100% of ivory and bushmeat poaching court case hearings were attended by MBOMIPA VGS (B9) in all three years (Baseline (2021): 100%).

3.2   Outcome

The intended project outcome was that livelihood diversification, reduction of human-wildlife conflict and strengthening of law enforcement capacity result in a reduction in bushmeat poaching, increase household resilience and begin to improve community perceptions of PAs. We comment in detail on each of the outcome indicators below, but in sum, the project achieved 5 (0.1-03., 0.5, 0.7) of its 7 Outcome indicators. Under Outcome 0.4, we expected that VSLA would impact the timing of crop sales and enable farmers to sell more of their harvest during higher price periods. Although we did not find consistent evidence for this, there is significant evidence that VSLAs positively impacted household incomes, food security and resilience. Under Outcome 0.6 we expected to see a reduction in human deaths and injuries and elephant mortalities in the landscape due to human-elephant conflict. While the trend for this outcome indicator was stable over the project period, other evidence indicates that human-wildlife conflict has decreased, including improved ranger response to HWC, an increase in tolerance for elephants, and improved community perceptions of PAs (see Section 3.4 for details).

0.1 Reduction in detection rate of illegal activities (disaggregated by type, e.g. bushmeat, and protected area) on ground patrols (Baseline: to be established by 2021-2022 data, target 15% reduction in Year 2, 30% in Year 3). We used a diversity of indicators to measure trends in illegal activities, as the trend in the detection rate of illegal activities on ground patrols alone may not provide a complete picture of trends. Evidence for all indicators below is in Part 1 of B7. To monitor trends in elephant poaching and ivory trade, we used the following indicators:

- The number of elephant carcasses encountered and the percentage due to poaching and conflict in and around MBOMIPA WMA. Baseline: In 2021, 7 elephant carcasses were encountered by VGS in MBOMIPA WMA and adjacent village land, of which 86% were attributed to ivory poaching and 0% to conflict (In 2020, 2 carcasses, 100% due to conflict). Year 1: In 2022, 12 elephant carcasses were encountered by VGS, of which 75% were attributed to ivory poaching and 17% to conflict. Year 2: In 2023, 2 elephant carcasses were encountered on village land adjacent to MBOMIPA WMA, 100% due to conflict. Year 3: In 2024, 0 elephants were killed due to conflict or ivory poaching (2 elephants were trophy hunted in MBOMIPA WMA). In sum, the number of elephants poached declined from 15 in 2021-2022 to 0 in 2023 and 2024, a significant achievement.
- As Ruaha-Rungwa is a MIKE site, we also used data on the Proportion of Illegally Killed Elephants (PIKE) from the MIKE database to monitor ecosystem-level trends. Note that the MIKE site includes RKM GR and Ruaha National Park (which lies outside the project area) but excludes MBOMIPA WMA. PIKE declined from 0.36 in 2021 (baseline) to 0.11 in 2022 (Year 1) and 0.08 in 2023 (Year 2). Data for 2024 are not yet available. This indicates a decline in illegal killing of elephants at the ecosystem level.
- The number of ivory seizures, number of tusks and ivory pieces seized in Iringa and Mbeya regions. These showed an increase in 2022 (Year 1) relative to 2019-2021 (pre-project baseline) but decreased in 2023 (Year 2; see B7 for detailed trends). In Year 3 (2024-2025) the number of seizures was stable relative to 2022, while the number of tusks and ivory pieces seized declined slightly.

To monitor trends in bushmeat poaching, we are also measuring the following indicators:

- Bushmeat poacher encounter rates on VGS patrols in MBOMIPA WMA: 0.0035 bushmeat poachers per effective person-patrol day in 2021 (baseline), 0.0039 bushmeat poachers per effective person-patrol day in 2022 (Year 1, 11% increase relative to baseline), and 0.0030 bushmeat poachers per effective person-patrol day in 2023 (16% decrease relative to baseline), and 0.0018 bushmeat poachers per effective person-patrol day in 2024 (Year 3, 52% decrease relative to baseline).

- Bushmeat poaching camps encounter rates in MBOMIPA WMA: 0.0339 camps per effective person-patrol day in 2021, 0.0246 camp per effective person-patrol day in 2022, 0.0035 in 2023, and 0.0006 camps per effective person-patrol day in 2024 (an 85% decrease relative to baseline).
- Percentage of suspects apprehended in MBOMIPA WMA that are bushmeat-related. Baseline: In 2021, 22% of suspects apprehended in the WMA (n=9) were bushmeat-related (67% in 2020, n=15 arrests). Year 1: In 2022, 46% of suspects apprehended in the WMA (n=13 arrests) were bushmeat-related. Year 2: In 2023, 34% of suspects apprehended were bushmeat-related (n=35 arrests). Year 3: In 2024, 29% of suspects apprehended were bushmeat-related (n=35 arrests).
- Encounter rates of carcasses of 5 key species targeted for bushmeat. Baseline: 0.0065 carcasses per effective person-patrol days in 2021 (In 2020, encounter rate was 0.0093). Year 1: 0.0055 carcasses per effective person-patrol days in 2022. Year 2: 0.0066 carcasses per effective person-patrol days in 2023. Unfortunately, due to data quality issues for carcass observations on patrols, we could not confidently present results for Year 3.

To summarise, we observed a decrease in elephant poaching across the landscape during the project. Encounter rates for bushmeat poachers in MBOMIPA WMA also decreased, as did the percentage of suspects apprehended for bushmeat. With the caveat that neither are direct measures of levels of bushmeat poaching, it is suggestive of a decreasing trend.

0.2 Reduction in the detection rate of illegal activities (disaggregated by type, e.g. bushmeat, and protected area) on aerial patrols (Baseline: to be established by 2021-2022 data, target 15% reduction in Year 2, 30% in Year 3). For evidence, see Part 2 in B7. In RKM GR, the encounter rate for poacher camps associated with bushmeat poaching, mining, and timber cutting was 38% lower in Year 3 (0.483 camps per flight hour in 2024) relative to the pre-project baseline (0.784 camps per flight hour in 2021). The timber cutting encounter rate in RKM GR decreased by 90% in Year 3 (0.080 sites per flight hour in 2024) relative to the pre-project baseline (0.825 sites per flight hour in 2021). Elephant carcass encounter rates for RKM GR dropped from 0.375 carcasses per flight hour in 2020 to 0 in 2024. For MBOMIPA WMA and Lunda-Nkwambi GCA, it should be noted that our pre-project baseline (2020) was a year with very low flight hours. The encounter rates of poacher camps increased from 0 in 2020 and 2022 to 0.047 in 2023, which may reflect greater flight coverage relative to previous years. Between 2023 and 2024, the poacher camp encounter rate dropped slightly (by 16%) to 0.039. Timber cutting site encounter rates rose from 0 in 2022 to 0.100 in 2023, and then declined by 87% to 0.013 in 2024. Elephant carcass encounter rates in MBOMIPA WMA and Lunda-Nkwambi GCA were stable in 2022-2023 (0.111 and 0.113 respectively) and declined by 88% to 0.013 in 2024. In sum, in RKM GR, the reduction in elephant carcasses, poacher camps and timber cutting encounter rates greatly exceeded our 30% target for Year 3. In MBOMIPA WMA and Lunda-Nkwambi GCA, the reduction in elephant carcasses and timber cutting sites exceeded our 30% target for Year 3; only the poacher camp encounter rate did not meet this reduction target.

03. Percentage of engaged beneficiaries who report being able to address the majority of acute household needs through VSLA loans and/or other livelihood activity (Baseline to be established in Year 1). We measured this indicator through the Basic Necessities Survey (BNS; Detoeuf, Wieland & Wilkie 2018). BNS is a poverty assessment tool based on a community-articulated assessment of 'basic needs'. We calculated a BNS score by summing, across all items that 90% or more of community members agreed were necessary household items/services, the proportion of households that owned the item. A higher score indicates that a higher proportion of household items are met. For VSLA members around MBOMIPA WMA, the BNS score increased by 22.8% from 18.3 at baseline (early in Year 1) to 22.4 at endline (late in Year 3) (A25b-c). During the same period, the BNS score for adjacent households that were not VSLA members increased by only 2.5% from 16.6 to 17.0. The BNS score for RKM GR was only measured at endline (A25a), and compared between VSLA members and adjacent households that were not VSLA members. The BNS score for RKM GR VSLA members was 15.2 compared to 13.8 for non-members, a 10% difference. At endline, 90% of VSLA members stated that the loan(s) they had taken from a VSLA in the previous cycle had helped them to meet household needs (94% for women, 85% for men).

0.4 Percentage of engaged beneficiaries who retain at least 50% of their crops for sale or consumption at high price periods due to income from poultry farming, beekeeping and access to credit from VSLAs (Baseline to be established in Year 1, 50% in Y3). We assessed this indicator by 1) comparing the timing of crop sales for VSLA members in the year prior to joining the VSLA with members

in their first and third VSLA cycle, and 2) comparing VSLA and non-VSLA members at endline. See A23 and A25a. Of a sample of VSLA members in RKM GR interviewed who were not VSLA members in the 2022-2023 farming season (n=37), 27% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season (baseline). Of a sample of VSLA members interviewed who had been VSLA members for one year in the 2022-2023 farming season (n=18), 22% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season (however, this partly reflects that these members sold a lower proportion of their harvest overall [37%] compared to non-VSLA members [48%]). Of a sample of VSLA members interviewed who had been VSLA members for at least three years in the 2022-2023 farming season (n=15), 33% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season. Considering just the portion of harvest from the 2022-2023 farming season that was sold (disregarding the portion kept for food at the household), 61% of the harvest of non-VSLA members was sold during high price periods, 64% of the harvest of farmers who had been VSLA members for one year was sold during high price periods, and 85% of the harvest of farmers who had been VSLA members for at least three years was sold at high price periods. In RKM GR at endline, 70% of VSLA members sold 50% or more of the total harvest they sold during high price periods, compared to 68% for non-members. In MBOMIPA, 26% of VSLA members sold 50% or more of the total harvest they sold during high price periods, compared to 22% for non-members. In sum, there was not clear evidence that VSLA membership affected the timing of crop sales for farmers in their first or second year-long VSLA cycle. This may be because VSLA members took loans for reasons other than agriculture, although the endline indicated that 65% of RKM GR VSLA members and 38% of MBOMIPA VSLA members took a loan for farming in the last year. The timing of crop sales may also be affected by opportunities to sell crops, as 73% of RKM GR VSLA members and 89% of MBOMIPA VSLA members relied on middlemen (traders) from urban centres who visited these remote areas to purchase crops.

0.5 Engaged households show increased resilience as measured by the custom resilience index (ARSSI, Index of Social Capital, RIMA) from Baseline to Year 3.

All evidence for this indicator is in A25a-c.The FAO's resilience index measurement and analysis (RIMA) uses a number of indicators to estimate household resilience to food insecurity. In MBOMIPA, indicators of food security improved for both VSLA members and non-members between baseline and endline (this may reflect annual or seasonal variation), however, improvements were larger for VSLA members than non-members. For instance, the percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months declined from 50% to 4% for VSLA members between baseline and endline, and from 41% to 16% for non-VSLA members. The average household dietary diversity score increased from 38.4 to 42.4 (10% increase) for VSLA members, but remained stable for non-members (35.9 at baseline, 35.3 at endline). In RKM GR, indicators of food security were compared between VSLA members and non-members at endline only. All indicators indicated higher food security among VSLA members than non-,members. For instance, the percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months was 5% for VSLA members and 15% for non-VSLA members. The average household dietary diversity score was 38.6 VSLA members and 34.7 for non-members, a difference of 11%.

At endline in MBOMIPA, there was a small difference between VSLA members (70%) and non-members (75%) in the percentage that had experienced financial shocks in the previous 12 months. VSLA members in MBOMIPA were slightly less likely to have sold their crops to cope with the shock (26%) than non-members (34%), however there was no difference in the percentage that had sold livestock to cope with the shock (7% for VSLA members, 6% for non-members)). Of VSLA members that had experienced a financial shock in the previous 12 months, 40% took a loan from the VSLA to cope with the shock. At endline in RKM GR, there was no difference between VSLA members (67%) and non-members (70%) in the percentage that had experienced financial shocks in the previous 12 months. However, VSLA members in RKM GR were less likely to have sold their crops to cope with the shock (18%) than non-members (31%). Similarly, VSLA members in RKM GR were less likely to have sold livestock to cope with the shock (9%) than non-members (16%). Of VSLA members that had experienced a financial shock in the previous 12 months, 44% took a loan from the VSLA to cope with the shock.

