



**APOPO GAVE
ME A NEW
LEASE ON LIFE”**

Hassan Kitumbui
Recovering TB patient,
Tanzania

ANNUAL REPORT 2020

apopo 
SAVES LIVES

ABOUT APOPO

APOPO was founded in response to growing awareness that landmines kill and maim people and hamper development in post-conflict areas. Methods to rid affected countries of landmines were slow so a small team in Belgium founded APOPO to develop a fast, simple and cost-efficient mine clearance technology that could be sustained within national mine action programs in low-income countries. APOPO developed a unique method using trained rats, and now, over 20 years later, APOPO is a global leader in scent detection animals.

As a research organization, APOPO is always at the forefront in developing new humanitarian and environmental scent detection applications. Our core operational activities are in the fields of mine action and tuberculosis (TB) control.

The main training and research center is based at the Sokoine University of Agriculture in Tanzania. APOPO has Mine Action operations in Cambodia, Zimbabwe, Angola and Mozambique; and TB-research laboratories in Tanzania, Mozambique, and Ethiopia where trained rats work in combination with confirmatory technology to stop TB. APOPO is supported by a large international network of diverse partners and donors as well as the general public, and has foundations in Switzerland and the United States.

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APOPO deploys rats to find landmines and tuberculosis in many affected countries, and continues innovating to use its African Giant Pouched Rats in the battle against other scourges.”



VISION AND MISSION

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VISION

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

MISSION

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



APOPO adopts UN Sustainable Development Goals (SDGs) that are aligned with our work and values, and commits to the principle of leaving no-one behind.

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.

DIVERSITY

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

SOCIAL TRANSFORMATION

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

SOLIDARITY

APOPO commits itself to the common good and shares responsibility toward the protection of the people, communities and the planet.



INTRODUCTION

Marlin Gombakomba
Manual Deminer Zimbabwe

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2020 has been a year full of uncertainty, requiring flexibility, creativity, innovation, and above all, resilience – the resilience of APOPO’s staff, our partners, and the people we serve. While APOPO’s work this past year was transformed by a global pandemic, I feel incredibly grateful and proud that with your support, our team began clearing landmines in Zimbabwe, my home country.

This new project will clear a dense minefield laid four decades ago that affects the Sengwe Wildlife Corridor in one of the largest conservation areas in the world. This is one of the poorest, driest areas in Zimbabwe, and livestock rearing is the main source of livelihood. Up to 100 cattle are lost on this minefield each year, pushing whole families into poverty. These hidden dangers cause people to live in fear and poverty and are a barrier to economic development. The first step is making the land safe. I love animals and helping to protect not only the animals that rely on this vital land, but also the local populations and their livestock. Without hesitation, this is why I applied to work with APOPO.

Within the context of the pandemic, APOPO is continuing to lead efforts to uplift women as key agents of change within their communities, recognizing that our involvement is critical to ensuring lasting change in the fight against landmines and disease. By hiring women and men from landmine impacted communities, APOPO raises us and our extended families out of poverty while

contributing to peace-building and sustainable futures. Historically, many deminers were men and employing women was met with some resistance; but APOPO tries to incorporate and promote inclusion of women among its staff. I too believe a gender balanced organization is a better organization.

All over the world, not only landmines but also tuberculosis (TB) continues to endanger lives and hinder economies. Despite the massive global impact of COVID-19, APOPO is proud to have maintained its TB detection and linkage-to-care services in Tanzania, Mozambique, and Ethiopia. APOPO focused on supporting our partners and the communities we serve, and we hope to do more to combat additional infectious diseases at the same time in the future.

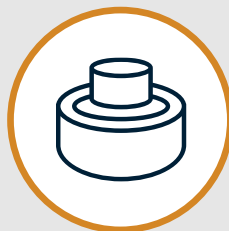
One thing remains abundantly clear—none of this could have happened without our supporters. On behalf of the global APOPO team and our partners, I want to sincerely thank all of you for not only standing by APOPO during a very difficult year, but for going above and beyond to support us, directly enabling the real impact we were able to achieve.”





ENABLED IMPACT

SINCE APOPO
BEGAN UNTIL
THE END OF 2020



139,423

Landmines and
other explosives
destroyed



29,919,387 m²

Safe land given
back to
communities



1,096,042

People freed
from the terror
of landmines



718,730

Suspect
TB samples
screened



20,071

Additional
TB Patients
detected



169,020

Potential
infections
halted

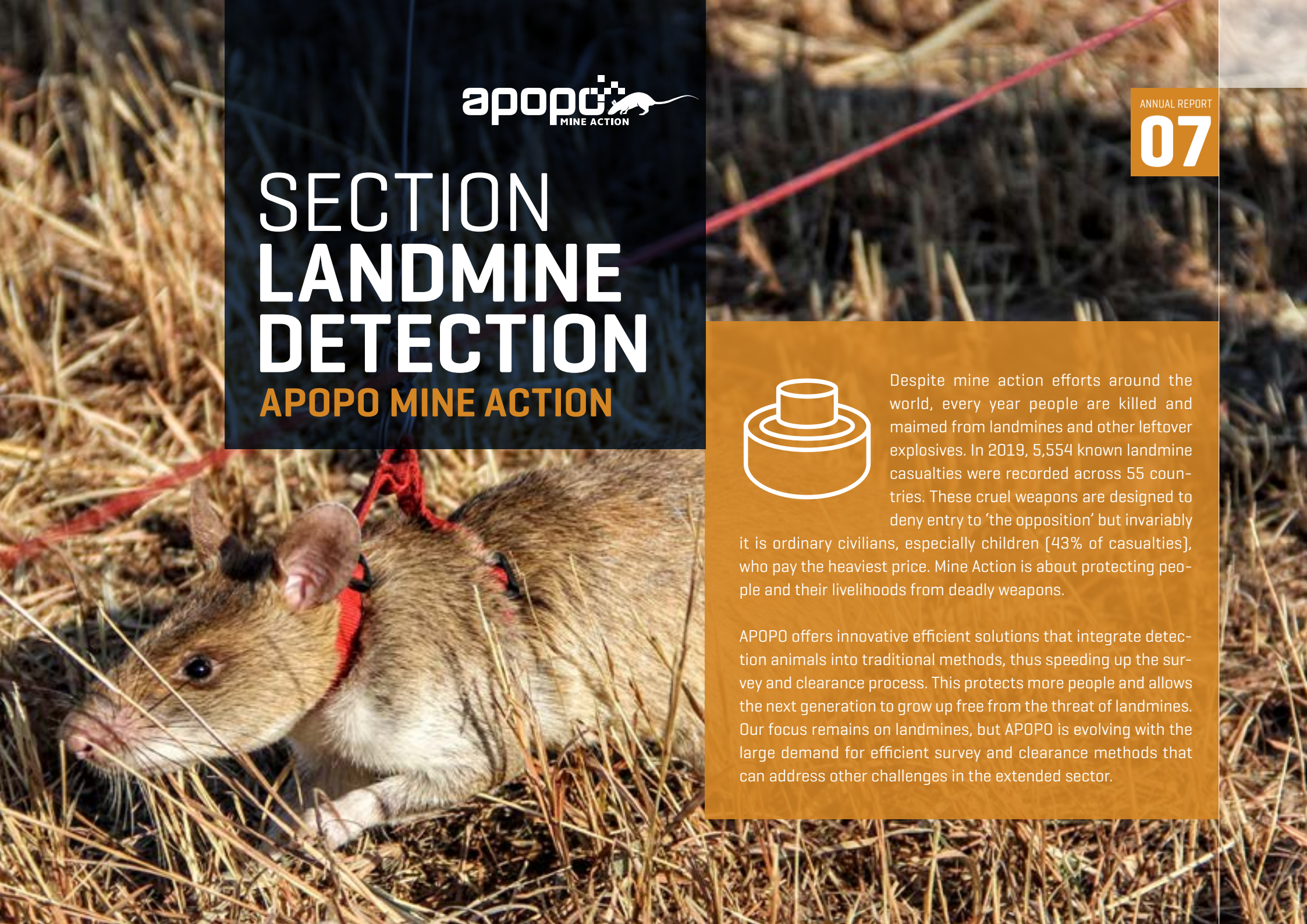
SECTION LANDMINE DETECTION

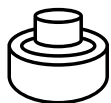
APOPO MINE ACTION



Despite mine action efforts around the world, every year people are killed and maimed from landmines and other leftover explosives. In 2019, 5,554 known landmine casualties were recorded across 55 countries. These cruel weapons are designed to deny entry to 'the opposition' but invariably it is ordinary civilians, especially children [43% of casualties], who pay the heaviest price. Mine Action is about protecting people and their livelihoods from deadly weapons.

APOPO offers innovative efficient solutions that integrate detection animals into traditional methods, thus speeding up the survey and clearance process. This protects more people and allows the next generation to grow up free from the threat of landmines. Our focus remains on landmines, but APOPO is evolving with the large demand for efficient survey and clearance methods that can address other challenges in the extended sector.





APOPO's landmine detection rats (HeroRATs), ignore scrap metal and only detect the scent of explosives, making them much faster at finding landmines than metal detectors. They are also too light to set off landmines, making them ideal tools to speed up detection when integrated into conventional mine clearance methods. Using Technical Survey Dogs (HeroDOGs) to confirm the presence of landmines achieves an even higher level of efficiency and effectiveness than before and complements the use of HeroRATs. Many minefields are in thick bush and the HeroDOGs are able to work in heavily overgrown areas without the need for time consuming and expensive ground preparation methods with no loss of detection rates.



The **COVID-19** pandemic brought new health and safety, logistical, and revenue uncertainty as countries went into lockdown. The new pandemic forced mine clearance efforts to scale back. In some countries, NGO programs were suspended, staff repatriated, and strategic goals had to be revised. Nevertheless, with your support and generosity, APOPO is grateful that in this difficult year, its mine action teams not only exceeded planned targets within existing programs, but also expanded into new projects.



APOPO's landmine detection rats (HeroRATs), ignore scrap metal and only detect the scent of explosives, making them much faster at finding landmines than metal detectors".

