

2015

# ANNUAL REPORT





APOPO HAS HELPED OVER A MILLION PEOPLE BACK ON THEIR LAND.

**APOPO IS A NON-PROFIT ORGANIZATION THAT RESEARCHES, DEVELOPS AND IMPLEMENTS DETECTION RAT TECHNOLOGY FOR HUMANITARIAN PURPOSES. DETECTION RATS, NICKNAMED HERORATS, SAVE LIVES BY DETECTING LANDMINES AND TUBERCULOSIS.**

APOPO is a global NGO, with roots in Belgium and operational headquarters in Tanzania. It currently has mine detection operations in Mozambique, Angola and Cambodia and TB detection operations in Tanzania and Mozambique. APOPO's research and development center is based in Tanzania.

## APOPO CORE VALUES

**QUALITY** Demonstrating and promoting high standards in research, design, training and implementation of detection rats technology.

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

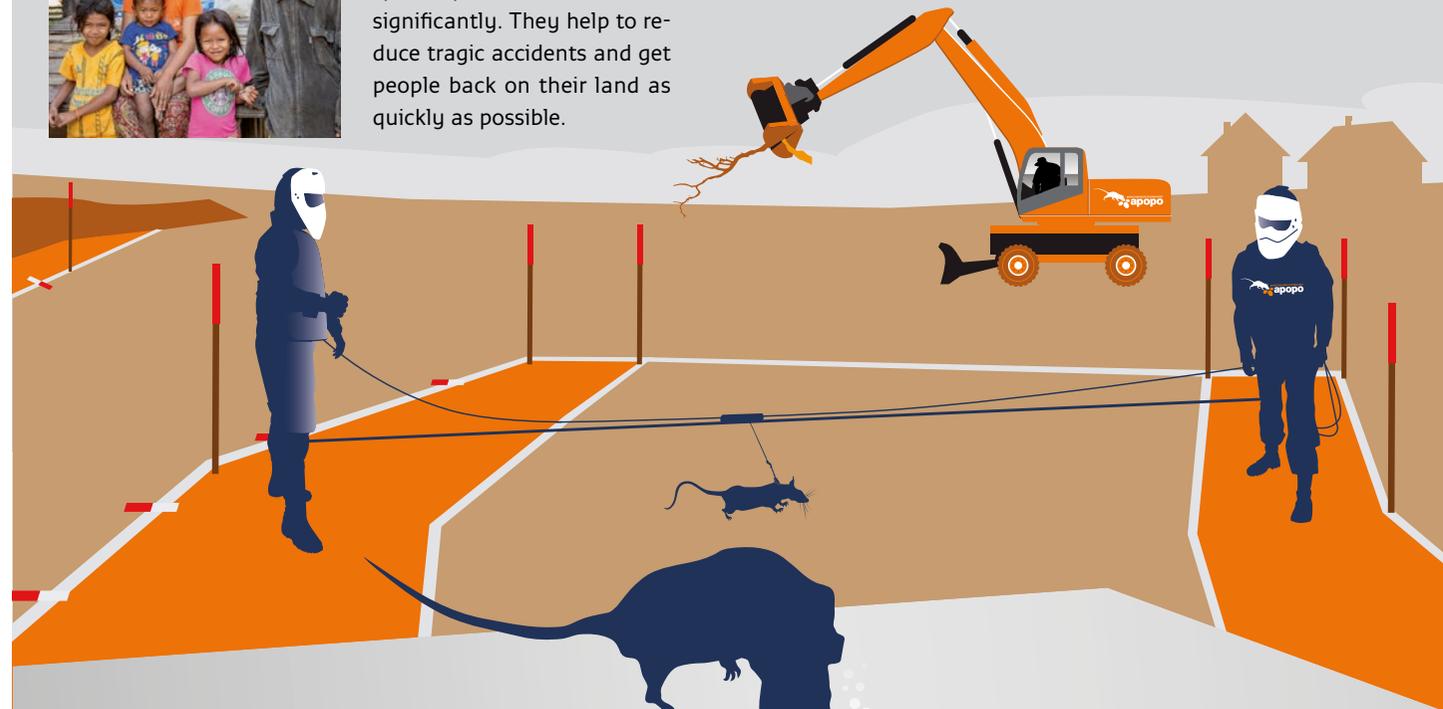
**SOCIAL TRANSFORMATION** Developing skills, creating jobs, improving socio-economic and environmental conditions, releasing land for development, and combating public health issues.

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



### APOPO'S MINE DETECTION RATS

speed up landmine detection significantly. They help to reduce tragic accidents and get people back on their land as quickly as possible.



APOPO HAS DIAGNOSED 9127 TB PATIENTS WHO WERE INITIALLY MISSED BY THEIR LOCAL CLINICS.

### APOPO'S TUBERCULOSIS DETECTION RATS

are faster and more sensitive at detecting tuberculosis than conventional microscopy. Every day they save lives by finding more TB positive people who were missed at their local clinic.



# APOPO INTRODUCTION

**ALBERTO ZACARIAS**  
INTERNATIONAL  
MINE DETECTION  
RATS SUPERVISOR



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I first met the amazing HeroRATs in 2008 when I was an APOPO deminer detecting landmines in Mozambique. I had been invited to APOPO's HQ and Training & Research Center in Tanzania and was about to embark on my new career as a Mine Detection Rat Handler. Although I had worked with trained dogs before I was still amazed at the rat's abilities; their speed and accuracy. The Tanzania team taught me about scent detection theory and technology, as well as animal welfare and veterinary skills. In return I told them about the suffering in my country. At that time, vast areas of land in Mozambique remained contaminated with landmines. These cause tragic accidents and cut communities off from prime agricultural land and access to other basic needs. Across the country, landmines caused people to live in fear and poverty and were a barrier to economic development.

Now, almost 8 years after I held my first HeroRAT, my country has been declared free of all known landmines. It is hard for me to convey the pride and emotion I felt when this historic announcement was made in September 2015. Our people are free.

Yet all over the world, not only landmines but also tuberculosis continue to endanger lives and impede economies. In December 2015 The WHO announced that tuberculosis now kills more people than HIV, making it the world's biggest killer by an infectious disease. The TB Detection Rats teams in Mozambique and Tanzania have reacted by stepping up the fight and in 2015 we changed our strategy to get test results back to patients faster than ever. Now more people can start treatment and get cured of this deadly disease.

Over the years I have seen APOPO grow into an inspiring global organization that successfully addresses major humanitarian issues around the world. If you are a partner or donor to APOPO then I offer my sincere gratitude for your kind support. It is this alone that allows us to carry out our life saving work. If you are a potential supporter, I ask you to join us today in the fight against landmines and tuberculosis.

Please read on, and learn how APOPO, through your help, can change the lives of people around the world. ■