We also collected interview data on whether VSLA membership enhanced farmer resilience to elephant crop damage (A22). Of a sample of households that had experienced crop loss to elephants in the past 12 months (n=12), 92% stated that being a member of a VSLA helped them to manage the impacts of crop loss. 45% of households used a loan from a VSLA to purchase food and 45% used the loan to invest in another income-generating activity. In addition, 92% of households stated their ability to cope with a crop damage incident had increased since becoming a member of the VSLA, primarily due to access to

loans in case they faced a problem (64% of respondents) but also because of increased knowledge on safety around elephants and mitigation measures (36%), and 92% stated that they worry less about an elephant crop damage event happening since joining the VSLA. Furthermore, 83% of these households further stated that having chickens helped them to manage the impacts of crop loss: 40% had sold chickens to purchase food, 40% had sold chickens to pay children's school fees, and 20% sold chickens to purchase agricultural inputs. 58% of households stated that beekeeping helped them to manage the impacts of crop loss, by helping to address various household needs.

0.6 Reduction in human deaths and injuries and elephant mortalities in the landscape due to human-elephant conflict Across the wider landscape, in 2021, there were 4 human deaths (Simbangulu 1, Ilangali 1, Doroto 1, Manyoni 1), 4 human injuries (Simbangulu 1, Doroto 2, Ilangali 1), 2 elephant mortalities due to conflict (Simbangulu 2). In 2022, there were 6 human deaths (Simbangulu 2, Rulanga 3, Kazikazi 1); 3 human injuries (Simbagulu 1, Damwelu 1, Ilangali 1) and 5 elephant mortalities (Mpapa 1, Simbangulu 2, and Ilangali 2). In 2023, there were 5 human deaths (Doroto 1, Kitaraka 1, Chikola 1, Itagata 1, Idoyndole 1, Mbugani 1), 7 human injuries (Chisingisa 1, Chikol & Manzuchi 4, Mtakuja 1, Mpapa 1), and 3 elephant mortalities (Nkonko 2, Doroto 1) of which 2 were killed due to conflict and 1 was poached for bushmeat. Muhesi GR rangers successfully rescued 7 elephant calves (reuniting them with their families) from village wells in Doroto, Ipande and Lulanga villages. Most of these incidents occurred in either our newer project villages (e.g Mpapa and Simbangulu villages) or areas close to our newer project villages (Ilangali, Rulanga and Damwelu villages). In 2024, there were 3 human deaths (Mpapa, Lulanga and Doroto villages), 0 human injuries, and 2 elephant mortalities (Doroto village). In January-March 2025 there were 0 human deaths, 1 human injury (Doroto village), and 0 elephant mortalities. In sum, in the the villages where we have LEMs and conduct year-round outreach about safety around elephants, this has been the trend: 2021: 2 human deaths, 3 human injuries, 2 elephant mortalities; 2022: 2 human deaths, 1 human injury, 3 elephant mortalities; 2023: 2 human deaths, 2 human injuries, 3 elephant mortalities. 2024: 3 human deaths, 0 human injuries, 2 elephant mortalities. As such, the project did not achieve a reduction in human deaths and elephant mortalities, with numbers relatively stable year to year.

0.7 Percentage of surveyed community members around RKM GR who value improvement in HWC response and state there has been an improvement in RKM GR HWC response between pre-project and Year 2. See A23 and A24. 57% of community members interviewed (n=70) in Year 2 stated that there had been an improvement in RKM GR ranger HWC response in 2023 relative to 2022. 56% of community members stated RKM rangers arrive on time, 71% stated that RKM GR ranger response is effective, and 83% stated that they value this support from RKM rangers. Unfortunately, an error in the KoboCollect data collection form meant that indicators for this outcome were not re-assessed during endline surveys around MBOMIPA WMA and RKM GR.

3.3   Monitoring of assumptions

Assumption 0.1: Limited access to safe and reliable credit is a driver of bushmeat poaching.
Comment: Available evidence from previous studies of drivers of bushmeat (Knapp et al., 2017) suggest access to credit for livelihoods is one driver; but this could not be independently verified during the project. We attempted to ask about this during baseline and endline surveys, but due to the sensitive nature of bushmeat, people were reluctant to discuss this topic.

Assumption 0.2 Beneficiaries will reduce reliance on bushmeat and move away from IWT.
Comment: We attempted to assess this in baseline and surveys through asking indirectly about bushmeat consumption before and after household-level interventions; however, people were very hesitant to disclose bushmeat consumption or hunting as this is a sensitive topic. It was thus difficult to assess this assumption.

Assumption 0.3 Increasing detection of bushmeat poaching and arrests of poachers will effectively deter poaching. Comment: The percentage of suspects apprehended for bushmeat in MBOMIPA WMA and the number of bushmeat poachers and bushmeat poaching camps encountered has declined over the course of the project (see Outcome 0.1). This may be due to a deterrent effect of increased patrol effort, but this was not tested directly.

Assumption 0.4: Improvement in HWC response will contribute to more positive community perceptions of RKM GR. Comment: 57% of community members interviewed in Year 2 (n=70) stated that there had been an improvement in RKM GR ranger HWC response in 2023 relative to 2022, and 83% stated that they value this support from RKM rangers. In endline surveys, people who said they valued HWC response

from rangers were more likely to say they benefited from RKM GR (39%) compared to those who did not value ranger HWC response (25%).

Assumption 1.1: With targeted and sensitive outreach and tailored training, people engaged in IWT, women and youth will be interested to join VSLAs and engage in beekeeping and poultry trials, take on leadership positions within VSLAs and actively adopt and maintain these livelihood activities. Comment: Of the 1,271 community members that have joined VSLAs during the project, 46% are women and 50% are youth. Women were more likely than men (94% vs 85%) to say that the loan from the VSLA helped to meet household needs and that their household income had increased (94% vs. 74%), suggesting that VSLAs were particularly valuable for women. Of the 53 people who paid for the Newcastle disease vaccine themselves following the end of a year-long trial, 77% were women, demonstrating the perceived value of the intervention among women.

Assumption 1.2: Poultry vaccine supply chains are sufficiently robust to support affordable vaccine purchase. Comment: Our vaccine distribution trial relied on vaccines purchased from a central supplier (affiliated with the government) in Arusha. While far from our trial location, it was easy to coordinate safe delivery of the vaccine. STEP still coordinated delivery of the vaccine to households who wished to continue vaccination following the year-long subsidized trial ended due to cold storage requirements and the remoteness of the households; as such, transport of the vaccine to remote households remains a challenge.

Assumption 1.3 Extreme weather events (e.g., drought) do not affect the viability of beekeeping
Comment: The El Nino of 2023-2024 caused challenges related to flooding and impeded access to some hives for hive care and monitoring. However, average hive occupancy across all groups remained relatively high (61-64%) in Years 2-3.

Assumption 1.4: Agricultural inputs constitute a significant expense for families. Comment: It remains true that agricultural inputs constitute a significant expense for families, but VSLA members primarily took loans for uses other than agriculture. In RKM GR, 46% of members took loans for small businesses while 19% took loans for agriculture, while in MBOMIPA WMA 39% of members took loans for agriculture.

Assumption 2.1: RKM GR and MBOMIPA WMA continue to allocate resources to HWC Response and to prioritise rapid response. Comment: MBOMIPA WMA remains committed to dedicating VGS for HWC response, but continues to rely on external funding. Unfortunately, funding we had previously secured for HWC response in MBOMIPA beyond project end was lost as a result of US government cuts to foreign aid. The project has collected data to help RKM GR measure both the effectiveness of this response and to what extent it helps to improve their relationship with communities (which we expect to be an important benefit/impact), and we will continue to advocate for greater allocation of financial resources to HWC response by TAWA beyond project end. We saw some variation at the level of the Game Reserve, with Muhesi Game Reserve prioritising HEC response more than Kizigo and Rungwa Game Reserve.

Assumption 2.2: Provision of targeted training and elephant deterrent toolkits will help rangers feel they are better prepared to conduct HWC response. Comment: Post-training interviews with RKM GR rangers (n=13, conducted >10 months after training) indicate that 77% of rangers feel safe when conducting HEC response, 92% say they have the right tools for HEC response and know how to use those tools, 100% say they have the necessary knowledge and 85% say they have the necessary experience to conduct HEC response. However, rangers identified ongoing challenges including distances to village locations, the spatial distribution of farms and households in the landscapes, accessibility issues, and weather conditions. Insufficient vehicles and lack of a full-time team ranger team dedicated to HWC response also remain challenges.

Assumption 3.1 The radio system once installed will experience minimal technical faults and outages. Comment: The upgraded radio system and InReach devices functioned reliably during Year 3. All aerial and ground patrols were tracked in real time, and 43 reported incidents led to 39 arrests. VGS teams reported satisfactory signal coverage and timely communication with the control room. Minor issues were quickly resolved by trained personnel, with no major outages or interference recorded. High system uptime was supported by durable equipment, solar power, and technical support. However, maintaining this reliability will require continued investment in maintenance and timely hardware replacement.

Assumption 3.2 Aerial and VGS teams will be able to use the InReach devices to track their patrols in real time. Comment: All aerial and ground patrols were successfully tracked in real time using InReach

devices. VGS teams confirmed stable signal reception and consistent communication with the control room. Minor technical issues were addressed on-site through troubleshooting by trained staff. The system proved dependable, although sustaining this performance will depend on regular maintenance and device replacement.

Assumption 3.3 Following intensive training, VGS will be able to use the acquired skills and knowledge to use radios and the EarthRanger mobile application proficiently. Comment: A total of 28 VGS (including 6 women) demonstrated competency in using handheld radios and the EarthRanger mobile app. Field observations and data submissions confirmed proper logging of patrol observations, wildlife sightings, and illegal activities. Radio use improved coordination with the control room. Post-training support helped reinforce skills, though a few individuals required refresher guidance due to varied literacy and familiarity with digital tools.

Assumption 3.4 The satellite internet connection for transmitting InReach data to the Control Room is fast and reliable. Comment: The satellite internet connection was generally stable and enabled timely transmission of patrol data. A few short interruptions occurred during adverse weather but did not significantly affect operations. Maintaining this connection is essential for continued coordination and data flow.

Assumption 4.1: We assume that the new aircraft will operate issue-free with only minor maintenance requirements. Comment: Our pilot team monitored the performance of the aircraft closely to ensure that any issues were addressed promptly and that the aircraft remained operational. Regular maintenance and monitoring helped to prevent small issues from becoming larger problems. We experienced some challenges in scheduling maintenance due to engineer availability, but this did not affect our ability to meet the target flight hours under the project, which were in fact greatly exceeded.

Assumption 4.2: STEP will be able to maintain its established and trusted relationships with RKM GR and MBOMIPA leadership. Comment: This assumption held true throughout the project. STEP had a Memorandum of Understanding with MBOMIPA WMA, and renewed its MOU with Tanzania Wildlife Authority, which manages RKM GR. These agreements ensured that our efforts were aligned with the current needs and challenges of the two protected areas. STEP, RKM GR, and MBOMIPA WMA leadership communicated regularly about project progress, and retained flexibility as and where needed.