■ Landmine with booster

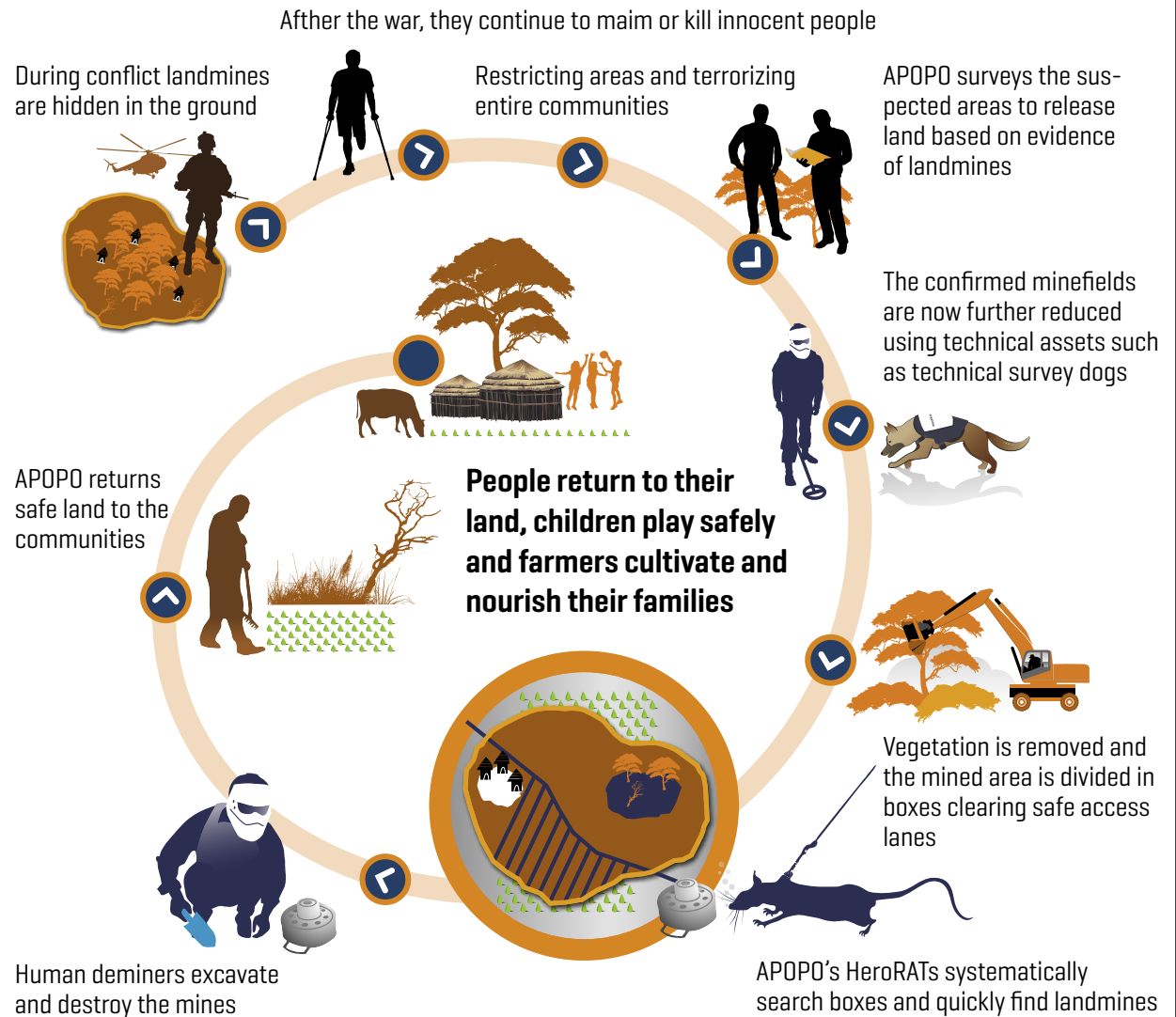


In 2020, APOPO continued clearing landmines and other explosives in **Angola** and **Cambodia** and kicked-off new operations in **Zimbabwe**. APOPO utilizes a mix of detection animals to get the job done: **dogs** for technical survey, **rats** for clearance and manual deminers and machines to support the animals. APOPO deployed animals to a partner in **South Sudan**, and with additional partners, APOPO could further expand into more mine-affected countries. This year APOPO began a **pilot project** to prove the concept of using technical survey dogs as part of cluster munition survey and clearance in **Southeast Asia**. With the right support and effort, APOPO can better address new disarmament challenges in a wider partnership with other mine action organizations.

The world must not turn its back on the **60 million people** globally who live with the burden of these forgotten weapons. The International community needs to stand together and keep the promise to declare as many countries as possible **landmine free by 2025**. With increased political will and funding, most mine-affected countries could realize a world free of mines! Only with the continued support of partners and donors will APOPO be able to do so. APOPO will further maintain its commitment to support communities that are affected by landmines, cluster munitions and other explosives. With more funding and strategic partnerships, APOPO can expand efforts in 2021 towards a Landmine Free 2025.

OUR APPROACH

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WHERE WE WORK

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ZIMBABWE

APOPO began clearance in Zimbabwe in 2020 along the border with Mozambique in the Sengwe Wildlife Corridor. The project aims to free the movement of endangered wildlife between South Africa's Kruger, Mozambique's Limpopo and Zimbabwe's Gonarezhou National Parks.

ANGOLA

APOPO has been a Mine Action operator in Angola since 2012, where it has been operating in the provinces of Malanje, Zaire, and Uige. APOPO is the only mine action operator with scent detection animals in the country and is now mandated to clear Cuanza Sul province.

SOUTH SUDAN

APOPO works in South Sudan in partnership with The Development Initiative (TDI), providing trained dogs (TSD, MDD) and skilled personnel for an UNMAS project, aiming to survey and clear roads leading to different remote areas across the country. APOPO expanded this dog service contract in South Sudan with the addition of four dogs in 2020.

MOZAMBIQUE

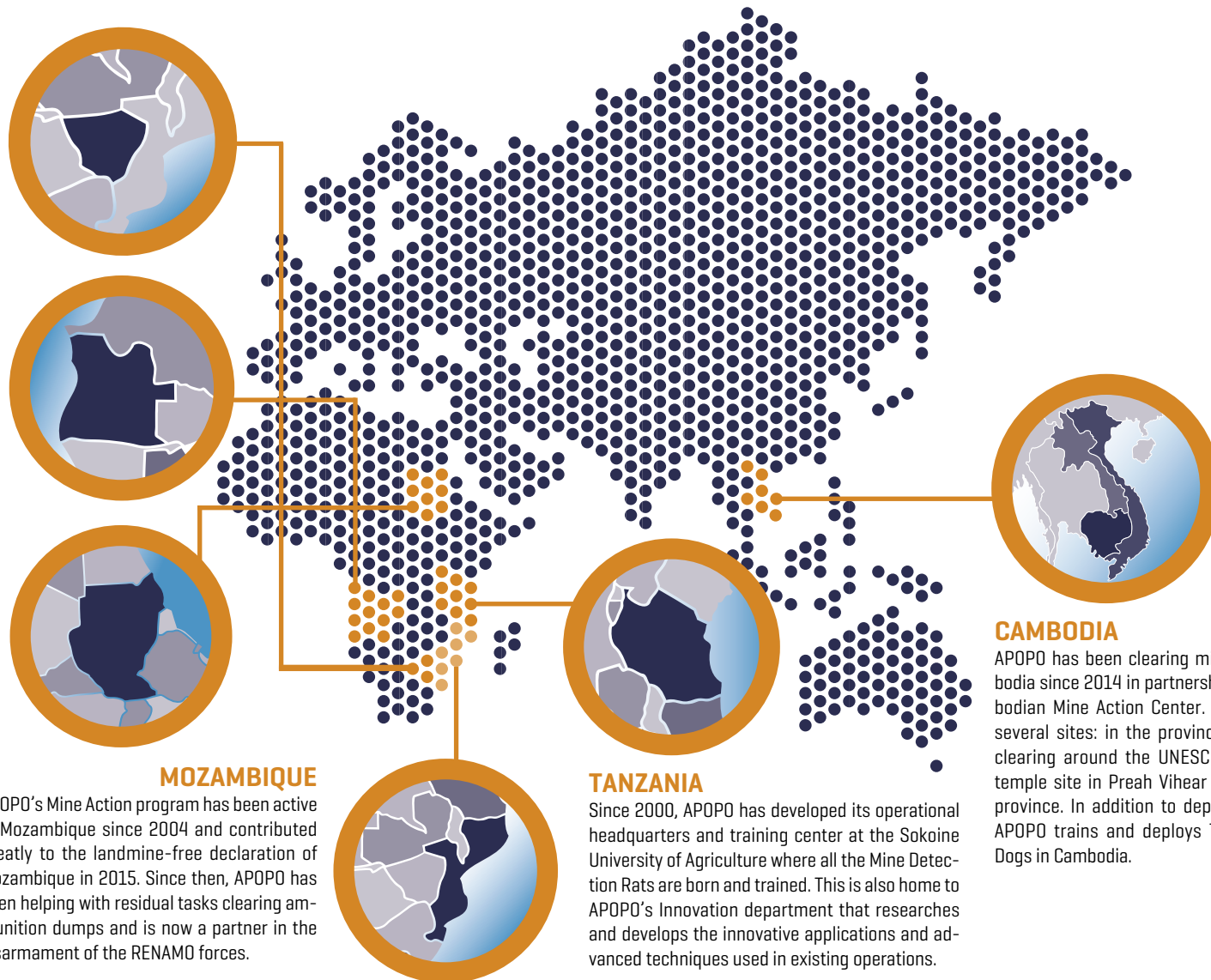
APOPO's Mine Action program has been active in Mozambique since 2004 and contributed greatly to the landmine-free declaration of Mozambique in 2015. Since then, APOPO has been helping with residual tasks clearing ammunition dumps and is now a partner in the disarmament of the RENAMO forces.

TANZANIA

Since 2000, APOPO has developed its operational headquarters and training center at the Sokoine University of Agriculture where all the Mine Detection Rats are born and trained. This is also home to APOPO's Innovation department that researches and develops the innovative applications and advanced techniques used in existing operations.

CAMBODIA

APOPO has been clearing minefields in Cambodia since 2014 in partnership with the Cambodian Mine Action Center. APOPO works on several sites: in the province of Siem Reap; clearing around the UNESCO world heritage temple site in Preah Vihear and Battambang province. In addition to deploying HeroRATs, APOPO trains and deploys Technical Survey Dogs in Cambodia.



OUR PARTNERS



Michael Heiman
Program Manager



MINE ACTION



CAMBODIA

Cambodia is one of the most mine-affected countries in the world and as of 2020 there is over 817 km² of remaining land littered with landmines. It is estimated that between 4-6 million landmines and other explosive remnants of war remain hidden across the countryside, claiming lives long after war has ended. These indiscriminating weapons also have a debilitating impact on development, preventing fertile agricultural land from being farmed and grazed, endangering children going to school, and thus keeping whole communities trapped in a vicious cycle of poverty. This continued contamination leads to unacceptable and tragic human loss, severe economic repercussions and livelihood challenges. Mine clearance is a key-area in promoting development as well as saving lives and limbs.



MINE ACTION

CAMBODIA

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Making land safe

In **2020**, as a result of a combined animal integration, APOPO continued working in partnership with CMAC, targeting the most mine-affected villages in order to return safe land back to communities where it makes the most significant impact. The program released **4,389,935 m²** of land, the equivalent of 616 soccer fields, through technical survey and clearance, destroying **900 landmines** and other deadly devices in 38 minefields. This safe land was returned to the village communities for agricultural use and infrastructure development, directly benefiting **13,732 people** and indirectly benefiting **32,747 people**. The number of active Mine Detection Rats (MDR) in the program increased from 16 in 2017 to 50 in 2020.

Landmines are still inflicting pain and fear to a new generation in Cambodia, a generation that has nothing to do with the conflict and wasn't even born when these mines were laid. Clearing minefields is intense, difficult, dangerous work and demands accuracy and time. This is where APOPO's animal detection systems come in. APOPO is proud that the program effectively tripled its capacity during 2019-2020.



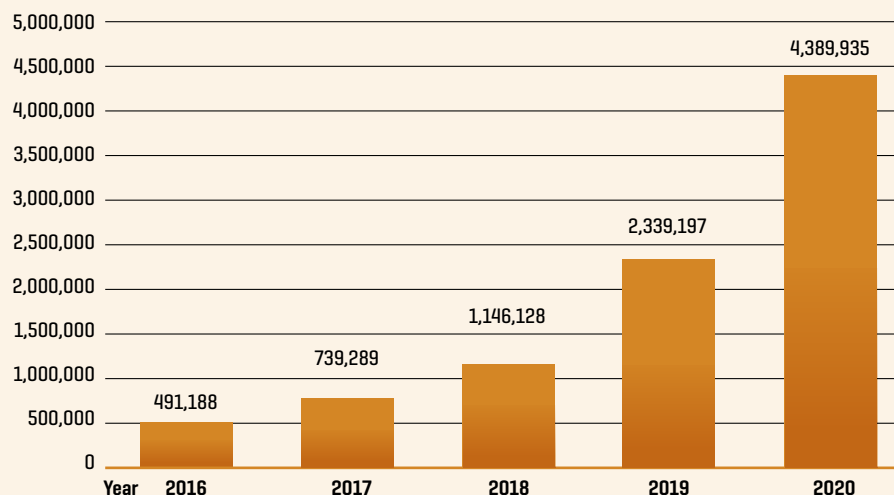


MINE ACTION CAMBODIA

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Operational activities in Cambodia (in square meters)



In **2020**, APOPO expanded its operational activities into new fields in Cambodia. The integration of Mine Detection Rats (MDR) continued in the provinces of **Siem Reap** and **Preah Vihear**. The excellent performance in Cambodia resulted in continued collaboration with large international demining organizations and sparked further interest for partnerships across the globe. Our **Technical Survey Dogs** successfully completed the Geneva Evaluation Project in Preah Vihear, proving the cost-efficiency of this new application for detection dogs. APOPO went on to start a new pilot project with the dogs in East Preah Vihear, leading to a shift to focus on survey of cluster munition strike areas.

APOPO continues to clear land-mines in the province of **Preah Vihear**, near its famous Hindu Temple – a UNESCO World Heritage site that has been isolated with limited access. Clearing the path will allow for further survey and restoration of the temple. Progress and results from Preah Vihear could result in a new collaboration with UNESCO, to clear the important temple site, Koh Ker, an ancient Khmer capital.





**MINE
ACTION**

CAMBODIA

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In **2021**, APOPO plans to continue landmine survey and clearance in the provinces of Siem Reap, Preah Vihear and Battambang, while extending its cluster munition survey teams into Stung Treng. Stung Treng, a province lying on both sides of the Mekong River was intensively bombed during the Vietnam War. The program plans to survey clear and release at least 5 million m² next year.