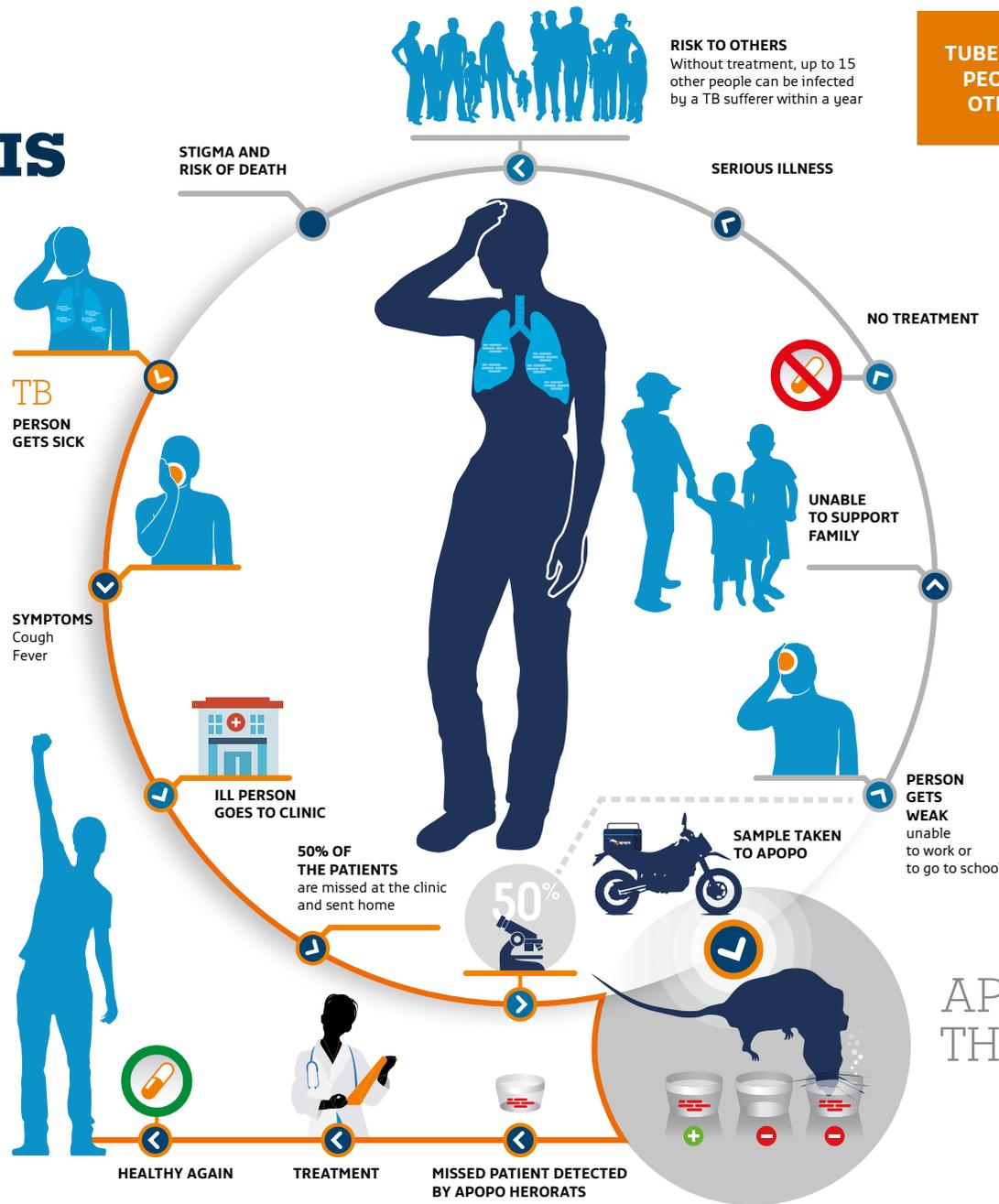
# THE VICIOUS CYCLE OF TUBERCULOSIS

In order to break the vicious cycle of tuberculosis, APOPO targets large cities with high rates of tuberculosis. In these cities, the influx of people looking for work creates crowded living and working conditions that act as incubators for the disease.

Public clinics in Sub-Saharan Africa use conventional microscopy to detect tuberculosis, a method that is slow and inaccurate and only detects 50% of the patients who actually have tuberculosis.

**APOPO HERORATS CAN CHECK 100 PATIENTS FOR TUBERCULOSIS IN 20 MINUTES. THIS TAKES A LAB TECHNICIAN IN A PUBLIC CLINIC UP TO 4 DAYS.**

**APOPO HAS RAISED DETECTION RATES IN PARTNER CLINICS BY OVER 40% SINCE 2007.**



**TUBERCULOSIS NOW KILLS MORE PEOPLE GLOBALLY THAN ANY OTHER INFECTIOUS DISEASE**



**169,594**  
PRESUMPTIVE TB PATIENTS EVALUATED SINCE 2007



**9127**  
ADDITIONAL TB PATIENTS IDENTIFIED BY RATS SINCE 2007



**40,000**  
POTENTIAL INFECTIONS HALTED IN TANZANIA AND MOZAMBIQUE

**APOPO BREAKS THE CYCLE**



#### WHAT IS TUBERCULOSIS?

Tuberculosis is a bacterial infection that usually attacks the lungs. Most people who are exposed to tuberculosis never develop symptoms because the bacteria can live in an inactive form in the body (latent TB). If the immune system weakens, the TB bacteria can become active, causing harmful symptoms and potentially death.

#### HOW IS IT TRANSMITTED?

Tuberculosis is mainly transmitted through the air. When people with pulmonary (lung) TB cough, sneeze or spit, they propel TB germs into the air. Inhaled bacteria can then lodge in the lungs of others and grow. The closer and more frequent the contact, the higher the chance of developing the disease.

#### WHAT IS THE TREATMENT?

Tuberculosis is treatable and curable. Most people can be cured after a standard six-month course of four antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.

#### WHO IS AT RISK?

People with a weak or compromised immune system such as young children and elderly people, persons living with HIV, and the malnourished are at the highest risk of contracting tuberculosis.



HUSNA AMIRY

“I run a small business to support my family but when I got ill I was too weak to take care of it. I was diagnosed with TB with the help of APOPO and the HeroRATs. I started treatment immediately and soon recovered. Now I get on with my life and activities.”



AT FIRST I COULDN'T BELIEVE IT BUT NOW I KNOW RATS CAN REALLY FIND THE DISEASE.”



NURU HASANI

“When I fell ill I went to the hospital for a TB test but the result was negative. About the same time, two of my grandchildren got sick. I was very worried and had to ask a family member to come and help us, I couldn't manage it on my own. The HeroRATs then tested our samples and they found TB! At first I couldn't believe it but now I know rats can really find the disease. They helped all of us.”

# TUBERCULOSIS TANZANIA

**DR. GEORGIES MGOBE**

PROGRAM  
MANAGER TB  
TANZANIA



# 2015

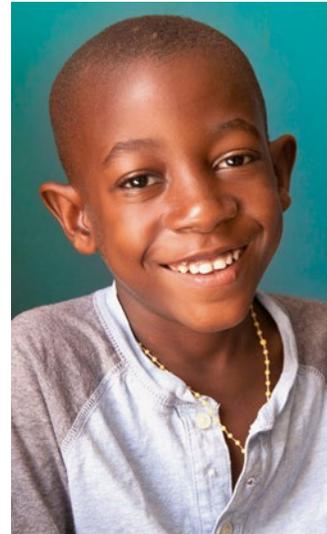
was a year of good results and growth for APOPO's Tanzania TB detection program. APOPO expanded its operations to five new health facilities bringing the number of partner clinics to twenty-eight. Our partners MKUTA and PASADA have also expanded their services along with the extra clinics. These outreach organizations engage former TB patients as community volunteers. They visit clinics, communal gathering areas and workplaces to raise awareness, reduce stigma and encourage people to stay on their treatment.

Research on the APOPO TB detection rats is ongoing. A diagnostic accuracy study that compares the accuracy of TB detection rats with other diagnostic methods such as solid and liquid culture, GeneXpert and microscopy will be completed in 2016.

With the support of the USAID Development Innovation Ventures program, APOPO is

also conducting an 'active case finding' research project that screens prisoners in Tanzanian jails for tuberculosis. The TB detection rats may offer a cost effective way to break the TB cycle by screening large numbers of people in high-risk settings such as jails, high density housing and factories which are considered incubators for TB.

A grant was secured from The UBS-Optimus Foundation to study TB odor compounds in patients in collaboration with the Max Planck Institute for Infection Biology and the Institute of Organic Chemistry of the Technical University of Braunschweig, Germany. The project will analyze compounds unique to the bacteria that cause tuberculosis, helping APOPO optimize its detection rats technology. The results will support the development of a cheap, highly accurate, rapid TB diagnostic test that could drastically improve TB diagnosis across the globe. ■



CLAUDI NORBERT

**"THE  
HERORATS  
FOUND  
MY TB"**



"I never would have thought rats could be used to detect Tuberculosis but thanks to them I started treatment and got better." ■



## FIGHTING TUBERCULOSIS AT SOURCE

Public clinics are often a last resort for people sick with tuberculosis. Due to transport costs and the absence of paid sick leave, patients often continue to work well into their illness whilst infecting others. Tuberculosis flourishes in locations where people are regularly in close contact, such as factories, mines and high-density residential areas. Due to the rapid diagnostic speed and low costs of TB detection rats, APOPO believes it can add value as a screening tool. Initial research results are very promising.

In 2015, APOPO first completed a pilot study with a small sample of sugarcane plantation workers and confirmed the rat's effectiveness. They correctly identified 75% of the patients with tuberculosis and quickly reduced the number of samples needing confirmatory tests.

The results indicate that the HeroRATs can dramatically improve the efficiency and therefore affordability of screening campaigns. With support from USAID DIV a second pilot study is ongoing that focuses on the accuracy of TB detection rats when they are deployed in prison populations in Morogoro and Maputo. If the HeroRATs prove effective APOPO can begin to integrate active case finding into its ongoing TB detection program, and scale the program to a variety of high TB burden communities. ■

## “ THE SPEED OF HERORATS

The speed at which the HeroRATs check large numbers of samples means they could be deployed as a fast and effective tool to screen whole communities at risk from tuberculosis. By catching tuberculosis early, lives will be saved and additional infections will be prevented. ■

23,740

PRESUMPTIVE  
TB PATIENTS EVALUATED BY  
HERORATS IN TANZANIA



1,198

EXTRA CASES OF TB FOUND  
BY THE HERORATS IN  
TANZANIA



28

PARTNER CLINICS



ANJA VAN'T HOOG

SENIOR  
EPIDEMIOLOGIST  
AMSTERDAM  
INSTITUTE FOR  
GLOBAL HEALTH  
AND DEVELOPMENT  
(AIGHD)



“The high-throughput of TB-detection rats provides a potential advantage for settings where large numbers of sputum samples need to be examined in a short time period. The challenge is to find out in which settings and under which circumstances the use of TB-detection rats in combination with other tests would be preferred above other TB diagnostic approaches. The cost-effectiveness modeling study that we are working on is expected to provide more guidance on this.” ■

# TUBERCULOSIS MOZAMBIQUE

## EMILIO VALVERDE

PROGRAM  
MANAGER TB  
MOZAMBIQUE



The APOPO TB Mozambique project, funded by the Flanders Government, is now in the second phase of its implementation. In 2015, the project reached 100% coverage of all TB microscopy samples produced in the city of Maputo and detected more patients than ever before.

