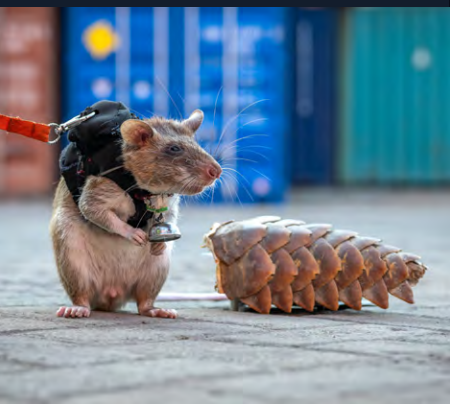# ANNUAL REPORT 2024

apopo
SAVES LIVES

ABOUT APOPO

Founded on the belief that unconventional challenges require unconventional tools, APOPO pioneered the use of scent-detection animals to tackle some of the world's most complex humanitarian problems. From detecting landmines and tuberculosis to disrupting wildlife trafficking and accelerating disaster response, our detection animals are proving that innovation, when paired with evidence and integrity, can transform systems.

By harnessing the powerful sense of smell in African giant pouched rats and Belgian Malinois dogs, APOPO has developed safe, efficient, and cost-effective methods of landmine clearance that helps restore land and livelihoods in post-conflict regions.

APOPO also applies its scent detection expertise to global health by training rats to detect tuberculosis (TB), the world's deadliest infectious disease. Our TB detection rats screen samples quickly and accurately, helping APOPO shorten the time between detection and treatment in communities where access to diagnostics remains limited.

Innovation remains central to APOPO's mission. From wildlife detection and disaster search and rescue to new training technologies and scent-based research, APOPO continues to expand the boundaries of what is possible in animal detection systems.

ABOUT APOPO

2024 also marked significant strides in environmental restoration through our HeroTREEs program, which promotes reforestation, climate-smart agriculture, and sustainable land use. With the expansion of trainings, demonstration farms, and the launch of the Syntropic Agroforestry Innovation Accelerator, a regional hub for regenerative land-use systems and capacity building, this initiative is helping restore degraded ecosystems while supporting local farmers.

All of this is supported by a robust Information Management System (IMS) developed at APOPO, that turns raw data into actionable insight. Our integrated systems support everything from operational planning and performance monitoring to animal welfare tracking and environmental impact assessment, ensuring that our work is guided by evidence and accountability.

The support that drives APOPO's mission comes from an extensive network of international partners and donors, including teams based in Switzerland, the United States, and the United Kingdom. Together, these efforts advance APOPO's vision of creating a better world as a global leader in scent detection animals—enabling safer, healthier, and more resilient communities.

VISION & MISSION

MISSION

Our MISSION is to protect people and the planet with innovative solutions using trained rats and other scent detection animals.

VISION

Our VISION is to create a better world as a global leader in scent detection animals.

APOPO adopts the UN Sustainable Development Goals (SDGs) that are aligned with our work and values and commits to supporting global efforts to achieve these universal goals.

CORE VALUES

> **QUALITY**

Demonstrating and promoting high standards in research, design, training, and implementation of scent detection animals technology.

> **INNOVATION**

Pioneering creative research and innovative solutions within a participatory learning culture.

> **SOCIAL TRANSFORMATION**

Developing skills, creating jobs, improving socio-economic and environmental conditions, releasing land for development, and combating public health issues.

> **DIVERSITY**

Embracing diversity in all facets of the organization with respect to age, gender, religion, sexual orientation, physical abilities, nationality, or ethnicity.

> **SOLIDARITY**

Committing to the common good and shared responsibility toward the protection of the people, communities, and the planet.

> **ANIMAL WELFARE**

Demonstrating and promoting high standards in humane training and welfare for our animal partners.

UNWAVERING IN UNCERTAINTY: APOPO IN 2025 AND BEYOND

Christophe Cox,
CEO APOPO

2024 has been a year of both immense challenge and outstanding achievement for APOPO. Despite global uncertainty, our mission to protect and empower communities through innovative humanitarian action has not wavered.

Our **Mine Action** teams have demonstrated exceptional performance across **Cambodia, Angola, Sudan, Azerbaijan, Senegal, Zimbabwe,** and beyond. Notably, we successfully launched and accredited our **Technical Survey Dogs** in **Ukraine** — a milestone that marks a new chapter in our operational excellence. In the fight against **tuberculosis**, our teams in **Tanzania** and **Ethiopia** delivered strong results once again. Our **HeroRATs** achieved a remarkable breakthrough, detecting significantly more TB cases, even in patients who had tested negative with PCR-based GeneXpert. This finding reinforces the vital role of our approach in saving lives.

Our innovation department made great strides as well. **Wildlife Detection Rats** successfully completed promising trials in the port of Dar es Salaam, and our **Search and Rescue project** advanced with a strategic move to **Turkey**. Meanwhile, our commitment to environmental stewardship flourished under the **HeroTREEs** initiative, which has now over **110,000** trees growing, an inspiring example of how APOPO links humanitarian work with ecological restoration.

Behind the scenes, our support teams have continued to innovate, optimize, and professionalize. From improving internal systems to strengthening our global outreach, their efforts are increasing efficiency and amplifying our voice worldwide.

None of this would be possible without our dedicated staff, valued partners, institutional donors, and the public, whose support, especially during economically trying times, has been extraordinary.

In a world where global military spending continues to rise and aid budgets decline, and with some European nations withdrawing from the landmine ban treaty, APOPO remains steadfast. We will not compromise on our mission or our principles.

To all who stand with us: thank you. Your belief in our work empowers us to face the future with determination, compassion, and hope.

ENABLED IMPACT SINCE APOPO BEGAN UNTIL THE END OF 2024

169,884
Landmines and other explosives destroyed

642,988
Patients screened for TB

2,433,704
People impacted by APOPO's work

33,135
Additional TB cases detected

122,381,665 m²
Safe land given back to communities

332,890
Potential infections stopped

apopo HEROTREES
Over **111,000** trees successfully growing since 2017

MINE ACTION

Michael Heiman

HEAD OF PROGRAMS MINE ACTION

A Persistent Global Threat

The legacy of landmines and other explosive remnants of war continues to endanger lives long after conflicts have ended. Despite decades of clearance efforts, an estimated **60 million people still live under the threat of landmine contamination**. These remnants of war not only cause devastating accidents but also prevent communities from accessing land for agriculture, infrastructure, and development.

According to the Landmine Monitor, in 2023, at least **5,757 people were killed or injured by landmines and other explosives worldwide**. This high number is mainly due to the increase in armed conflicts and the growing use of improvised landmines. A staggering **84%** of these casualties were civilians, and children accounted for over one third of those victims.

MINE ACTION

APOPO Mine Action is committed to eliminating landmines and explosive threats to help affected communities rebuild and thrive. In addition to clearance operations, APOPO carries out mine risk education and victim assistance programs, working closely with local communities to raise awareness and promote safety.

> **According to the Landmine Monitor, in 2023, at least 5,757 people were killed or injured by landmines and other explosives worldwide.** "

In 2024, APOPO continued its landmine clearance operations in Angola, Azerbaijan, Cambodia, and Zimbabwe and officially launched its program in Ukraine. We also maintained partnerships in Senegal and South Sudan, deploying animal detection teams to increase efficiency for partner organizations.
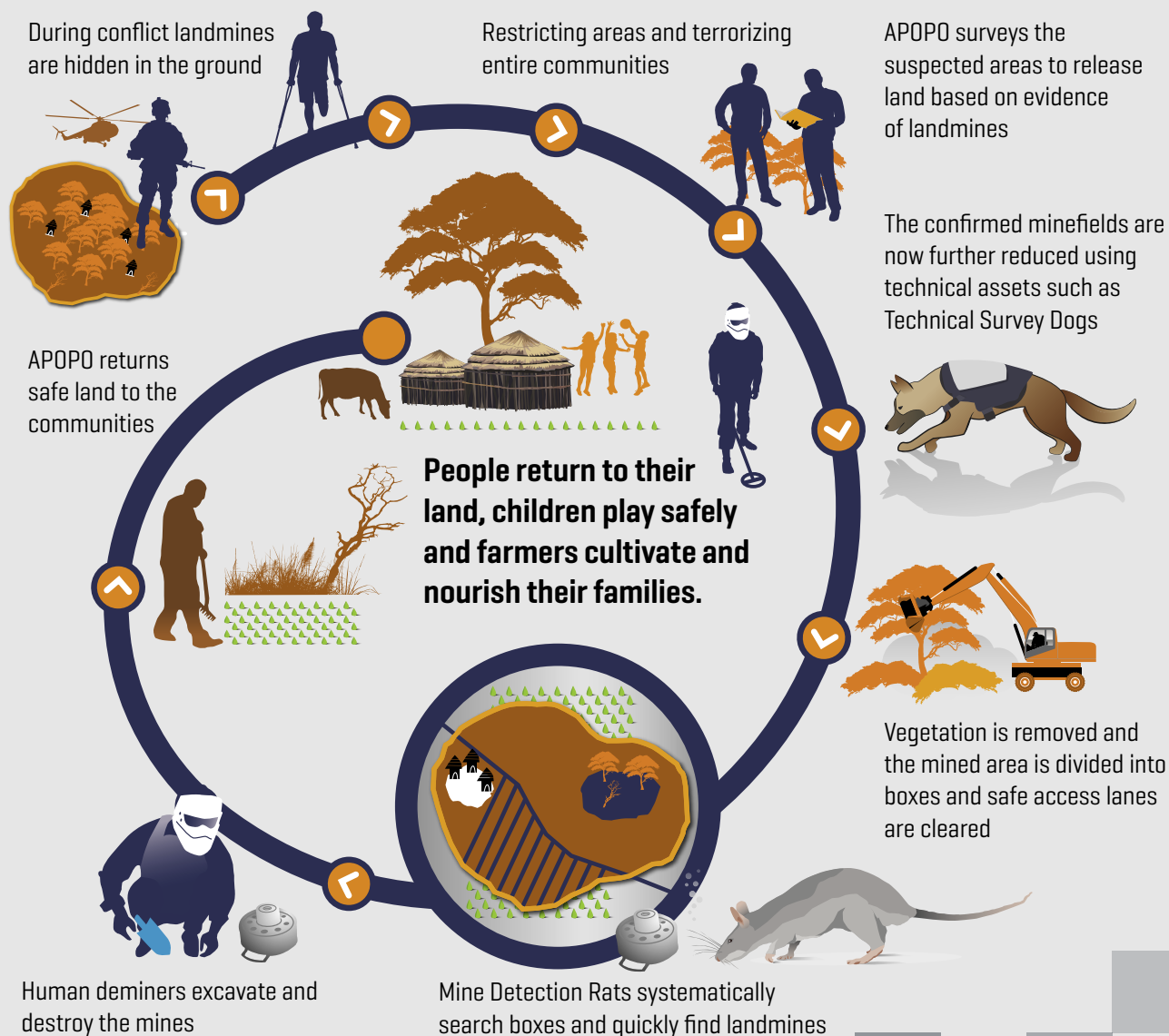
MINE ACTION

To maximize the efficiency of clearance operations, APOPO integrates animal detection systems with conventional demining methods. Our Hero-RATs (Mine Detection Rats) and HeroDOGs (Technical Survey Dogs) are trained to detect the scent of explosives, enabling them to quickly and accurately locate landmines without being distracted by harmless scrap metal — a common issue for metal detectors used by human deminers.