3.4   Impact

The proposed impact of the project was that reduction in IWT and HWC will increase security of Ruaha-Rungwa, enable recovery of wildlife populations, improve community perceptions of and benefits from protected areas and result in economically resilient communities. The project sought to positively impact human development and well-being by strengthening and diversifying community livelihoods and by building the capacity of protected areas and communities to manage HWC. The project has enabled 1,069 community members (45% women, 53% youth) to gain access to safe and reliable credit, contributing to more diversified livelihoods, increased household incomes and greater resilience to financial shocks including elephant crop damage (see Output 1 and Outcomes 0.3-0.5). VSLAs also improved food security and the ability of people to meet their household needs, contributing to more economically resilient communities. As discussed under Outcome 0.7, community members also report that there has been improvement in HWC response by protected area rangers, and that they value this support. MBOMIPA WMA management have similarly reported that communities around the WMA value the HWC response provided by VGS and see this as a key benefit provided by the WMA. Furthermore, MBOMIPA VGS report that there is greater information sharing by villagers on IWT (such as poacher access routes into the WMA and places where bushmeat is being sold) as a result of HWC response provided by the WMA. The project also had a positive impact on community perceptions of protected areas and elephants (A25a-c). In RKM GR at endline, tolerance for elephants was higher among VSLA members than non-members (77% of VSLA members wished to see an increase in the elephant population in the Game Reserves, compared to 62% for non-members) and among community members engaged through the project's outreach program than those not engaged (74% of people engaged wished to see an increase in the elephant population in the Game Reserves (GRs), compared to 52% of those not engaged). VSLA membership and outreach also positively influenced whether community members were aware of benefits from the GRs (64% of VSLA members were aware vs 42% of non-members; 56% of people engaged in outreach were aware vs 40% of people not engaged), whether they felt they personally benefited from the GRs (39% of people engaged in outreach said they benefited vs 20% of people not engaged; no difference for VSLA members and non-members [34%]), and whether it was important for the GRs to continue to exist (89%

of VSLA members said GRs should continue to exist vs 83% of non-members; 91% of people engaged in outreach were aware vs 68% of people not engaged). In MBOMIPA WMA, there was a very small increase in tolerance for elephants, as 87% of people wished to see an increase in the elephant population in MBOMIPA, compared to 83% at baseline. At endline, tolerance for elephants was higher among VSLA members than non-members (94% of VSLA members wished to see an increase in the elephant population in MBOMIPA, compared to 81% for non-members) and among community members engaged through the project's outreach program than those not engaged (93% of people engaged wished to see an increase in the elephant population in MBOMIPA, compared to 82% of those not engaged). In MBOMIPA WMA, there was an increase in the percentage of community members who said they personally benefited from the WMA, from 66% at baseline to 83% at endline. VSLA membership and outreach also positively influenced whether community members said they personally benefited from MBOMIPA WMA (91% of VSLA members said they benefited vs 76% of non-members; 90% of people engaged in outreach said they benefited vs 76% of people not engaged]) at endline. At endline, 100% of community members said it was important for MBOMIPA WMA to continue to exist, compared to 96% at baseline. The project also aimed to increase security for the WMA in the long-term by increasing law enforcement capacity, introducing conservation technologies to improving communication, real-time tracking and coordination of patrols, expanding ground and aerial patrols, and strengthening post-arrest judicial procedures to increase the risk of detection, arrest, and prosecution. In RKM GR and MBOMIPA WMA, there was a notable reduction in elephant carcasses, poacher camps and timber cutting encounter rates on aerial patrols (see Outcome 0.2). Bushmeat poaching in MBOMIPA WMA, as measured from bushmeat poacher and camp encounter rates on VGS patrols as well as the percentage of suspects apprehended for bushmeat, also declined over the project period (Outcome 0.2). Data from the Monitoring the Illegal Killing of Elephants (MIKE) program (Outcome 0.2) also indicate that elephant poaching decreased in the larger Ruaha-Rungwa ecosystem between 2021 and 2023. Combined, this evidence indicates that the project has improved security for MBOMIPA WMA and RKM GR and has contributed to the intended impact of reducing IWT. In terms of the project's impact on population trends of six focal species (see also Section 5), two have experienced population declines in recent years, two are stable, and two are stable or increasing. Protection efforts in MBOMIPA WMA have also contributed to a stable population trend for lion and leopard (Searle et al., 2023).

4.   Contribution to IWT Challenge Fund Programme Objectives

4.1   Thematic focus

The project sought to contribute to the theme "Developing sustainable livelihoods to benefit people directly affected by IWT'' through livelihood diversification and reduction of human-wildlife conflict with the aim of strengthening household economic resilience and expanding communities' options for responding to economic challenges. As a result of the project, 1,069 people (45% women, 53% youth) people gained access to safe and reliable credit via VSLAs (94% of whom joined a VSLA for the first time), 641 people were engaged in beekeeping, and 214 (55%) households were engaged in a poultry vaccine distribution program. These interventions improved the ability of households to meet their needs, enhanced food security, and improved resilience to shocks, including elephant damage (See Output 1, Outcomes 0.3-0.5). The assumption that this enabled households to be less reliant on IWT/bushmeat has been difficult to measure directly because experience from both the baseline and endline survey indicated that people were very hesitant to discuss bushmeat consumption and IWT. The project has also increased capacity among RKM GR and MBOMIPA to respond to human-elephant conflict incidents through training, provisioning of fuel, toolkits, and vehicles dedicated to HWC response. This has contributed to reducing HWC, as 57% of community members interviewed (n=70) state that there was improvement in HEC response by RKM GR rangers in 2023 relative to 2022. Furthermore, community tolerance for elephants has increased and more community members say they are benefiting from protected areas (see section 3.4). The project also aimed to contribute to the theme "Strengthening law enforcement" by improving tools for communication and patrol tracking and coordination, expanding capacity for and coverage of ground and aerial patrols, enhancing skills and professionalism of VGS in MBOMIPA WMA, and ensuring that the WMA can participate in judicial processes regarding IWT cases. The project significantly expanded VGS patrol effort in MBOMIPA WMA as well as aerial coverage for RKM GR and MBOMIPA WMA. Improvement of radio communications infrastructure and the use of EarthRanger has improved patrol coordination and mobilization to threats observed from both ground and air patrols. The project enabled MBOMIPA WMA to respond effectively to the uptick in ivory poaching that was observed in 2021-2022, and as a result, no elephants were poached in 2023-2024 (B7). Bushmeat poaching in MBOMIPA WMA has also declined. The project has also strengthened collaboration and coordination between the key law enforcement

stakeholders in the project area (MBOMIPA WMA, Ruaha National Park, and Tanzania Wildlife Management Authority.

4.2 Impact on species in focus

All evidence for this section is in annex B7. Latest available aerial census data are from the 2021 Tanzania Wildlife Research Institute (TAWIRI) aerial census; unfortunately, results from the 2024 aerial survey have not yet been made public. As such, we are unable to comment on ecosystem-level population trends between 2021 and 2024 for the project's focal species. If required, STEP can provide this update to BCF once the census report has been published. Elephant encounter rates on VGS patrols in MBOMIPA WMA have generally increased since 2018. In the wider Ruaha-Rungwa ecosystem, elephant populations have been stable at around 15,000 elephants since 2015. The 2021 TAWIRI aerial census indicated there had not yet been an increase in the elephant population by this time (slow recoveries have been observed for other heavily poached elephant populations in Africa; TAWIRI, 2022). The proportion of illegally killed elephants for the whole Ruaha-Rungwa ecosystem declined between 2021 and 2023 was below 50% (the level at which illegal killing is considered unsustainable) throughout the project period, suggesting that poaching of elephants was generally low during this time. In MBOMIPA WMA (which is not part of the Ruaha-Rungwa MIKE site), there was an increase in elephant poaching in 2021-2022 relative to 2018-2020, but no elephants were poached for ivory in MBOMIPA WMA in 2023-2024. Encounter rates of Greater Kudu (a species targeted for bushmeat) on VGS patrols in MBOMIPA WMA have generally declined since 2018. TAWIRI aerial census data also indicate that this species declined in the wider Ruaha-Rungwa ecosystem between 2018 and 2021. In MBOMIPA WMA, Greater Kudu encounter rates were stable in the first two years of the project (2022-2023), but decreased in 2024. Although there has been annual variation, giraffe encounter rates on VGS patrols in MBOMIPA WMA have been generally stable since 2018, and this stable trend was sustained during the project period (2022-2024). Across the wider Ruaha-Rungwa ecosystem, however, TAWIRI aerial census data indicate that the giraffe population declined between 2018 and 2021. Encounter rates of buffalo and eland on VGS patrols in MBOMIPA WMA have increased slightly since 2018, and TAWIRI aerial census data indicate these species are either stable or increasing in the wider Ruaha-Rungwa ecosystem since 2015. Eland encounter rates in MBOMIPA were stable over the project period (2022-2024). Buffalo encounter rates were slightly lower in 2024 relative to 2022-2023 (when the trend was stable). Roan and sable antelope are rare and generally wary in MBOMIPA WMA, and sightings of these species on VGS patrols in MBOMIPA WMA were too few to warrant analysis. TAWIRI aerial census data indicate that roan populations were stable and sable antelope populations increased between 2018 and 2021 in the Ruaha-Rungwa ecosystem. Furthermore, camera trapping surveys conducted by Lion Landscapes and STEP have shown lion and leopard densities to be stable between 2018 and 2022 (Searle et al., 2023).

4.3 Project support for multidimensional poverty reduction

This project focused on communities in the Ruaha-Rungwa ecosystem, specifically those around RKM GR and MBOMIPA WMA. While variable, these communities are primarily characterised by a mix of seasonal rainfed agriculture (with primary crops including maize, rice and a mix of sunflower, millet, and sesame), livestock (cows, pigs and goats), lack of infrastructure (power, water, healthcare, road networks) and poor dietary diversity. The project sought to reduce poverty and improve human wellbeing by reducing human-wildlife conflict and by increasing livelihood diversity for households through access to credit through VSLAs and diversifying (and improving existing) livelihood strategies through beekeeping and improving survival of poultry. Through livelihood diversification we also sought to address drivers of bushmeat poaching, which in the area are thought to be a livelihood diversification strategy employed by moderately poor households to address capability deprivation and gain greater economic agency (Knapp et al., 2017). As a result of the project, 1,069 community members (45% women, 53% youth) gained access to credit through VSLAs, with 53 VSLAs established during the project period (exceeding our target of 500 members and 20 VSLAs). As described under Output 1 and Outcomes 0.3-0.5, VSLAs contributed to livelihood diversification and higher incomes. At endline, 62% of VSLA members (59% of women) said they gained a new source of income since joining the VSLAs, and 85% of VSLA members (94% of women) stated that their household income had increased since joining the VSLA. (A25) . New income sources were mostly non-agricultural, and included starting small businesses and keeping poultry, cattle or small stock. Our original theory of change was that VSLA membership would enable farmers to hold onto their harvest for longer and to sell during higher price periods for their crops, thereby increasing farmer's returns.

However, we did not find consistent evidence for this (see Outcome 0.4), likely because multiple factors influence the timing of crop sales and because VSLA members often took loans for reasons other than agriculture. While incomes from beekeeping were modest, 45% of members of groups who harvested at least once stated that their household income had increased as a result of beekeeping. The project also engaged >200 households in a subsidized poultry vaccine distribution trial, which achieved a reduction in poultry mortality from Newcastle disease. All households participating in the trial said that there were benefits to vaccination; these (unprompted) benefits included reduced incidence of chicken disease and mortality, an increase in the number of chickens, and increased income and access to meat. 95% of households said their household income had increased since vaccinating their chickens (A6). Following the end of the trial, 53 households (77% women) continued vaccinating their chickens, paying for the vaccines themselves, demonstrating the perceived value of the intervention. The project contributed to tangible improvements in food security and the ability of households to meet households needs. The Basic Necessities Survey (BNS) score - a poverty assessment tool based on a community-articulated assessment of 'basic needs' (a higher score indicates that a higher proportion of household needs are met) improved by 22.8% from baseline to endline for VSLA members around MBOMIPA WMA, while the improvement for non-VSLA members around MBOMIPA was only 2.5% over the same period (Outcome 0.3). At endline, the BNS score for RKM GR VSLA members was 10% higher than for non-members. In MBOMIPA, indicators of food security improved for both VSLA members and non-members between baseline and endline (this may reflect annual or seasonal variation), however, improvements were considerably larger for VSLA members than non-members (Outcome 0.4). The percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months declined by 46% for VSLA members between baseline and endline, and by 25% for non-VSLA members. The average household dietary diversity score increased by 10% for VSLA members but remained stable for non-members between baseline and endline. In RKM GR, all indicators indicated higher food security among VSLA members than non-members at endline. The percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months was 5% for VSLA members and 15% for non-VSLA members. The average household dietary diversity score was 11% higher for VSLA members than non-members. VSLAs also provided access to loans to help members cope with financial shocks, as such they were less likely to resort to selling their crops to cope with the shock (Outcome 0.4). VSLAs also strengthened capacity for coping with elephant crop damage. In interviews with VSLA members that experienced crop loss to elephants in the previous 12 months, 92% stated that their ability to cope with a crop damage incident had increased since becoming a member of the VSLA (A23), primarily due to access to loans in case they faced a problem (64% of respondents) but also because of increased knowledge on safety around elephants and mitigation measures (36%). The project also indirectly addressed issues of poverty through reducing the cost of living with wildlife by increasing the capacity of protected area staff to respond to HWC. 57% of community members interviewed stated that HWC response by RKM GR rangers improved in 2023 relative to 2022, and 83% stated that they value this support from RKM rangers. This improved capacity for HWC response, as well as the project's livelihood interventions and community outreach component (which focused on improving awareness of safety around elephants and benefits of protected areas), positively impacted community perceptions of protected areas and elephants (see section 3.4). Tolerance for elephants increased in MBOMIPA WMA, while in RKM GR (surveyed at endline only), tolerance for elephants was higher among VSLA members than non-members and among community members engaged through the project's outreach program than those not engaged. In MBOMIPA WMA, the percentage of community members who said they benefited from the WMA increased. VSLA membership and outreach also positively influenced whether community members stated they benefited personally from the WMA.

Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board[1].	50%
Please quantify the proportion of project partners that are led by women, or which	TAWA RKM GR project managers: 0% women. TAWA Central Zone (Manyoni): 33% women. MBOMIPA Authorised Association: 14% women, senior VGS leadership: 33% women.

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[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

have a senior leadership team consisting of at least 50% women[2].	

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

Gender dynamics in the project area are characterised by highly defined spheres of distinct responsibility, especially among agro-pastoral communities. Women are often not involved in 'official' decision-making forums (traditional authorities, sub-village and village government) but exert influence within the household sphere. Given this context, in our project orientation meetings at village and community level, we took proactive measures to ensure that all individuals, regardless of gender or social background, had opportunities to participate and benefit from the project, and to actively promote gender equality and social inclusion. A key way in which we sought to promote women and youth is through VSLAs which allowed members to independently access capital that can be utilised for household-level priorities. Female participation in VSLAs was enhanced by ensuring that meetings are held at times and locations suitable for women, as decided in a participatory process during group formation. Of the 1,069 community members that have become members of VSLAs as a result of the project, 45% are women and 53% are youth, and 33% of leadership positions in VSLAs are held by women. VSLA membership contributed to economic empowerment for women, as 94% women who took VSLA loans said the loan helped them to meet household needs. Furthermore, 94% of female VSLA members said that their household income had increased (compared to 74% for men), suggesting that VSLAs were particularly valuable for women. Out of 214 households engaged in poultry vaccine distribution, 55% of the beneficiaries were women. Of the 53 people who paid for the Newcastle disease vaccine themselves following the end of the year-long trial in villages adjacent to MBOMIPA WMA, 77% were women, demonstrating the perceived value of the intervention among women. As our experience under IWT052 demonstrated that women are less likely to attend large scale outreach events due to competing household priorities, we designed a home visit program (involving one-on-one discussions and film screening using tablets) with the goal of reaching more women and youth. Women constituted 32% of community members reached through household visits in Year 1, 30% in Year 2 and 37% in Year 3. This reach remains lower than anticipated, however, indicating that further adjustments to our outreach model are needed to ensure it is gender-inclusive. Our team of community-based LEMs comprises 14% women and 78% youth. Among the rangers and VGS that were trained on the use of elephant deterrent toolkits and elephant behaviour, 15% were women. Female employment of VGS was actively promoted under the project: the percentage of female VGS increased from 17% in Years 1-2 to 28% in Year 3 (MBOMIPA WMA recruited new VGS in Year 3 and STEP advocating strongly that more women should be invited for interviews and hired as VGS). In Year 2, three female VGS were trained to become aerial observers and three female VGS received advanced anti-poaching skills training (B6a, B14). STEP also collaborated with MBOMIPA WMA to promote more women VGS to leadership positions: among the three VGS commanders every month, one is a woman. This has shown the WMA that women VGS are effective post commanders, earning the respect and trust

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[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

of their fellow VGS. We also ensured safe working conditions for women VGS, such as providing separate accommodation, and offered flexibility in work schedules to accommodate childcare responsibilities.

5. Monitoring and evaluation

Overall, the project's M&E system was practical and appropriate. Note that Output 3 activities and indicators were amended under a change request approved by BCF. STEP led M&E, however RKM GR and MBOMIPA WMA collected and shared important data on patrols and HWC response. The results of ground patrols in MBOMIPA WMA (for which VGS collect data that are then summarised and mapped by STEP) were shared with the MBOMIPA Protection Committee on a monthly basis, and broader discussions around trends and priorities were held during quarterly meetings of the WMA Board. The results of aerial patrols (which are summarised and mapped by STEP) were shared with relevant PA managers in a report immediately after a mission and daily sightings were also communicated to VGS/ranger teams on the ground. In addition to data collected by rangers themselves, we conducted structured interviews with rangers to hear their opinions regarding their preparedness and safety for HWC response (under Output 2) which were particularly valuable. While the logframe focused primarily on output and outcome level indicators, we also collected data on operational indicators (not included in the logframe) to track the implementation of activities (these are reported under Activities in Section 3). In several instances, we developed additional output and outcome-level indicators that were not in the project logframe in order to more comprehensively capture project impact. For instance, for the poultry vaccination trials, we collected additional data on household perceptions of the efficacy of the vaccine and their willingness to pay for the vaccine. For Outcome Indicators 0.3 and 0.5, we collected additional data on whether VSLA loans helped VSLA members meet household needs, increased household incomes and contributed to resilience to elephant crop damage. We also expanded the number of indicators we monitored under Outcome 0.1 in order to obtain a more comprehensive understanding of trends in ivory poaching (elephant carcasses and cause of mortality, ivory seizures) and bushmeat poaching (% of suspects arrested for bushmeat poaching, trends in carcass encounters for key species targeted for bushmeat). Trends in bushmeat seizures would also have been valuable to track in hindsight, but requires time-intensive review of police and news reports. In addition, to monitor the impact of the project on key wildlife species we monitored encounter rates of these species on VGS patrols in MBOMIPA WMA, and used supplementary data from camera trapping surveys and TAWIRI aerial censuses. Looking back, several indicators proved challenging to monitor. For instance, output indicator 2.4 was difficult to measure, as all groups that harvested honey allocated income from sales into the group's capital fund rather than sharing income between individual group members. Output indicator 2.1 (the percentage of reported HWC incidents where rangers arrived at the site of the incident within 3 hours of reporting) was also challenging to monitor as the time of arrival on site and the time when information was received was not consistently recorded. Instead, we asked MBOMIPA VGS to record whether they arrived at the site of a reported incident when elephants were already in farms, or they arrived in time to prevent elephants from entering farms. We also asked rangers and community members about the timing of HWC response in order to understand how this is perceived, which was very useful for understanding whether rangers were meeting community expectations. An internal endline evaluation of the project (focused on Outputs 1-2 and related Outcome indicators) was conducted through structured interviews with households around MBOMIPA WMA (n=126 households, 53 of whom were VSLA members and 67 non-members;).and RKM GR (n=121 households, 61 of whom were VSLA members and 60 non-members). Findings from these surveys have been shared throughout this report, and data are in annex A25a-c.

6. Lessons learnt

We learned that VSLAs had a positive impact on livelihoods, income, household resilience to shocks, and food security, as well as tolerance to elephants and perceptions of protected areas. While we originally thought that VSLAs would primarily have this effect by providing access to loans for agriculture, thereby allowing VSLA members to hold onto harvest longer and sell during higher price periods, we did not find consistent evidence for this. Instead, VSLA members primarily used their loans to diversify their livelihoods beyond agriculture. VSLAs also served an important function for households that had experienced elephant crop damage, as several members took loans that helped them to purchase food or to invest in alternative income-generating activity. Another key lesson learnt is the value of supporting the role that rangers and village game scouts have in addressing human-wildlife conflict. HWC response by MBOMIPA VGS is seen by community members as a key benefit provided by the WMA and has stimulated greater information sharing on IWT by community members with the WMA. Community members that valued HWC response by RKM GR rangers were more likely to say they benefited from the Game Reserves (39%) than

those that did not (25%). Rapid deforestation was a challenge for several VSLA groups practising beekeeping around RKM GR, limiting the feasibility of beekeeping as a livelihood activity. Through analysis of the spatial distribution of elephant crop damage, we have found that crop damage risk is higher in more recently deforested areas. These insights are useful for land use planning and decisions around natural resource management within villages. Although difficult to quantify, we and our partners in the project landscape perceive that increased aerial support to the ecosystem has had a deterrent effect on illegal activity; trends in illegal activities observed on flights support this observation. The development of a framework for quantifying the deterrent effect of aerial patrols would be valuable. In terms of M&E, we learned that it was important to collect data on additional indicators not captured in the project logframe (see section 5 for examples). Our M&E also revealed important differences in socio-economic indicators and perceptions of elephants and protected areas within the landscape, demonstrating the importance of understanding context and of disaggregating data collection by protected area type (e.g., community-managed WMA vs state-managed Game Reserve).

7. Actions taken in response to Annual Report reviews

The reviewer asked us to specify how we would overcome supply chain barriers for VSLA members who wished to continue vaccinating their chickens for Newcastle disease following the end of the year-long subsidised trial. Following trial end, we asked which households were willing and able to pay for the vaccines themselves (55 households, 77% women). Due to cold storage requirements, STEP continued to source the vaccines directly from the supplier and to assist with distribution to households during quarterly project monitoring visits, thereby covering the transport costs while households paid for the vaccine. This is an intermediate solution, however, and supporting VSLAs to meet cold storage requirements will be the next step (this will continue beyond project end).

8. Risk Management

No new risks arose in Year 3 of the project. An updated risk register is submitted with this report.

9. Scalability and durability

A key goal of this project was to build the capacity of community members, village and District government leaders, and RKM GR and MBOMIPA WMA leadership. We worked closely with our team of community-based Local Elephant Monitors (LEMs), RKM GR and MBOMIPA WMA staff, District authorities and village leaders during implementation and monitoring of activities including formation of VSLAs, outreach events, beekeeping training and poultry vaccination, so that they gained experience with these activities. The capacity of TAWA staff and District Game Officers to conduct outreach about human-wildlife coexistence with communities has greatly increased as a result of the project. The Tembo Cup model has been adopted by a number of other conservation NGOs working in Tanzania, and we have invited a range of other NGOs (Lion Landscapes, The Peregrine Fund) to use the event as a platform for sharing conservation messages. All VSLAs established by the project continue to operate. We intend to conduct quarterly monitoring visits to VSLAs established under the project, and our team of LEMs and project staff remain available for any VSLAs that need our support with resolving challenges. STEP will also continue to support Newcastle vaccine distribution to households that are willing to purchase the vaccine themselves. Project staff and resources remain in the landscape beyond project end, and our intention is to continue the successful interventions implemented under IWT111. While STEP had originally secured funding from the United States Fish and Wildlife Service to continue our community work as well as aerial and ground patrol support to MBOMIPA WMA and RKM GR through 2028, this funding was suspended in January 2025 until further notice. As such, STEP faces a significant funding shortfall in the landscape that we have been working to address through increased fundraising efforts. To deal with this shortfall, we have had to scale back aerial and fuel support to RKM GR and MBOMIPA and reduce the number of VGS on duty in MBOMIPA, and reduce the number of field visits to our project villages. STEP and our partner Honeyguide Foundation remain invested in supporting MBOMIPA WMA to become financially, socially and ecologically sustainable. With matched funding from BIOPAMA, we facilitated governance training for all MBOMIPA Authorised Association (AA) members (42 members, 14% women). A Manager and Accountant for the WMA were recruited and trained on key skills and the WMA was supported to develop a range of management tools and policies including a financial manual, procurement manual, women's empowerment policy, environmental management guidelines, code of conduct and stakeholder engagement plan. We also facilitated the introduction of QuickBooks, making MBOMIPA one of the few WMAs in Tanzania to use the system for enhanced financial transparency, tracking, and reporting. STEP facilitated stakeholder engagement workshops and training sessions to ensure community awareness of

WMA governance, roles, and rights. We also facilitated the development of a HWC Strategy for the WMA and helped the WMA raise community awareness on the WMA's importance, governance structures, and community rights through the distribution of posters, booklets, and calendars to member villages. STEP also facilitated training for 42 WMA AA members on Principles of Sustainability and co-hosted a workshop with Honeyguide Foundation to support the AA to develop Business Enterprise Sustainability Tools (BEST) - a business plan for the WMA. However, a key challenge for sustaining the project's legacy in MBOMIPA WMA is that the WMA has limited tourism revenue. MBOMIPA WMA's financial situation has improved as it now receives revenue from a hunting operator, and beyond project end, STEP and the WMA reached a cost-sharing agreement on VGS patrol costs. However, the WMA does not yet have sufficient budget to cover all VGS costs, and combined with STEP's funding shortall, this necessitated the WMA's HWC response unit to stop operating after project end. Ranger and VGS capacity for HWC response has been built by the project (79 rangers/VGS trained), with a majority of trained rangers saying that they feel prepared and safe when conducting HWC response. As a result, 56% of community members around RKM GR interviewed say that HWC response by rangers improved between 2023 and 2022. The majority of the VGS and rangers trained by project are still working in the landscape. With the training and equipment provided, RKM GR rangers have continued to support communities with safer and more effective HWC response beyond project end, although they face a shortfall for fuel to enable this response. Our model for ranger training has been adopted by other organisations in Tanzania, including the Frankfurt Zoological Society and the Deutsche Gesellschaft für Internationale Zusammenarbeit's (GIZ) Human-Wildlife Conflict Mitigation Project in southern Tanzania. Our model for HWC response by VGS in MBOMIPA WMA has also generated interest from Tanzania's Ministry of Natural Resources and Tourism, to whom we presented a report.