The most important goal of the project in 2015 was to increase the number of patients starting treatment. APOPO began the process of speeding up its TB detection program from a 4-5 day diagnostic timeline to a 12-hour timeline. Every day APOPO collects samples from clinics in the early afternoon that are then checked by the HeroRATs. Any samples indicated by the rats are rechecked by LED microscopy at the APOPO laboratory later in the day. Thanks to the speed of the rats, our technicians now have test results ready for collaborating clinics by the next morning when the patients return to get their standard clinic results.

In November of 2015, The Mozambican National Bioethics Committee approved a study to screen prison inmates in Southern Mozambique, which is part of a USAID DIV funded project also being carried out in Tanzania. The study will help build up the data needed to convince TB authorities that HeroRATs are a cost effective screening tool. ■



9,166

PRESUMPTIVE TB  
PATIENTS EVALUATED BY  
HERORATS IN MAPUTO



666

PATIENTS DIAGNOSED  
WHO WERE MISSED  
BY CONVENTIONAL  
METHODS



3,800

POTENTIAL TB INFECTIONS  
HALTED IN MAPUTO



48%

INCREASE IN DETECTION  
RATES



## EZEKIEL MACONHA-OTENESSE

FORMER STUDENT  
AT THE VETERINARY  
DEPARTMENT OF  
EDUARDO  
MONDLANE  
UNIVERSITY



“WITHOUT THE HERORATS,  
I MIGHT HAVE DIED”

My story illustrates why the HeroRATs are such an important asset in TB detection. Without the TB detection rats I might have died. As part of my final year assignment as a student at the Veterinary department of Eduardo Mondlane University (EMU), I conducted a research project with APOPO. When I started my research I wasn't in good health. I had the symptoms of tuberculosis, like coughing, chest pains, fever and fatigue. But when I was examined for tuberculosis at my local hospital all results were negative.

My friends and family were very concerned about my condition. Then the APOPO staff suggested having my sputum sample tested by the HeroRATs and guess what? They found tuberculosis. I was relieved because finally I was able to start treatment. Thanks to the APOPO staff and especially the HeroRATs I was soon back on my feet and getting on with my studies. ■

# RESEARCH & DEVELOPMENT



**DR. CHRISTIAAN MULDER**  
EPIDEMIOLOGIST AND  
HEAD OF APOPO TB



**HAYLEE ELLIS**  
BEHAVIORAL RESEARCHER



**ERIN WATKINS**  
BEHAVIORAL RESEARCHER

## ACCURACY STUDY

APOPO's goal of expanding its TB operations to other areas depends on its TB detection technology being adopted by National TB Programs (NTPs) in additional high TB-burden countries. The NTPs normally follow international recommendations from The World Health Organization (WHO). However if they are convinced of the safety and impact of a technology, they can implement it independently. In order to provide solid proof of the effectiveness of the TB detection rats, APOPO needs to demonstrate that rats detect more TB patients than are detected by microscopy without indicating an excess of false positives (patients who turn out to be free of TB).

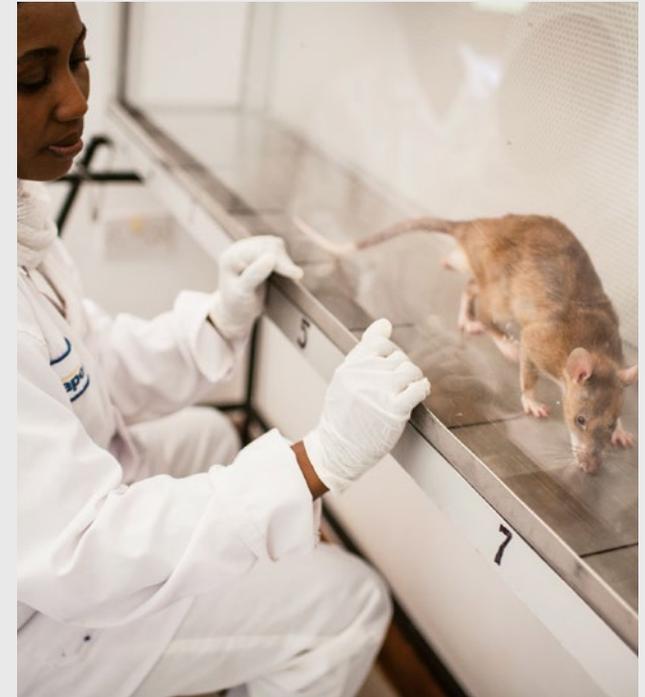
APOPO is therefore currently conducting a high quality accuracy study. The study compares the diagnostic results of detection rats when testing 1,000 TB suspect individuals, against solid and liquid culture, as the reference standard. The study will also explore if the HeroRATs detect tuberculosis in people living with HIV better than conventional methods, and the accuracy of HeroRATs compared to Gene Xpert MTB/RIF (an expensive TB detection technology that was the latest TB diagnostic endorsed by the WHO).

## BASIC RESEARCH

Two lines of basic research are currently in progress at APOPO's training facility in Tanzania. These studies aim to increase theoretical knowledge of scent-detection processes and to evaluate standard scent-detection procedures. With the knowledge gained we aim to improve HeroRAT training and performance.

**Research Line 1** - This research, funded by The Firmenich Family, will demonstrate that the APOPO-conceived TB testing chamber is an empirically proven, effective tool for rat scent-detection training. The research also aims to pinpoint the optimal time (indication time) for the rats to hover over TB suspect samples, and the optimal number of rewards earned by the rats in order to yield the most accurate and consistent results.

**Research Line 2** - This research, also funded by The Firmenich Family, examines the rat's ability to quickly acquire new scents, which would allow the rat to transition among different detection scents. For example this research will conclusively explain why the HeroRATs can easily switch from detecting landmines that use one type of explosive chemical compound, to another type of landmine with a different chemical compound. Increasing the number of objects a single rat can detect could increase the efficacy and efficiency of the HeroRATs. ■



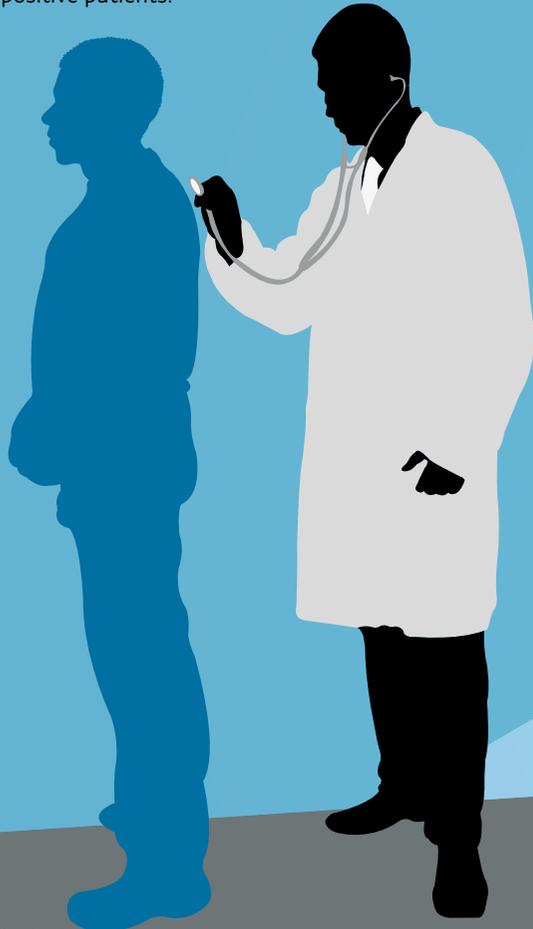
# THE TB PROCESS

## HOW IT WORKS

#1

### Patient tested at local TB clinic

Patients with suspected tuberculosis leave sputum samples at their local clinic to be checked by microscopy. In some developing countries this method identifies less than half of the actual TB-positive patients.



#2

### Sputum sample collection

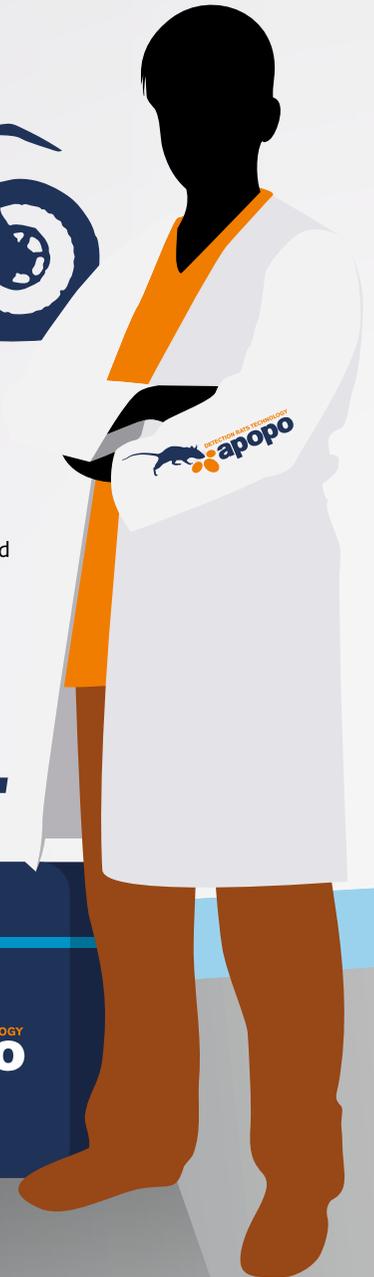
After clinic testing, APOPO couriers arrive to collect both TB-positive and TB-negative samples.