These trained animals significantly speed up the clearance process — in many cases doubling or even tripling operational efficiency compared to traditional methods alone. Their contributions are especially vital in areas with dense contamination and limited resources. Our animals are not only effective but also well cared for. They receive regular veterinary checkups, a nutritious diet, enrichment, and daily training sessions that provide both exercise and mental stimulation. Their welfare is a core value and priority.
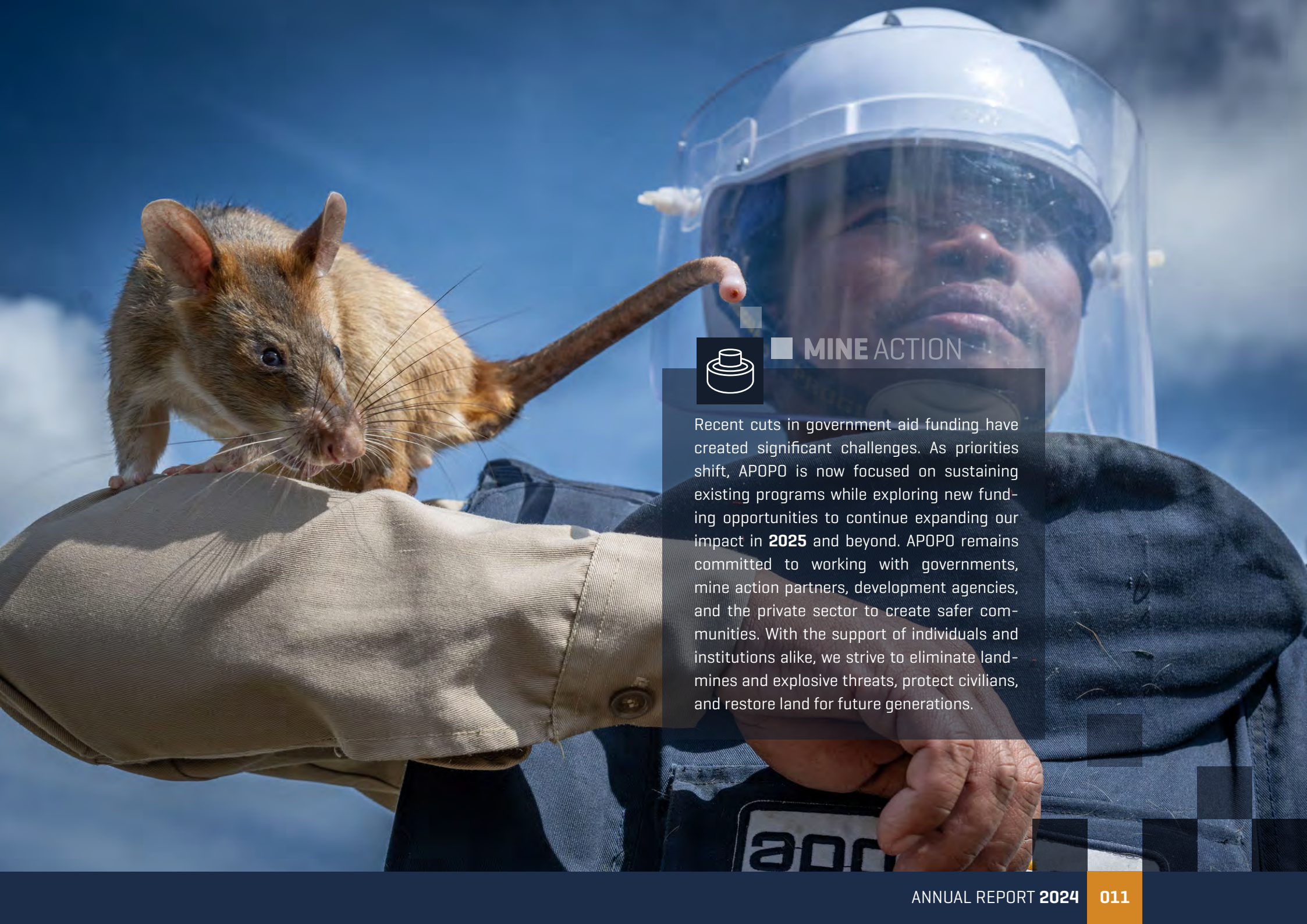
Since its inception, APOPO has positively impacted the lives of over 2.2 million people across its areas of operation — a testament to the dedication of our staff and the generous support of our donors, partners, and the public.

Our Approach

Integration of animal detection systems

During conflict landmines are hidden in the ground

Restricting areas and terrorizing entire communities

APOPO surveys the suspected areas to release land based on evidence of landmines

The confirmed minefields are now further reduced using technical assets such as Technical Survey Dogs

APOPO returns safe land to the communities

People return to their land, children play safely and farmers cultivate and nourish their families.

Vegetation is removed and the mined area is divided into boxes and safe access lanes are cleared

Human deminers excavate and destroy the mines

Mine Detection Rats systematically search boxes and quickly find landmines

MINE ACTION

Recent cuts in government aid funding have created significant challenges. As priorities shift, APOPO is now focused on sustaining existing programs while exploring new funding opportunities to continue expanding our impact in **2025** and beyond. APOPO remains committed to working with governments, mine action partners, development agencies, and the private sector to create safer communities. With the support of individuals and institutions alike, we strive to eliminate landmines and explosive threats, protect civilians, and restore land for future generations.

Where We Work

apopo
MINE ACTION

SOUTH SUDAN

SENEGAL

ANGOLA

ZIMBABWE

TANZANIA

UKRAINE

AZERBAIJAN

CAMBODIA

THE APOPO MINE ACTION PROGRAMS ARE MADE POSSIBLE BY OUR PARTNERS AND DONORS

◨ CAMBODIA

Michael Raine
PROGRAM MANAGER

A vital role

In 2024, APOPO continued to play a vital role in Cambodia's national effort to become mine-free, building on the successes of previous years. APOPO deployed its **Mine Detection Rat (MDR), and Technical Survey Dog (TSD)** teams to deliver safe land back to vulnerable communities, prioritizing areas where clearance brings direct and tangible benefits - such as farmland, schools, heritage sites, and community infrastructure.

APOPO continued its minefield survey and clearance operations in collaboration with the **Cambodian Mine Action Center (CMAC)** in Siem Reap and near the Cambodian-Thai border in **Preah Vihear**, as well as with the **Mines Advisory Group (MAG)** in Battambang and Ratanakiri provinces.

MINE ACTION **CAMBODIA**

A significant milestone was reached in 2023, when the historic **Koh Ker temple** was recognized as Cambodia's fourth UNESCO World Heritage Site. This achievement followed APOPO's **successful clearance of landmines and unexploded ordnance** [UXO] from the temple and its surrounding areas. In 2024, APOPO continued operations in this conservation zone, with the **TSD team** demonstrating exceptional skill in navigating dense vegetation without requiring extensive land clearing. Local authorities have reported a substantial rise in tourist visits to the temple and nearby villages, generating vital economic opportunities for local businesses and contributing to poverty reduction.

In November, Cambodia hosted the 5th Review Conference of the Anti-Personnel Mine Ban Treaty, known as the *'Siem Reap–Angkor Summit for a Mine-Free World.'* APOPO actively supported the Cambodian Mine Action and Victim Assistance Authority throughout the event, showcasing its renowned **Mine Detection Rats**, which attracted significant interest from more than 70 international delegations. APOPO also organized and participated in three side events: *From Receiving to Giving Cambodia, the Minefields to Rice-Fields DIB project,* and *Innovation for Mine Action in Ukraine.*

MINE ACTION CAMBODIA

MINEFIELDS TO RICE FIELDS

In December, the first rice harvest from the **'Minefields to Rice Fields' Development Impact Bond (DIB) project,** funded by the **UK Foreign, Commonwealth & Development Office (FCDO),** was successfully completed. Through the distribution of premium rice seeds and comprehensive training in sustainable farming techniques, participating farmers have increased their incomes by 140%, benefiting from both higher yields and improved product quality.

UKaid
from the British people

MINE ACTION CAMBODIA

Despite significant progress, Cambodia concluded that achieving mine-free status by the end of 2025 would not be feasible. As a result, the government has requested a five-year extension under Article 5 of the Anti-Personnel Mine Ban Convention, now targeting a Mine Impact-Free status by the end of 2030.

MINE ACTION CAMBODIA

IMPACT IN 2024

Landmines and explosives found and destroyed	678
Cluster munitions found and destroyed	143
Safe land given back to communities	12,980,497 m²
People benefitting from our work	3,819
People attending Mine Risk Education	9,078
Mine Victims who received treatment	296

Fear turned into hope

"All my life, I feared the land that fed us. But after APOPO cleared the mines, that fear turned into hope. Now, I can pass on safe land to my children, grow more rice, and dream of a better future. I never imagined that peace could grow from the same soil that once held danger."

**Koan Saman,
Farmer in Preah Vihear,
Cambodia**

UKRAINE

Nick Guest

PROGRAM
MANAGER

Estimates suggest over 136,000 square kilometers of land in Ukraine are contaminated due to Russia's full-scale invasion in February 2022, making it the largest minefield in the world.

Following scoping visits in 2023, APOPO opened its Kyiv office in January 2024 and began working with **Sumy National Agrarian University (SNAU)** to establish training facilities. However, due to ongoing conflict and safety concerns in Sumy, a decision was made in March to relocate the **Technical Survey Dog (TSD)** Training Center to Krasylivka, Kyiv Oblast. This location had already been used by APOPO to acclimatize dogs entering Ukraine. Simultaneously, APOPO initiated preparations for **Ukraine National Mine Action Center (NMAC Chernihiv)** certification, building dog habitats, training fields, and mobilizing TSD teams into the country. APOPO contracted local partner **Demining Solutions** to support the setup, as they hold the necessary licenses for explosives management.

MINE ACTION UKRAINE

To prepare the TSD teams in Ukraine, APOPO trained six handlers in Cambodia between January and April, followed by another ten handlers in Ukraine between July and September.

APOPO, in **partnership with MAG**, secured funding from the **EU** and **UNDP** for four TSD teams - doubling the planned initial capacity. Additional support from the **Government of Flanders** was instrumental in launching the program.

In September, APOPO's dogs underwent practical certification in Krasylivka and received official clearance to operate both **MDD and TSD teams** in Ukraine by 10 October. In November, three teams were deployed to Stepova Dolyna in Mykolaiv Oblast near the Kherson border. However, operations were paused for the winter in December due to severe weather.

Teams resume work in early 2025 following refresher training.

In 2025, APOPO will deploy **two additional TSD teams** under new donors, expanding capacity to six teams (24 handlers and 48 dogs), continuing operations in partnership with MAG in Kharkiv and Mykolaiv Oblasts, according to national prioritization.

Fighting back

" Training to become an APOPO dog handler has changed my life. Even after long, exhausting days, I feel truly happy knowing we are fighting back against the danger that threatens my home. The dogs are incredible partners, their powerful noses are our weapon against the weapon. Every day, I grow closer to my dog, and every day, I believe even more in the work we are doing for our future."

Natalia, APOPO Dog Handler, Ukraine

ANGOLA

Manuel João Agostinho
PROGRAM MANAGER

In **2024**, APOPO continued its humanitarian mine action efforts in Cuanza Sul province, where APOPO is the only mine action operator, mandated to make the province **landmine-free by 2028**. Activities focused on land release through technical survey and clearance, emergency spot tasks, and explosive ordnance risk education (EORE) sessions aimed at keeping local communities safe. **Angola's National Mine Action Database** still reports approximately 66 million m² of contaminated land across 990 minefields, with no province yet declared mine-free.

Maintaining a strong operational capacity, APOPO deployed a multidisciplinary team including manual deminers, mine detection rats, a brush cutter, and a combined EORE/Non-Technical Survey/Explosive Ordnance Disposal unit. Strategic partnerships with the **National Demining Center (NDC), Samuel Base Cole Association**, and the **Agriculture Development Institute** supported post-clearance efforts to ensure the land could be safely and productively reused.

▪ MINE ACTION ANGOLA

Notable events in 2024 included a syntropic agroforestry training workshop, visits from APOPO's Head of Mine Action Programs, and delegations from the **Belgian Ministry of Foreign Affairs, ANAM**, and the **Japanese Embassy**. A Japan-funded project concluded with a formal handover ceremony in July. In November, Program Manager Manuel Agostinho participated in a national Mine Action coordination meeting led by ANAM. It was confirmed that Angola will submit **a five-year extension request (2026–2030)** for its landmine clearance obligations. Looking ahead to 2025, the program will maintain its current structure and aims to clear at least **1 million m² of land** across five municipalities, directly benefiting around 41,000 people. At least 20 EORE sessions are planned to reach 10,000 more people. APOPO remains committed to its partnerships and continuing progress toward a landmine-free Angola.

▪ IMPACT IN 2024

▪ Landmines and other ERW destroyed	267
▪ Small arms and ammunition	3,339
▪ Safe land given back to communities	1,026,074 m²
▪ People benefitting from our work	11,400
▪ People attended EO Risk Education	9,526

Make the land safe again

"After losing my foot to a landmine, my life changed forever. I can no longer provide for my children, and every day is a struggle. I wouldn't wish this pain on anyone. APOPO's work gives me hope — they make the land safe again. I pray no one else has to go through this."

Ana, Landmine Victim in Angola

ZIMBABWE

Robert Burny
PROGRAM MANAGER

In 2024, APOPO's Zimbabwe Mine Action Program continued its vital work clearing land contaminated with landmines. The program aims to enhance community safety, enable agricultural development, and support wildlife conservation. Zimbabwe's border with Mozambique remains heavily mined from the liberation war, posing serious threats to people, wildlife, and the environment.

■ MINE ACTION ZIMBABWE

CORSAN MINEFIELD

Clearance efforts in 2024 focused on the **CORSAN minefield** within **the Sengwe Wildlife Corridor**, a crucial link between **Gonarezhou National Park** (Zimbabwe), **Limpopo National Park** (Mozambique), and **Kruger National Park** (South Africa). This minefield, which spans 37 kilometers and contains thousands of R2M2 anti-personnel mines, blocks wildlife migration and endangers local communities. APOPO cleared **4,041 landmines, booster charges**, and **UXOs** in this area, making the land safer for both people and animals. Clearance operations combined manual methods with advanced detection technology.