We want to feel safe



When my father passed away it fell on my shoulders to help my mother, I was the eldest and had finished school. We work in the fields growing food for our family. I used to find landmines in our field, and one year after the floods I found a bomb near the path we take every day. I worry for my two younger sisters going to school. I am very relieved that APOPO is here now. All we want is to be safe and not worry about these hidden dangers.”

Kuy Sreda, Farmer, Cambodia



IMPACT IN 2020

Landmines and UXO destroyed

900

Safe land given back to communities

4,389,935 m²

People affected

46,479



**MINE
ACTION**

CAMBODIA

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APOPO DOGS

APOPO's dog training center in Cambodia is run by experienced dog training experts that also have an extensive knowledge of land release methods and international as well as national demining authority standards. Our trainers carefully select Belgian Malinois puppies for training - this breed sits within the German shepherd family with a smaller build, an excellent nose and a sharp intellect.

How does Technical Survey work?

Prior to landmine clearance, areas need to first be surveyed. Traditional survey methods include the use of metal detectors, that require ground preparation and vegetation cutting. This makes the survey slow and expensive.





**MINE
ACTION**

CAMBODIA

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HeroDOGs

APOPO uses special Technical Survey dogs [a.k.a. HeroDOGs] who use their sense of smell to search deep into an overgrown area without the need to prepare the ground or cut any vegetation. The dogs are equipped with the **Swiss developed SMART system** - a backpack with Global Positioning System (GPS), a speaker and a video camera, that shows and records the dog's search pattern and location. This allows the handler to instruct the dog verbally. When the dog finds an explosive item, the dogs are trained to sit down at a distance of at least one meter and wait patiently for their handler's next command keeping it safely out of harm's way. The system also has the advantage of creating a GPS validated search record, an improvement over existing pen and paper search documentation procedures.

HeroDOGs and **HeroRATs** play complementary roles. Technical Survey dogs are used prior to clearance, together with the initial historical and geographical surveys that have been carried out to assess the probability of landmines. Detection rats are excellent for clearance of wide areas that have evidence of landmine contamination.





**MINE
ACTION**

OPERATIONS

Cambodia

Throughout 2019-2020 the SMART Technical Survey Dog (TSD) Evaluation Project was conducted in two phases in the northern province of Preah Vihear, an area alongside the Cambodia-Thailand border that is heavily affected by landmines and cluster munitions. The SMART TSD teams surveyed 2,094,915 m² of suspected hazardous areas. 1,434,882 m² were mine affected areas in which the dogs found 149 landmines and 61 explosive remnants of war. 792,218 m² were areas affected by cluster munitions in which the dogs found 36 cluster bomblets and 15 explosive remnants of war. The SMART TSD was proven to be a very cost-effective solution and APOPO is receiving requests from partners to build additional TSD teams in Cambodia and Worldwide.



South Sudan

APOPO is working in South Sudan in partnership with The Development Initiative (TDI), providing TSD, MDD and skilled personnel for an UNMAS project in country, aiming to survey and clear roads leading to different remote areas across South Sudan. APOPO expanded this dog service contract in South Sudan with the addition of four dogs in 2020.

Turkey

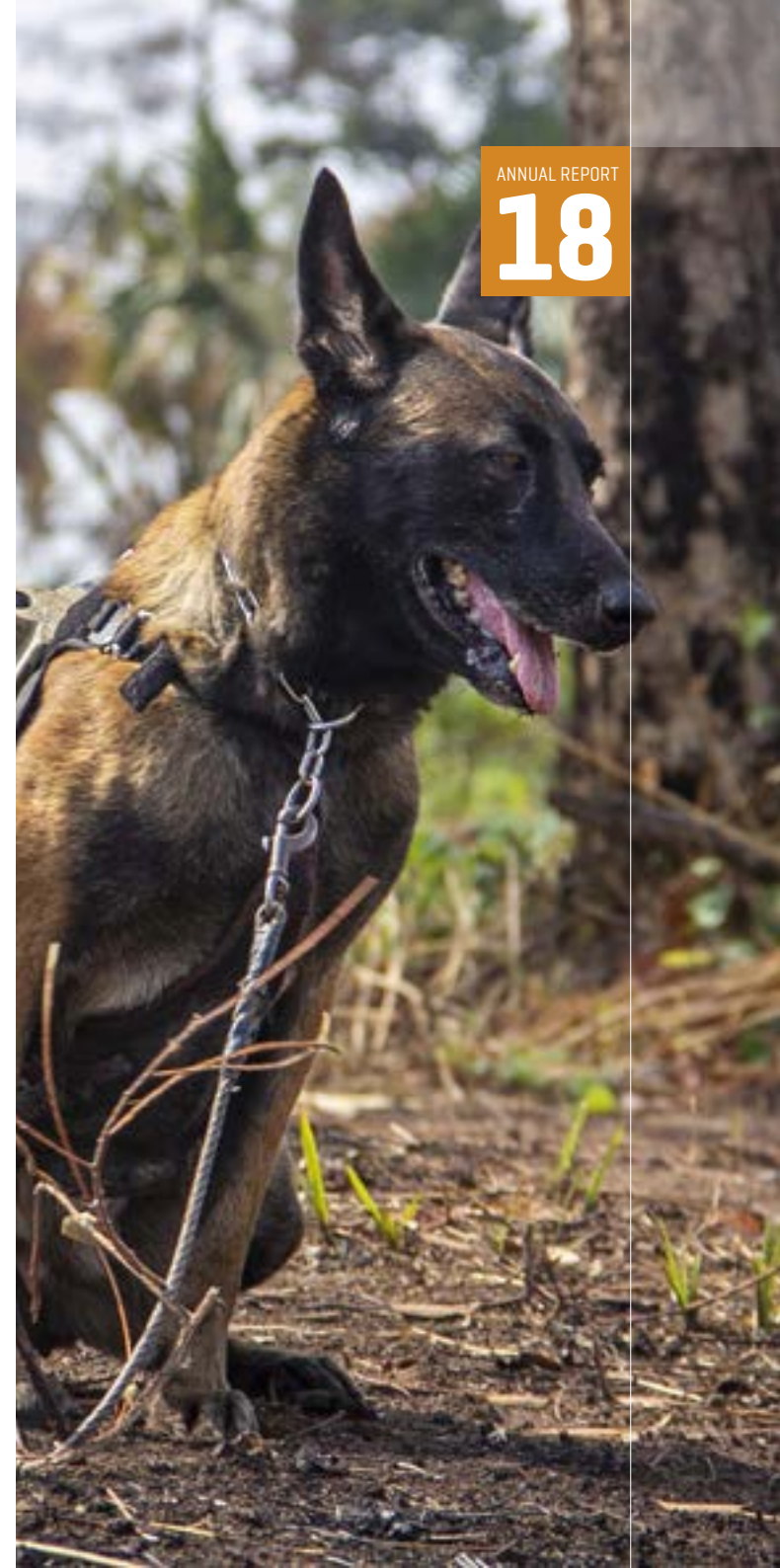
In August 2020 APOPO started preparing 10 personnel and additional 16 dogs for a 2-year UNDP project, aiming to clear the minefields on the Eastern Border of Turkey. This project is due to begin during the first half of 2021.

Angola

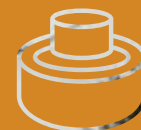
In 2020 APOPO has decided to reinforce its demining capacity in Angola by adding a TSD Team. The dog center has started training dogs and personnel for Angola. This team will be mobilized during the first half of 2021.

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Manuel João Agostinho
Program Manager



**MINE
ACTION**



ANGOLA

Angola is still one of the most heavily mined countries in the world despite decades of demining efforts.

As of December 2020, a total of 1,143 mined areas remained distributed over at least 85 million m². Without consistent international funding and innovative methods to speed up detection, Angola will struggle to meet its target of clearing all landmines by the Anti-Personnel Mine Ban Convention [APMBC] deadline of 2025.



MINE ACTION

ANGOLA

At significantly reduced cost, APOPO is committed to maintaining and further developing a robust mine action capacity that will considerably boost land release rates. APOPO has been in Angola since 2012 but there is much work to be done. APOPO's landmine detection rats (aka HeroRATs) are too light to detonate landmines and are very quick at finding them, making them an excellent tool for accelerating detection and clearance.

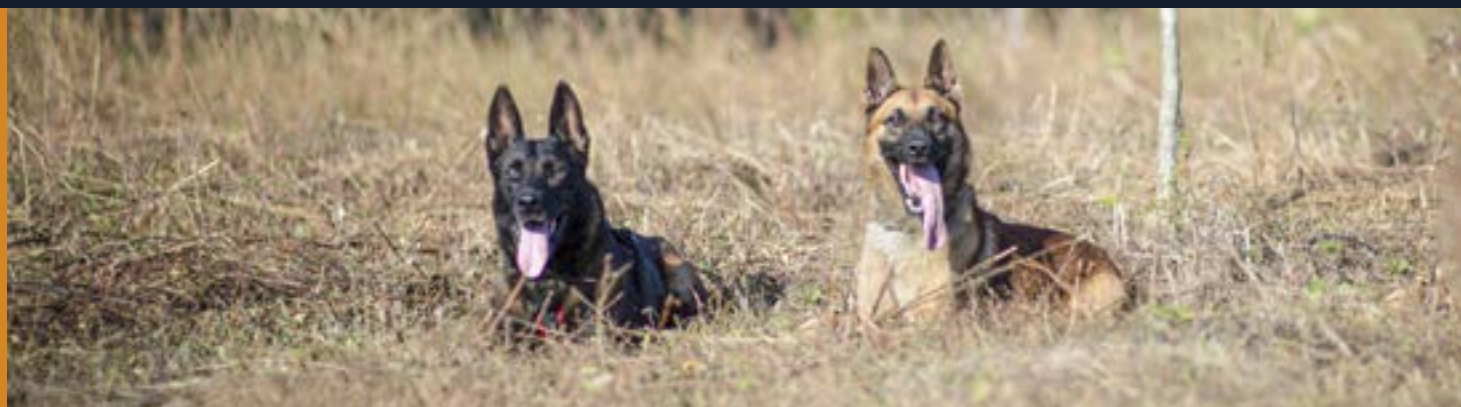
Integrated Animals

When HeroRATs are integrated into conventional landmine clearance methods including survey, manual deminers with metal detectors, and mechanical demining, the HeroRATs are proven to significantly speed up land release, helping return safe land to vulnerable communities quickly and cost-effectively.

In September 2020, APOPO completed **the final task** of a group of four that actually comprised one big minefield near a residential area in the village of **Kitomaluta** about 230 kilometers north of the city of Uíge, in the northwestern province. APOPO worked in Uíge from March 2017 to September 2020.

Throughout 2020 preventative measures against **COVID-19** had a **serious impact** on our work in Angola. Operations were suspended for months as the country adapted to constraints and restrictions against the pandemic. Despite the major disruption caused by the new pandemic in Angola, APOPO cleared and released **550,919 m²** back to surrounding villages directly benefiting **270** and indirectly benefiting **27,189 people** and destroying 3 landmines and 67 other explosive remnants of war.

The Angola program is considering further integration of APOPO's Technical Survey dogs in 2021 to help meet Angola's mine-free deadline of 2025.





**MINE
ACTION**

ANGOLA

APOPO moved all operations to the next **National Mine Action Authority** (CNIDAH) assigned task in the western Cuanza Sul province. It is the third most landmine contaminated province in Angola and one of the main strategic provinces targeted for economic growth in Angola. In 2021, this task aims to clear **2 million m²** directly benefiting over **12,000 people** from the local community providing safe access to vital farmland and bringing back transport routes and trade for the community.



Life returns to normal



Landmines were still hurting people and holding us back long after the war has ended.

These evil weapons do not choose their victims. After the war, no one remembered exactly where they were anymore, and they stayed in the ground. We have lived in fear for so long because of them, always afraid that our next step might be our last. I am thankful for the work that APOPO and the HeroRATs have done. We are free again! I look forward to what the future will bring to our village."

Inveta Mukuzu, Farmer, Quitexe

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IMPACT IN 2020

Landmines and UXO destroyed

70

Safe land given back to communities

550,919 m²

People directly affected

270

Tesfazghi Tewelde
Africa Regional Manager



MINE ACTION



ZIMBABWE

Zimbabwe has some of Africa's most beautiful wilderness, including the Sengwe Wildlife Corridor, a vital part of a three-country conservation area. But hidden landmines make this area dangerous not only for people but also their livestock and precious wildlife. The wildlife corridor lies within Gonarezhou National Park which is an integral part of one of the largest conservation areas in the world: the Greater Limpopo Transfrontier Park which connects protected areas of Zimbabwe, Mozambique and South Africa in a conservation area covering roughly 35,000 square kilometers.