#3

### APOPO's City Centre Laboratory

The samples are transported from clinics throughout the city to APOPO's central lab for 12-hour testing.



#### #4

##### **Samples are made safe**

On arrival, the samples are inactivated using heat treatment. This ensures that any TB-Positive sputum is not contagious for trainers and HeroRATs alike.



#### #5

##### **TB Detection by HeroRATs**

HeroRATs hover over suspect-TB samples for 3 seconds. If it is a TB-positive 'control' sample, the rat receives a reward. This keeps them accurate and eager to find tuberculosis in all the samples.



#### #6

##### **HeroRATs find TB-Positive samples missed by clinics**

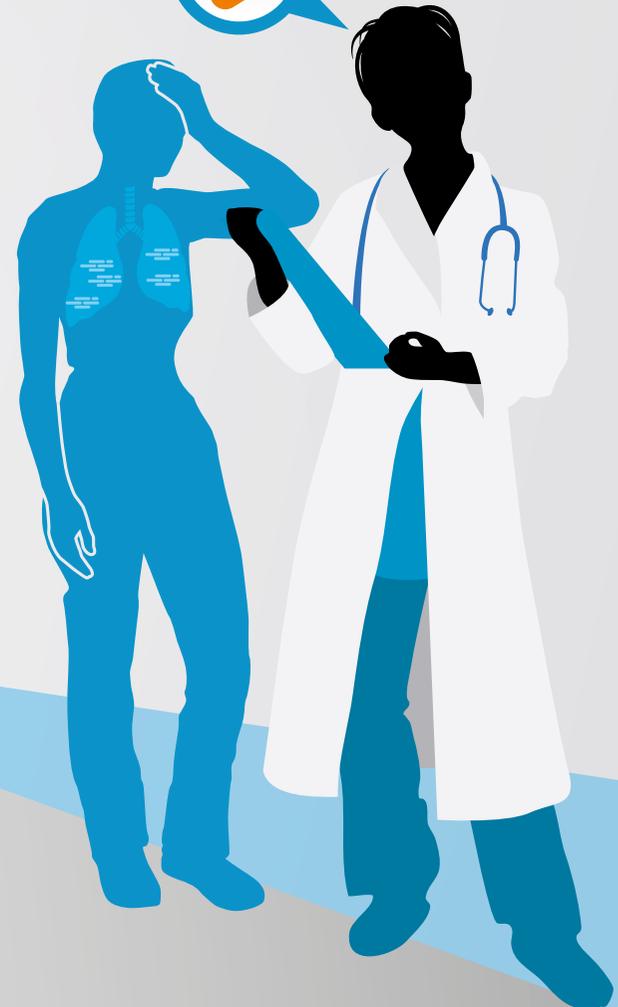
The HeroRATs also detect tuberculosis in samples marked negative by the clinics. One rat can check a hundred samples in less than 20 minutes, a task that would take a lab technician up to 4 days.



#### #7

##### **Patients informed and treated**

APOPO reports the results back to the clinic within 24 hours so that patients can be informed and start immediate treatment.



**ABDULLAH MCHOMVU**  
MDR TRAINING  
MANAGER  
TANZANIA



## TRAINING CENTER TANZANIA

Of the forty-eight rats currently in training, nineteen have successfully completed mine detection training. Eight young rats are being trained on TB detection and will be deployed to APOPO's new TB clinic in Dar es Salaam.

Sixteen mine detection HeroRATs were sent out of Africa for the first time to Cambodia. They spent time acclimatizing to the new environment and being trained, along with their new Cambodian handlers, by Tanzanian International Rat Trainers like Mark Shukuru. The rats have since passed their accredita-

tion test set by the Cambodia Mine Action Centre (CMAC) and are now deployed on active minefields.

APOPO also made changes to standard training procedures in 2015. Most notably rats are no longer paired with specific trainers throughout their training. As rats are not bond forming, trainers can now specialize and become expert in chosen stages of training, which APOPO believes will result in better trained, more productive HeroRATs. ■

**ZAKIA SHUKURU** DAUGHTER OF MARK SHUKURU, MINE DETECTION RATS FIELD COORDINATOR, TANZANIA

## MY DAD JUST PLAYS WITH RATS!

"Me and my friends are always playing in the fields by our houses without thinking about it. But my dad told me that in some places, children get hurt when they play games, or when they walk to school or go to get firewood. He says that sometimes they step on a landmine and that in Cambodia somebody gets injured like that every few days.

My Dad is now there, training the new Cambodia team with the HeroRATs. I'm very proud because he is helping the people of Cambodia to find these weapons so they no longer put people into danger. Thanks to him and the HeroRATs, those children will be safe when they're out playing." ■



## ANIMAL WELFARE

### ENVIRONMENTAL ENRICHMENT

APOPO's scent detection rats are not only considered a highly valuable and effective asset, they are also our loveable little heroes. APOPO rats receive a healthy diet, regular exercise, personal attention and weekly care from a vet and animal behaviorist. In 2015 we carried out an Animal Welfare assessment that identified environmental enrichment as an area for improvement. A stimulating environment helps to prevent boredom, stress and aggression, improving HeroRATs' overall health and performance.





### RUNNING WHEEL

A locally made running wheel for motor and sensory stimulation.

APOPO OFFERS THE HERORATS SPACIOUS, REGULARLY CLEANED CAGES WITH EXTRAS SUCH AS:

### WOODEN TRIPOD

A 15 cm high structure made of unprocessed wood to support the rats' chewing habits.

### CLAY POT

A pot specifically designed to match the dimensions of the nesting chamber dug by this species in their natural habitat, providing a dark and cool environment.



### ENRICHMENT TOYS

Small balls made out of thin unprocessed cardboard and filled with peanuts to stimulate their foraging behavior and keep them busy.

### WOOD SHAVINGS

Bedding composed of a variety of dust-free and non-aromatic hardwoods to keep the cage clean (absorbing urine) and provide nest-building possibilities.

## 2015 IN NUMBERS MINE ACTION



**7,809,128**

TOTAL M<sup>2</sup> OF LAND  
RELEASED OR CANCELLED  
FOR LOCAL COMMUNITIES

**22,481**

TOTAL LANDMINES AND  
UXO DESTROYED

**6,731**

PEOPLE EDUCATED ABOUT  
LANDMINE RISKS



**APOPO HERORATS ARE AT LEAST AS ACCURATE AS ANY OTHER MINE DETECTION METHOD, AND MUCH FASTER**

7

# OUR GLOBAL IMPACT

# TUBERCULOSIS DETECTION



DUE TO THEIR UNIQUE SPEED AND SENSITIVITY, APOPO HERORATS HAVE SIGNIFICANTLY INCREASED TB DETECTION RATES OF PUBLIC CLINICS IN TANZANIA AND MOZAMBIQUE.

**61,598**

SAMPLES SCREENED BY RATS IN 2015

**10,510**

POTENTIAL INFECTIONS HALTED IN TANZANIA AND MOZAMBIQUE

**38**

RATS OPERATIONAL IN TB DETECTION IN 2015

**32,906**

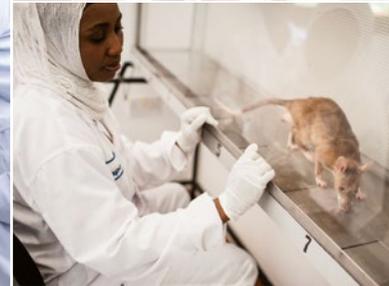
PRESUMPTIVE TB PATIENTS SCREENED BY RATS IN 2015

**1,864**

TB PATIENTS DETECTED BY RATS IN ADDITION TO 5041 TB PATIENTS DETECTED BY CLINICS

**37%**

INCREASE OF DETECTION RATES OVER CLINICS



## WORD OF THE FOUNDER

**BART WEETJENS**  
APOPO FOUNDER



**M**ore than 15 years ago we moved our detection rats technology research project, run by a small group of product designers and biologists, from Antwerp University, to Sokoine University of Agriculture (SUA) in Tanzania. We based our operational headquarters and training center in Morogoro in order to better understand the exact needs and challenges of communities in countries with a weak governance and especially those facing the threat of landmines and tuberculosis.