This work was generously supported by the **U.S.** and **Swiss Governments**. In particular, since October 2023, the **U.S. Department of Defense's Humanitarian Demining R&D Program** has contributed to improving detection tools and information systems, resulting in increased efficiency and reduced time spent on follow-up drills in 2024.

MINE ACTION ZIMBABWE
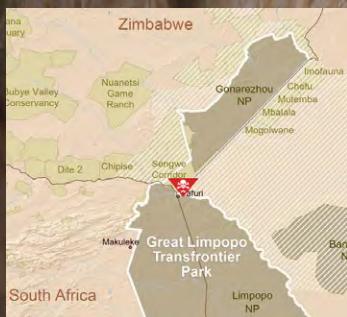
EXPLOSIVE ORDNANCE RISK EDUCATION

APOPO also continued delivering **EORE sessions**, reaching 2,918 people — of which 2,362 were children - through 21 sessions in primary schools and local markets. These sessions play a **crucial role in preventing accidents** by educating communities about the risks of landmines and safe behaviors.

The year was both productive and safe, with no incidents reported. **APOPO completed 72% of the Sango Border task and successfully handed over 10 cleared sectors to the Zimbabwe Mine Action Centre**. Approximately 450,000 m² remain, which could be cleared by the end of 2027, contingent on maintaining current funding and operational capacity.

■ IMPACT IN 2024

Landmines and other ERW destroyed	4,041
Safe land given back to communities	1,386,581 m²
People benefitting from our work	2,611
People attending risk education	2.918

AZERBAIJAN

Azerbaijan remains heavily contaminated with landmines and explosive remnants of war due to past and recent conflicts, particularly in the Karabakh region.

In 2024, APOPO continued to support national demining efforts in collaboration with partners including Mines Advisory Group (MAG), Safepoint LLC, and Qaya Safety Solutions.

MINE ACTION AZERBAIJAN

APOPO teams remained active across three projects in the **Aghdam and Jibrayil regions**. In partnership with **MAG** and **International Eurasia Press Fund (IEPF)**, **Mine Detection Rat (MDR)** operations in Bash Garvand, Namirli and Guluja progressed steadily despite weather-related stand-downs and limited vegetation in some areas allowing full clearance without ground preparation. A seasonal stand-down began at the end of October due to funding constraints and winter conditions. A minimal crew remained to care for the animals.

MINE ACTION AZERBAIJAN

MDR and TSD continued to play a vital role in technical survey and landmine clearance tasks, particularly in areas with low vegetation. APOPO operated with 40 detection animals and 30 staff in Azerbaijan, maintaining indoor training and care for the rats during the winter months.

In 2024, **1,649,102 m² of land was cleared** across all projects with 3 landmines, 10 cluster munitions and 39 other explosive remnants of war found. The program continues to maintain a strong commitment to safety, collaboration, and the welfare of its animal teams. Despite solid operational progress the program faced notable funding challenges in late 2024. While proposals for continued support were submitted, additional funding will be essential to sustain and expand APOPO's humanitarian mine action efforts in Azerbaijan in 2025.

IMPACT IN 2024

Landmines and explosives destroyed	52
Safe land given back to communities	1,649,102 m²

APOPO DOGS

Mikael Bold
PROGRAM MANAGER
Ibrahim Tinjak
HEAD DOG TRAINER
Chiara Faini
DOGS SUPPORT MANAGER

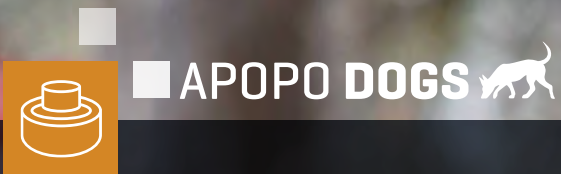## The largest number of mine detection dogs in the sector

Beyond running its own programs, APOPO is a global leader in training and providing mine detection dogs to organizations worldwide. By delivering high-performance animal detection teams, APOPO helps partners address Mine Action challenges and enhance the cost-efficiency of land release operations.

Since launching its dog training program for specialized technical survey roles in 2017, APOPO has rapidly expanded to operate the largest number of mine detection dogs in the sector. APOPO also supports national authorities in strengthening animal detection standards and plays a key advisory role in shaping animal detection systems (ADS) guidelines for the mine action sector.

◼ APOPO DOGS

In 2019, **APOPO's Technical Survey Dogs (TSDs)** became operational in Cambodia and have been achieving outstanding results ever since. These highly skilled dogs are trained to quickly locate the boundaries of minefields and other areas contaminated by explosive ordnance (EO), minimizing environmental damage and enabling the faster return of safe land to communities. Equipped with **advanced track-and-trace systems**, our TSDs search in 30-meter lanes without the need for time-consuming vegetation cutting. Their work ensures that only areas with confirmed evidence of EO undergo full clearance, saving time, resources, and lives.

By 2024, **APOPO had over 70 operational dogs**, trained at its **Dog Training Center in Cambodia** - a facility offering vast training grounds and a climate ideal for year-round preparation. In 2024, the **HeroDOGs** Program continued training dogs, handlers, and team leaders, supporting APOPO's programs in Cambodia and Ukraine, while also leading independent projects in Azerbaijan, South Sudan, and Senegal.
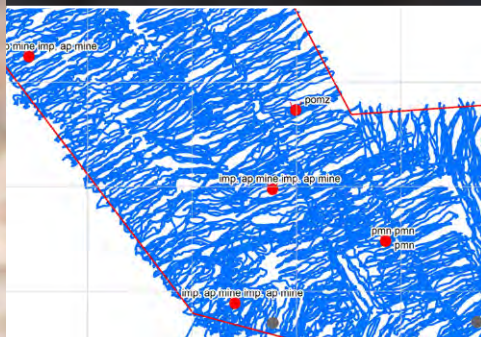
SOUTH SUDAN

Ensuring the safe movement of people and goods.

Decades of conflict have severely impacted South Sudan, creating a complex humanitarian crisis. According to Mine Action Review, as of the end of 2023, more than 10.5 km² of land remained contaminated with landmines and cluster munitions. To accelerate the clearance of critical roadways, the United Nations Mine Action Service (UNMAS) called on operators to boost landmine clearance capacity through the use of mine detection dogs.

■ MINE ACTION SOUTH SUDAN

APOPO began operations in South Sudan in 2017, partnering with **The Development Initiative (TDI)** to provide trained mine detection dogs and handlers. These teams have been deployed across various regions, searching for landmines along roads and for cluster munitions in conflict-affected villages.

In 2023, APOPO continued operations alongside **G4S**, supporting road survey and clearance activities as part of **UNMAS's Road Clearance Capacity**. Although the **mine detection dog (MDD)** project concluded by mid-2024, by the end of April 2024, APOPO teams had successfully searched 234,523 m² of contaminated land, helping to ensure the safe movement of people and goods across the country.

SENEGAL

Senegal continues to face approximately 2.5 km² of landmine contamination, mainly concentrated in the Casamance region. In 2023, APOPO partnered with **Humanity & Inclusion (HI)**, the country's leading mine clearance operator, to speed up the survey, clearance, and release of remaining hazardous areas, bringing Senegal closer to achieving a Mine-Free status by the end of 2025.

The successful partnership between HI and APOPO carried on into 2024. By the end of the year, the **mine detection dog (MDD)** teams had searched 98,822 m² of contaminated land, making a significant contribution to Senegal's progress. However, due to a lack of funding, the project is set to conclude in March 2025.

IMS
INFORMATION MANAGEMENT SYSTEM

Morgan Kline
INFORMATION SYSTEMS MANAGER

At APOPO, we believe that good data is more than an administrative requirement — it is a strategic asset. In a world of increasingly complex humanitarian, environmental, and development challenges, our Information Management System (IMS) ensures our work is responsive, informed, and accountable.

In 2024, APOPO's IMS matured into a robust, adaptable infrastructure that connects every layer of our operations — from landmine clearance and disaster response to ecological restoration and animal welfare. Unlike conventional reporting systems, APOPO's IMS links program design directly to information design, transforming raw data into meaningful insights that guide field decisions, shape strategy, and demonstrate real-world impact.

This year, our IMS supported innovation across six continents, facilitated field operations in conflict-affected and environmentally sensitive areas, and empowered teams to monitor performance with unprecedented precision. It has become a platform for tracking, learning, collaboration, and sector-wide leadership.

▪ IMS
INFORMATION MANAGEMENT SYSTEM

INNOVATIVE DEPLOYMENTS AND GLOBAL EXPANSION

In 2024, APOPO launched new programs in **Ukraine** and **Argentina**, each supported by context-specific information systems. In Ukraine, when GPS jamming disrupted operations, our IM team developed a GPS-independent, offline box-grid reporting system using ESRI's FieldMaps. This allowed precise, structured reporting in even the most disrupted environments.

Meanwhile, in **Turkey**, APOPO began laying the groundwork for an Information Management system to support our upcoming **Search and Rescue** program — the first time APOPO's IM capabilities are being applied to disaster response. Designed for real-time coordination, responder tracking, and needs-based data visualization, the system is being built to ensure IM readiness from day one.

■ IMS
INFORMATION MANAGEMENT SYSTEM

CHAMPIONING ANIMAL WELFARE THROUGH INTEGRATED MONITORING

Animal welfare is core to APOPO's values. Our IMS embeds this commitment deeply into operations. Each **HeroDOG** is assigned a QR-coded ID card linked to a digital health profile, recording veterinary data, training performance, and operational outcomes.

Webhooks and automated alerts notify field teams when a medical check-up, vaccine, or rest period is due — ensuring consistency across all programs. This infrastructure supports not just ethical standards but also operational reliability.

In 2024, dog movement tracking received a major boost via automated **ModelBuilder** workflows that process GPS logs and apply scent detection buffers — visualizing search coverage in GIS environments with scientific rigor.

IMS
INFORMATION MANAGEMENT SYSTEM

HIGH-RESOLUTION CLEARANCE DATA: A NEW GLOBAL STANDARD

One of APOPO's most significant achievements in 2024 was launching a new **Clearance Data Model** in **Zimbabwe**, developed with Cranfield University. This system offers unprecedented granularity in mine action operations.
Key features include:

- Over 60 data points collected per explosive device
- Barcode-based tracking from detection to demolition
- Lane-by-lane reporting using a single-form-per-activity model
- Before-and-after photographic evidence linked to each item

The system enables total traceability, delivering powerful insights to field managers and strategic planners. Patterns in device types, depth, and clearance efficiency are now fully visualized and actionable at scale.

FROM MINEFIELDS TO RICEFIELDS: DATA-DRIVEN DEVELOPMENT

In **Cambodia**, the IMS was adapted for a **Development Impact Bond (DIB)** transforming cleared minefields into rice-growing land. Farmers were registered with **Global Unique Identifiers (GUIDs)** and assigned QR-coded ID cards. Their full journey — from land clearance to training, harvest monitoring, and income tracking — was monitored in real time.

To optimize operations, the IM team deployed **drones** for aerial mapping, created 3D terrain models from open-source elevation data, and integrated this into daily planning. The result: improved resource allocation, reduced redundancy, and a stronger link between clearance and economic recovery.

■ IMS
INFORMATION MANAGEMENT SYSTEM
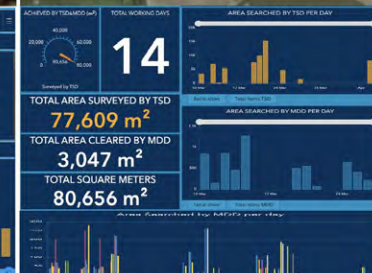
INTERNAL INNOVATION AND GLOBAL LEADERSHIP

In 2024, APOPO's IM team led advancements both internally and across the sector. Throughout the year we:

- Presented at international forums, including the Siem Reap–Angkor Summit and the 28th International Meeting of Mine Action Directors
- Hosted our first APOPO IM Workshop with IM Officers from all seven country programs for joint training and planning
- Deployed a multi-tiered Quality Management System (QMS) assigning corrective actions and follow-ups
- Integrated GitHub Co-Pilot AI into our coding workflows, automating legacy data consolidation and streamlining reporting

We maintain rigorous documentation using Draw.io for template mapping and GitHub for changelogs — ensuring every system update is traceable and replicable.

THE ROAD AHEAD

As we scale across mine action, disaster response, and ecological restoration, APOPO's IMS remains a central pillar — not just for data collection, but for **insight, action,** and **impact**. We remain committed to **high-quality, purpose-built systems** that strengthen effectiveness, accountability, and sustainability. Whether supporting clearance teams, tracking reforestation, or launching new initiatives like search and rescue, our IM team will continue to lead innovation and integration across all operations.