10. IWT Challenge Fund Identity

The IWT Challenge Fund and UK International Development logos were displayed on the STEP website and included in STEP's Annual Reports for 2022, 2023 and 2024 (C3). Financial support from IWT Challenge Fund has been acknowledged in reports (B4-5; B8) and meetings with project partners, village leaders, and project beneficiaries, and has been communicated as forming part of a larger program. STEP's social media accounts include a Facebook page (16,494 followers), LinkedIn page (1,434 followers), and Instagram page (2,041 followers). Over the project period, five social media posts were posted on Instagram and three on Facebook, which we linked to the Biodiversity Challenge Funds account. Following a visit from the British High Commission in Tanzania and a representative from the IWT Challenge Fund in April 2023, both STEP and the British High Commission posted about the visit on Twitte

11. Safeguarding
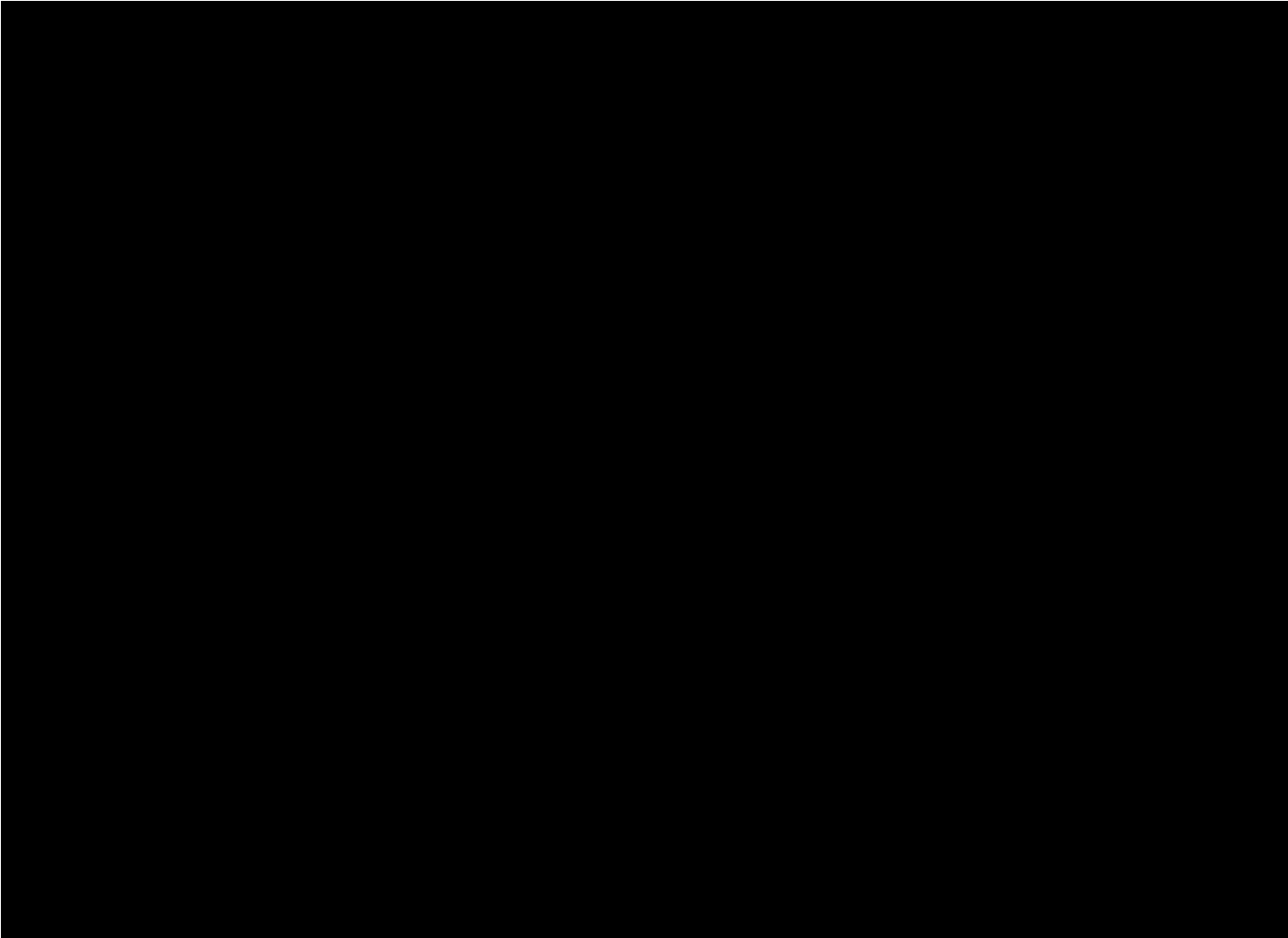
12. Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2024/25 Grant (£)	2024/25 Total actual IWTCF Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL	128,000.00	128,000.00	0%	

Staff employed (Name and position)	Cost (£)
Trevor Jones (Project Leader)	
Josephine Smit (M&E)	
Frank Lihwa (Protection Lead)	
Kim Lim (HWC & Livelihoods Lead)	
Nelson David (Accountant)	
Grace Kawogo/Flora Njau (Grant Administration and Compliance Lead)	
Solomon Sembosi (Protection Assistant)	
Peter Mtyana (Vehicles Coordinator and Driver)	
TOTAL	

Capital items – description
TOTAL

Other items – description	Other items – cost (£)
TOTAL	

12.2   Additional funds or in-kind contributions secured

Matched funding leveraged by the partners to deliver the project	Total (£)
Year 1 (United States Fish and Wildlife Service, INL)	██████
Year 2 (United States Fish and Wildlife Service, INL, BIOPAMA)	██████
Year 3 (United States Fish and Wildlife Service, BIOPAMA)	██████
	██████
	██████
TOTAL	██████

Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project	Total (£)
Lion Recovery Fund	██████
Nawiri Foundation	██████
Monaco Foundation	██████
	██████
	██████
TOTAL	██████

12.3   Value for Money

The project built on experience and lessons learned from IWT052 about effective approaches that were likely to have a high return on investment. The project provided good value for money as it achieved most of its intended output and outcomes. Project implementation and monitoring costs were economical, and overheads constituted only 2% of the project budget. Our personnel costs were reasonable and comparable to that of similar-sized conservation organizations in Tanzania, and project personnel are permanently based in Tanzania. Experienced pilots were hired on a per-mission basis so that we could operate flexibly in response to available funding and partner needs. The cost per flight-hour of STEP's Savanna aircraft is substantially lower than that of Cessna aircraft.

13.   Other comments on progress not covered elsewhere

None.

14.   OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes

I agree for the Biodiversity Challenge Funds Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)

				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

- **Annex 1 Report of progress and achievements against logframe for the life of the project**

Project summary	Progress and achievements
Impact Reduction in IWT and HWC will increase security of Ruaha-Rungwa, enable recovery of wildlife populations, improve community perceptions of and benefits from protected areas, and result in economically resilient communities.	The project enabled 1,069 community members (45% women, 53% youth) to gain access to safe and reliable credit, contributing to more diversified livelihoods, increased household incomes, greater resilience to financial shocks, and improved food security. The project also increased tolerance for elephants and improved community perceptions of protected areas and elephants (see Section 3.4 for details). The project has improved security for MBOMIPA WMA and RKM GR and has contributed to the intended impact of reducing IWT. In RKM GR and MBOMIPA WMA, there was a notable reduction in elephant carcasses, poacher camps and timber cutting encounter rates on aerial patrols (see Outcome 0.2). Bushmeat poaching in MBOMIPA WMA declined over the project period as did elephant poaching across the wider Ruaha-Rungwa landscape. Of the project's six focal species (see Section 5), two have experienced population declines in recent years, two are stable, and two are stable or increasing. Protection efforts in MBOMIPA WMA have also contributed to a stable population trend for lion and leopard in this area.
Outcome Livelihood diversification, reduction of human-wildlife conflict and strengthening of law enforcement capacity result in a reduction in bushmeat poaching, increase household resilience, and begin to improve community perceptions of PAs	The project achieved 5 (0.1-03., 0.5, 0.7) of its 7 Outcome indicators. Under Outcome 0.4, we expected that VSLA would impact the timing of crop sales and enable farmers to sell more of their harvest during higher price periods. Although the project did not find consistent evidence for this, there is significant evidence that VSLAs positively impacted household incomes, food security and resilience. Under Outcome 0.6 we expected to see a reduction in human deaths and injuries and elephant mortalities in the landscape due to human-elephant conflict. While the trend for this outcome indicator was stable over the project period, other evidence indicates that human-wildlife conflict has decreased, including improved ranger response to HWC, an increase in tolerance for elephants, and improved community perceptions of PAs.
0.1 Reduction in the detection rate of illegal activities (disaggregated by type, e.g. bushmeat, and protected area) on ground patrols (Baseline: to be established from 2021-2022 data, target: 15% reduction in Y2 and 30% reduction by Y3).	0.1 We are using multiple indicators to assess progress towards this outcome: • The number of elephant carcasses encountered and the percentage due to poaching and conflict in and around MBOMIPA WMA: Baseline: In 2021, 7 elephant carcasses , of which 86% were attributed to ivory poaching and 0% to conflict (In 2020, 2 carcasses, 100% due to conflict). Year 1: In 2022, 12 elephant carcasses of which 75% were attributed to ivory poaching and 17% to conflict. Year 2: In 2023, 2 elephant carcasses, 100% due to conflict. Year 3: In 2024, 0 elephants were killed due to conflict or ivory poaching (2 elephants were trophy hunted in MBOMIPA WMA).