Together with our stakeholders we also aimed to help break the dependency on imported technology faced by vulnerable communities in evolving countries, by developing and deploying our technology at grassroots level. Looking back I believe this was a crucial decision that allowed APOPO to evolve from a small research project, to an organization with operations in 6 different countries. This has generated a positive impact on the lives of hundreds of thousands of people who, through our National Partners such as SUA, the Cambodian Mine Action Center, and the National Demining Authorities of Mozambique and Angola, can claim ownership of this innovative technology. Without the support of these authorities and institutions, APOPO would never have gotten off the ground. I believe that it is this collective approach that has resulted in positive social change and significant progress in the fight against landmines and tuberculosis. ■

# OUR TUBERCULOSIS

**HARUNI RAMADHANI**  
QUALITY CONTROL OFFICER TB



"I monitor the quality control for both the training of the HeroRATs and the TB detection operations. I follow-up on all the results and data that are collected and I make sure all procedures are followed; this allows APOPO to maintain high standards for its detection rats technology."

**ONESIA NHAMPARA**  
TB DETECTION RAT TRAINER



"Before APOPO I never imagined I would work with rats but they truly are an amazing technology. I'm proud to be able to train them to become efficient and accurate lifesavers."

**MARYGIVEN STEPHEN**  
TB LABORATORY ASSISTANT



"I prepare the sputum samples so they can be checked by microscopy. I have a well-equipped laboratory with a fully functional sputum sample processing facility, complete with autoclave, centrifuge, multiple LED microscopes and safety equipment to my disposal. It's a pleasure to work here."



**432**

PEOPLE EMPLOYED BY THE END OF 2015

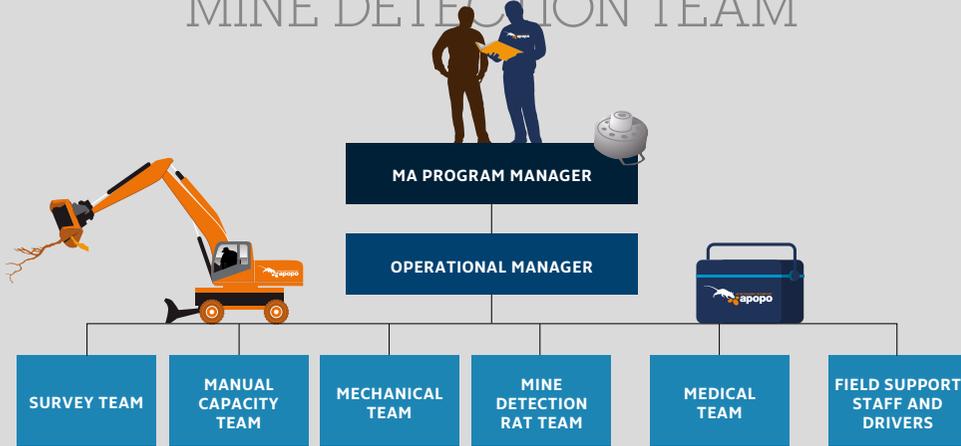
**10,311**

DAYS OF TRAINING AND CAPACITY BUILDING IN 2015



# AND MINE ACTION TEAMS

## MINE DETECTION TEAM



**CHHEUT MOY**  
MINE DETECTION RAT HANDLER



“The HeroRATs aren’t the only solution for mine-clearing but when they are deployed alongside machines and metal detectors, they make a massive difference.”

**CLEMENTINA REGINA**  
DEMINEUR NPA



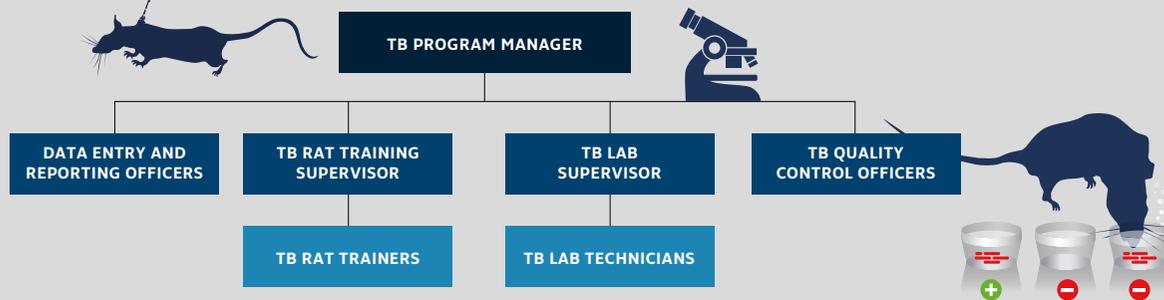
“The rats have really added to our work by speeding everything up. I would look out at the fields and my heart would sink when I thought about how much work there is to do. But the rats are very good at covering the large areas where we think there may not be many mines. Then if they find them, or other explosive material, we can then address them in a much more targeted way.”

**TARCISIO MUCHANGA**  
PARAMEDIC



“APOPO follows rigorous safety regulations and there are strict protocols in place in case of an emergency. I have received very thorough training and we carry out regular drills to make sure we are up to speed and our equipment is in order.”

## TB DETECTION TEAM



# MINE ACTION 2015

**TEKIMITI GILBERT**  
APOPO HEAD  
OF MINE ACTION



**ANGOLA**  
Malele task site cleared one year  
ahead of schedule



**MOZAMBIQUE**  
Free of all known landmines  
since September 2015



**CAMBODIA**  
HeroRATs out of Africa  
for the first time



# ASSETS 2015

## MINE ACTION STAFF

Mobile Teams.....	1
Non Technical Survey Teams.....	4
Technical Survey Teams.....	6
Manual Demining Teams.....	14
Battle Area Clearance (BAC) Teams.....	3
Explosive Ordnance Disposal (EOD) Teams.....	4
Mine Detection Rat (MDR) Teams.....	14
Mechanical Teams.....	7

## DEMINGING MACHINES

Caterpillar Brush Cutters.....	3
Hitachi Brush Cutters.....	3
Komatsu Front End Loader (heavy diggers).....	1
CASSPIR (Armored people carrier).....	1
Digger D3 (remote-controlled de-mining machine).....	1

## VEHICLES

Trucks.....	6
Ambulances.....	10
Support cars.....	30



**PEDRO XAVIER AND EDUARDO PONA**  
FARMERS MALELE, ZAIRE, ANGOLA



**MINE FREE. LIVE FREE.**



### PEDRO

“See the red sticks surrounding us? This means that until recently, we thought there were landmines on our farm. We have been too scared to use this land for over 20 years. But in the end APOPO and NPA found none at all. We don’t know whether to laugh or cry. This is the problem with landmines; no one knows where they are. They found 50 of them along the road a month before searching our farm. How could we know that our land was safe? Would you take the risk?”

### EDUARDO

“We have already started planting cassava, beans, groundnuts and maize for our family. We will sell surplus produce at the nearby village and then use the money to pay for extra labor. When the new market is developed, we will be ready. We are getting our lives back on track.” ■

# MA PROGRAM MOZAMBIQUE

**ASHLEY FITZPATRICK**  
PROJECT MANAGER  
MA MOZAMBIQUE



**T**asked in 2008 as the sole operator to clear Gaza Province, APOPO handed the mine-free province back to its communities in late 2012, more than one year ahead of schedule. As a result of this achievement, in 2013 Mozambique's National Demining Institute (IND) tasked APOPO with vast areas of mine contaminated land across four southern and central provinces, namely Maputo, Manica, Tete and Sofala provinces. APOPO completed all tasks by, or before, agreed deadlines, in the process destroying a total of 13,274 landmines and returning over 11 million square metres of land for safe and productive use.

The well-coordinated efforts of the National Demining Institute (IND) staff and the excellent leadership of Director Alberto Augusto were instrumental in coordination, and mobilisation of resources and funds to achieve a mine-free Mozambique. The support of APOPO's donors and partners enabled the impressive growth of APOPO's demining programme providing jobs for over 400 staff, who at the programme's height, com-

prised eight manual demining teams, six mechanical teams, and six mine detection rat teams. Effective deployment of APOPO's signature combination of machines, manual deminers and mine detection rats (MDR) enabled hundreds of thousands of people to get back on to their productive land as quickly as possible. The National Demining Institute named APOPO as its preferred mine detection operator in 2014. On September 17, 2015 The Government of Mozambique announced that the country was free of all known landmines. These accomplishments were possible thanks to the vigilant, tireless effort of APOPO's demining teams who committed themselves day in and day out to hazardous work under harsh conditions to ensure communities were made safe.

## MINE FREE MOZAMBIQUE

The September 17th declaration will forever celebrate the culmination of years of hard work, sacrifice and determination toward the singular goal of a Mine Free Mozambique. Now released from the burden of terror and the structural barrier to development, the future for Mozambique is bright. ■



**2007 TO  
MINE-FREE**  
**11,096,427**  
SQUARE METERS OF LAND  
FREED FROM LANDMINES



**13,294**  
LANDMINES FOUND AND  
NEUTRALIZED



**8,597**  
UXO DESTROYED



**29,029**  
SMALL ARMS AND  
AMMUNITIONS

**2003**

### FIRST TRIALS ON TRAINING MINEFIELD IN MOZAMBIQUE

A group of Mine Detection Rats indicates all landmines, verified by manual deminers with metal detectors.



**08.2004**

### MINE DETECTION RATS PASS IMAS ACCREDITATION

Eleven Mine Detection Rats pass official accreditation tests and receive an operational license from the National Institute for Demining in Mozambique (IND).