TUBERCULOSIS
DETECTION

WHERE WE WORK

apopo
TB DETECTION

ETHIOPIA
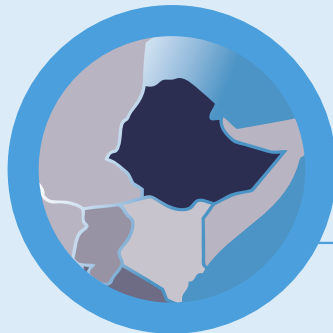
TANZANIA

SUMMARY

In 2023, an estimated 10.8 million people fell ill, and 1.25 million died of tuberculosis (TB), making it the global number one killer by an infectious disease. A total of 8.2 million people were reported as newly diagnosed with TB, and 2.7 million were estimated to be missed or not reported. It is encouraging to see that gaps are narrowing when compared to 4 million cases missed in both 2020 and 2021 and below the pre-pandemic level of 3.2 million missed in 2019.

ABOUT TB

Tuberculosis (TB), caused by *Mycobacterium tuberculosis,* is primarily transmitted through the air when people with the active disease cough or sneeze. Common symptoms include a persistent cough, fever, night sweats, and weight loss, underscoring the need for awareness and timely diagnosis. It mostly targets the lungs but can affect other parts of the body. Approximately 25% of the global population is estimated to carry TB bacteria; however, only a small percentage actively develop the disease. According to the Global Tuberculosis Report, nearly 700,000 children and young teens (14 and under) were diagnosed with TB in 2023 — the highest number ever recorded. Yet, almost half of all children with TB still go undiagnosed and untreated.

![APOPO TB DETECTION logo]

TUBERCULOSIS DETECTION

Breaking the TB cycle

STIGMA AND RISK OF DEATH

RISK TO OTHERS

Without treatment, up to 15 other people can be infected by a TB sufferer within a year

SERIOUS ILLNESS

NO TREATMENT

UNABLE TO SUPPORT FAMILY

IF TB IS NOT DIAGNOSED

PERSON GETS WEAK
unable to work or to go to school
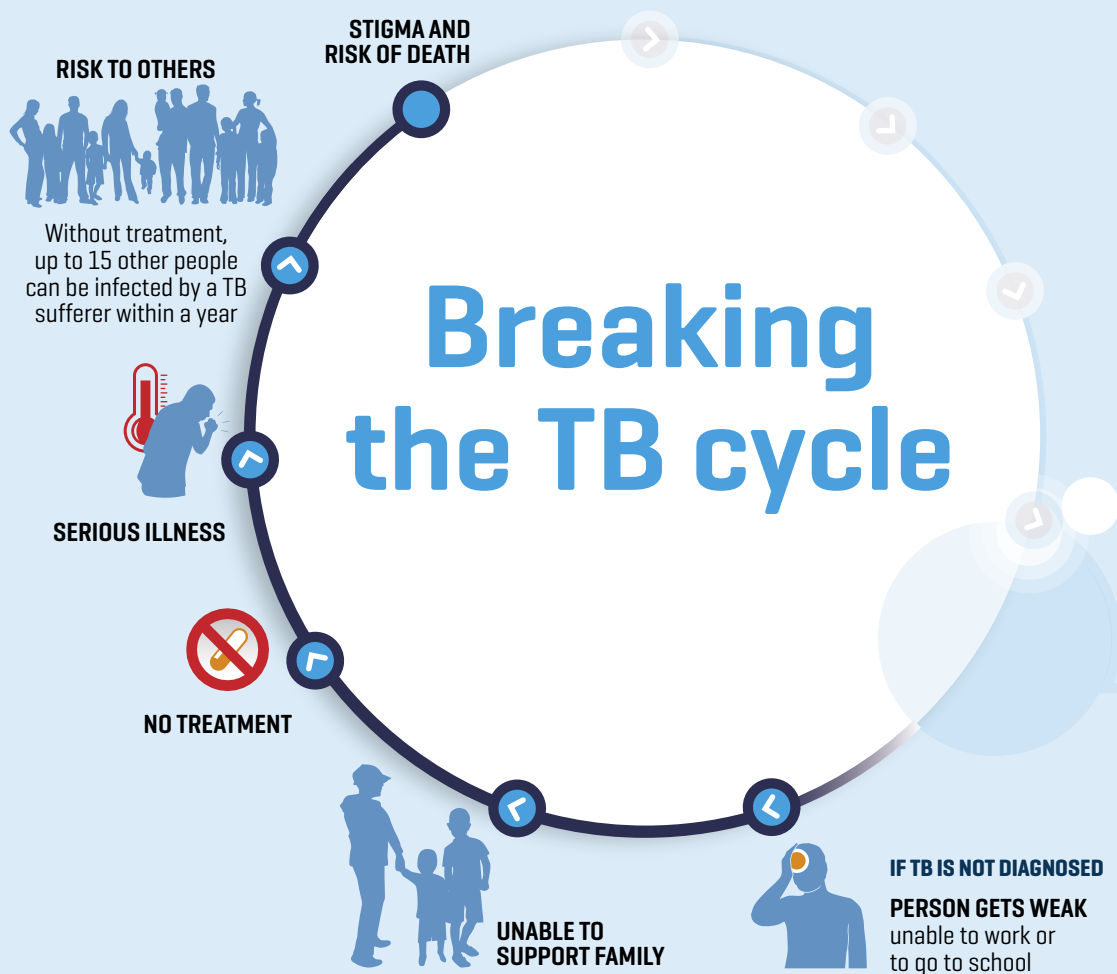
OVERCOMING TB'S HURDLES

In Ethiopia and Tanzania, TB's decline of just 5% year-on-year is a significant challenge in achieving the END TB targets. APOPO's collaboration with local health systems and over **140 partner clinics** across Ethiopia and Tanzania, intends to tackle the issue of the 'missed' patients identified by the WHO, who account for around a quarter of infected people. Economic and social barriers, along with limited diagnostic capabilities at clinics, are limiting factors for individuals who remain untested or their cases unreported, resulting in **2.7 million people globally remaining undiagnosed and untreated for TB in 2023.**
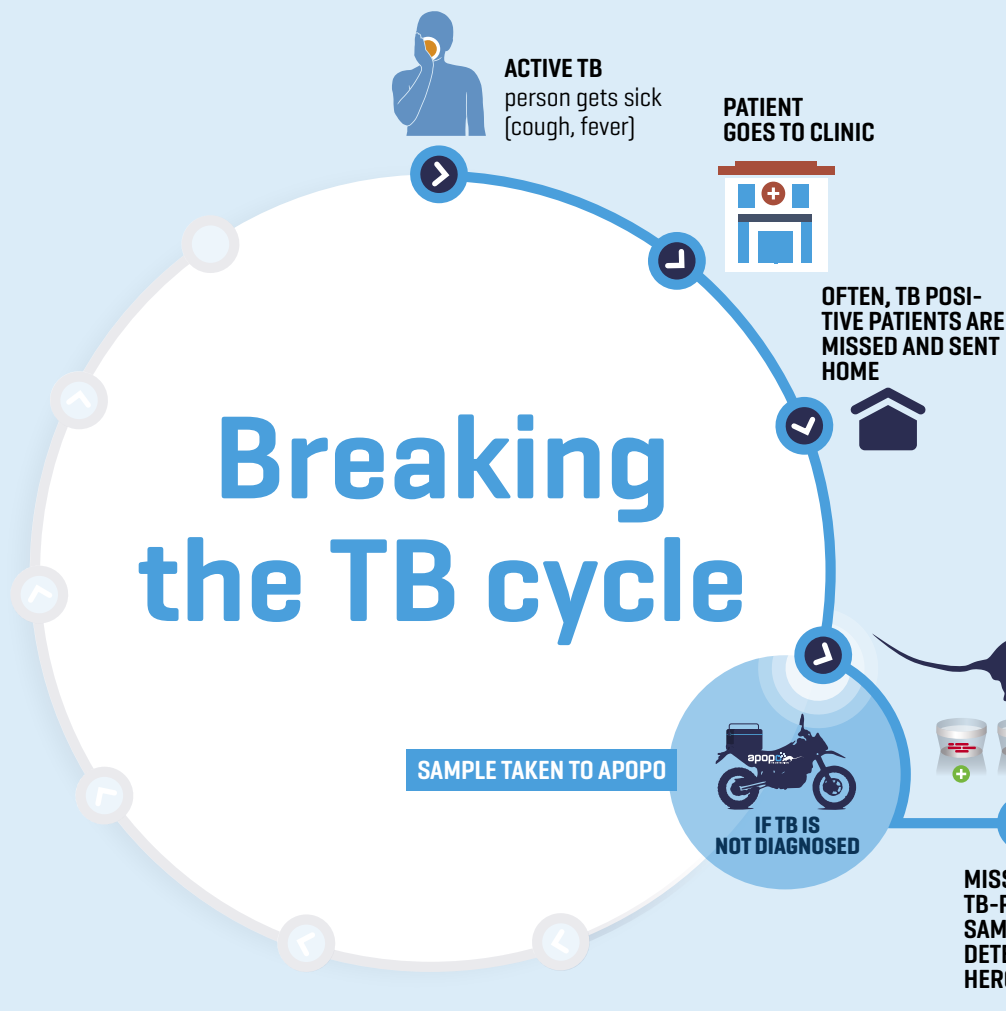
OUR IMPACT

African giant pouched rats *(Cricetomys ansorgei)*, are trained by APOPO to detect the odor of TB in human sputum samples. By the end of 2024, APOPO's TB detection initiative had screened a total of **1,029,673 sputum samples from 625,952 individuals** suspected of having TB in Ethiopia, Mozambique, and Tanzania. This effort led to the discovery of **32,455 new TB cases**, potentially preventing a further 389,460 TB infections. In 2024 alone, APOPO tested **75,204 samples from 52,811 individuals, identifying 3,055 new TB cases.**

Beyond our ongoing case detection activities, APOPO continues to further refine the use of our innovative TB detection research using trained rats — one of the three pillars of the **End TB strategy**. This research includes expanding our methodologies to detect TB from a range of new sample materials, such as sebum, saliva, urine or breath. Collection of these sample materials is less invasive than collecting sputum and will potentially make it much easier for children to provide samples. This research is underway in partnership with the **University of Manchester** and a **'human biosensor', Mrs. Joy Milne**. The research may also lead to discoveries that inform the development of synthetic disease detection devices.

ACTIVE TB
person gets sick (cough, fever)

PATIENT GOES TO CLINIC

OFTEN, TB POSITIVE PATIENTS ARE MISSED AND SENT HOME

Breaking the TB cycle

SAMPLE TAKEN TO APOPO

IF TB IS NOT DIAGNOSED

MISSED TB-POSITIVE SAMPLES DETECTED BY HERORATS

SUSPECT SAMPLES RE-CHECKED BY WHO ENDORSED METHODS

PATIENT CALLED BACK BY COMMUNITY HEALTH WORKERS

PATIENT COUNSELLING

TB PATIENT GETS FREE TREATMENT

HEALTHY AGAIN

FUTURE ASPIRATIONS

Going forward, APOPO hopes to use its innovation in other parts of the world, particularly those among the 30 high TB-burden countries. APOPO-trained rats can screen **100 samples in just 20 minutes**. This would take a lab technician in a partner clinic up to 4 days. Therefore, APOPO's fast and cost-effective TB detection technology has the potential to contribute to TB elimination goals and global END TB strategies. We aspire to expand our technologies in northern Tanzania, where recorded TB rates are above the national average in Tanzania.

The added value of APOPO's TB detection rats is well demonstrated in the context of sputum-smear microscopy. We have observed that the two countries where APOPO currently operates are now shifting from sputum-smear microscopy to molecular testing, such as **Xpert MTB/RIF or Ultra**.

In 2024, the overall **additional case finding was 48%** - which is above the annual average of 40% previously observed. Additional case finding was 44% at Xpert testing DOT facilities and 59% at smear sites. Recent data also showed that DOTS clinics that shifted from smear to Xpert Ultra were more likely to benefit from TB case finding among TB patients with lower bacillary loads.

APOPO now aspires to further evaluate the sensitivity and specificity of rats against the latest molecular testing, which are Xpert MTB/RIF Ultra and Truenat.

TANZANIA

Dr. Joseph Soka
PROGRAM MANAGER

In 2024, a total of 42,502 sputum samples were tested from 34,888 individuals suspected of having TB. Through the use of detection rats, an additional 2,554 TB cases that were initially missed by health facilities were identified. This resulted in a 53% increase in case detection across 81 clinics from where APOPO currently collects samples. The results from the rats were confirmed using approved diagnostic methods, including concentrated sputum-smear microscopy or GeneXpert, before being reported to hospitals and clinics for patient follow-up and treatment initiation. As a result, 85% of the identified patients were placed on TB treatment.

■ TB DETECTION TANZANIA

APOPO TB Tanzania established a formal partnership with **Kibong'oto Infectious Disease Hospital** through a **Memorandum of Understanding** to expand its operations into northern Tanzania. This initiative will involve working with over 40 health facilities across four additional regions: Kilimanjaro, Arusha, Manyara, and Tanga. Additionally, APOPO has entered into an official collaboration with the **President's Office, Regional Administration and Local Government (PORALG)**, which oversees all primary health facilities in Tanzania.