MINE ACTION

ZIMBABWE

Thanks to a first-year grant from the U.S. State Department's Office of Weapons Removal and Abatement [WRA], APOPO began training its team to clear landmines along the Cordon Sanitaire minefield that affects the Sengwe Wildlife Corridor in December 2020. Despite the COVID-19 level-4 lockdown in much of Zimbabwe, and heavy ongoing rains APOPO was able to start training in Q4 2020 and operations in January 2021, thanks to our local partner Zimbabwean Mine Action Center [ZIMAC].

APOPO estimates to find and destroy about 15,300 anti-personnel landmines and clear around 7,23 million m² along the CORSAN corridor. APOPO believes that it should be able to complete the task by 2025, possibly sooner with consistent donor support. By clearing the landmines, APOPO can lay a strong foundation for communities to rebuild their lives and for agriculture and eco-tourism to return and prosper, bringing many benefits to the nation as a whole.

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Once the land is safe and conservation measures can be implemented, there is potential for **the wildlife corridor** to thrive as threatened elephants and other animals will once again be allowed to move freely within the greater conservation area.





MINE ACTION

ZIMBABWE

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Empowering Women in Demining



When they came to our village looking for people who would be willing to look for concealed landmines I was intrigued. I wanted to help save lives. This was also an opportunity to learn new skills and become financially independent. I was scared when I found my first landmine, but today I feel more comfortable. I know what I need to do. Demining is not a hard job, if you are trained and follow the strict procedures, it is a job that anyone can do. I feel proud and happy that more women have had an opportunity to join this project. Half of our team are women.”

Nothando Ncube, APOPO deminer Zimbabwe



Lordes Zavale

Operations Manager

**MINE
ACTION**

MOZAMBIQUE

In 2019, APOPO was honored to be selected to support the ongoing peace process in Mozambique which set out to Disarm, Demobilize and Reintegrate (DDR) Mozambican National Resistance (RENAMO) combatants.

Despite a temporary pause due to the new Covid-19 pandemic, APOPO was offered a second DDR contract to continue small arms and light weapons (SALW) destruction from June 2020 to December 2021. While minimizing risk with protective measures and a lighter capacity to reduce exposure, APOPO continued its efforts.



MINE ACTION

MOZAMBIQUE

On June 5th 2020, APOPO Operations Manager and Explosive Ordnance Disposal (EOD) expert Lorges Zavale received the honor of briefing **H.E. President Filipe Nyusi**, alongside **Renamo Leader, Ossufo Momade**, at the relaunch of the DDR process in Savane, Dondo, central Mozambique. June 13th was a historic day for Mozambique's Peace Process as RENAMO's first military base was officially closed. APOPO was at the forefront of the process and a witness during the inspection and closing of the base.

By the end of 2020, a total of **1,519** combatants were disarmed, processed and allowed to finally return home to be reunited with their families. **10** RENAMO bases were permanently shut down, **112** arms and **6,256** rounds of ammunition and other explosives were collected and handed over to the authorities.



H.E. President Filipe Nyusi, alongside Renamo Leader Ossufo Momade, arrive at the military base.

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SECTION TUBERCULOSIS DETECTION

TB DETECTION SUMMARY



Dr. Lena Fiebig
Head of APOPO TB

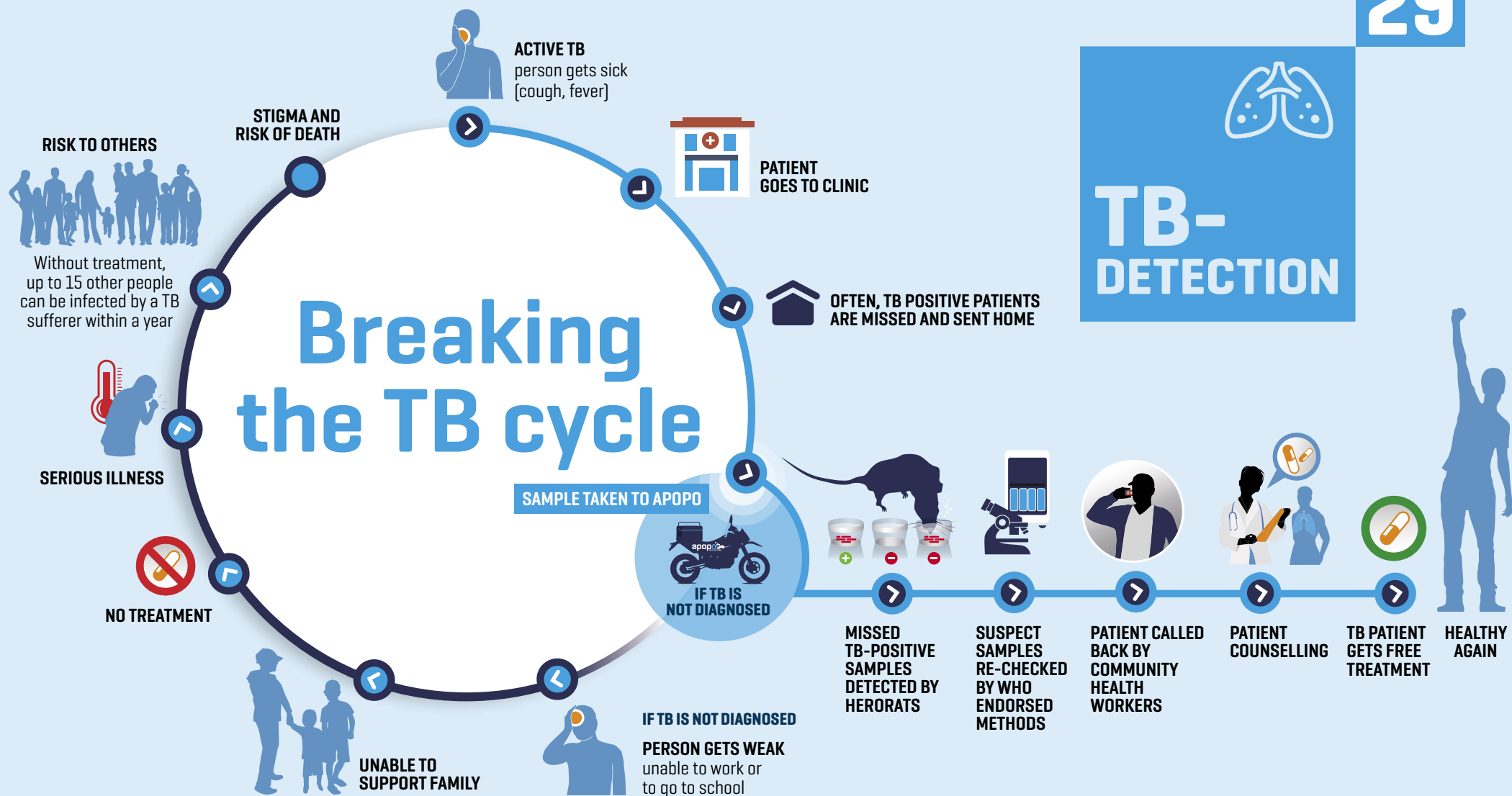


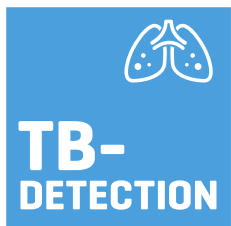
TB- DETECTION



Tuberculosis (TB) remains the top infectious killer worldwide. APOPO works to tackle TB in 3 of the 30 High TB-burden countries – Tanzania, Mozambique and Ethiopia. The World Health Organization (WHO) estimates that only about half of all TB cases in these countries are found and treated.

This case detection gap is caused by limitations of existing TB diagnostic tests and shortcomings in the health services. Left untreated, up to two thirds of TB patients will eventually die. One TB-positive patient can pass the disease on to up to 15 other people within a year creating a vicious cycle that is difficult to break.





TB-detection rats

APOPO conducts innovative research into using TB detection rats [HeroRATs] as a cost-efficient, rapid diagnostic tool. The trained African giant pouched rats are **remarkable**: the high speed at which they can search large numbers of samples as well as the high sensitivity of the rats, results in a very low cost of only about €1 per sample tested.

24-hour results

One HeroRAT can check **100 sputum samples** for TB in as little as 20 minutes. This would typically take a lab technician up to 4 days using conventional microscopy. This allows APOPO to recheck samples collected from partner clinics at a high-speed using HeroRATs and confirm the presence of TB in the rat-positives using globally endorsed confirmation methods. Confirmed results are sent back **within 24-hours** to the clinics who oversee patient counselling and treatment. In 2020, this approach increased detection rates in partner clinics on average by **48%** as APOPO evaluated samples from over **48,000 patients** with signs and symptoms of TB and found **2,236 new TB cases**.

2020 was heavily marked by the eruption of Covid-19 and the response to this new pandemic. The counter measures had an impact on the TB control efforts worldwide, since some of the global attention as well as funding, moved to support the Covid-19 response. In many settings, patients with signs and symptoms of TB faced challenges to access health services due to Covid-19 related restrictions to movement, fear of contagion, or stigma. It also impacted some of our projects as their countries implemented lockdowns.



One TB detection rat can check 100 sputum samples for TB in as little as 20 minutes. This would typically take a lab technician up to 4 days using conventional microscopy.



TB- DETECTION

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According to the **Stop TB Partnership**, the Covid-19 pandemic response pushed aside tuberculosis outreach and services, resulting in 20% drop in diagnosis and treatment worldwide, urgent recovery is needed. Nine of the countries with the most TB-cases saw **drastic declines in TB** case detection in 2020, bringing the overall number of people diagnosed and treated for TB in those countries to 2008 levels, a setback of 12 years.



TB detection and linkage-to-care services

In Tanzania our TB detection and linkage-to-care services were maintained throughout 2020 without interruptions, despite all challenges that arose as a result of the pandemic. 2020 saw us complete a mass screening project in prisons in Ethiopia, where inmates and staff were offered testing for TB as well as HIV, and capacity was built among prison health personnel. In Mozambique, APOPO expanded its diagnostic services to include Human Papillomavirus (HPV) detection and Covid-19 support while maintaining TB testing.



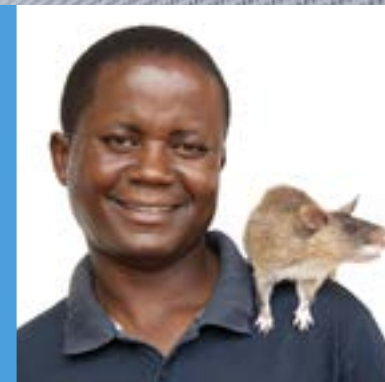
THE APOPO TB RESEARCH PROGRAMS ARE MADE POSSIBLE BY OUR PARTNERS AND DONORS.



Dr. Georgies Mgone
Program Manager



**TB
DETECTION**



TANZANIA

Since 2007 APOPO has supported national health clinics and helped increase TB detection rates by 40%. Operations began in Morogoro at the training and research center and in 2016 our main testing facility was opened in Dar es Salaam to get to the heart of TB response. Tanzania is one of the world's 30 TB high-burden countries. Like most sub-Saharan countries, Tanzania's clinics largely rely on smear microscopy that has a low sensitivity of about 20-60%, so a substantial number of Tanzania's TB positive patients go undiagnosed.



TB DETECTION

TANZANIA

APOPO tackles TB through the research, training and use of African giant pouched rats in our projects – an innovative, low-cost and rapid diagnostic technology that is integrated into diagnostic services in the field.

By helping to fill the gap in diagnosis and enhance linkage to care, APOPO aims to support one of the recent WHO pillars of its strategy to end TB – ‘achieve universal health coverage by strengthening health systems and improving access to people-centered TB prevention and care so no one is left behind’. Partnerships with community-based organizations greatly improves patient tracking and treatment of additional patients. Our partner MUKIKUTE in Tanzania is made up of volunteer community healthcare workers who track and monitor patients and encourage them through their course of treatment.

Community-based Care



I have been a MKUTA volunteer since the mid-90's. I joined because like many of the volunteers I had suffered from tuberculosis (TB) myself so I know what people with disease are going through. I do home visits to people who are too ill to get to clinic and I help to support them and teach their family or carers how to nurse them back to good health. I also help give them their treatment if they have already been diagnosed as TB positive."