**10.2006**

### APOPO TAKES ON MINE CLEARANCE OPERATIONS IN MOZAMBIQUE

APOPO deploys an integrated mine clearance methodology and is tasked as sole operator to clear all known minefields in Gaza Province before the deadline of March 2014.

**07.2011**

### ROYAL SUPPORT

Her Royal Highness Princess Astrid of Belgium, APOPO's Honorary President of the Board, visits APOPO's Mine Action operations in Mozambique.



**12.2011**

### MOZAMBIQUE MINE ACTION RAISES THE BAR

APOPO returns over 2.5 million square meters of suspected minefields in Mozambique through an effective land release approach.

**12.2012**

### THE FINAL EXPLOSION IN GAZA

More than a year before the deadline, APOPO safely destroys the last landmines in the Gaza Province of Mozambique.



## RESIDUAL RISK

In mine action, 'residual risk' refers to suspected or confirmed landmine contamination that still exists in previously unknown and unreported areas after a country is declared Mine Free. Managing residual risk is an integral part of follow-on work for all landmine-affected countries after a mine-free declaration has been made. At the request of the government, APOPO will continue reacting on an 'on-call' basis to suspect items still being discovered in Mozambique.

## WEAPONS DUMP TO NATURE RESERVE

In addition to residual risk, in close coordination with the national authority IND, APOPO began clearing explosive items from a former ammunitions store that suffered a series of accidental explosions in 2007. Hundreds of people in nearby residential areas were killed and unexploded bombs, rockets and grenades contaminated the area. APOPO is conducting clearance and safe disposal of the ammunition within the site to safeguard public safety, and has so far excavated and destroyed nearly 20 tons of ammunitions. Once safe, Mozambique's Ministry of Environment will transform the area into nature reserve, educational and tourism centre, now named The Malhazine Ecological Park. ■

# NEW SKILLS FOR DEMINERS

As humanitarian demining in Mozambique draws to a close, APOPO in coordination with the National Institute of Demining (IND) is helping former staff make the transition to their next career. APOPO has partnered with Mozambique's provincial wide National Institute of Employment and Vocational Training (INEFP), to provide vocational training to its staff in plumbing, electrical maintenance, construction and other useful fields. 61 former operations staff have already successfully completed their respective training courses. APOPO intends to help 150 former staff members in total, teaching them new skills that will help them secure new employment.



## VALERIO DA GRACA LANGA FORMER APOPO DEMINER

"Even after the mine clearance was completed, APOPO has taken care of me. They trained me and I received new professional skills and knowledge. The transition from being a deminer to getting a new job will not be easy but I feel much more secure now."

## AUGUSTO FILIMONIANE FILIMONE FORMER APOPO DEMINER

"The vocational training focused on practical, easily applicable skills and proved very useful. I'm grateful for this opportunity to help prepare me for a new professional career so I can keep supporting my family". ■



10.2013

### MINE FREE MOATIZE

APOPO visits every village in Moatize District, Tete Province to confirm the land is safe for local communities to use.



03.2014

### MAPUTO PROVINCE IS DECLARED FREE OF ALL KNOWN LANDMINES

APOPO clears landmines adjacent to 42 pylon power line towers. During the conflict, the landmines protected the power supply from sabotage. Land is returned to around 40,000 households in the vicinity.

12.2014

### 10,134 LANDMINES ARE SAFELY DESTROYED IN TETE PROVINCE

APOPO helps clear Tete Province of all known landmines, including clearance along the heavily mined Kahira Border minefield, where 10,134 landmines were found.

04.2015

### MANICA PROVINCE IS DECLARED FREE OF ALL KNOWN LANDMINES

Beginning in 2013, APOPO clears 82 further pylons along the Beira 1 and Beira 2 power line.



07.2015

### SOFALA PROVINCE, THE LAST MINE-AFFECTED PROVINCE IN MOZAMBIQUE IS DECLARED FREE OF KNOWN LANDMINES

APOPO completes tasks in Sofala Province including 25 power line pylons some of which are located on an island accessible only by boat.

09.2015

### MOZAMBIQUE FREE OF ALL KNOWN LANDMINES



# MA PROGRAM CAMBODIA

**PAUL MCCARTHY**  
PROGRAM  
MANAGER  
MA CAMBODIA



In April 2015, sixteen fully trained and qualified HeroRATs arrived in one of the most mine-polluted countries in the world, complete with vaccinations and a clean bill of health. In partnership with the Cambodian Mine Action Center (CMAC) the rats underwent the rest of 2015 acclimatization and continuation training with their newly trained Cambodian handlers. Two Cambodian handlers had previously spent six months in APOPO's training center in Tanzania, learning the science and practical operation of rat detection technology. Then two Tanzanian trainers accompanied the rats to Cambodia, and will remain in the country as operational support for the joint APOPO/CMAC demining teams in the minefields.

The HeroRAT training continued until the teams were ready for the first stage of the accreditation process (Performance Test) in November 2015. This is a stringent test carried out in accordance with the International Mine Action Standards (IMAS), designed to ensure the CMAC evaluators that the HeroRATs and handlers (MDR teams) are capable of detecting all mines in a specific area. If even one mine is missed then the rat will fail the test. Fourteen HeroRATs were tested with a 100% pass rate and will now be deployed with CMAC demining teams on live operations in real minefields in early 2016.

Since early 2014, APOPO and CMAC have operated a humanitarian demining program without HeroRATs using conventional mine clearance methods. The program targets six

northwestern districts near the infamous 'K5 belt'. This is considered one of the densest concentrations of mines on the planet and causes a significant proportion of Cambodia's overall landmine casualties. The project aims to give back land to communities for agriculture and resettlement, helping to improve the livelihood opportunities of villages.

APOPO/CMAC teams also engaged with the surrounding communities to provide 6,731 people with Mine Risk Education (MRE). This is designed to educate and inform a community about the inherent dangers of mines and UXO and how to respond should they find such items. ■



EVERY 2,5 DAYS A MINE  
ACCIDENT OCCURS IN  
CAMBODIA

67,000 PEOPLE KILLED  
OR INJURED BY  
LANDMINES AND UXO  
SINCE 1979

AT LEAST 26 MILLION  
EXPLOSIVE SUB  
MUNITIONS WERE  
DROPPED OVER  
CAMBODIA DURING  
THE VIETNAM WAR

**7,302,972**  
SQUARE METERS OF LAND  
RELEASED IN 2015



**14,939**  
LANDMINES AND UXO  
DESTROYED



**6731**  
MEMBERS OF MINE  
AFFECTED COMMUNITIES  
EDUCATED ABOUT  
LANDMINE RISKS



**14**  
MDR TRAINED AND TESTED

**MIKAEL BOLD**

ADVISOR MECHANICAL AND ANIMAL  
DETECTION SYSTEMS, GENEVA INTERNATIONAL  
CENTRE FOR HUMANITARIAN DEMINING (GICHD)



## MDR TESTING

As the laboratory rat is one of the most widely studied animals, the abundance of research on its olfactory capabilities is not surprising. However, very little information can be found on their landmine detection abilities. Consequently, in late 2015, GICHD conducted a study of APOPO's Mine Detection Rat (MDR) programs in Angola, Mozambique and Cambodia. The aim of the study was to focus on the operational efficiency and effectiveness of the MDR, as well as to determine compliance with the International Mine Action Standards (IMAS). Within the sector, MDR suffer from a cynical perception of scent detection as a result of the inaccurately undervalued reputation of mine detection dogs (MDD) in the early days of mine action. General skepticism towards MDD was a result of programs that had failed in their use. However, the capability of the management to implement MDD operations within these programs was never questioned and consequently, the dogs were unfairly held responsible for the overall program failures.

APOPO have been using MDR since 2006, primarily in Technical Survey, where their role is to confirm the presence or absence of landmines and in doing so gather additional evidence as to the landmine threat level of specific areas within a minefield.

The results from the GICHD study indicate that the MDR are able to effectively locate landmines and other ERW. On average, one MDR is ten times more productive than a deminer and a MDR team is as productive as a MDD team, but with a potential for considerable cost savings. The success rate for MDR on formal testing and accreditation, as per IMAS, is the same as for MDD and more than 85% of MDR pass on the first test. An important advantage of the MDR is their independence from a personal trainer/handler. Generally,

GICHD | CIDHG



most MDR remain with the same trainer/handler, but show no difference in performance when taken over by other trained staff. One handler team, consisting of two people, could thus easily operate ten MDR consecutively. Hence, the MDR system can be a cost effective means to significantly increase productivity.

The study also highlighted that although the MDR are effective at detecting landmines and ERW, the amount of downtime, where the rats are waiting for ground preparation, could be improved with careful management. The MDR are most efficient when they are integrated with manual deminers and machines, whereby the collective strengths of each asset are utilized to maximize productivity. This then means that sufficient ground needs to be prepared prior to the deployment of the MDR, to ensure that they are able to work uninterrupted and to minimize the time that they are waiting for prepared ground to search. This requires constant coordination especially when working in partnership with other mine action organizations.