Furthermore, in 2024, APOPO's rat detection results were integrated into **Tanzania's Health Management Information System** via the **electronic TB and Leprosy (eTL) platform**. This integration enhances the visibility of APOPO's findings among global TB implementation partners.

■ IMPACT IN 2024

■ Samples evaluated	42,502
■ Patients evaluated	34,888
■ Additional patients diagnosed	2,554
■ % increase in detection rate	53%

TB DETECTION TANZANIA
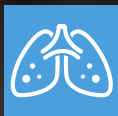
Treatment

" I never could have imagined that rats could help save my life — but thanks to APOPO, they helped find what my clinic couldn't. And I was able to begin the treatment I needed. They gave me hope when I had none left."

**Kepra, 66 year old
Retired Soldier**

ETHIOPIA

Dr. Negussie Beyene
PROGRAM MANAGER

It has been seven years since APOPO started its operational tuberculosis research in Ethiopia in partnership with Armauer Hansen Research Institute (AHRI) and Addis Ababa City Administration Health Bureau (AACAHB).

In the project to find missed TB cases implemented in 2024, more than 32,700 sputum samples collected from 17,923 patients were screened by our trained rats. The project found 462 TB patients that were found negative by their respective health centers but found positive by the rats and later confirmed in APOPO's laboratory. These additional cases were on top of the 500 smear-positive cases found by the health facilities.

TB DETECTION ETHIOPIA

In 2024, the RUPAA project (Reaching the Unreached Urban Poor Population of Addis Ababa) was implemented in 3 sub-cities of Addis Ababa, which are made up of 28 districts.

More than **34,600 poor urban households** were reached, and **116,836 people** attended TB health education, resulting in **3,277 presumptive cases** out of which 86 turned out to be positive. There were also **four rifampicin-resistant** cases identified.

▪ TB DETECTION **ETHIOPIA**

In addition to those results, 1,071 people in the high risk-populations at police stations, oversea returnees camps, and temporary shelters for the vulnerable were tested for TB and 26 were positive, among which one which was rifampicin-resistant. APOPO established itself as the team to count on whenever an urgent TB mass screening is required. Accordingly, the **AACAHB and the Federal Prison Commission** called on the team to conduct mass screening at **Qaliti Federal Prison** in which **2,224 inmates and staff** were screened. There were five TB cases identified. AACAHB and **REACH Ethiopia** also requested the team to participate in the mass screening of TB at selected **Key and Vulnerable Populations** in a week-long campaign. More than **2,050 people** were screened and 26 TB cases were found. All the TB cases duly started treatment. Overall, the Ethiopian program found 605 TB cases in 2024.

▪ IMPACT IN 2024

▪ **TB samples evaluated**	32,702
▪ **Patients evaluated**	17,923
▪ **Additional patients diagnosed**	462
▪ **% increase in case detection**	92%

Saved my life

❝ I used to think rats were just pests — but now I know one helped save my life. Thanks to a HeroRAT, I got the right diagnosis, got treatment and have been cured. Now I'm working toward chasing my dream of studying IT."

**Desalegn Mariam,
TB survivor from Ethiopia**

THE APOPO TB RESEARCH PROGRAMS ARE MADE POSSIBLE BY OUR PARTNERS AND DONORS.

TRAINING, BREEDING, AND WELFARE

Dr. Cindy Fast
HEAD OF TRAINING

The Making of a HeroRAT

Every HeroRAT starts its journey to become a lifesaver at our Training Center, located at the Sokoine University of Agriculture (SUA) in Morogoro, Tanzania. Rat pups stay with their littermates and mother, undisturbed until they are about 4 weeks old. This marks the beginning of their introduction to the world around them, learning to explore and build trust with humans. This early phase involves gentle practices known as habituation and socialization, which is crucial for further training. Official training starts when the rats are 10 weeks old, when they are also weaned and start living with their siblings. Completing the full training cycle for a rat takes approximately a year, laying the groundwork for their future roles in saving lives.

Landmine Detection

Seventy young rats participated in training to become mine detection rats (MDR) In 2024. Building on innovations developed in recent years, including expanding areas of our training field dedicated to permanently buried tea eggs, continued to improve training efficiency with an average of 4 months shaved off the time needed to achieve internal accreditation and only 4.3% of rats dropping out of the training program.

Despite an unseasonably long rainy season disrupting field training early in the year, the rats collectively searched 477,981 square meters of our training field, detected 19,128 explosives and earned 16,046 banana rewards. Importantly, 23 MDR earned internal accreditation in 2024, with 20 deployed to Cambodia to assist with AP-OPO's operations, where in less than 6 months of service, they found 75 landmines and other explosive remnants of war while safely clearing nearly 300,000 sqm of minefields.

TB Detection Rats

Eighteen rats finalized training to pass rigorous internal testing and accreditation to become TB detection rats in 2024. Preliminary results from ongoing research aimed at developing new deployment methods promise to bolster the life-saving impact of TB detection rats. **The Training Center** also supported the **retirement of Carolina**, a TB detection rat stationed at APO-PO's program in Dar es Salaam, who, over the course of nearly **7 working years, screened 209,116 samples** from presumptive TB patients to help identify **3,126 patients** initially missed by partnering health clinics. She has comfortably settled into the retirement community stationed at the Training Center and continues to receive expert care, treatment, and attention.

Breeding

The breeding program saw **the birth of 58 rat pups** successfully reared and assigned to training programs to become either a mine detection or TB detection rat or to detect new targets under development by APOPO's Innovation Department.

Animal Welfare

Strengthening APOPO's commitment to giving our rats the hero treatment they deserve, **Animal Welfare was formally adopted as a Core Value** across the organization. Sessions were dedicated to defining and understanding welfare-related concepts among APOPO's senior management staff, while additional rat enrichment items were developed and introduced to provide greater variability and encourage rats to engage in natural behaviors, like exploration. Further digitization of health and welfare records aim to facilitate greater sharing of best practices across sites and programs.

HeroRAT Health

" Being the Animal Health Coordinator at APOPO has been an incredibly rewarding experience. I've seen how important it is to care for the health and wellbeing of our rats, as their performance depends on it. Thanks to the dedication of our health team and trainers, these incredible animals stay in top condition and continue to make a real impact. I'm proud to be part of a mission where rats can be healthy and happy while saving lives."

Dr. Prisca Greyson,
Doctor of Veterinary Medicine

Capacity Building

APOPO's MDR Trainer accreditation manual was revamped alongside welcoming **7 new rat trainers** and **two deminers** from Zimbabwe to our team. Reflecting APOPO's core value of Diversity, a visiting scholar delivered practical clicker training skills workshops to **67 participants** stationed across APOPO's programs in Tanzania, while another **6 student interns** and collaborating scholars were hosted in Morogoro, including **4 Tanzanian scholars**. APOPO's rat trainers, supervisors, and researchers attended a two-day seminar on animal olfaction and animal scent detection training delivered by **Dr. Adee Schoon** and APOPO's Head of Training provided operational support to the MDR team operating in Cambodia, including raising awareness of APOPO's TB Detection and Innovation programs and APOPO's key rat training methods among Visitor Centre Tour Guides. The Training Center also delivered **Ambassador HeroRATs** to a new program at the Maryland Zoo aimed at showcasing HeroRAT impact and innovative approaches in mine detection and TB screening.

Inspiring

"As part of my PhD at the University of Adelaide I spent three months working on a project as a research intern at APOPO in Tanzania. I worked with the Wildlife Detection team.
My project involved adding a new target odor to the rats repertoire: elephant ivory. I also provided a series of five capacity building workshops to build clicker training skills for all of the trainers on staff and share expertise. APOPO is an inspiring leader in the use of positive reinforcement to train rats. It is rewarding to be involved with an organisation having a direct impact on global humanitarian projects and who prioritise animal welfare"

Jade Fountain

INNOVATION

Alice Sparks

HEAD OF
INNOVATION

As the world changes, APOPO recognizes the importance of adapting our approaches to ensure our work remains relevant and impactful. The Innovation Department focuses on expanding **APOPO's cutting-edge scent-detection technology** by researching, developing, and deploying new applications for the rats. Given their compact size, agility, and extraordinary sense of smell, our rats have the potential to complement and enhance existing technologies across diverse fields.

Based at the **Sokoine University of Agriculture** in **Morogoro**, our team brings together experts from Tanzania and beyond. Many of our Tanzanian staff have transitioned from other departments within APOPO, demonstrating not only the dynamic nature of our work but also the career progression opportunities it offers..

> **Following operational trials at Dar es Salaam's seaport and airport, the HeroRATs successfully detected 87% of wildlife targets."**

◼ INNOVATION

In 2024, we achieved key milestones in our flagship projects: **Search & Rescue and Wildlife Detection**. As part of our Search & Rescue initiative, our Program Lead relocated to **Türkiye** in October to lay the groundwork for the arrival of **six specially trained rats** in April 2025. These rats have undergone advanced training, honing their ability to locate survivors and return to their release point when called back, an essential skill for deployment in disaster response.

Our **Wildlife Detection Rats** also demonstrated impressive progress. Following operational trials at Dar es Salaam's seaport and airport, they successfully **detected 87% of wildlife targets**, an improvement in accuracy over the previous cohort tested in 2023. This achievement highlights their potential as a fast, scalable, and cost-effective asset in the fight against wildlife trafficking, with deployment expected in 2025.

As we look to the future, we remain committed to driving innovation and expanding our impact. To sustain momentum, we are actively seeking new donors and strategic partners who share our vision for a safer, more sustainable world.

INNOVATION
WILDLIFE DETECTION

Dr. Eduardo Reynoso-Cruz

PROGRAM LEAD

In 2024, our Wildlife Detection rats reached three key milestones; they completed a second round of operational trials at Dar es Salaam's seaport, participated in initial trials at Julius Nyerere International Airport, and a new generation of wildlife detection rats began training.

100% DETECTION RATE

At the seaport, the rats trained for 16 weeks using four search strategies; on a leash; with a trolley on wheels; sniffing shipping container air vents; and searching freely inside containers. After 11 weeks of precision tests with new daily samples from our partner Tanzania Wildlife Management Authority (TAWA), showed an 87% success rate, improving on 2023's 83%. Notably, the rats successfully identified new wildlife samples on their first encounter. An impressive result emerged when we selected the three best rats for each strategy, and analyzed how many samples were detected by at least two rats per team. The results indicate that using the leash, the trolley, and the air vent strategies, as a team the rats achieved a 100% detection rate for wildlife items, whereas inside the container, they detected only 67% of the targets.
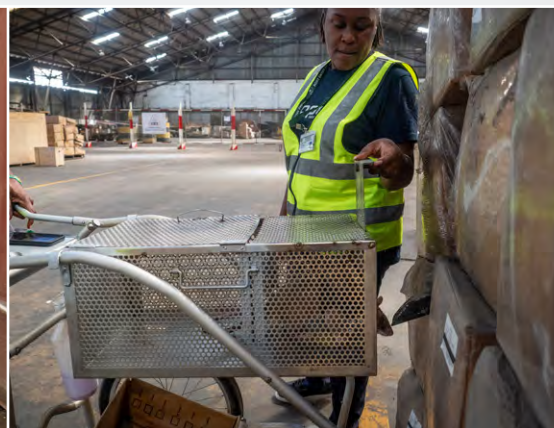
Dr. Jane Goodall

In July 2024, APOPO had the honor of welcoming back **Dr. Jane Goodall**, DBE and UN Messenger of Peace, to our training headquarters in Morogoro. Nearly two decades after her first visit. As part of a documentary celebrating her 90th year, Dr. Goodall toured APOPO's facilities at Sokoine University of Agriculture and watched live demonstrations in landmine detection, tuberculosis screening, wildlife detection, and search and rescue. She warmly interacted with the HeroRATs, even naming one of the baby rats **'Jane.'** Her visit was a powerful affirmation of our mission and a reminder of the shared belief that every creature has the potential to make a meaningful difference.

INNOVATION WILDLIFE DETECTION

REAL WORLD

At the airport, training lasted six weeks, focusing only on leash and trolley searches due to environmental constraints. The team reached an impressive 91% detection accuracy.

In October, **a new generation of detection rats** began training, incorporating insights gained from the previous cohort. Among them is **Jane Goodall** named after the renowned primatologist who visited APOPO in July. Later in the year, this new group of rats will move to Dar es Salaam for real-world training.

In 2025, we plan a final test before deploying the rats at the seaport and airport. We continue to explore new locations for our rats to be deployed.

Jane Goodall Baby Rat

INNOVATION
SEARCH & RESCUE

Dr. Danielle Giangrasso

PROGRAM
LEAD

APOPO's RescueRAT project trains African giant pouched rats to find survivors in post-disaster search and rescue scenarios. In 2024, the project made several strides toward real-world deployment.

The RescueRATs completed advanced training to prepare them for their upcoming relocation for operational trials in Türkiye. Training was focused on enhancing the rats' resilience in locating individuals in operational conditions, such as in complex debris scenarios, across variable environments, and under more realistic conditions where they are not predictably rewarded for locating a survivor. In parallel, we started training seven young rats on a refined protocol based on the insights gained from the first cohort.