Virginia Thadei, MKUTA volunteer





TB DETECTION

TANZANIA

In 2020, APOPO TB Tanzania made **significant achievements** despite the Covid-19 pandemic related challenges. The aim was to keep our testing of samples from collaborating hospitals as consistent as possible but our priority at this difficult time was to ensure the safety and wellbeing of both our staff and the communities we serve.

The APOPO laboratories exceeded their annual targets and successfully screened **48,559** sputum samples from **35,147** presumptive TB patients. A total of **2014** additional TB patients were found, which surpassed the total case finding of any of the previous years.

TANZANIA IMPACT 2020

Samples evaluated	48,559
Patients evaluated	35,147
Additional patients diagnosed	2,014
% increase in detection rate	42%



ANNUAL REPORT

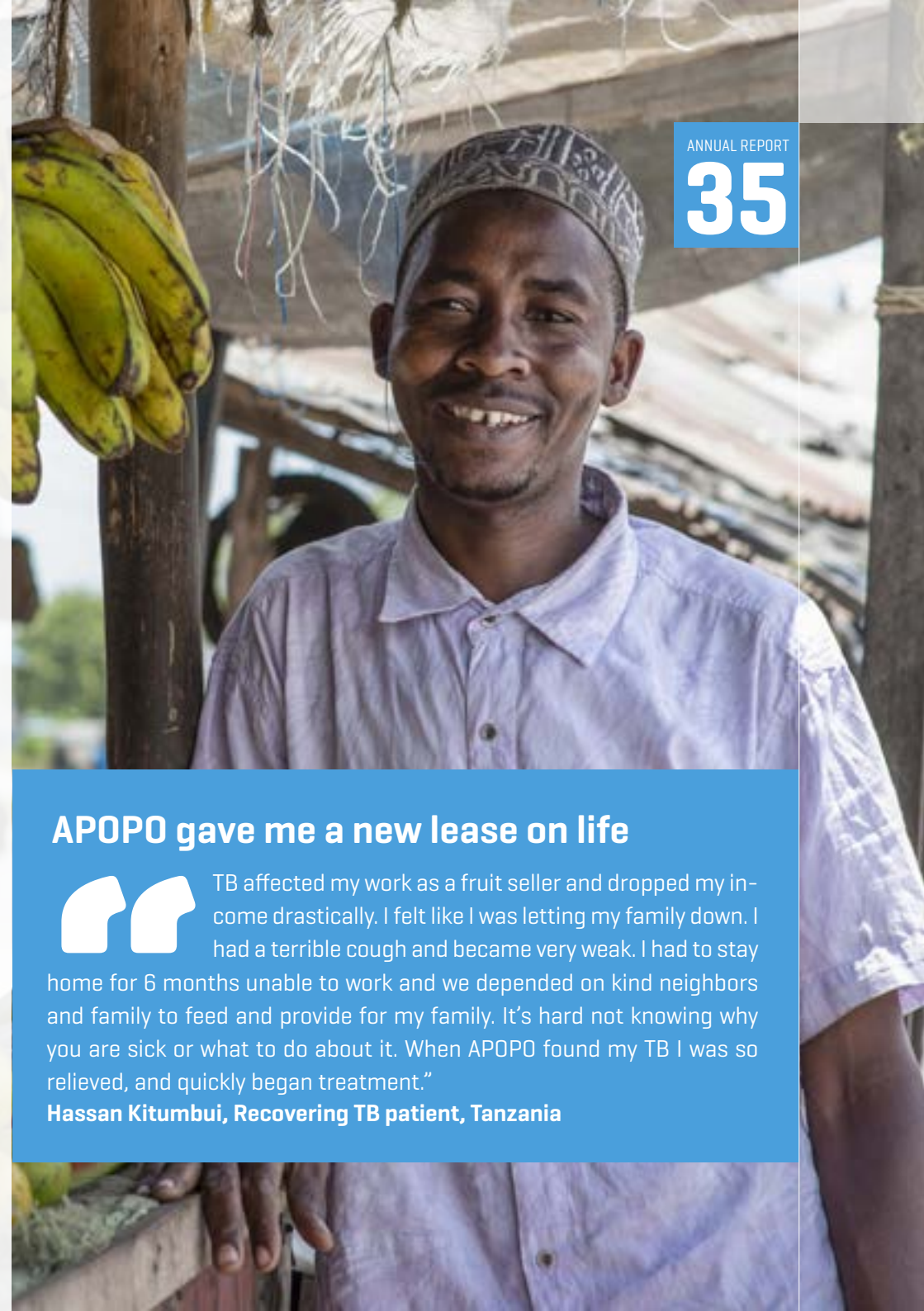
35

APOPO gave me a new lease on life



TB affected my work as a fruit seller and dropped my income drastically. I felt like I was letting my family down. I had a terrible cough and became very weak. I had to stay home for 6 months unable to work and we depended on kind neighbors and family to feed and provide for my family. It's hard not knowing why you are sick or what to do about it. When APOPO found my TB I was so relieved, and quickly began treatment."

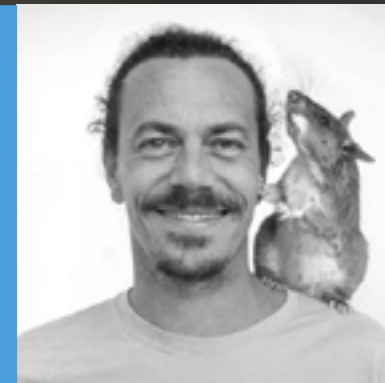
Hassan Kitumbui, Recovering TB patient, Tanzania



Robert Burny
Program Manager




TB
DETECTION



MOZAMBIQUE

APOPO's TB Detection program in Mozambique has been running since 2013, hosted by local partner the Veterinary Faculty of the University Eduardo Mondlane (UEM). Our integrated TB detection approach in Maputo helps to identify additional TB cases by collecting and re-evaluating patient sputum samples from partner clinics and returning results within 24 hours. The first of APOPO's TB programs to implement the quick results turnaround allowing newly diagnosed patients to start treatment early. This has successfully provided seven years of experience in TB detection rat research and optimizing TB detection services in the field. The results show clearly that APOPO's rapid TB diagnostic services combined with community action contribute not only to increasing case detection but linking patients to vital care.



TB DETECTION MOZAMBIQUE



In early 2020, APOPO in an effort to maximize synergies, began a new collaboration with **Centro de Colaboração em Saúde (CCS)**, a recognized Ministry of Health partner working on HIV/ AIDS and TB, and coordinating the Global Fund community activities to stop TB. In total, APOPO screened **5,650** samples from **5,219** patients with signs and symptoms of TB and diagnosed **450** new TB patients. As a result of the CCS collaboration and the involvement of their partner community-based organizations, **85%** of new TB patients were successfully linked to care and received life-saving treatment support (383 patients).

APOPO's role as a **service provider** is very promising considering the existing laboratory expertise and in 2020. This was further developed for technical assistance and new detection areas.

APOPO engaged in a research study on the feasibility of integrating **cervical cancer screening** into existing public sector family planning services. APOPO's team is thrilled to share initial results from the USAID funded project that used the APOPO lab to support Population Services International (PSI) Mozambique by offering testing for Human Papillomavirus (HPV) - including self-sampling - to support cervical cancer screening among women and girls in Gaza Province and Maputo City. First results show that molecular testing has a high detection yield and APOPO's fast reporting to health facilities allows more women to access different treatment options.





TB DETECTION

MOZAMBIQUE



New support from the **Government of Flanders** allows APOPO to participate in the national Covid-19 response, expanding its services to Maputo City, Matola, and Marracuene in Southern Mozambique while maintaining TB testing services. This new project is carried out in partnerships with the **Mozambican National Health Institute (INS)** and the **University Eduardo Mondlane (UEM)** began in November 2020. The project draws on past experience with rapid TB diagnostic services and community action, on our established laboratory infrastructure including molecular testing [GeneXpert] capacity, as well as our motivated and qualified team in Maputo. This exciting new project should serve over **26,000 people** with either Covid-19 or TB detection services or both. The throughput and overall numbers will depend on the demand, as well as the number of molecular testing cartridges for the COVID-19 causing virus that are available in the setting.

MOZAMBIQUE IMPACT 2020

Samples evaluated	5,650
Patients evaluated	5,219
Additional patients diagnosed	450
% of patients linked to care	85%

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I will survive



I don't know how I got TB. It only began for me when I started having chest pains and got weak. I was scared of the negative stigma and I was scared of spreading the disease to my family, friends and colleagues. APOPO found my TB. This disease has changed many things in my life, having money for food has been a problem. Being able to send my kids to school is currently impossible. I myself cannot finish night school. But I will be cured, and I will get my life back on track."

Crimilda Simeão Manhique, Recovering TB Patient



Dr. Negussie Beyene
Program Manager



TB
DETECTION



ETHIOPIA

APOPO's Tuberculosis (TB) Research Program in Ethiopia runs in partnership with the Armauer Hansen Research Institute (AHRI) and consists of two main projects: enhanced tuberculosis case finding in the city of Addis Ababa and improved TB/HIV screening in Ethiopian prisons.



TB- DETECTION

ETHIOPIA



The **enhanced TB case** finding project is being conducted in collaboration with the **Addis Ababa City Administration Health Bureau** and the **National TB Control Program** [NTP] with funding from **Skoll Foundation**. This initiative has partnered with **63** public health centers. APOPO's HerorATs continue to confirm their potential as an important screening tool. In 2020, despite much time spent in lockdown due to the Covid-19 pandemic, **15,188** samples collected from **7,721** patients were screened and the project found **218** additional pulmonary TB cases contributing to an additional **45%** increase in detection rates of partner clinics. The AHRI-APOPO results show our potentially huge impact, and the project continues to gain interest from the national health authorities.

APOPO in partnership with **Armauer Hansen Research Institute** [AHRI], the Ethiopian chapter of the **German Leprosy and Tuberculosis Relief association** [GLRA], the **Ethiopian Federal Ministry of Health** and the **Ethiopian Federal Prison Administration** has been working on improving TB and HIV screening in Ethiopian prisons. The main objectives of the project were to conduct TB and HIV mass screening in 35 Ethiopian prisons, reaching **52,500** prison community members (inmates and staff), building capacity of prison health personnel so that they can conduct entry, exit and routine screening by themselves, and provide technical support for sustainable TB-control efforts in these prisons. To this effect, prison health personnel from **14** prisons were trained for TB and HIV screening as per the national guidelines and **24,175** prison community members in the 14 prisons were offered TB and HIV screening in the pre-Covid season [March 2019 to February 2020].





TB DETECTION

ETHIOPIA



Unfortunately, the emergence of Covid-19 in Ethiopia in March 2020 led to a state of emergency, banning all access to prisons and any type of public gatherings which meant the project was suspended until the state of emergency was lifted in early September 2020.

By the end of 2020, 46,174 inmates and prison staff in 26 prisons were offered TB and HIV screening. Out of these, 39,410 [85%] were screened for tuberculosis and 34,052 [74%] were screened for HIV. The project found 156 confirmed TB cases and 165 HIV+ cases. These patients were immediately linked to care and this will avert the potential spread of TB to across the prison system.

ETHIOPIA IMPACT 2020

Samples evaluated	15,188
Patients evaluated	7,721
Additional patients diagnosed	218
% of patients linked to care	45%

Due to restricted access, APOPO was unable to screen all prisons within the allocated timeframe. The budget for the mass screening of 9 remaining prisons was rerouted for the provision of Covid-19 prevention materials, a more urgent need. Supplies and equipment to fight both Covid-19 and sustain the TB screening, were allocated to all 35 prisons that were selected for the project.



Confirming new cases



My main job is confirming evidence of tuberculosis in

samples that were found as negative at our partner health center labs but found positive by the HeroRATs. Finding additional 'true positives' that came through the rats always keeps me motivated and recharges my energy. Every single one is a life that is about to change as they can begin treatment and the long road to recovery."

**Henok Alemu, Lab Technologist,
APOPO Ethiopia**



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SECTION TRAINING AND ANIMAL WELFARE



Dr. Cindy Fast

Head of Training and Innovation

**SECTION
TRAINING
AND ANIMAL
WELFARE****TRAINING IN TANZANIA**

All of APOPO's lifesaving HeroRATs begin their careers at our Training Headquarters on the campus of the Sokoine University of Agriculture [SUA] in Morogoro, Tanzania. This is where rats are carefully selected for breeding and newly born rat pups begin their journey to becoming a hero by learning to trust humans and the world around them. This is a process we call socialization and habituation, and it is critical for minimizing the rat's stress throughout the training and operational deployment activities.