	- Proportion of Illegally Killed Elephants (PIKE): PIKE declined from 0.36 in 2021 (baseline) to 0.11 in 2022 (Year 1) and 0.08 in 2023 (Year 2). Data for 2024 (Year 3) are not yet available. - The number of ivory seizures, number of tusks and ivory pieces seized in Iringa and Mbeya regions. These showed an increase in 2022 (Year 1) relative to 2019-2021 (pre-project baseline) but decreased in 2023 (Year 2; see B7 for detailed trends). The trend was stable in 2024-2025 (Year 3). - Bushmeat poacher encounter rates on VGS patrols in MBOMIPA WMA: 0.0035 bushmeat poachers per effective person-patrol day in 2021 (baseline), 0.0039 bushmeat poachers per effective person-patrol day in 2022 (Year 1, 11% increase relative to baseline), and 0.0030 bushmeat poachers per effective person-patrol day in 2023 (16% decrease relative to baseline), and 0.0018 bushmeat poachers per effective person-patrol day in 2024 (Year 3, 52% decrease relative to baseline). - Bushmeat poaching camps encounter rates in MBOMIPA WMA: 0.0339 camps per effective person-patrol day in 2021, 0.0246 camp per effective person-patrol day in 2022, 0.0035 in 2023, and 0.0006 camps per effective person-patrol day in 2024 (an 85% decrease relative to baseline). - Percentage of suspects apprehended in MBOMIPA WMA that are bushmeat-related. Baseline: In 2021, 22% of suspects apprehended in the WMA (n=9) were bushmeat-related (67% in 2020, n=15 arrests). Year 1: In 2022, 46% of suspects apprehended in the WMA (n=13 arrests) were bushmeat-related. Year 2: In 2023, 34% of suspects apprehended were bushmeat-related (n=35 arrests). Year 3: In 2024, 29% of suspects apprehended were bushmeat-related (n=35 arrests). - Encounter rates of carcasses of 5 key species targeted for bushmeat. Baseline: 0.0065 carcasses per effective person-patrol days in 2021 (In 2020, encounter rate was 0.0093). Year 1: 0.0055 carcasses per effective person-patrol days in 2022. Year 2: 0.0066 carcasses per effective person-patrol days in 2023. Unfortunately, due to data quality issues for carcass observations on patrols, we cannot confidently present results for Year 3.
0.2 Reduction in the detection rate of illegal activities (disaggregated by type, e.g. bushmeat and protected area) on aerial patrols (Baseline: to be established from 2021 data, target: 15% reduction in Y2 and 30% reduction by Y3).	0.2.In RKM GR, the encounter rate for poacher camps associated with bushmeat poaching, mining, and timber cutting was 38% lower in Year 3 (0.483 camps per flight hour in 2024) relative to the pre-project baseline (0.784 camps per flight hour in 2021). The timber cutting encounter rate in RKM GR decreased by 90% in Year 3 (0.080 sites per flight hour in 2024) relative to the pre-project baseline (0.825 sites per flight hour in 2021). Elephant carcass encounter rates for RKM GR dropped from 0.375 carcasses per flight hour in 2020 to 0 in 2024. For MBOMIPA WMA and Lunda-Nkwambi GCA, it should be noted that our pre-project baseline (2020) was a year with very low flight hours. The encounter rates of poacher camps increased from 0 in 2020 and 2022 to 0.047 in 2023, which may reflect

	greater flight coverage relative to previous years. Between 2023 and 2024, the poacher camp encounter rate dropped slightly (by 16%) to 0.039. Timber cutting site encounter rates rose from 0 in 2022 to 0.100 in 2023, and then declined by 87% to 0.013 in 2024. Elephant carcass encounter rates in MBOMIPA WMA and Lunda-Nkwambi GCA were stable in 2022-2023 (0.111 and 0.113 respectively) and declined by 88% to 0.013 in 2024.
0.3 Percentage of engaged beneficiaries who report being able to address the majority of acute household needs through VSLA loans and/or other livelihood activity (Baseline to be established in Y1; target: 80% in Y3).	0.3 The Basic Necessities Survey (BNS) score (a higher score indicates that a higher proportion of household needs are met) for VSLA members around MBOMIPA WMA increased by 22.8% from 18.3 at baseline (early in Year 1) to 22.4 at endline (late in Year 3). During the same period, the BNS score for adjacent households that were not VSLA members increased by 2.5% from 16.6 to 17.0. The BNS score for RKM GR was only measured at endline, and compared between VSLA members and adjacent households that were not VSLA members. the BNS score for VSLA members was 15.2 compared to 13.8 for non-members, a 10% difference. At endline, 90% of VSLA members stated that the loan(s) they had taken from a VSLA in the previous cycle had helped them to meet household needs (94% for women, 85% for men).
0.4 Percentage of engaged beneficiaries who retain at least 50% of their crops for sale or consumption at high price periods due to income from poultry farming, beekeeping and increased access to credit from VSLAs (Baseline to be established in Year 1; target: 50% in Y3).	0.4 Of a sample of VSLA members interviewed who were not VSLA members in the 2022-2023 farming season (n=37), 27% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season (baseline). Of a sample of VSLA members interviewed who had been VSLA members for one year in the 2022-2023 farming season (n=18), 22% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season (however, this partly reflects that these members sold a lower proportion of their harvest overall [37%] compared to non-VSLA members [48%]). Of a sample of VSLA members interviewed who had been VSLA members for at least three years in the 2022-2023 farming season (n=15), 33% sold at least 50% of their harvest during high price periods in the 2022-2023 farming season. Considering just the portion of harvest from the 2022-2023 farming season that was sold (disregarding the portion kept for food at the household), 61% of the harvest of non-VSLA members was sold during high price periods, 64% of the harvest of farmers who had been VSLA members for one year was sold during high price periods, and 85% of the harvest of farmers who had been VSLA members for at least three years was sold at high price periods. In RKM GR at endline, 70% of VSLA members sold 50% or more of the total harvest they sold during high price periods, compared to 68% for non-members. In MBOMIPA, 26% of VSLA members sold 50% or more of the total harvest they sold during high price periods, compared to 22% for non-members.
0.5 Engaged households show increased resilience as measured by custom resilience index (ARSSI, Index of Social Capital, RIMA) from Baseline to Year 3 (Baseline to be established in Year 1).	0.5 In MBOMIPA, indicators of food security improved for both VSLA members and non-members between baseline and endline (this may reflect annual or seasonal variation), however, improvements were larger for VSLA members than non-

members. For instance, the percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months declined from 50% to 4% for VSLA members between baseline and endline, and from 41% to 16% for non-VSLA members. The average household dietary diversity score increased from 38.4 to 42.4 (10% increase) for VSLA members, but remained stable for non-members (35.9 at baseline, 35.3 at endline). In RKM GR, indicators of food security were compared between VSLA members and non-members at endline only. All indicators indicated higher food security among VSLA members than non-members. For instance, the percentage of households that had experienced a lack of food due to financial and other resource constraints in the previous 12 months was 5% for VSLA members and 15% for non-VSLA members. The average household dietary diversity score was 38.6 VSLA members and 34.7 for non-members, a difference of 11%.

At endline in MBOMIPA, there was a small difference between VSLA members (70%) and non-members (75%) in the percentage that had experienced financial shocks in the previous 12 months. VSLA members in MBOMIPA were slightly less likely to have sold their crops to cope with the shock (26%) than non-members (34%), however there was no difference in the percentage that had sold livestock to cope with the shock (7% for VSLA members, 6% for non-members)). Of VSLA members that had experienced a financial shock in the previous 12 months, 40% took a loan from the VSLA to cope with the shock. At endline in RKM GR, there was no difference between VSLA members (67%) and non-members (70%) in the percentage that had experienced financial shocks in the previous 12 months. However, VSLA members in RKM GR were less likely to have sold their crops to cope with the shock (18%) than non-members (31%). Similarly, VSLA members in RKM GR were less likely to have sold livestock to cope with the shock (9%) than non-members (16%). Of VSLA members that had experienced a financial shock in the previous 12 months, 44% took a loan from the VSLA to cope with the shock.

Of a sample of households that had experienced crop loss to elephants in the past 12 months (n=12), 92% stated that being a member of a VSLA helped them to manage the impacts of crop loss. In addition, 92% of households stated their ability to cope with a crop damage incident had increased since becoming a member of the VSLA, primarily due to access to loans in case they faced a problem (64% of respondents) but also because of increased knowledge on safety around elephants and mitigation measures (36%). 92% stated that they worry less about an elephant crop damage event happening since joining the VSLA.

0.6 Reduction in human deaths and injuries and elephant mortalities in the landscape due to human-elephant conflict (Baseline: 5 human deaths, 1 human injury, 2 elephant mortalities in 2021; Target: <5 human deaths/injuries and <2 elephant mortalities in Y3).	0.6 Across the wider landscape, in 2021, there were 4 human deaths (Simbangulu 1, Ilangali 1, Doroto 1, Manyoni 1), 4 human injuries (Simbangulu 1, Doroto 2, Ilangali 1), 2 elephant mortalities due to conflict (Simbangulu 2). In 2022, there were 6 human deaths (Simbagulu 2, Rulanga 3, Kazikazi 1); 3 human injuries (Simbagulu 1, Damwelu 1, Ilangali 1) and 5 elephant mortalities (Mpapa 1, Simbangulu 2, and Ilangali 2). In 2023, there were 5 human deaths (Doroto 1,

	Kitaraka 1, Chikola 1, Itagata 1, Idoyndole 1, Mbugani 1), 7 human injuries (Chisingisa 1, Chikol & Manzuchi 4, Mtakuja 1, Mpapa 1), and 3 elephant mortalities (Nkonko 2, Doroto 1) of which 2 were killed due to conflict and 1 was poached for bushmeat. Muhesi GR rangers successfully rescued 7 elephant calves (reuniting them with their families) from village wells in Doroto, Ipande and Lulanga villages. Most of these incidents occurred in either our newer project villages (e.g Mpapa and Simbangulu villages) or areas close to our newer project villages (Ilangali, Rulanga and Damwelu villages). In 2024, there were 3 human deaths (Mpapa, Lulanga and Doroto villages), 0 human injuries, and 2 elephant mortalities (Doroto village). In January-March 2025 there were 0 human deaths, 1 human injury (Doroto village), and 0 elephant mortalities. In sum, in the the villages where we have LEMs and conduct year-round outreach about safety around elephants, this has been the trend: 2021: 2 human deaths, 3 human injuries, 2 elephant mortalities; 2022: 2 human deaths, 1 human injury, 3 elephant mortalities; 2023: 2 human deaths, 2 human injuries, 3 elephant mortalities. 2024: 3 human deaths, 0 human injuries, 2 elephant mortalities.
0.7 Percentage of surveyed community members around RKM GR who value improvement in HWC response and state there has been an improvement in RKM GR HWC response between the pre-project period and Y2 (Baseline: to be established in Y1; target: 70% in Y2)	0.7 In Year 2, 57% of community members interviewed (n=70) stated that there had been an improvement in RKM GR ranger HWC response in 2023 relative to 2022. 71% stated that RKM GR ranger response is effective, and 83% stated that they value this support from RKM rangers.
Output 1 500 community members gain access to safe credit and have more diversified livelihoods to offset illegal wildlife use (bushmeat poaching).	
Output indicator 1.1. Percentage of VSLA members who are actively engaged (as measured by attendance and share participation score) and have accessed loans (Baseline to be established in Y1; target: 80% of 500 members in Y3, 50% women, 35% youth)	1.1 The number of loans issued by VSLAs proved easier to monitor than the number of VSLA members accessing loans, however, endline surveys indicated that 95% of VSLA members took loans (97% of women, 93% of men). Overall, 31% of members took 1 loan (29% of women, 33% of men), while 64% took 2-3 loans (68% of women, 59% of men). The number of loans per year was as follows: Year 1: 686. Year 2: 1,123. Year 3: 1,538. Total = 3,347.
Output indicator 1.2. Percentage of VSLA members who resort to selling more than 30% of harvest at harvest time by the end of Year 3. (Baseline to be established in Y1; target: <50% in Y2 and <20% by Y3).	1.2 Of a sample of VSLA members (n=37) interviewed who were not VSLA members in the 2022-2023 farming season, 11% sold 30% or more of their harvest within a month of harvesting in the 2022-2023 farming season. Of a sample of VSLA members (n=18) interviewed who had been VSLA members for one year in the 2022-2023 farming season, 6% sold 30% or more of their harvest within a month of harvesting in the 2022-2023 farming season. At endline in RKM GR, there was no difference between VSLA members and non-members in the percentage that sold 30% or more of their harvest within a month of harvesting