INNOVATION
SEARCH & RESCUE

GEA PARTNERSHIP

We also advanced preparations for operational trials in Türkiye. Our Program Lead collaborated closely with our Turkish Search and Rescue partner, **GEA**, to establish a rat training and research center in Antalya. Extensive logistical work has been done for the successful relocation of the rats and the APOPO team for this international initiative.

NEW RESEARCH PARTNER

Other notable milestones include continued on-site training with GEA, a new research partnership with **Ankara University**, and the representation of RescueRATs at the **Annual Associative Learning Symposium** at Gregynog Hall in Cardiff, Wales.

Great Progress

" Our partnership with APOPO over the past year has made great progress toward our goal of operational trials. We are excited to bring the RescueRATs to Turkey soon, as we continue our shared mission to save lives and make a positive impact."

Murat Beşparmak, GEA-Antalya Branch Leader

Technical University Eindhoven alumni **Sander Verdiesen**, an experienced electrical engineer, has been instrumental in advancing the RescueRat backpack technology. Collaborating closely with Vention, a Netherlands-based engineering company, he played a key role in refining the backpack's design and functionality.

In early 2024, the third prototype was developed, featuring a lighter, more compact design with improved transmission technology. Extensive testing in Morogoro in April demonstrated that the rats were significantly more agile with these new backpacks, though overheating remained a challenge. Building on these advancements, Sander identified WiFi HaLow as a more suitable transmission technology, which will lead to the development of a new RescueRat backpack prototype in 2025. Incorporating lessons learned from previous iterations, this new version will feature improved data transmission through dense rubble, enhanced durability, and better thermal management. Set for completion in February 2025, the new backpacks will undergo field trials in Türkiye, where RescueRats will be trained with the upgraded technology. These trials, conducted in collaboration with GEA, will provide critical insights to fine-tune performance and ensure the backpacks are fully optimized for real world Search and Rescue operations.

APOPO TRAINING & INNOVATION IS MADE POSSIBLE BY OUR PARTNERS AND DONORS

Supported by players of
PEOPLE'S POSTCODE LOTTERY

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Dr. Mungo Ngalameno
RESEARCH THAT ADVANCES LIVES
Veterinarian and Lecturer, Department of Veterinary Anatomy and Pathology

TAs a proud product of this collaboration, I am honored to have been awarded a PhD from SUA in 2024, based on six years of research supported by the African Centre of Excellence for Innovative Rodents Pest Management and Biosensor Technology Development at Sokoine University of Agriculture, in collaboration with APOPO.

My studies focused on the reproductive biology of the African giant pouched rat (Cricetomys ansorgei), the species at the core of APOPO's HeroRAT programs. These remarkable animals play a critical role in landmine detection and tuberculosis diagnosis across several countries, and improving our understanding of their reproductive cycles is key to supporting and sustaining their impact.

The research revealed that HeroRATs, both wild and captive, exhibit seasonal breeding patterns, with peak sexual activity occurring between July and September (dry season), and most pups born between October and December (wet season). This aligns with periods of food abundance, helping to optimize breeding conditions and animal welfare. These findings offer new opportunities to refine APOPO's breeding program and strengthen the capacity of this biosensor technology.

Throughout this journey, I published four peer-reviewed scientific papers. Topics ranged from breeding cycles and ovulation patterns to genetic identification and reproductive anatomy. This work not only contributes to APOPO's mission but adds to the scientific knowledge of an overlooked animal that holds tremendous potential for humanitarian applications.

I am deeply grateful for the support from APOPO and SUA. This achievement reflects the power of long-term institutional collaboration in building research capacity, advancing science, and training the next generation of African scientists. I continue this work in my role as a consulting vet, caring for the rats who bring honor to both institutions and serve communities around the world.
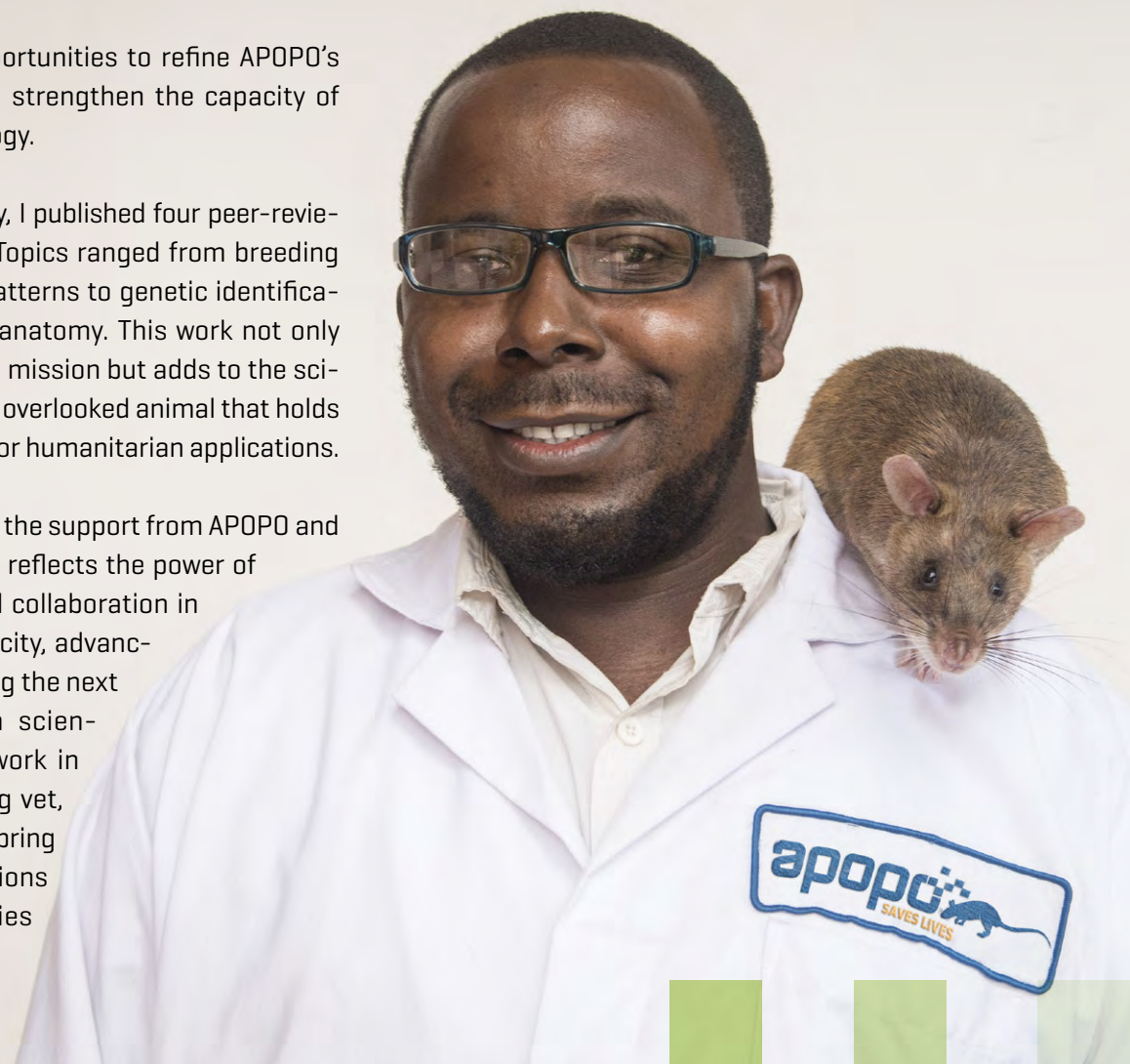
**Javier Castillo**
HEAD OF
MARKETING

MARKETING & COMMUNICATIONS

MARKETING & COMMUNICATIONS

In 2024, APOPO continued to strengthen its global visibility through consistent messaging and targeted marketing and communications campaigns. The year saw a number of developments that brought increased media interest in APOPO's work, including the HeroRATs, HeroDOGs, and the human teams behind our operational impact.
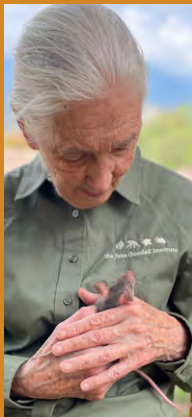
This year launched **HeroRAT Jane** for public adoption. Named by **Dr. Jane Goodall** following her visit to APOPO in early 2024, Jane represents the expansion of our Wildlife Detection Program, which trains rats to detect smuggled wildlife products such as pangolin scales and rhino horn. This initiative attracted considerable media attention and helped highlight APOPO's growing work in conservation.

Media coverage in 2024 was strong, with features in several major international outlets by both press and broadcast outlets. **The Guardian, Financial Times,** and **El País** covered APOPO's mine action, tuberculosis detection, search and rescue, and wildlife detection efforts. **Mongabay** provided in-depth reporting on our wildlife detection program. Coverage highlighted both the role of our trained animals and the expertise of APOPO's human teams in delivering frontline humanitarian services.

Digital communications remained a core part of APOPO's engagement strategy. Regular campaigns around World TB Day, International Mine Awareness Day, and Giving Tuesday supported ongoing outreach. Social media growth was significant across most platforms, reflecting broader public interest and increased global engagement with APOPO's mission and programs.

2024 was a successful year, public fundraising revenue rose to over €2.1 million, marking the highest amount in the organization's history.

ONLINE COMMUNITY
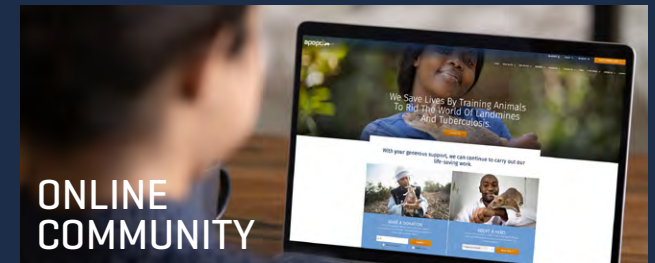
Facebook followers: 125,936

X followers: 13,673

Instagram followers: 144,055

TikTok followers: 16,600

YouTube subscribers: 3,640

LinkedIn: 5,237

Newsletter subscribers: 31,036

Global Giving Donors: 5,466

APOPO WOULD LIKE TO GRATEFULLY ACKNOWLEDGE
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University of Antwerp

APOPO thanks the University of Antwerp for always having been a most trusted partner, hosting APOPO's Head Office, Board Meetings and providing valued scientific and networking support.

APOPO is extremely grateful for the continued Pro Bono support of the Belgian Law firm **Liedekerke Wolters Waelbroeck Kirkpatrick** and the US law firm **Foley Hoag LLP.**
Your work has proven incredibly valuable to our innovative life-saving efforts!

THANK YOU
FOR SUPPORTING APOPO

Jane

Jane and Jane Goodall

in protecting wildlife by adopting young HeroRAT Jane.
Named after Dr. Jane Goodall, DBE, founder of the Jane Goodall Institute
and UN Messenger of Peace.

THIS CLASSIFIED INFORMATION BELONGS TO

....

apopo
INNOVATION

Jane and Jane Goodall with
handler Uncle Albert

JANE

Full Name	Jane
Gender	Female
Scientific Name	*Cricetomys ansorgei*
Date of Birth	May 25, 2024
Birthplace	Morogoro, Tanzania
Parents	Haikaeli [f] + Lew [m]
Siblings	1 brother Faru, 1 sister Tulia
Education	Wildlife Detection Trainee
Personality	Gentle and playful

apopo
INNOVATION

APOPO RAT
ADOPTIONS

APOPO's HeroRATs are small in size but mighty in impact. These intelligent African giant pouched rats use their powerful sense of smell to help detect landmines and deadly diseases, supporting human teams in life-saving efforts across the globe. In 2024, we welcomed two new HeroRATs to our adoption family.

APOPO RAT ADOPTIONS
MEET OUR HERORATS

Tamasha

Tamasha is a tuberculosis (TB) detection rat working in Tanzania. Based in Morogoro, Tanzania, Tamasha, whose name means "celebration" in Swahili, has already shown impressive skill in sniffing out TB-positive samples that might otherwise go undetected. Her work is crucial in helping spot previously missed cases of TB, allowing patients to get the treatment they need and preventing the further spread of the disease in the community.
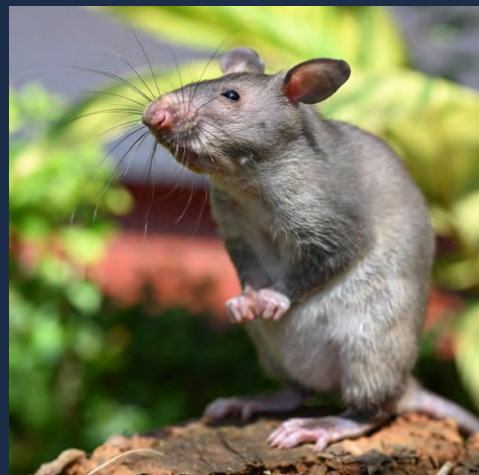
Jane

Named in honor of renowned conservationist Dr. Jane Goodall, Jane is one of APOPO's pioneering wildlife detection rats. Still in training, Jane is learning to detect trafficked wildlife products such as pangolin scales, elephant ivory, and rhino horn, in port environments. Her super nose will be part of a future conservation team fighting the illegal wildlife trade and protecting endangered species around the world.