After passing through the various stages of rigorous training [typically more than 9 months], each rat must meet APOPO's stringent internal accreditation standards before they are allowed to join our team of other HeroRATs. But the role of the training team does not end there, our dedicated team provides ongoing support to our operations, including constant monitoring and evaluation of rat performance and expert oversight of the care and well-being of all of APOPO's rats.



HERORAT TRAINING STAGES



1.

SOCIALIZATION

Socialization to humans and habituation to various environments: this training begins when young rat pups first open their eyes around 4 weeks of age and continues well after they are weaned from their mother.



2.

CLICKER TRAINING

Clicker training establishes the sound 'CLICK' of a handheld device as a signal that tasty food reward is available to the rat.



3.

INDICATION TRAINING

Indication training teaches the rat that it can cause the 'CLICK' sound [and resulting food treat] by performing a particular behavior. This behavior will later allow the rats to communicate to its human handler when it has found a target scent.



4.

TARGET SCENT TRAINING

introduces the primary odor the rat will be tasked with finding [e.g., TNT or TB-positive sputum samples] throughout its career as a HeroRAT.



5.

DISCRIMINATION TRAINING

teaches the rat subtle differences between the target odor and any myriad of other scents that might be present. The rat's indication response is only rewarded when it occurs in the presence of the target scent.



6.

DEPLOYMENT SYSTEM TRAINING

Deployment system training progressively prepares the rat for working in the operational environment of its career path. For a mine detection HeroRAT [MDR] this involves learning to systematically search a designated area where it may encounter a variety of different [deactivated] landmines buried beneath the surface. For a TB detection HeroRAT, the rat must learn to navigate APOPO's line cage apparatus to quickly and reliably screen 100 sputum samples in under 20 minutes!



OUTPUTS 2020

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71

71 rats participated in MDR training during 2020 [including 4 placed at American Zoos to serve as Ambassadors to APOPO by performing public demonstrations].

24

24 MDR met internal accreditation with 20 readied to join our operational team in Cambodia.

4

With only 4 rats discontinued from MDR training, annual attrition reached a record best at 6.3%.

14

14 TB detection HeroRATs earned internal accreditation during 2020.

5

5 TB detection rats joined our operational team in Dar es Salaam while 12 additional rats were prepared for operational deployment to Ethiopia.

APOPO-wide rat database was developed and introduced, allowing real-time and historical tracking of all APOPO rats.

Holistic Approach



It is our job to guide and nurture the landmine detection rats in training to achieve their very best. Our teams use a holistic approach taking into consideration each animal's diet, exercise, general health and well-being to address any behavioral challenges. It brings our team so much pride when our animals receive recognition for a job well done like Magawa did this year!"

Abdullah Mchomvu, MDR Training Manager

ANIMAL WELFARE FAQ

No one understands our HeroRATs more than we do, and each individual is considered a highly valuable asset making their welfare a top priority! Our rats are very well cared for, receiving an excellent diet, regular exercise, daily health check, stimulation and enrichment, and loving attention from our expert handlers.



WHAT DO THEY EAT?

African giant pouched rats are omnivores. They receive a well-balanced diet including expertly developed rodent pellets supplemented with fresh, locally sourced fruits, vegetables, and protein, including banana, tomato, mango, watermelon, maize, avocado, roasted peanuts, and sun-dried sardines. Fresh drinking water is routinely infused with a multivitamin and electrolyte supplement.

WHAT DO THEY DO IN THEIR SPARE TIME?

HeroRATs enjoy weekly exercise sessions in shaded and stimulating environments. These areas allow the rats to express their natural climbing, digging, and running behaviors, and ensure our rats stay fit for their life-saving duties.



DO THEY LIVE TOGETHER?

Our rats stay comfortable in cool, dark, well-ventilated kennels. As a natural social species, they share cages and are paired with siblings for as long as they are happy to be housed together. Males and females do get separated when they reach maturity.



WHERE DO THEY SLEEP?

Each cage is equipped with a round clay pot and plenty of bedding to simulate a natural underground nest for comfortable, cozy rest. It also has an untreated wooden tripod to gnaw on and scratch to keep teeth and nails healthy.

WHAT HAPPENS WHEN THEY GROW OLD?

Our rats typically reach retirement age between 7 and 8 years old. We allow them to work as long as they are performing well, still feel like working, and pass weekly health checks. When the rat no longer greets us eagerly to work anymore, their performance declines, or they show signs of aging, the rat is retired to its home cage. They continue to receive a healthy diet, regular play, exercise, and health checks.



DO THEY GET SICK?

Daily health and welfare checks from our expert staff ensure any signs of illness are caught early. All of APOPO's rats also receive routine preventative veterinary care, including regular health check-ups and vaccinations. Mine detection rats have sunscreen applied to their ears and tails when working outdoors.

SECTION INNOVATION

The original research that led to APOPO's innovative contributions to mine detection and tuberculosis diagnostics, were conducted at APOPO's headquarters in Morogoro, Tanzania, which remains the home of our Innovation team today. In addition to providing operational support through development of alternative procedures, optimizing existing protocols, and publishing empirical results, our team of innovators explore potential new scent detection applications for our HeroRATs and conduct basic research to help expand our knowledge about the species we call a hero.



That's why



We need a wide range of innovative conservation solutions if we are going to stop the crisis facing pangolins. That's why we support APOPO. Their work training rats to detect pangolin scales and other illegal wildlife products is forward thinking and effective."

Paul Thomson, Pangolin Crisis Fund

Detering wildlife trafficking



Having proven that the HeroRATs can detect wildlife targets (including pangolin scales) when they appear together with other smelly items used by smugglers to conceal their presence, APOPO set out to include samples from additional endangered species. This training was wildly successful with the rats not only finding new targets but also remembering the wildlife targets they had already been trained to find. A second group of rats were also trained to search a mock environment containing targets hidden within parcels and to trigger a microswitch by pulling a small ball when they found a target. In 2021 we will continue to add more endangered species to the rats' detection repertoire while fine-tuning the search system for the rats to work in a real port environment.

Creating 'Super Sniffers'

Research with other rodents shows that encountering an odor early in life results in a preference for that odor, which also accelerates learning about it and makes it easier to detect. APOPO is investigating if exposing our newborn rats to target odors will produce similar results to enhance scent detection abilities. Thirty-two rat pups encountered one of three odor conditions [chamomile tea, TNT, or no-odor control] before they were weaned. We then evaluated if these rats preferred either chamomile tea or TNT before they were randomly assigned to either mine-detection or a TB-detection-like training program with chamomile tea. With training ongoing, we look forward to analyzing if the early odor experiences influenced training duration and final detection accuracy in 2021.





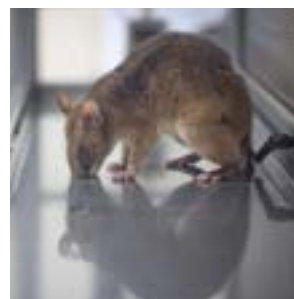
In collaboration with the Eindhoven University of Technology (TU/e), APOPO is further developing the smart backpack rats will wear while searching for trapped survivors.

Search & Rescue Rats

In collaboration with the **Eindhoven University of Technology** (TU/e), APOPO is further developing the **smart backpack** rats will wear while searching for trapped survivors. 2020 secured funding to build a mock debris site at APOPO's training and research headquarters in Morogoro, Tanzania.

With construction underway, this site will support training the rats to search within these chaotic environments while enabling testing and optimizing of the backpack.

Contaminated Soil



Laboratory analysis of soil samples currently drives environmental clean-up efforts by revealing the level of contaminants present. Unfortunately, these methods are slow, costly, and generate false positives because they are incapable of differentiating petroleum hydrocarbons (PHC) from other, naturally occurring hydrocarbon sources. This year, APOPO proved the concept

that our rats could help screen **potentially contaminated soil** by successfully training them to not only signal the presence of PHCs within a variety of soils, but to also ignore samples containing acceptable levels and to not be fooled by other sources of hydrocarbons, such as grass. Ongoing research will explore if the rats can generalize what they have learned to other crude oil sources.

OUR PARTNERS



Philanthropic Foundation
Firmenich Family



LUDWICK FAMILY
FOUNDATION



INDIANAPOLIS ZOO

SECTION MARKETING & VISIBILITY

apoc
HUMANITARIAN DEMINING

SAVES LIVES

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MARKETING & VISIBILITY

2020 was a year dominated by the new coronavirus pandemic and many of the year's biggest events have faded into the background. Planned campaigns such as the 'Lunar Year of the Rat' had little to no impact as countries went into lockdown and the whole world grappled with the new normal. As we braced for the worst, we could not have been more surprised at the generosity of our incredible band of supporters and partners across the globe.

Not only did APOPO stay afloat and continue our life-saving work, but the marketing team launched exciting new HeroDOG adoptions and managed to deliver its annual target of increasing public support by over 20% compared to 2019.

For the first time ever, this brought our public fundraising total to over 1 million euro! Thanks to the **UK charity PDSA, HeroRAT Magawa** was formally recognized for his life-saving bravery in Cambodia.

We are blown away and humbled by the global response and outpouring of support as Magawa received the **PDSA Gold Medal** and the news went viral, generating the equivalent volume of 20 years' worth of media attention in a week.

MEDIA COVERAGE 2020

3,200+ news articles

600+ TV appearances

across 155 countries

ONLINE COMMUNITY



Facebook followers: 83,481



Twitter followers: 7,995



Instagram followers: 26,200



YouTube subscribers: 2,013



Website sessions: 303,415/year



Newsletter subscribers: 31,036

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While **Magawa** made headlines around the globe, the Marketing Team also focused on sustaining our online community now with more than **150,000 supporters** and many of our social media key performance indicators surpassing those of many similar but significantly larger organizations. Our work would not be possible without the generous support of thousands of APOPO donors from all around the world. Thank you!

APOPO WOULD LIKE TO GRATEFULLY ACKNOWLEDGE PARTNERS AND DONORS

Facebook	Google	Global Development Group	GlobalGiving	Maecenata	King Baudouin Foundation
3T Trust	California Community Foundation	Communities Foundation of Texas	Dume Wolverine Foundation	Foundation Beyond Belief	Foundation to decrease world suck
Goldman Sachs matching program	Holleran charitable gift fun	Indianapolis Zoological Society	James J Colt foundation	Jewish Community Foundation Pittsburgh	Joan R. Isaac giving fund
Kirby Family Foundation	Long Family Foundation	Marriot Daughters Foundation	Murray Family Foundation	National Philanthropic Trust	NSPM AG
Gregory Rowling, NZH Management	Ronald Yurcak Foundation	PPC Bank Cambodia	Saint Paul & Minnesota Foundation	Sanford Bernstein & Co	Schwab Charitable
Seattle Foundation	Silverstein Family Fund	Triodos Foundation	Woods and Gil Family Foundation	Zoological Society of San Diego	SD Worx

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!

ANIMAL ADOPTIONS

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APOPO's animal adoptions gives you the chance to join one of three HeroRATs or HeroDOGs on a life-saving adventure. Every adoption comes complete with a 10-page welcome pack, adoption certificate, and regular impact updates with the latest news, pictures, and statistics from the field. For as little as US 9\$ a month (HeroRAT) or 19\$ for a dog a month (HeroDOG), you can symbolically adopt or gift an animal and help save lives. Visit our website to find out more!

MEET OUR HERORATS



Shuri

is a staff favorite with a cheeky personality who brings a smile to the face of everyone she meets. She graduated from APOPO mine detection training with flying colors. With a flash of her whiskers, Shuri will help sniff out landmines in Angola, one of the most mine-affected places in the world.



Carolina

is a boisterous, young HeroRAT based in Dar es Salaam, a mega-city in Tanzania. Carolina can search 100 sputum samples for tuberculosis in under 20 minutes. She enjoys play time in the mornings where she can expend all her excess energy climbing her favorite platforms.



Magawa

is one of APOPO's most successful HeroRATs, once he gets to work, he's as determined as they come. Veteran Magawa sniffs out deadly explosives faster than conventional solutions can find them. He is a 2019 recipient of the prestigious PDSA Gold Medal.

ANIMAL ADOPTIONS

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MEET OUR HERODOGS



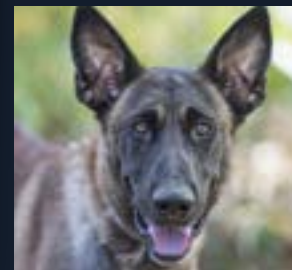
Mannes

Mannes is strong-minded and a hard worker. Based in Siem Reap, Cambodia, he's known for his tenacity, high-levels of concentration, and loyalty when he's out in the field.