	(20%). At endline in MBOMIPA, 26% of VSLA members sold 30% or more of their harvest within a month of harvesting, compared to 33% for non-members.
Output indicator 1.3. Percentage increase in poultry survival rate among 100 vaccine program participants (50% women) (Baseline to be established in Y1; target: average 25% increase in poultry survival rate in Y2, disaggregated by gender).	1.3 Chicken mortality due to disease (measured over a three month period prior to the first round of vaccination and again in the three months after the third round of vaccination) decreased from 21.6% to 1.1% in Rungwa village and 34.2% to 2.8% in Doroto village. The trial was extended to 94 households in 4 villages in MBOMIPA WMA in Y2-Y3, with chicken mortality due to disease declining from 6% in the three months prior to vaccination to 2% after the second and third rounds of vaccination.
Output indicator 1.4. Percentage of engaged beekeepers who increase their honey harvest and see a minimum 10% increase in honey sales (100 beekeepers; baseline to be established in Y1; target: 90% in Y3, disaggregated by gender)	1.4 This indicator proved difficult to measure, as all the groups that harvested honey decided to add the income from honey sales to the group's capital for loans or group income-generating activities, rather than to distribute funds to individual members. By project end, 53% of 34 VSLA groups had harvested at least once, and total income from honey sales was a modest TZS 3,096,500 (an average of TZS 88,471 per group). 26% of VSLA members (26% of women, 26% of men) said their income had increased from beekeeping, while 73% said that their income had not changed (74% of women, 71% of men). Among the subset of VSLA members who had harvested at least once, 45% stated that their household income had increased as a result of beekeeping (50% of women, 41% of men), while 55% stated their household income had not changed (50% of women, 59% of men).
Output 2. Human-wildlife conflict is reduced through improved rapid HWC response by RKM GR and MBOMIPA WMA and increased knowledge among community members.	
Output indicator 2.1. Percentage of reported HWC incidents where rangers arrived at the site of the incident within 3 hours of reporting (Baseline to be established in Y1; target: 50% in Y2; 80% in Y3).	2.1 It was difficult to obtain data on the timing of HWC response team arrival, making this indicator challenging to monitor. Interviews with RKM GR rangers (n=13) indicate that 85% of rangers feel they arrive on time, while interviews with community members around RKM GR (n=70) indicate that 56% feel that rangers arrive on time. Another indicator of the timing of HWC response is whether rangers/VGS arrive when elephants are already in farms, or if they arrive in time to prevent elephants from entering farms. Of the 97 HWC incidents responded to by MBOMIPA VGS in Year 3, elephants were deterred before they had entered farms in 22% of cases, while in 76% of cases, VGS arrived after elephants had already entered farms (and then removed them from farms).
Output indicator 2.2. Percentage of rangers who report that they feel safer and better prepared for HWC response (Baseline to be established pre-training; target: 80% of 32 RKM GR rangers trained in Y1 and 80% of 16 MBOMIPA VGS trained in Y2).	2.2 Interviews with a sample of RKM GR rangers who received training (n=13) in Year 1 indicate that 77% of rangers feel safe when conducting HEC response, 92% say they have the right tools for HEC response and know how to use those tools, 100% say they have the necessary knowledge and 85% say they have the necessary experience to conduct HEC response. 85% of rangers say that HEC response is effective. Interviews with VGS (n=7) trained in Year 2 indicate that 80% of VGS feel safe when conducting HEC response, 100% say they have the

	necessary knowledge and 100% say they have the necessary experience to conduct HEC response.
Output indicator 2.3. Percentage of rangers who pass a test measuring key aspects of elephant deterrence (Baseline to be established Pre-Training; target: 75% of 32 rangers trained in Y1 and 75% of 16 VGS trained in Y2).	2.3 89% of rangers and VGS trained in Year 2 achieved a score of 70% or above on a test measuring key aspects of elephant deterrence (pre-training baseline was 68%).
Output indicator 2.4. Percentage of community members who are able to articulate key aspects of safety around elephants and carnivores (Baseline (2021): 48%; target 75% in Y3).	2.4 Endline surveys indicate that around RKM GR, 47% of people engaged by STEP's outreach program agree that it is important during an elephant encounter to stay quiet and move away slowly in a downwind direction from the elephant, compared to 28% for people not engaged. Around MBOMIPA WMA, 92% of people engaged by STEP's outreach program agree that it is important during an elephant encounter to stay quiet and move away slowly in a downwind direction from the elephant, compared to 76% for people not engaged. Around RKM GR, 64% of people engaged by STEP's outreach program say they know how to maintain their safety during an elephant encounter, compared to 24% for people not engaged. Around MBOMIPA WMA, 54% of people engaged by STEP's outreach program say they know how to protect themselves from elephants, compared to 31% for people not engaged. Around RKM GR, 28% of people engaged by STEP's outreach program say they know how to maintain their safety during a lion encounter, compared to 4% for people not engaged

Output 3. The radio communications system is upgraded and EarthRanger is rolled out in MBOMIPA WMA, facilitating real-time tracking and improved coordination and mobilization of VGS teams.	
Output indicator 3.1. Percentage of days that the radio system operates problem-free (Baseline: 25%; Y3: 80%).	3.1 The upgraded radio system in MBOMIPA WMA operated problem-free on 86% of days in Year 3, exceeding the target of 80%. This improvement reflects better infrastructure, consistent maintenance, and effective training of VGS teams in radio use and troubleshooting.
Output indicator 3.2. Percentage of aerial and VGS ground patrols that are tracked in real-time (Baseline: 0%, Y3: 90%)	3.2 In Year 3, 100% of aerial and ground patrols in MBOMIPA WMA were tracked in real-time using GPS and InReach devices integrated with the EarthRanger system. This achievement demonstrates full adoption of real-time tracking technology by patrol teams and significantly improved oversight, coordination, and response capacity across the landscape.
Output indicator 3.3. 40 MBOMIPA WMA VGS (6 women) have 100% of the required skills to operate the radio, track patrols using InReach devices, and log daily patrol observations using the EarthRanger mobile Application (Baseline: 20; Y3: 40).	3.3 In Year 3, 40 MBOMIPA WMA VGS have 100% of the skills needed to operate the radio, track patrols using InReach devices, and log daily patrol observations using the EarthRanger mobile Application (20 VGS trained in Y3, 20 VGS trained in 2023).

Output indicator 3.4. 5 Number of illegal activity incidents reported via radio to the control room that resulted in a VGS mobilisation (Baseline: 0; Y3: 24)	3.4 In Year 3, a total of 43 illegal activity incidents were reported via the upgraded radio system to the MBOMIPA control room, all of which resulted in the mobilisation of VGS.
Output indicator 3.5.Percentage of VGS mobilizations in response to illegal activity incidents reported to the control room that result in encounters (Baseline :0; Y3: 50%).	3.5 81% of VGS patrol mobilisations in Year 3 led to encounters, resulting in 39 arrests. This demonstrates the effectiveness of the communication system and the enhanced capacity of patrol teams to respond swiftly and take action against illegal activities within the WMA.
Output 4. Capacity for aerial surveillance and strategic ground patrols is strengthened and the professionalism of RKM GR rangers and MBOMIPA VGS is enhanced.	
Output indicator 4.1 Percentage of MBOMIPA WMA and RKM GR covered by aerial patrol missions (Baseline to be established from 2020 data; target: 90% of MBOMIPA WMA; 40% of RKM GR in all years).	4.1 Coverage of aerial patrols in MBOMIPA WMA was 94% in Year 1, 95% in Year 2, and 94% in Year 3 (baseline, 2020: 82%), exceeding our target of 90% in each year. Coverage of aerial patrols in RKM GR was 31% in Year 1, 33% in Year 2, and 43% in Year 3 (baseline, 2020: 49%); our target of 40% coverage was therefore only met in Year 3.
Output indicator 4.2. Percentage of aerial surveillance patrols that result in a same-day ranger/VGS ground mobilisation (Baseline: to be calculated from 2020 data; Y1: 50%; Y2&Y3: 70%).	4.2. In Year, 25% of aerial patrols resulted in same-day VGS mobilizations in MBOMIPA WMA (baseline, 2020: 0%), and 60% of aerial patrols resulted in same-day ranger mobilizations in RKM GR (baseline, 2020: 63%); as such, the Year 1 target of 50% was only achieved in RKM GR. In the 96 aerial patrols that required mobilization in Years 2-3 across all PAs, 74 were responded to (77%), while 22 were not (23%) - exceeding the 70% target for Years 2-3.
Output indicator 4.3. Percentage of MBOMIPA WMA covered by monthly VGS ground patrols (Baseline: to be computed from 2021 data; Y1: 60%; Y2, Y3: 75%, disaggregated by season).	4.3 Baseline: 33% of MBOMIPA WMA covered by monthly VGS ground patrols. Year 1: 34% and Year 2: 36% of MBOMIPA WMA covered by monthly VGS ground patrols. Year 3: 71% of MBOMIPA WMA covered by monthly VGS ground patrols.
Output indicator 4.4. Number of VGS who, through training, attain the working standards of the International Ranger Federation. (Baseline (2021): 8 VGS; target: 16 VGS by Y2 (3 women)).	4.4 In Year 2, an additional 7 VGS (2 women) attained the standards of the International Ranger Federation, bringing the total to 15 VGS (2 women).
Output indicator 4.5. Number of RKM rangers and MBOMIPA VGS who, through training, attain the necessary skills to serve as aerial observers. (Baseline (2022): 1 RKM Ranger, 0 women; Target: 5 RKM GR rangers and 2 MBOMIPA VGS by Y1 (2 women)).	4.5 In Year 2, 8 VGS (3 women) underwent training to acquire the necessary skills to serve as aerial observers. No RKM GR rangers were trained due to a change in the base out of which the STEP aircraft operates.
Output indicator 4.6. Percentage of suspects arrested by VGS that attest in the presence of an independent witness that they were treated fairly during post-arrest procedures (target: 100% in all years)	4.6 In Years 1-3 , 100% of suspects arrested by VGS attested (via post-arrest forms) in the presence of an independent witness that they were treated fairly during post-arrest procedures.

Output indicator 4.7. Percentage of ivory and bushmeat poaching court case hearings that are attended by MBOMIPA VGS (Baseline (2021): 100%; target: 100% in all years).	4.7 In Years 1-3, 100% of ivory and bushmeat poaching court case hearings were attended by MBOMIPA VGS (n=11 hearings).

- **Annex 2 Project's full current logframe as presented in the application form (unless changes have been agreed)**

Project summary	SMART Indicators	Means of verification	Important Assumptions
Impact: Reduction in IWT and HWC will increase security of Ruaha-Rungwa, enable recovery of wildlife populations, improve community perceptions of and benefits from protected areas, and result in economically resilient communities.			
Outcome: Livelihood diversification, reduction of human-wildlife conflict and strengthening of law enforcement capacity result in a reduction in bushmeat poaching, increase household resilience, and begin to improve community perceptions of PAs.	0.1 Reduction in the detection rate of illegal activities (disaggregated by type, e.g. bushmeat, and protected area) on ground patrols (Baseline: to be established from 2021-2022 data, target: 15% reduction in Y2 and 30% reduction by Y3). 0.2 Reduction in the detection rate of illegal activities (disaggregated by type, e.g. bushmeat and protected area) on aerial patrols (Baseline: to be established from 2021 data, target: 15% reduction in Y2 and 30% reduction by Y3). 0.3 Percentage of engaged beneficiaries who report being able to address the majority of acute household needs through VSLA loans and/or other livelihood activity (Baseline to be established in Y1; target: 80% in Y3). 0.4 Percentage of engaged beneficiaries who retain at least 50% of their crops for sale or consumption at high price periods due to income from poultry farming, beekeeping and increased access to credit from VSLAs (Baseline to be established in Year 1; target: 50% in Y3). 0.5 Engaged households show increased resilience as measured by custom resilience index (ARSSI, Index of Social Capital, RIMA) from Baseline to Year 3 (Baseline to be established in Year 1).	0.1 MBOMIPA WMA VGS patrol forms (Survey123) and GPS tracklogs; RKM GR patrol records 0.2 Aerial patrol database generated from aerial patrol datasheets, flight tracklogs and aircraft Journey Logbook 0.3 Baseline and endline surveys 0.4 Crop Sale Survey, ongoing at weekly VSLA Meetings from May-September annually 0.5 Resilience Assessment results, baseline and endline surveys 0.6 Protected Area and Village Government records 0.7 Protected Area Benefit Audit for RKM GR	0.1 Limited access to safe and reliable credit is a driver of bushmeat poaching. 0.2 Beneficiaries will reduce reliance on bushmeat and move away from IWT. 03. Increasing detection of bushmeat poaching and arrests of poachers will effectively deter poaching. 0.4 Improvement in HWC response will contribute to more positive community perceptions of RKM GR.