Ronin

Ronin is not just a HeroRAT, he's APOPO's top-performing mine detection rat. Calm, confident, and relentlessly focused, Ronin works in Preah Vihear province, Cambodia alongside human deminers and handlers, helping to detect landmines quickly and safely. His accuracy and dedication make him a standout in the field, playing a vital role in returning land to communities for safe use and development.

Baraka

Baraka, whose name means "blessing" in Swahili, is a landmine detection rat deployed in Angola. Trained in Tanzania, Baraka now works with a team of deminers and handlers to locate hidden landmines. His work, though quiet and careful, has a profound impact on the lives of people who can once again farm, build, and live safely.

APOPO DOG ADOPTIONS

APOPO's HeroDOGs are loyal, driven, and incredibly effective members of our detection teams. In 2024, we welcomed two exceptional Belgian Shepherds to our adoption program: Kim and Khai joining a legacy of canine heroes who support landmine clearance operations in some of the world's most affected regions.

MEET OUR HERODOGS

Kim

Kim is a disciplined and determined technical survey dog working in Preah Vihear, Cambodia. Quiet and methodical, Kim approaches each mission with intense focus, using his sharp nose to help his team identify areas contaminated by landmines and unexploded ordnance. He works alongside human handlers and deminers, speeding up the process of returning land to safe use. Off duty, Kim is gentle and affectionate, enjoying peaceful downtime with his handler and plenty of well-earned rest under shady trees.

Khai

Khai (short for Khaeshad) is a spirited and happy Belgian Shepherd deployed in Ukraine's Mykolaiv region. Always eager to get to work, Khai brings infectious energy to the field and a keen nose for danger. His joyful personality and playful spirit make him a favorite among his team, but when it's time to search, he's all business. Khai's contributions help reduce the time needed to identify threats, allowing his human team to focus clearance efforts where they're needed most.

Cover the costs

HeroDOGs like Kim and Khai are part of highly skilled teams that include human handlers, deminers, and technical support staff. Adopting a HeroDOG helps cover the cost of their training, care, equipment, and field operations. Adopters receive a certificate, welcome pack, and quarterly updates including inspiring stories from the field.

APOPO SWITZERLAND

Anna Bouchier
DIRECTOR OF PARTNERSHIPS, EUROPE

In 2024, APOPO's Swiss Office continued to play a key regional leadership role, driving and coordinating the organization's partnerships for Europe in order to expand its reach and reinforce its impact. Building on the momentum of previous years, the team deepened existing collaborations and secured new strategic partnerships, advancing APOPO's mission and representing the organization at prominent global events.

Throughout the year, the Swiss team successfully mobilized additional funding for **Mine Action activities in Cambodia, Ukraine, and Azerbaijan**, working with both long-standing supporters and new partners to scale impact in regions affected by landmines and other explosive remnants of war.

In the health sector, the Swiss Office played a vital role in securing financial support for **APOPO's Tuberculosis Detection** program in Tanzania. This included enabling a key expansion into the Moshi region while maintaining a strong focus on pediatric TB, an organizational priority.

The team also helped secure dedicated support for **APOPO's Innovation Department**, particularly the **Search and Rescue Rat** initiative, strengthening the organization's capacity to explore new applications of its scent detection technology.

As a cornerstone of donor engagement, the Swiss team coordinated and hosted field visits, building strong relationships with partners. APOPO was prominently featured at major donor conferences, with the Swiss team delivering keynote contributions highlighting the organization's progress and impact.

In **2024**, APOPO began its targeted advocacy efforts, with the Swiss foundation taking the lead in representing the organization in its engagement with the United Nations and the European Union. APOPO was actively present at key international Mine Action and policy fora, including the **National Directors Meeting** [NDM-UN28], the Group of Experts meeting under **CCW Amended Protocol II of UNODA**, the **Convention on Cluster Munitions**, and the **Ukraine Mine Action Conference** [UMAC 2024]. The team also represented APOPO at major social entrepreneurship gatherings such as the **Skoll World Forum**, broadening visibility and enabling cross-sector collaboration.

SWISS BOARD

Yves Hervieu-Causse - Chair
Thierry de Meulder - Vice-Chair
Jennifer Saurina - Board Member
Ulrich Lehner - Board Member
Mario Tonini - Board Member
Bart Weetjens - Board Member

" We are extremely proud to continue supporting APOPO's innovative work, especially in safeguarding children and their parents from the deadly threats of tuberculosis and landmines. Investing in nature-based solutions like the African giant pouched rats ensures that the youngest and most vulnerable community members grow up healthier."
Stephanie Koopmann, The Light Foundation

APOPO UNITED STATES

Charlie Richter
U.S. DIRECTOR

In 2024, APOPO US continued to play a critical role in advancing the organization's global efforts through strategic fundraising and partnership development. The office helped secure renewed funding from the U.S. State Department's Office of Weapons Removal and Abatement (PM/WRA) for demining work in Zimbabwe's Sengwe Wildlife Corridor. Additional flexible funding was also raised to support the launch of APOPO's Search and Rescue program in Turkey, operational trials of Wildlife Detection Rats in Tanzania, and APOPO's expanding mine action program in Ukraine.

The U.S. Director played a key management role in the success of **Minefields to Rice Fields**, a UK government-funded **Development Impact Bond (DIB)**. The project met all its 2024 targets and has been extended through March 2026, with an additional $1 million in funding.

APOPO is already exploring ways to expand the project, including integrating **HeroTrees** and piloting a premium brand for rice and produce sourced from mine action beneficiaries in Cambodia.

Driven by the success of the **APOPO Visitor Center in Cambodia** and growing interest from U.S. zoos and museums, APOPO US hired a dedicated **Exhibits and Partnerships Officer, Erin Sackett**, in late 2024. Erin previously served as APOPO's Animal Health and Welfare Officer in Cambodia and worked as a keeper at several U.S. zoos. Her role focuses on developing exhibits that fit the operational realities of zoos and museums, while replicating the visitor engagement seen in Cambodia. New partnerships will be piloted with at least two U.S. zoos in 2025.

US BOARD

Kristen Davis - Chair
Beverly Schwartz - Secretary
Piet Van Hove - Board Member
Isa Mirza - Board Member
Whitney Hischier - Board Member
Jerome Tagger - Board Member

"It's been an honor to join APOPO as a board member. The organization's innovative use of animal scent detection, integration with emerging technologies, and creative financing approaches are truly impressive. The coordination between handlers and animals in the field is a powerful model of impact and efficiency. I'm excited to see how APOPO's unique solutions continue to support vulnerable communities and protect the environment in the years ahead."
Whitney Hischier, U.S. Board Member

UK PARTNER

Emma Mortiboy
OPERATIONS & FUNDRAISING MANAGER

2024 saw APOPO UK enjoy a fruitful year of expansion, continuing on the path of building networks and strengthening the UK team. After several years of helping to establish APOPO UK, **Ros Bird** stepped down from her role as Operations and Fundraising Manager. We're very grateful for her dedication and are pleased to welcome **Emma Mortiboy** and **Andy Bond** to the fundraising team.

We were also delighted to welcome **Yasmine Colijn** and **Mark Unsworth** to the APOPO UK Board, with Mark taking on the role of Board Secretary.

APOPO UK enables donors to make their support go even further by claiming an **extra 25%** on their gift through the **UK's Gift Aid** scheme. Emma, based in the UK, is happy to help anyone looking to maximise their impact in this way.

Support from **Trusts and Foundations** in 2024 has been hugely appreciated, with several contributing generously to our work. We were also excited to gain a corporate partner this year: Clarify B2B chose to support APOPO through the **Clarify Foundation**. The Clarify team raised over **£7,000** towards our work, and we're grateful to everyone involved.

APOPO UK has been working closely with **REVIVE**, who lead an **All-Party Parliamentary Group (APPG)** focused on the humanitarian consequences of explosive weapons. This group of **MPs and Peers** provides an important space for discussion and information sharing. APOPO UK looks forward to contributing to this conversation in the Houses of Parliament in 2025.

We're excited for another year of growth as we explore new opportunities for innovation and partnership to advance our mission.

UK TRUSTEE BOARD

Susan Robertson - Chair
Justin Bedingfeld - Treasurer
Alan Mathers - Trustee
Cameron Watson - Trustee
Alan Macdonald OBE - Trustee
Yasmine Colijn - Trustee
Mark Unsworth - Trustee

" 2024 has been an exciting year for APOPO UK, and with a full board now in place, we have taken the space to think strategically about our added value to our wider shared mission. We've invested in the building blocks of a fundraising strategy and hope that this paves the way for a 2025 of increased alignment across the APOPO family, resulting in enhanced fundraising for scent detection work globally."
Yasmine Colijn, APOPO UK Trustee

VISITOR CENTER CAMBODIA
A RECORD-BREAKING YEAR

Sambat Meas
VISITOR CENTER MANAGER

The Visitor Center in Siem Reap offers informative group tours on the global landmine crisis and Cambodia's history, featuring live HeroRAT demonstrations, expanding awareness and providing crucial funding for our program. In 2024, the APOPO Visitor Center experienced its most successful year yet, welcoming nearly **66,000 visitors**. December set a new record, pulling in **8,795 guests** — the highest monthly attendance to date. The visitor base remained diverse, with 22% from the UK, 16% from the USA, 13% from Australia, and 8% from France, alongside many others from English-speaking and European countries.

Total revenue approached **$1 million**, including $32,000 from HeroRAT adoptions and $49,000 from donations. The center's strong reputation continues to make word-of-mouth the biggest driver of attendance, bolstered by targeted marketing efforts such as digital ads at the **Angkor Ticket Office, tuk-tuk billboards, hotel and hostel partnerships**, and **social media campaigns**. Visitor feedback remains outstanding, with **4.9-star ratings** on both Google and TripAdvisor.

A major operational upgrade in 2024 was the implementation of **Odoo**, a new online booking, inventory, purchasing, and accounting system. This has streamlined operations, improving efficiency and saving valuable time for the team.

VISITOR CENTER GIFT SHOP

The APOPO Visitor Center gift shop sells merchandise like t-shirts, hats, educational toys, books, and local handicrafts. Proceeds from the shop directly support our work in Cambodia.

Sister Srey Café

Sister Srey is **a little café with a big heart** nestled amongst the trees on the edge of the **Siem Reap** River in Cambodia. Not only is it a place to find good food and coffee, but it empowers local Khmer students and supports our Cambodia demining program.

Sister Srey Café faced challenges in 2024, with revenue reaching **$184,500**, a 15% decrease from 2023. The main setback was an unavoidable two-month closure in October and November for repairs, impacting overall profits, which dropped to $11,300 from $35,000 the previous year.

Despite this, the café remains a well-loved Siem Reap staple. The upper floor is now open to customers. Reviews remain strong, and a refreshed menu is planned for the 2025 low season to drive renewed growth and attract more visitors.

HEROTREES

Alex Wostry
SUSTAINABILITY MANAGER

In 2024, the HeroTREEs initiative transitioned to become its own department within APOPO, demonstrating a strong commitment to environmental sustainability across APOPO's areas of operation. With a comprehensive approach combining tree planting, agroforestry, education, and strategic partnerships, HeroTREEs made significant contributions to both ecological restoration and community development this year.

FARMER TREE PLANTING PROGRAM

Over 18,753 trees were planted in collaboration with **Sustainable Agriculture Tanzania (SAT)** through the FairCarbon4Us project. These efforts were paired with extensive farmer training programs: **56 farmers** were educated in agroforestry principles, optimal tree spacing, and climate-smart farming; **20 farmers** acquired skills in vegetative propagation and grafting of high-yield fruit trees such as mango and lemon; and **25 farmers** received training in systematic record-keeping to strengthen their farm management and decision-making. Since the project started in 2016, a total of **180 farmers** have been trained, and more than 43,900 trees are being maintained and flourishing.

🌳 **HEROTREES**

SYNTROPIC AGROFORESTRY

Syntropic agroforestry is a regenerative farming method that mimics natural forest succession by combining diverse plant species in layered, time-based systems to restore soil health and boost productivity. It emphasizes minimal external inputs, strategic pruning, and synergy between species to create self-sustaining ecosystems.