Temperature also has a major influence on the efficiency of the MDR as it does for MDD. However this can be mitigated by two handlers who can manage up to 10 MDR and interchange them from work to rest when the temperature affects the animal. As the maintenance and overheads of keeping rats are relatively low, a single program can include an abundance of rats at little extra cost.

Global data shows that excessive use of clearance assets is very common in areas that contain very few or no explosive hazards at all. This is a direct result of insufficient and inadequate information management, survey, planning and prioritization. Although the same problems apply for the use of MDR, when managed correctly their speed and accuracy in regards to conventional methods actually make them the most suitable technology for this exact setting, potentially making huge cost savings and getting people back on their land as quickly as possible.

Finally, I had the pleasure to witness four MDR in Cambodia that during half a day passed accreditation without any remarks. This was truly impressive. ■



**YUT YUTH**  
LANDMINE SURVIVOR,  
SIEM REAP CAMBODIA



“I was walking with my children through a field outside my home that we had crossed hundreds of times. I heard a loud crack and felt a spinning sensation before passing out. I woke in a local hospital where my brother had taken me, and I realized that my leg was missing. I spent the next four months in physical and psychological rehabilitation. I now help to support my family by selling fruit at a stall outside my shack. I have not worked in the fields since the accident. APOPO and partner CMAC have cleared the area of landmines so my family is finally safe while working in the fields.” ■

# MA PROGRAM ANGOLA

**FRANCISCO GREGORIO**

PROGRAM  
MANAGER  
MA ANGOLA



**W**orking in partnership with Norwegian People's Aid (NPA), APOPO's Mine Action program in Angola aims to develop an efficient and low-cost response to the country's grave landmine problem.

A fast completion of goals will help thousands of people to get back on their productive land and save many lives.

APOPO's HeroRATs have been instrumental in improving the operational output of the program. The mine-detecting rats can scan huge areas of suspect land in a short period of time. Many of these sites contain high levels of scrap metal, which significantly slow down metal detectors due to false alarms. HeroRATs, however, only detect the scent of explosive chemicals, ignoring the scrap metal and radically speeding up operations.

In 2015, APOPO/NPA focused on the Malele task site in Zaire province (NW Angola). The task site borders the Democratic Republic of Congo and consists of 1,329 small-holder farming families with an estimated population of 6,644 inhabitants. APOPO/NPA returned 520,000m<sup>2</sup> of safe land to local communities. The speed of the Mine Detection Rats was instrumental in the APOPO/NPA project being completed one year ahead of schedule. The area is now expected to develop into a vibrant cross-border market. ■

**249,071**  
SQUARE METERS OF  
LAND RELEASED

**33,109**  
SQUARE METERS OF LAND  
SEARCHED BY APOPO  
DEMINERS  
(FULL CLEARANCE)



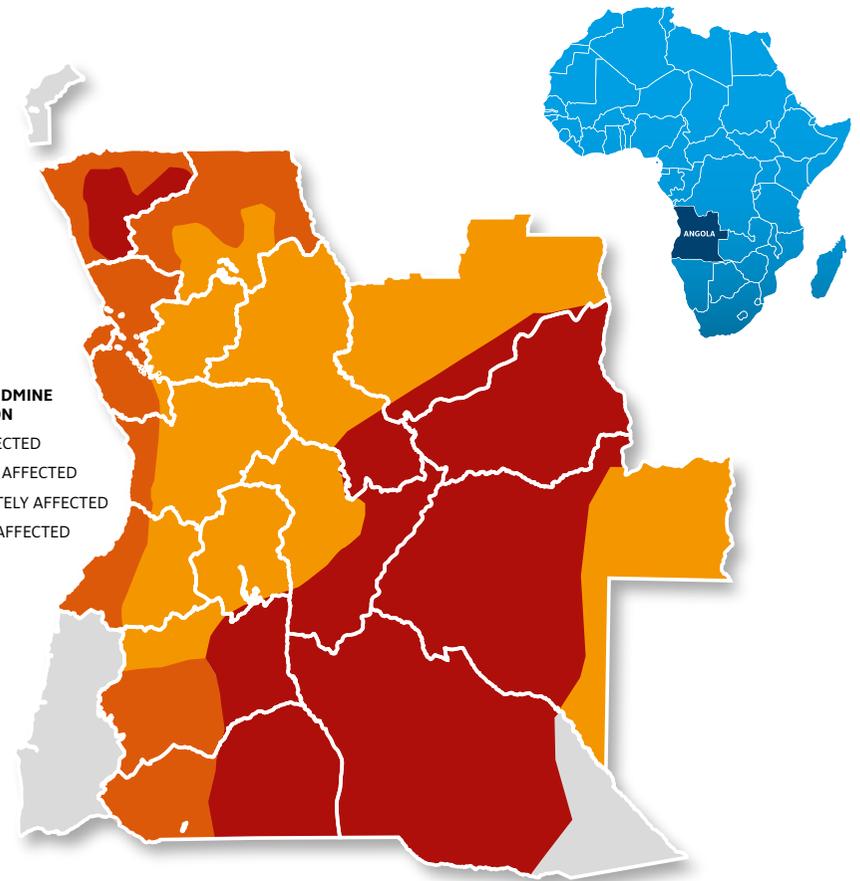
**215,962**  
SQUARE METERS OF LAND  
SEARCHED BY MDR (FULL  
CLEARANCE)



**7**  
LANDMINES AND UXO  
DESTROYED



**214**  
SMALL ARMS AND  
AMMUNITIONS FOUND



**RENZO ROSSO**  
FOUNDER AND CEO OF DIESEL JEANS  
AND HEAD OF THE OTB FOUNDATION



"Only the Brave Foundation has supported APOPO's mine detection and tuberculosis detection rats since 2007. We are proud to be involved in such an innovative, unique and sustainable project that is saving so many lives in Sub-Saharan Africa and all over the world." ■



**JOAO FRANCISCO MANUEL MAURICIO**  
DIRECTOR OF SCHOOL, NGOLA LUIGE

## PLAYING FOR KEEPS



“During the war, a military camp protected by landmines was set up very close to our school and after the conflict ended we had to be very careful with the children. The minefield was strictly off limits but when your back is turned children do silly things. Inevitably a football would get kicked into the minefield and if teachers weren't present, the children would draw straws to go and get it. For the last 15 years they have been doing this. When NPA and APOPO came to our town they began near the school to make sure the children are safe. They immediately found a landmine 20 meters away. ■



## THE ITEMS WE FIND

### TM-46 A/T MINE

LARGE, CIRCULAR, METAL-CASED ANTI-TANK MINE  
DIAMETER: 305 MM  
HEIGHT: 108 MM  
OPERATING PRESSURE: 120-400 KG (21 KG TILT PRESSURE)  
WEIGHT: 8.6 KG  
EXPLOSIVE CONTENT: 5.7 KG OF TNT

### PPM-2 ANTI PERSONNEL LANDMINE

PLASTIC BODIED ANTI-PERSONNEL (AP) BLAST MINE  
DIAMETER: 125 MM  
HEIGHT: 65 MM  
OPERATING PRESSURE: 5-30 KG  
WEIGHT: 110G  
EXPLOSIVE CONTENT: 110G OF TNT

### THE RPG-7 ANTI-TANK GRENADE

USED WITH GRENADE LAUNCHER  
BOOSTER IGNITES AND LAUNCHES GRENADE AT 117 METERS PER SECOND  
ROCKET FIRES AND BOOST SPEED TO 294 METERS PER SECOND  
GRENADE SELF DESTRUCTS AT 900 METERS

# MARKETING & COMMUNICATIONS

**ROBIN TOAL**  
APOPO ONLINE  
DEVELOPMENT  
MANAGER



## ONLINE COMMUNITY DEVELOPMENT

2015 was a record-breaking year for APOPO's Marketing team with public fundraising revenue doubling compared to 2014. Our work would be impossible without the generous support of thousands of APOPO donors from all around the world. Thank you!

APOPO's media presence was greater than in any previous year. In 2015 the organization appeared over 380 times in online and traditional media channels (up from 121 in 2014). Many of the world's leading publications featured APOPO's life saving work including the New York Times, CNN, The Guardian, and National Geographic.

While the HeroRATs made headlines around the globe, the Marketing Team also focused on grassroots campaigns. APOPO now has a rapidly growing and sustainable online community of more than 55,000 engaged and active social media supporters.

Through investing in a strong volunteer outreach program APOPO has built capacity and added new skills. From a scattering of volunteers in 2015, the marketing department now regularly receives the support of 25 committed volunteers across a range of projects. This talented pool of individuals fill

gaps in our capacity and bring freshness and innovation to our profile.

2016 promises to be another exciting year for APOPO's marketing team. A new website, animated videos, an exciting new approach to HeroRAT adoptions, and initiatives to improve donor care and content from the field are just the tip of the iceberg.