	0.6 Reduction in human deaths and injuries and elephant mortalities in the landscape due to human-elephant conflict (Baseline: 5 human deaths, 1 human injury, 2 elephant mortalities in 2021; Target: <5 human deaths/injuries and <2 elephant mortalities in Y3). 0.7 Percentage of surveyed community members around RKM GR who value improvement in HWC response and state there has been an improvement in RKM GR HWC response between the pre-project period and Y2 (Baseline: to be established in Y1; target: 70% in Y2)		
Output 1 500 community members gain access to safe credit and have more diversified livelihoods to offset illegal wildlife use (bushmeat poaching).	1.1 Percentage of VSLA members who are actively engaged (as measured by attendance and share participation score) and have accessed loans (Baseline to be established in Y1; target: 80% of 500 members in Y3, 50% women, 35% youth) 1.2 Percentage of VSLA members who resort to selling more than 30% of harvest at harvest time by the end of Year 3. (Baseline to be established in Y1; target: <50% in Y2 and <20% by Y3). 1.3 Percentage increase in poultry survival rate among 100 vaccine program participants (50% women) (Baseline to be established in Y1; target: average 25% increase in poultry survival rate in Y2, disaggregated by gender). 1.4 Percentage of engaged beekeepers who increase their honey harvest by at least 20% and see a minimum 10% increase in honey sales (100 beekeepers; baseline to be established	1.1 VSLA weekly meeting and CHOMOKA app records 1.2 Crop Sale Survey, ongoing at weekly VSLA Meetings from May-September annually 1.3 Poultry pre- and post-vaccine assessment data 1.4 Beekeeping monitoring data and reports (occupancy, harvest and sales)	1.1 With targeted and sensitive outreach and tailored training, people engaged in IWT, women and youth will be interested to join VSLAs and engage in beekeeping and poultry trials, take on leadership positions in VSLAs and actively adopt and maintain these livelihood activities. 1.2 Poultry vaccine supply chains are sufficiently robust to support affordable vaccine purchase. 1.3 Extreme weather events (e.g., drought) do not affect the viability of beekeeping.

	in Y1; target 90% in Y3, disaggregated by gender)		
Output 2 Human-wildlife conflict is reduced through improved rapid HWC response by RKM GR and MBOMIPA WMA and increased knowledge among community members.	2.1 Percentage of reported HWC incidents where rangers arrived at the site of the incident within 3 hours of reporting (Baseline to be established in Y1; target: 50% in Y2; 80% in Y3). 2.2 Percentage of rangers who report that they feel safer and better prepared for HWC response (Baseline to be established pre-training; target: 80% of 32 RKM GR rangers trained in Y1 and 80% of 16 MBOMIPA VGS trained in Y2). 2.3 Percentage of rangers who pass a test measuring key aspects of elephant deterrence (Baseline to be established Pre-Training; target: 75% of 32 rangers trained in Y1 and 75% of 16 VGS trained in Y2). 2.4 Percentage of community members who are able to articulate key aspects of safety around elephants and carnivores (Baseline (2021): 48%; target 75% in Y3).	2.1 Ranger HWC response records; Key Informant interviews with Village Leaders 2.2 Ranger Training Feedback, pre-training and post-training assessment 2.3 Test Results (test designed by STEP with input from Protected Area staff and trainer) 2.4 Knowledge retention assessments conducted at Outreach Events and by LEMs	2.1 RKM GR and MBOMIPA WMA continue to allocate resources to HWC Response and to prioritise rapid response. 2.2 Provision of targeted training and elephant deterrent toolkits will help rangers feel they are better prepared to conduct HWC response.
Output 3 The radio communications system is upgraded and EarthRanger is rolled out in MBOMIPA WMA, facilitating real-time tracking and improved coordination and mobilization of VGS teams.	3.1 Percentage of days that the radio system operates problem-free (Baseline: 25%; Y3: 80%). 3.2 Percentage of aerial and VGS ground patrols that are tracked in real-time (Baseline: 0%, Y3: 90%) 3.3 40 MBOMIPA WMA VGS (6 women) have 100% of the required skills to operate the radio, track patrols using InReach devices, and log daily patrol observations using the	3.1 Radio system Daily Control Room Operations Logbook 3.2 Control Room Daily Operations Logbook and InReach tracklogs recorded in the EarthRanger System 3.3 Post -training skills evaluation in Year 3; 3.4 Daily Control Room Operations Logbook	3.1 The radio system once installed will experience minimal technical faults and outages. 3.2 Aerial and VGS teams will be able to use the InReach devices to track their patrols in real time 3.3 Following intensive training, VGS will be able to use the acquired skills and knowledge to use radios and the EarthRanger mobile application proficiently.

	EarthRanger mobile Application (Baseline: 20; Y3: 40). 3.4 5 Number of illegal activity incidents reported via radio to the control room that resulted in a VGS mobilisation (Baseline: 0; Y3: 24) 3.5 Percentage of VGS mobilizations in response to illegal activity incidents reported to the control room that result in encounters (Baseline :0; Y3: 50%).	3.5 Reported events in EarthRanger Application, Daily Control room Operations Logbook	3.4 The satellite internet connection for transmitting InReach data to the Control Room is fast and reliable.
Output 4 Capacity for aerial surveillance and strategic ground patrols is strengthened and the professionalism of RKM GR rangers and MBOMIPA VGS is enhanced.	4.1 Percentage of MBOMIPA WMA and RKM GR covered by aerial patrol missions (Baseline to be established from 2020 data; target: 90% of MBOMIPA WMA; 40% of RKM GR in all years). 4.2 Percentage of aerial surveillance patrols that result in a same-day ranger/VGS ground mobilisation (Baseline: to be calculated from 2020 data; Y1: 50%; Y2&Y3: 70%). 4.3 Percentage of MBOMIPA WMA covered by monthly VGS ground patrols (Baseline: to be computed from 2021 data; Y1: 60%; Y2 Y3: 75%, disaggregated by season). 4.4 Number of VGS who, through training, attain the working standards of the International Ranger Federation. (Baseline (2021): 8 VGS; target: 16 VGS by Y2 (3 women)). 4.5 Number of RKM rangers and MBOMIPA VGS who, through training, attain the necessary skills to serve as aerial observers. (Baseline (2022): 1 RKM Ranger, 0 women; Target: 5 RKM GR rangers and 2 MBOMIPA VGS by Y1 (2 women)).	4.1 Mapping and spatial analysis of aerial patrol tracklogs 4.2 Aerial patrol datasheets 4.3 Mapping and spatial analysis of VGS patrol tracklogs 4.4 Pre- and post-training assessments; spot checks of pre-patrol plans and checklist. 4.5 Pre- and post-training assessment 4.6 Post-arrest forms 4.7 Court attendance monitoring form, court cases database	4.1 We assume that the new aircraft will operate issue-free with only minor maintenance requirements. 4.2 STEP will be able to maintain its established and trusted relationships with RKM GR and MBOMIPA leadership.

	4.6 Percentage of suspects arrested by VGS that attest in the presence of an independent witness that they were treated fairly during post-arrest procedures (target: 100% in all years) 4.7 Percentage of ivory and bushmeat poaching court case hearings that are attended by MBOMIPA VGS (Baseline (2021): 100%; target: 100% in all years)		

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 Conduct orientation and sensitization meetings with partners and at village- and sub-village level for the establishment of VSLAs, beekeeping & poultry health interventions

1.2 Establish and train 20 Village Savings and Loans Associations (25 members per VSLA) with 500 members in 10 villages

1.3 Establish poultry health intervention trial with 100 participants in 5 villages

1.4 Provide 200 beehives and beekeeping training to 100 beekeepers in 5 villages

1.5 Ongoing capacity-building and monitoring of livelihood interventions by community-based team

2.1 Provide vehicle for increasing human-wildlife conflict response capacity to RKM GR, together with training on effective use of vehicle for HWC response

2.2 Enable HWC response by MBOMIPA VGS and RKM GR rangers through fuel provision 2.3 Train 32 RKM GR rangers and 16 MBOMIPA VGS in safety around elephants and more effective elephant deterrent techniques

2.4 Local Elephant Monitors conduct one-on-one training for 3000 community members at home and at farms on elephant behaviour and safety around elephants

2.5 Conduct wide-scale education and outreach programs (Tembo Cup Football Tournament)

3.1 Train 6 MBOMIPA VGS (2 women) in Instant Detect deployment, operation, monitoring and response

3.2 Deploy and monitor Instant Detect 2.0 system and set up Control Room for Phase 1 of field trial (operationalization)

3.3 Deploy and monitor Instant Detect 2.0 system for Phase 2 of field trial (efficacy, viability, VGS mobilisation)

3.4 Produce Instant Detect 2.0 efficacy and viability assessment report and, if trial successful, Standard Operating Procedures for MBOMIPA WMA

4.1 Train 5 RKM GR rangers and 2 MBOMIPA VGS (2 women) to become aerial observers

4.2 Conduct 60 hours of aerial surveillance per year in coordination with rapid response ranger and VGS ground teams

4.3 Enable 23 days of strategic patrols by 4 Village Game Scout teams every month in MBOMIPA WMA 4.4 Train 8 MBOMIPA VGS (3 women) in basic tactical anti-poaching skills with PAMS Foundation

4.5 Generate ground and aerial patrol maps and trend analysis reports for protected area managers

4.6 Conduct refresher training for 39 VGS and 14 RKM GR rangers in human rights, just arrest, and post-arrest procedures

4.7 Support MBOMIPA WMA VGS to provide witness testimony in court cases

■   **Table 1**   **Project Standard Indicators**

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
IWTCF-A01	Number of people who received training in sustainable livelihood skills	Number	Gender (Male and Female), Type of Training (VSLA, beekeeping, poultry vaccine administration	426 (162 women)	338 (149 women)	305 (175 women)	1,069 (486 women)	500 (250 women)
IWTCF-A05	Number of credit and savings groups established	Number	VSLAs per location	18	21	14	61	20
IWTCF-A06	Total number of loans provided to Micro Small and Medium Enterprises (MSMEs)	Number	Number of loans per type (agriculture, business establishment, emergency response)	686	1,123	1,538	1,809	NA
IWTCF-A07	Total Value of Loans Provided	Value in £	Amount lent per type (agriculture, business establishment, emergency response)	~£41,300	~£61,700	~£66,700	~£103,000	NA
IWTCF-A08	Number of sustainable livelihoods enterprises established	Number	VSLAs per location	18	21	14	61	20
IWTCF-A09	Number of existing enterprises receiving capacity building support	# existing VSLAs	VSLAs per location	8	8	0	8	8
WTCF-B01	Number of people trained in law enforcement skills.	Number	Gender (Male & Female) Stakeholder group: village game scouts.	0	8 (2 women)	0	0	8 (2 women)

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
			Type of Law Enforcement training: IRF by PAMS Foundation.					
WTCF-B01	Number of people trained in law enforcement skills.	Number	Gender (Male & Female) Stakeholder group: rangers and village game scouts. Type of Law Enforcement training: aerial patrol observer training.	0	8 (3 women)	0	8 (3 women)	7 (3 women)
IWTCF-B09	Duration or frequency of patrols by law enforcement rangers supported through the project.	Duration (days)	Type of patrol: Foot patrol or vehicle patrol	863 (699 foot, 164 vehicle)	998 (862 foot, 136 vehicle)	1,287 (792 foot, 495 vehicle)	3148	3036
IWTCF-B10	Number of arrests (linked to wildlife crime) facilitated by the project	Number	Level of offence charged: bushmeat, ivory	7 (6 bushmeat, 1 ivory)	13 (all bushmeat)	11 (10 bushmeat, 1 ivory)	31	No specific target
IWCF-B12	Number of wildlife crime cases submitted for prosecution[9]	Number	Type of charges: unlawful possession of bushmeat,	5 (bushmeat 3, firearms 1, ivory 1)	3 (bush,meat 2, firearms 1)	5 (3 bushmeat only, 2 bushmeat and firearms)	13	No specific target

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
			firearms, and ivory					
IWCF-B13	Number of individuals charged for wildlife crime	Number	Type of charges: unlawful possession of bushmeat, firearms, and ivory	5 (bushmeat 3, firearm 1, ivory 1)	11 (bushmeat 8, firearm 3)	0	16	No specific target
WTCF-B14	Number of individuals successfully prosecuted for wildlife crimes	Number	Type of charges: unlawful possession of bushmeat, firearms, ivory	0	2	0	2	No specific target
IWTCF-B23	Number of databases established that are used for law enforcement.	Number	Type of Database: ESRI PAMS database (shifted to EarthRanger in Y2)	1	1	0	2	1
IWTCF-D03	Number of local/national organisations[15] with improved capability and capacity as a result of the project.	Number of organisations	Organisation Types: MBOMIPA Wildlife Management Area (local), Tanzania Wildlife Management	2	2	2	2	2

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
			Authority (national)					
IWTCF-D19	Social media presence[21]	Number of followers	By platform	19,903 (Facebook 16,619, X 1,642, Instagram 1,642)	19,985 (Facebook 16,494, X 1,620, Instagram 1,871)	19,969 (Facebook 16,494, LinkedIn 1,434, Instagram 2,041)	19,969	No specific target

■ **Table 2   Publications**

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	
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Have you involved your partners in preparation of the report and named the main contributors?	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	