Cyklon

Cyklon is a Belgian Malinois with a nose for landmines and unexploded remnants of war. He's energetic, fast, and thoroughly enjoys lazing in the sun after a hard day's work.



Gizmo

Gizmo has incredible energy at work. She's always wagging her tail but don't be fooled by her playfulness - she's serious when it comes to detecting landmines.

Anna Bouchier

Swiss Director

SWISS
FOUNDATION

In 2020, the Swiss Foundation focused on its mission to secure additional support for APOPO's programs worldwide. In an unusual and unpredictable philanthropic environment redesigned by the pandemic, the Foundation worked on establishing new high-level partnerships, extending existing instrumental relationships and accessing Covid-19 relief grants.

The office notably contributed to the support of APOPO's activities in Mozambique, Zimbabwe and Cambodia, where it pursued a vital role as grant manager for the Technical Survey Dog (TSD) pilot project. The Foundation also increased its support of all departments in their approach to find new partners and took the lead in coordinating APOPO's fundraising and grant management efforts, for greater synergies between sites and a stronger collaborative impact. In 2020, the Swiss Director was appointed Gender Focal Point, working on showcasing APOPO's impact and promoting gender balance within what remain male-dominated industries. Finally, in spite of restrictions to movement in 2020 and the cancellation of most in-person events, the Swiss office remained dedicated to adapting and working on increasing the visibility of APOPO in Europe; landing APOPO in several well-known media channels and representing the organization at partner events such as the Ashoka Changemaker Summit.



In 2020, the Swiss Director was appointed Gender Focal Point, working on showcasing APOPO's impact and promoting gender balance within what remain male-dominated industries."

**Remarkable impact**

I'm honored to be able to contribute to the challenging

and essential mission undertaken by APOPO. An organization whose relevance needs to be reasserted in light of its remarkable impact in mine action and TB programs."

Ulrich Lehner, APOPO Board Member and former Swiss Ambassador

Charlie Richter

U.S. Director

**U.S.
OFFICE**

2020 was a breakthrough year for APOPO US, as the organization was awarded its first ever US State Department grant for its demining program in Zimbabwe. The US State Department is the largest global funder of mine action in the world, providing more than \$200 million each year for demining programs globally. APOPO US hopes to continue to build the organizations' relationship with the agency moving forward as it could be a crucial partner in helping the organization meet its impact goals in the coming years.

APOPO US's office also played a major role in facilitating a social impact investment in its HeroDOG program as well as expanding the US Zoo program. Although slowed down by the COVID 19 pandemic, there are now rats at two new zoos, the San Diego Zoo and Indianapolis Zoo, as well as the Point Defiance Zoo in Tacoma, Washington. APOPO and its zoo partners have major hope that mock HeroRAT landmine detection demonstrations will be a major attraction once Covid-19 lockdowns are loosened up, allowing more Americans to learn about and engage with APOPO and its unique mission.

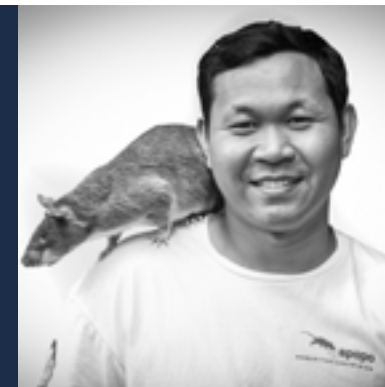
**An increasingly exciting journey**

Serving as the Chairwoman of APOPO US, and helping it and the larger organization strategize for a more impactful future, has been an increasingly exciting journey! I am particularly excited that the organization broke through to get its first ever US State Department grant in 2019-2020 and hope we can remain a close partner of this important demining funder moving forward. I am also particularly excited to see the impact Technical Survey dogs are having on the cost efficiency of APOPO's demining programs and look forward to its potential to impact even more post conflict communities in the years ahead."

Kristen Davis, Chairwoman APOPO US Board & CEO CinqC

**Sambat Maes**

Visitor Center Manager

**VISITOR
CENTER
CAMBODIA**

APOPO set up a Visitor Center (VC) in Siem Reap Cambodia, a city visited by millions of tourists per year (pre-COVID), where it runs an organized tour with information on the landmine problem and history of Cambodia, including a demonstration of our landmine detection rats.



Popular stop for tourists

The center has been a popular stop for tourists and allows our work in Cambodia reach a wider audience while generating additional source of income for our demining program. Unfortunately like all non-essential businesses, from March to August 2020 we made the hard decision to temporarily close the center in order to do our part in flattening the curve and ensuring the safety of our staff, their families, and wider Siem Reap. Travel restrictions further reduced the number of tourists in country and so the center received just 5,917 visitors in 2020 and a massive drop in income. Online fundraising efforts kept the lights on, and we look forward to a better year in 2021 as we hope to see the pandemic under control.



Sister Srey Café

Sister Srey Cafe is a little cafe with a big heart nestled amongst the trees on the edge of the Siem Reap river in Cambodia. It's normally a place to find good coffee and friendship, and for local Khmer students to find support, empowerment and education. Similar to the VC, Sister Srey was closed from March to August due to the new pandemic. By closing the doors, the Café missed out on essential income and the most significant time of year - high season. Sister Srey committed to financially supporting every single member of our staff during this uncertain period, and with online fundraising efforts were able to do so. Together Sister Srey and the VC give a boost of support to the fundraising efforts of APOPO to ensure continuation of mine action operations.



AFRICAN CENTER OF EXCELLENCE

'A long-term relationship'

APOPO's innovation in landmine and tuberculosis detection is recognized worldwide as a successful and ground-breaking collaboration with a top-ranking academic institution – the Sokoine University of Agriculture (SUA) in Morogoro, Tanzania. The long-lasting research collaboration between APOPO and SUA's Pest Management Centre (SPMC) has resulted in the development of a long-term relationship, which places us in a strong position to address new and emerging challenges in the scientific world.

In 2017, SPMC together with APOPO, were chosen as the Africa Centre of Excellence for Innovative Rodent Pest Management and Biosensor Technology Development. It is one of the four World Bank Centers of Excellence in Tanzania chosen through a rigorous and highly competitive exercise that saw 116 project proposals submitted in the East and Southern Africa region but only 24 chosen to form the African Centers of Excellence II [ACE II]. The objective of this ACE II project is to strengthen selected Eastern and Southern Africa higher education institutions to deliver quality post-graduate education and build collaborative research capacity in the regional priority areas. These experts will go on to develop and apply science and technology and meet the demand for skills required to solve Africa's most pressing challenges.

The deployment of rodents as a biosensor tool is a scientific innovation that has many applications outside of landmine and tuberculosis detection, such as in search & rescue, deterring wildlife trafficking and other disease control. Supported by the ACE II program, APOPO had the opportunity to enroll three PhD students and a MSc student, looking at the potential of rats to identify tuberculosis early, how reproductive cycles might influence the scent detection performance of the rats, the feasibility of training rats to detect the brucella bacteria that causes brucellosis and more.

In total the program was to enroll at least 30 PhDs and 70 Master's students for five years. Another added benefit is the increased publication output from our research, since inception this has generated new publications in peer-reviewed scientific journals. We look forward to more APOPO and SPMC collaborations, the future is looking bright for an exciting scientific synergy.

Professor Apia Massawe

Centre Leader for African Centre of Excellence for Innovative Rodent Pest Management and Biosensor Technology Development, Sokoine University of Agriculture





HEROTREES PROTECTING THE PLANET





The Uluguru mountain range in Tanzania supports a rich forest and rare species, including the critically endangered Uluguru Bush-shrike (*Malaconotus alius*), as well as providing most of the water supply to Dar es Salaam and Morogoro. The communities living in these mountain villages earn just a quarter of the national average and the demand on the forests for fuel and timber is growing in line with population growth. Unsustainable farming practices result in the deterioration of both water quantity and quality and increase water run-off and soil erosion. APOPO's headquarters in Morogoro means we have the unique opportunity to take action on a local level to both help communities and to save the habitats of the Uluguru mountains.

HeroTREES

In 2016, **Sustainable Agriculture Tanzania** & APOPO launched the carbon offset project '**HeroTREES**' in the Uluguru mountains, with the goal of planting 21,000 trees over a five-year period. In 2020 alone, 100 farmers were trained and 1,217 trees of 16 different species were successfully planted during the rainy season. The species were selected to provide soil stabilization, shade, fruits, spices, medicine, soil fertility and improvements to water quality and quantity. This brings the total number of trees planted and being maintained by the farmers since the project began, to 17,783. APOPO is planning to raise its HeroTREES targets significantly in the future.



Unsustainable farming practices result in the deterioration of both water quantity and quality and increase water run-off and soil erosion.



Once a tree reaches maturity, it absorbs carbon dioxide at a rate of 22 kilos (48 pounds) per year. In one year, an acre of forest can absorb twice the CO₂ produced by the average car annually.



Endemic species of flora and fauna

To ensure that the new trees that are planted are not cut down, the small-holder farmers are taught new sustainable methods to revitalize their land - planting trees alongside their crops and smart organic agriculture skills that produce natural fertilizers. This leads to higher crop yields, increased income and food security building resilience to a changing climate and sharing their experiences with their wider communities. The future of the biodiversity of the Uluguru mountains relies on conserving the many endemic species of flora and fauna in this important area. And on the people living there to do so in harmony as one sustainable ecosystem.



Trees are our Legacy



I have four children and three grandchildren. My eldest son recently got married and I now have grandchildren to consider. What can I leave them to remember me by?

Trees! I learnt a lot about sustainable agriculture and how to look after my land better. APOPO and SAT taught me about the value of trees and how they can help put children through school. I am grateful APOPO brought this project to our village and I am proud to be part of the group of farmers chosen for this important task."

Saidi Ngoma, Tree-planting Farmer, Tanzania



FINANCIAL STATEMENT

BALANCE SHEET IN EURO*

ANNUAL REPORT

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ASSETS	2020	2019
Current assets	2,979,563	2,448,830
Current receivables	376,310	706,019
Other assets	85,446	97,653
Cash and equivalents	2,517,808	1,645,158
TOTAL ASSETS	2,979,563	2,448,830
Liabilities		
Net capital	1,137,319	1,016,654
Funds of the organization	328,046	328,046
Retained Earnings	809,273	688,608
Long term liabilities	1,572,684	1,431,433
Deferred Income [Grants]	1,572,684	1,431,433
Current liabilities	269,560	743
Current payables	269,560	743
Accrued expenses	-	-
TOTAL LIABILITIES	2,979,563	2,448,830

PROFIT&LOSS STATEMENT (EURO)

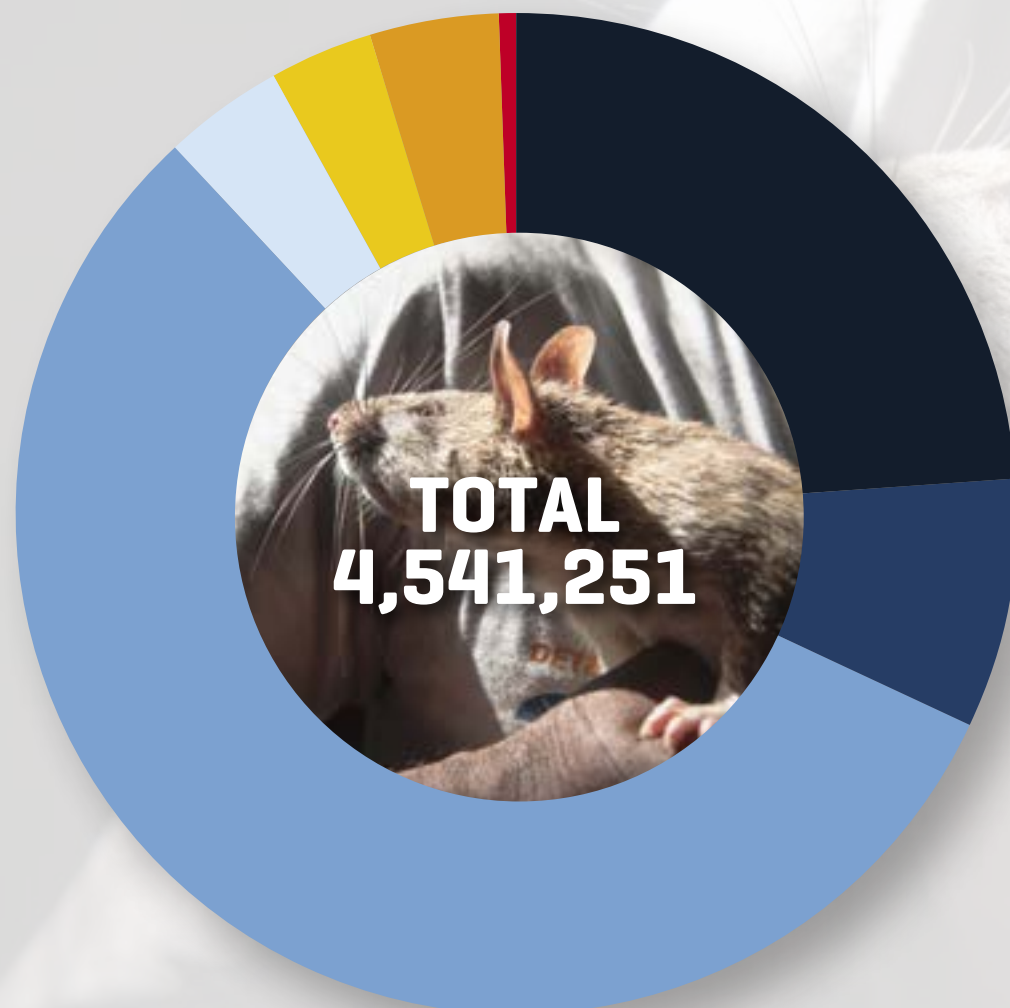
	2020	2019
Total Income	4,541,251	4,796,959
Total Operational Expenses	2,153,977	3,121,848
Total Personnel Expenses	2,210,129	1,629,204
Depreciation	12,207	12,207
Other costs	-	6,834
Operating Result	164,938	26,866
Financial Result	-36,719	-14,403
Extraordinary Result	-	-
Net Income	128,219	12,463