A standout achievement in 2024 was the establishment of **three Syntropic Agroforestry farms**, exceeding the initial target of two. Two of these were developed with new partners, setting the stage for larger collaborative projects. Now a key area of focus, Syntropic Agroforestry is recognized globally as one of the most regenerative and sustainable farming methods. HeroTREEs is positioning itself as a regional leader in this practice, supporting capacity-building efforts among local organizations and communities. The demonstration plots, located at **SUA APOPO TB Center (4,000m²), Mgeta Secondary School** in Luale, and in partnership with **Reforest Africa** in the Udzungwa Mountains Tanzania, served as key training hubs. Collectively, these plots helped train **148 farmers and students**, promoting regenerative farming, environmental education, and community engagement. In early 2025, during the beginning of the rainy season, seven additional Syntropic Agroforestry demonstration plots were cultivated, reaching 114 farmers and more than 60 pupils.

HEROTREES

REFORESTATION

Another major accomplishment was the successful **preparation of 50,000 seedlings**, surpassing the initial goal of 40,000, for a **60-hectare reforestation project** in partnership with SUA's Forestry Department—a major step forward in APOPO's conservation strategy. In early 2025, all seedlings were planted in collaboration with with **My Birthday Tree Organization (MBTO)** and **SUA**, with 50 students trained in agroforestry principles and tree planting. This brings the total achievement to: 25 hectares restored, 50,000 trees planted, and 50 students empowered through hands-on training.

STAFF TREE PLANTING PROGRAM

Additionally, the internal **staff tree-planting initiative** distributed **8,964 fruit and timber trees** to **30 APOPO staff members**, along with training in syntropic agroforestry and tree care. This program demonstrates APOPO's internal commitment to sustainability by empowering staff to actively participate in greening efforts. Since there was such a significant demand, in early 2025, an additional 1,160 trees were provided to the team.

HEROTREES

Innovation Accelerator for Syntropic Agroforestry
As part of the formalization of HeroTREEs into a dedicated department, we have laid the foundation for the Syntropic Agroforestry Innovation Accelerator (SAIA). This strategy is designed for HeroTREEs to serve as a regional hub for agro-ecological organisations aiming to scale regenerative farming practices. We will support knowledge exchange, capacity building, and the co-development of field-tested models to bring Syntropic Agroforestry to farming communities across diverse landscapes.

Expertise in Syntropic Agroforestry

Community of Practice

Organisational Development

Data Driven Impact forecast

Ongoing Research Activities

Resource Mobilization

Traceability in place for carbon, biodiversity and other markets

HEROTREES

HeroTREEs Project Officer Aron Katosho (left) with Syntropic Agroforestry Trainer Roland van Reenen (middle) and APOPO Gardener Rajabu Bundi (right) enjoy the progress made at one of our demonstration farms. In 2024, Aron stepped up to lead the trainings, taking over from Roland.

Lastly, 2024 saw the **strengthening of essential partnerships**, particularly with the **SUA Forestry Department, Mgeta Livelihood Development Organisation, My Birthday Tree Organization, Farmtree,** and **Reforest Africa**. These alliances are a solid foundation for future cooperative ventures that aim to scale the environmental and social impacts of APOPO's tree-planting initiatives. In summary, HeroTREEs in 2024 not only delivered impressive environmental outcomes but also reinforced APOPO's mission to build climate resilience, support sustainable livelihoods, and empower communities through nature-based solutions.

IMPACT

Total trees successfully growing	111,215
Total people trained	1,020
Total syntropic agroforestry plots established	19

FINANCIAL STATEMENT BALANCE SHEET IN EURO*

ASSETS	2024	2023
Current assets	3,584,237	3,745,631
Current receivables	1,919,456	869,032
Other assets	544,736	322,471
Cash and equivalents	1,120,045	2,554,128
TOTAL ASSETS	**3,584,237**	**3,745,631**
Liabilities		
Net capital	1,955,174	1,582,123
Funds of the organization	328,046	328,046
Retained Earnings	1,627,128	1,254,077
Long term liabilities	1,608,967	2,156,579
Deferred Income (Grants)	980,107	1,527,719
Loan	628,860	628,860
Curent liabilities	20,096	6,929
TOTAL LIABILITIES	**3,584,237**	**3,745,631**

PROFIT&LOSS STATEMENT (EURO)

	2024	2023
Total Income	12,497,654	8,964,133
Total Operational Expenses	5,292,341	3,671,255
Total Personnel Expenses	6,842,401	5,262,837
Depreciation	12,207	12,207
Other costs	196,000	-70,643
Operating Result	**154,706**	**88,477**
Financial Result	22,256	-111,386
Extraordinary Result	–	-985
Net Income	**176,962**	**-22,910**

* Annual accounts audited by BDO

DONATIONS & SUBSIDIES 2024

IN EURO

TOTAL 12,497,644
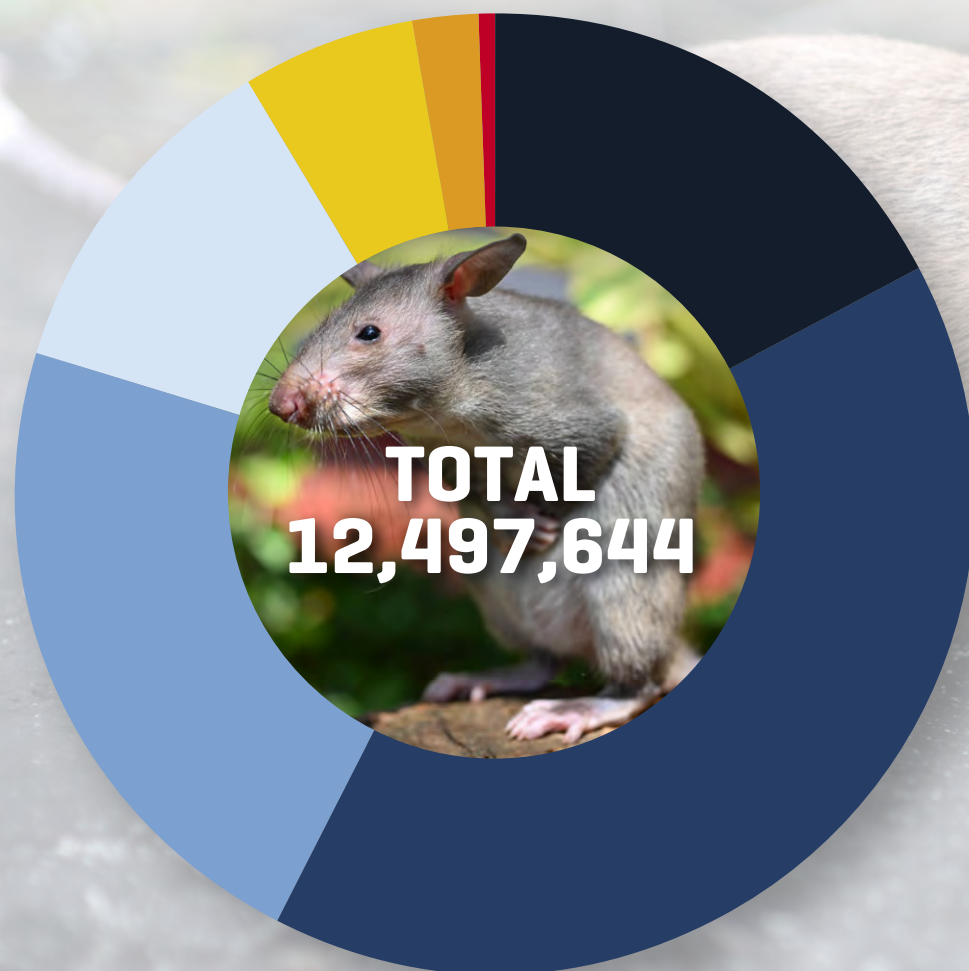
● Public fundraising	2,173,491
● Government grants	5,029,375
● Foundation grants	2,778,720
● International institution grants	1,441,008
● Earned income	745,536
● Research grants	261,960
● Miscellaneous operating income	67,554

Accountability and efficiency are important to us and for every €1 you donate, 92c goes directly to supporting our work on the ground. Only 8c contributes to fundraising costs, meaning that your support really impacts the communities that we serve.

EXPENSES AND INVESTMENTS 2024
PER ACTIVITY IN EURO
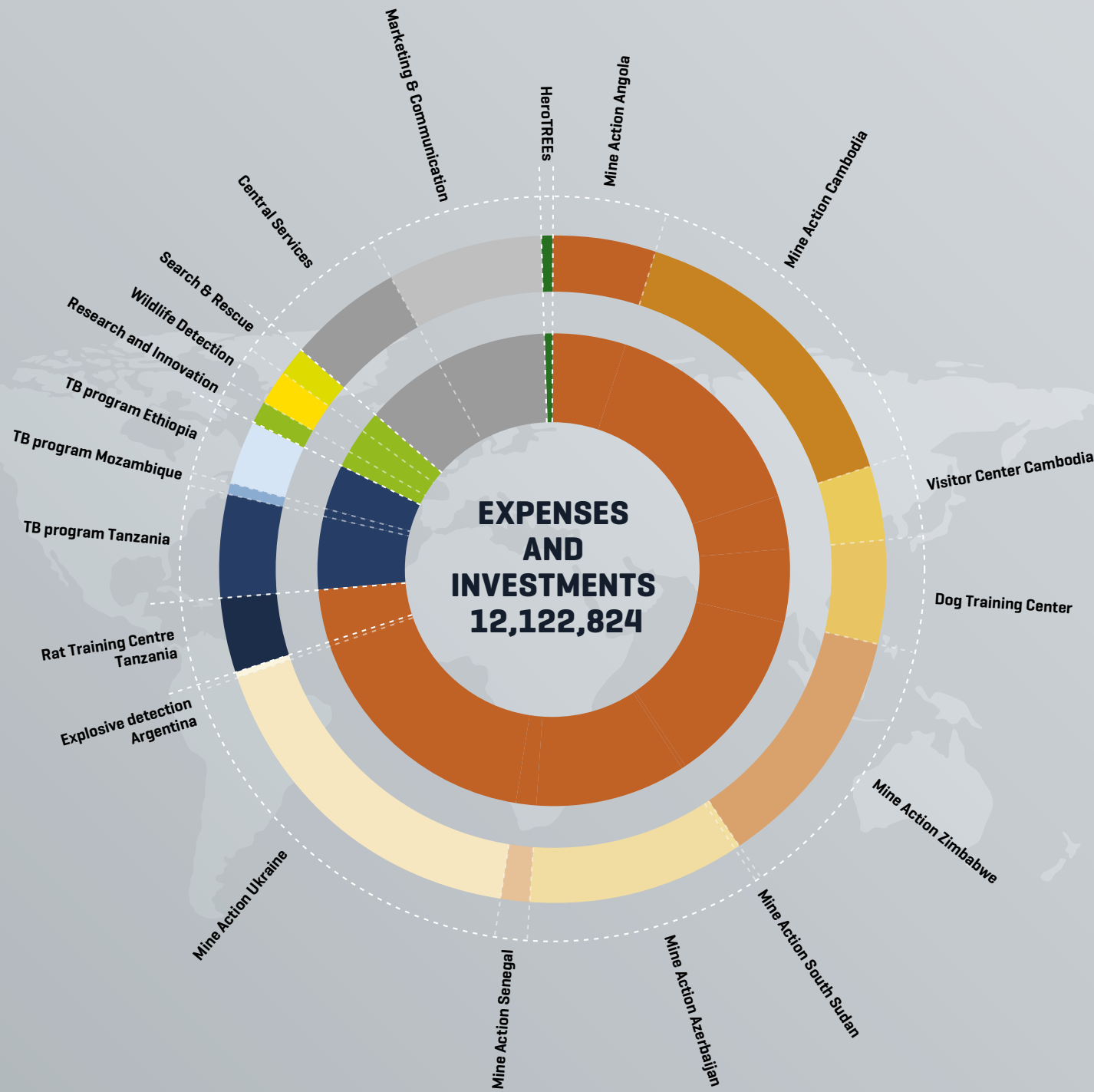
Mine Action Angola	630,881
Mine Action Cambodia	1,809,699
Visitor Center Cambodia	427,544
Dog Training Center	617,675
Mine Action Zimbabwe	1,447,415
Mine Action South Sudan	45,624
Mine Action Azerbaijan	1,233,348
Mine Action Senegal	153,499
Mine Action Ukraine	2,104,541
Explosive detection Argentina	37,034
Rat Training Centre Tanzania	436,133
TB program Tanzania	586,988
TB program Mozambique	97,262
TB program Ethiopia	356,096
Research and Innovation	125,512
Wildlife Detection	220,216
Search & Rescue	155,694
Central Services	685,903
Marketing and Communications	885,543
HeroTREEs	66,217
Total	**12,122,824**

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Professor of Zoology at the University of Antwerp

Joris Schoofs, Vice Chairman
and Business Expert

Piet Van Hove, Head of International Relations,
University of Antwerp

Gerrit Ruitinga, Chairman of the Academy for Information and Management, Amsterdam

Dr. Adee Schoon, Scent Detection Consultant

Thierry De Meulder, President Consultancy Company ACT management

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SAVES LIVES