* Annual accounts audited by BDO

DONATIONS & SUBSIDIES 2020

ANNUAL REPORT

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IN EURO

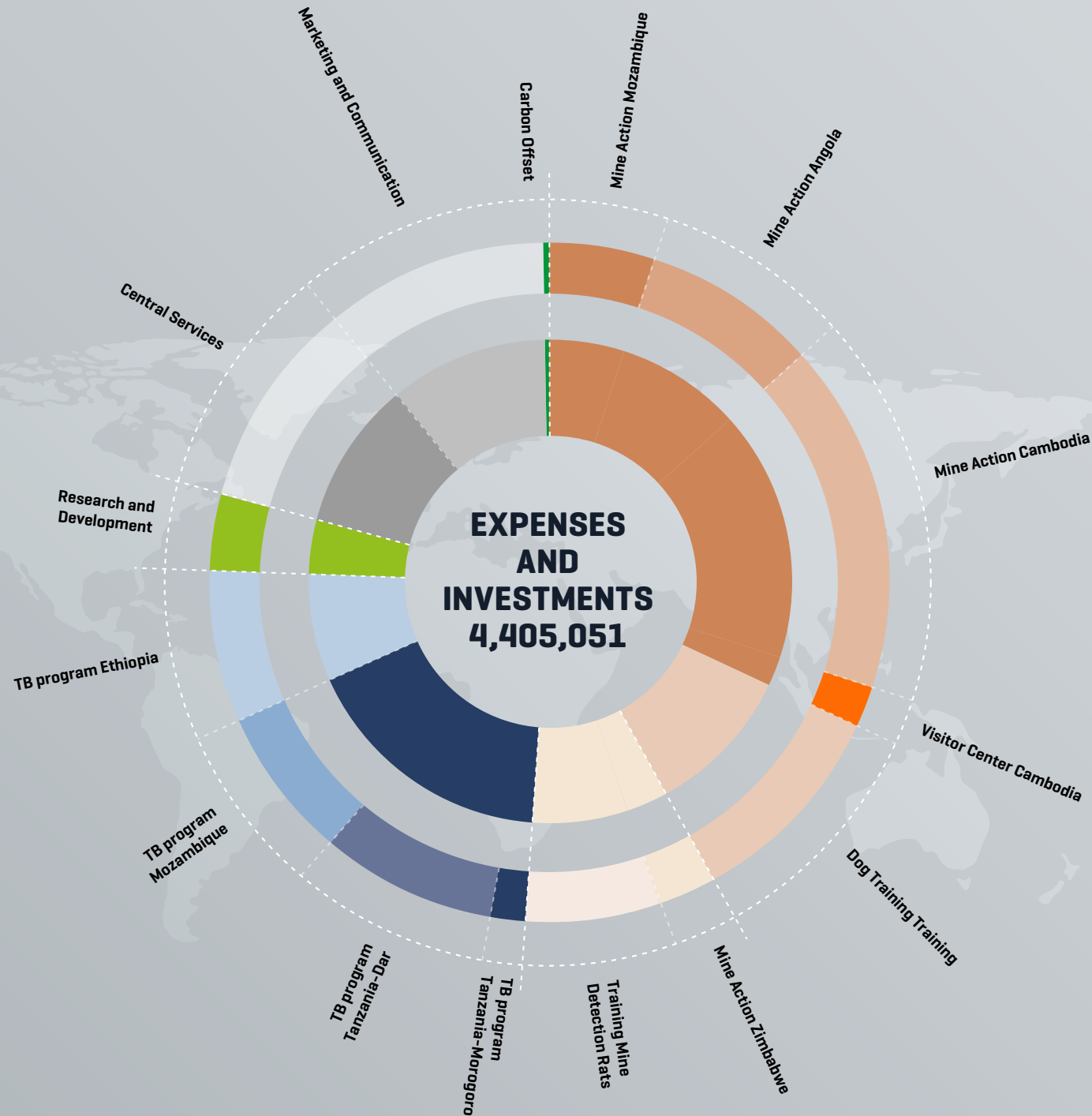
● Public fundraising	1,091,292
● Government grants	370,596
● Foundation grants	2,542,550
● International institution grants	174,469
● Earned income	159,594
● Research grants	181,629
● Miscellaneous operating income	21,121

Accountability is important to us. For every €1 of donated money, 90c goes directly to supporting our work. The remaining 10c goes towards management costs. APOPO is incredibly proud of our efficiency, making your gift go further.

EXPENSES AND INVESTMENTS 2020 PER ACTIVITY IN EURO

Mine Action Mozambique.....	225,992
Mine Action Angola.....	369,016
Mine Action Cambodia.....	732,990
Visitor Center Cambodia.....	87,194
Dog Training Center	440,794
Mine Action Zimbabwe	121,763
Training Mine Detection Rats	280,487
TB program Tanzania-Morogoro	78,858
TB program Tanzania-Dar.....	363,795
TB program Mozambique	312,060
TB program Ethiopia	320,868
Research and Development.....	160,354
Central Services	440,111
Marketing and Communication.....	466,769
Carbon Offset.....	4,000
Total	4,405,051

**EXPENSES
AND
INVESTMENTS
4,405,051**





A MESSAGE FROM THE CEO

CREATING A BETTER WORLD FOR ALL

Christophe Cox, CEO

2020 began as a year full of promise – none of us could have imagined how the year spiraled into a global pandemic. While COVID-19 brought a lot of challenges to APOPO, it also ignited the generosity and perseverance of our donors and stakeholders and exemplified the resilience of APOPO.

Because of your continuous support APOPO was not only able to stay afloat but also to strengthen its programs and internal processes, which led to new territories and innovations. APOPO not only started clearing mines threatening major elephant and wildlife populations in Zimbabwe, but also surpassed its targets and efficiency in Cambodia. We were humbled by the global response to the recognition of HeroRAT Magawa's live-saving work, as he continues finding mines in Cambodia. Despite the pandemic, APOPO was able to find new TB patients within a health system overwhelmed by the pandemic allowing them to receive life-saving treatment. In addition, APOPO used its capacities to support COVID relief where possible.

In 2020, APOPO crafted a 2025 Strategy that will lay the groundwork for us to work in a world that is increasingly complex. APOPO expanded its vision and mission to include additional detection animals as well as a special focus on protecting our planet. APOPO will continue building peace and protecting the most vulnerable from danger and disease, but will also build its capability to protect wildlife, reduce pollution and support natural disaster preparedness.

While the journey ahead will no doubt present great challenges, particularly in light of the havoc wrought by the global pandemic, we continue to be inspired by our supporters, partners, dedicated staff and volunteers who share our dream to create a better world for all. We count on your continued support in 2021 so we can continue to innovate and adapt our work and deliver quality services in a changing.

Thank you for your trust in and commitment to APOPO.

PASSED THE TEST!

In 2020 APOPO strengthened its organizational processes to fulfill the requirements for a formal accreditation as a **Belgian NGO**, for which we had to pass various criteria and undergo an organizational audit of our management capacities.

The audit was conducted in the first quarter of 2021 by **EY** and included 9 domains: [1] Financial management, [2] Strategic management, [3] Process management, [4] Result oriented management, [5] Partnership management, [6] Cross-cutting themes gender and environment, [7] Risk management [8] Human resource management and [9] Transparency and Communication;

The audit took into account the complexity of the organization, determined by the turnover, geographical and thematic spread, diversity of partners and donors and the number of staff.

After preparation based on the documentation, the field audit consisted of interviews with key staff and board members, and drafting the report.

APOPO is proud to announce that we passed not only in all of the 9 domains, but also in each of the subdomains. We consider this a big milestone for the organization and hope it will re-assure all stakeholders to choose APOPO as a trusted partner.

APOPO is proud to have been formally endorsed as an accredited partner of the Belgian Development Cooperation for a 10 year period starting 2022.



APOPO VZW

Prinsstraat 13
2000 Antwerpen
+32 3 265 41 94

Contact

APOPO Executive Secretary

Esther Haalboom
esther.haalboom@apopo.org
+32 495 44 26 63

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Apart from:
David Brazier (5, 8, 22-24)
Maarten Boersema (28, 30, 31, 40, 41)
Xavier Rossi (43)
PDSA (51)

SUPPORT OUR WORK

HeroRAT Adoption Program

From 9€ per month you can contribute to APOPO's life saving mission and receive updates of your own HeroRAT

www.apopo.org/en/adopt

You can also make a donation at:
www.apopo.org/en/support-us

Bank Details

A/C No 001-3870650-38
BNP Paribas Fortis Bank
Rucaplein 572, 2610 wilrijk, Belgium
Swift code: GEBABEBB
IBAN: BE24 0013 8706 5038

APOPO

OPERATIONAL HEADQUARTERS & TRAINING CENTER SUA-APOPO

Sokoine University of Agriculture
PO Box 3078 Morogoro,
Tanzania
apopo@apopo.org
+255 778 779 779

Head of Training and Research

Dr. Cindy Fast
cindy.fast@apopo.org
+255 655 065 209

Mine Action, Regional Manager Asia

Michael Heiman
michael.heiman@apopo.org
+855 95 264 772

Mine Action, Regional Manager Africa

Tesfazghi (Tess) Tewelde
tess.tewelde@apopo.org
+258 877 273 378

APOPO BOARD

Prof. Herwig Leirs, Chairman
Professor of Zoology at the University
of Antwerp

Joris Schoofs, Vice Chairman
and Business Expert

Prof. Mic Billet, Pro-Chairman and Co-Founder
of the Department of Product Development at
University of Antwerp

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

APOPO Mine Action Angola

Manuel João Agostinho
manuel.agostinho@apopo.org
+244 923 235 332

APOPO TB Tanzania

Dr. Georgies Mgode
georgies.mgode@apopo.org
+255 759 927 191

APOPO TB Mozambique

Robert Burny
robert.burny@apopo.org
+258 822 750 095

APOPO TB Ethiopia

Dr. Negussie Beyene
negussie.beyene@apopo.org
+251 911 391 166

Media and Communications

Lily Shallom
lily.shallom@apopo.org
+255 784 490 979

Public Fundraising

Chris Frantz
chris.frantz@apopo.org
+1 202 355 5845

APOPO FOUNDATIONS

APOPO US Office

Charlie Richter
Chairwoman: Kristen Davis
1133 15th street NW, Washington DC 20004
+1-202-286-2804, usfoundation@apopo.org

APOPO Swiss Foundation

Anna Bouchier
Chairman: Yves Hervieu-Causse
6 Cours de Rive, 1204 Geneva
Tel +41 0 78 659 53 44
Mobile +33 0 613204003
swissfoundation@apopo.org

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

Dr. Adeo Schoon, Scent Detection Consultant

Thierry De Meulder, President Consultancy
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