### STATISTICS 2015

(COMPARED TO 2014)

<b>Media appearances</b>	388	(+220%)
<b>HeroRAT adoptions</b>	5,550	(+118%)
<b>Unique website visitors</b>	192,242	(+122%)
<b>Pageviews</b>	1,241,836	(+185%)
<b>Facebook Fans</b>	30,671	(+63%)
<b>Twitter followers</b>	4,728	(+38%)
<b>Requests to herorat@apopo.org</b>	2,636	(+ 85%)

**CHARLIE RICHTER**  
APOPO US  
DIRECTOR



[usfoundation@apopo.org](mailto:usfoundation@apopo.org)

## APOPO US WASHINGTON

APOPO US was established in Washington DC in 2015 as a 501c3 tax exempt non profit organization. US public and institutional donors have been instrumental in supporting APOPO. Many of APOPO's most important institutional donors are based in the US and over 60% of its public fundraising comes from the US public. The US office facilitates closer relationships with US institutional donors, provides project management services for projects funded by US donors, and enables direct tax effective giving for the US public and corporations. ■

**BEVERLY SCHWARTZ** VICE PRESIDENT ASHOKA  
AND SECRETARY OF THE APOPO US BOARD

"The world frequently thinks in high tech, high maintenance and high cost imported responses to solve world challenges. APOPO deploys innovative and locally owned solutions to effect social change and saves lives. I'm thrilled to be a US Board Member of an organization that gets it right!"

### BOARD MEMBERS

**Mari Kuraishi**, Chairwoman  
**Beverly Schwartz**, Secretary  
**Piet Vanhove**, Member

### EXECUTIVE TEAM

**Charlie Richter**,  
APOPO US Director

**KJERSTI TOKLE FJELLHAUG**  
APOPO FOUNDATION  
DIRECTOR



[swissfoundation@apopo.org](mailto:swissfoundation@apopo.org)

## APOPO FOUNDATION GENEVA

The APOPO Foundation was established in Geneva in 2015 as a foundation under article 60 of the Swiss Civil Code. It is a tax exempt non-for profit organization supervised by the Federal supervisory board for foundations (EDI).

The purpose of the APOPO Foundation is to support the organization's overall global activities by strengthening its network and financial resources whilst making sure it is placed at the forefront of international mine action efforts and international health in Geneva. This city hosts some of the major actors in the field of Humanitarian Mine Action (notably the Geneva International Centre for Humanitarian Demining - GICHD), as well as renowned Tuberculosis research institutes (e.g. the World Health Organization and the Foundation for Innovative New Diagnostics). The Foundation also aims at creating scientific and technical partnerships and at increasing APOPO's visibility worldwide. ■

### BOARD MEMBERS

**Yves Hervieu-Causse**, Chairman  
**Thierry de Meulder**, Vice-chairman  
**Timothy Clarke**, Member  
**Mirjam Schoening**, Member

### EXECUTIVE TEAM

**Kjersti Tokle Fjellhaug**  
**Anna Bouchier**



ARTISTS FOR APOPO



POPPIES FOR PEACE



NICHOLAS KRISTOF

# OUR SUPPORTERS

## RATATART AUCTION

### ARTISTS FOR APOPO

Belgian artist **Frederick Michielsen** collected art works made by artists from all over the world, including some of his own, and organized an auction in support of our work. Frederick contracted tuberculosis when he was younger and understands how devastating the disease can be. Knowing our HeroRATs save thousands of lives every year, he became a passionate supporter of APOPO. ■

## KLAPROZEN VOOR VREDE

### POPPIES FOR PEACE

For over ten years 'Poppies for Peace' have been supporting our work by creating and selling ceramic poppies as a fundraiser for APOPO. The project was started by ceramic artist, **Anita Huybens** (1949-2008), and is now continued by a team of volunteers dedicated to supporting the APOPO cause and helping to raise awareness of the landmine issue. ■

## NICHOLAS KRISTOF

NEW YORK TIMES, 18TH APRIL 2015

### AN EXPLOSION OF INNOVATION



For me, HeroRats are an explosion of innovation taking place in the philanthropic world – and seeing large gains in productivity as a result. ■

## MINAE NOJI

APOPO AMBASSADOR

### TIRELESS ADVOCATE

I am honored to be APOPO's first Ambassador and I will be a tireless advocate on their behalf. It's wonderful to see humans and rats work together to help solve significant global problems in this world". ■



# PAST & FUTURE

**CHRISTOPHE COX**  
CEO APOPO



**T**he historic Mine-Free announcement by the Mozambican Government in September 2015 is a sure sign that global mine action is working. The country can look to a bright future of economic development and an absence of tragic landmine accidents. APOPO is extremely proud to have contributed to this achievement and I congratulate our teams on the ground for their enduring work and hardship. We hope to have a similar impact in other countries where we are operating such as Angola and in Cambodia where the HeroRATs took on their first venture outside of Africa. However, while many countries work towards deadlines to end their landmine problem, the international support for mine clearance is rapidly declining due to global austerity measures and other humanitarian priorities. Nevertheless, we appeal to the international donor community to sustain the support needed to free the world of these indiscriminate killers in the next decennium.

APOPO is also stepping up its efforts to help find the three million TB positive people across the world that every year are not being correctly diagnosed. In 2015 APOPO made the strategic decision to start running its laboratories overnight to ensure patients get their results on time and get on treatment immediately. So far this strategy has delivered promising results in our program in Mozambique and prompted us to set up a laboratory in the heart of Dar es Salaam, Tanzania, where we can better address the vicious TB cycle. Similarly, preparations to implement our technology in other high burden countries have begun.

I believe that the fight against landmines and tuberculosis can be won and APOPO will continue to find innovative and effective solutions to make sure this happens. My gratitude goes out to all our staff, our main donors and partners and the tens of thousands of individuals who are supporting APOPO every year. ■

**PROF. APIA MASSAWE**  
DIRECTOR, PEST MANAGEMENT CENTRE  
SOKOINE UNIVERSITY OF AGRICULTURE



## ESTABLISHING AN AFRICAN CENTRE OF EXCELLENCE



APOPO's innovation in landmine and tuberculosis detection is recognized worldwide as a successful and ground-breaking collaboration with an African academic institution – The Sokoine University of Agriculture (SUA) in Morogoro, Tanzania. Since the project's establishment, one of its chief aims has been to build local capacity through employment, training and research, thereby encouraging local communities to take ownership.

The long lasting research collaboration between APOPO and SUA's Pest Management Centre 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. This collaboration is now moving towards establishing an African Centre of Excellence in Innovative Rodent Pest Management and Biosensor Technology Development.

The deployment of rodents as a biosensor tool is a scientific innovation that has potential application outside of landmine and tuberculosis detection, such as in forensics, border security and other disease control. The Centre of Excellence will support APOPO in refining this technology and it will promote its application to prominent levels and new areas. The future for APOPO and Sokoine University Pest Management Centre's collaboration is looking bright for an exciting scientific synergy. ■

# OUR PARTNERS AND DONORS



**PROF. ANDREW KITUA**  
FORMER DIRECTOR,  
NATIONAL INSTITUTE OF MEDICAL  
RESEARCH, TANZANIA

“THE HERORATS ARE A LOCALLY ADOPTABLE, PRACTICAL AND ENVIRONMENTAL FRIENDLY TECHNOLOGY TO ADDRESS A COMPLEX PROBLEM.”

# FINANCIAL UPDATE

## BALANCE SHEET (EURO)

# PROFIT&LOSS

## STATEMENT (EURO)

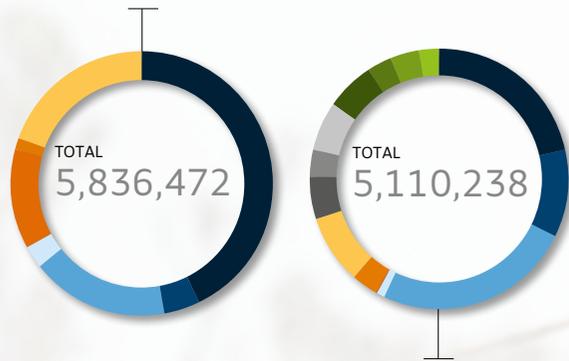
ASSETS	2015	2014
<b>Fixed Assets</b>	<b>474,794</b>	<b>1,114,223</b>
Furniture, vehicles and equipment APOPO	361,431	911,821
Furniture, vehicles and equipment under partnerships	113,363	202,402
<b>Current assets</b>	<b>2,866,020</b>	<b>1,795,479</b>
Current receivables	481,445	234,185
Cash and equivalents	2,384,575	1,561,294
<b>TOTAL ASSETS</b>	<b>3,340,814</b>	<b>2,909,703</b>
LIABILITIES		
<b>Net capital</b>	<b>1,897,264</b>	<b>1,187,589</b>
Funds of the organization	328,046	328,046
Retained Earnings	1,569,217	859,542
<b>Long term liabilities</b>	<b>1,457,233</b>	<b>1,645,658</b>
Deferred Income (Grants)	1,457,233	1,645,658
<b>Current liabilities</b>	<b>(13,683)</b>	<b>76,456</b>
Current payables	(13,683)	76,456
<b>TOTAL LIABILITIES</b>	<b>3,340,814</b>	<b>2,909,703</b>

	2015	2014
Total Income	6,422,413	9,259,264
Total Operational Expenses	1,945,875	3,244,759
Total Personnel Expenses	2,729,815	4,278,138
Depreciation	675,729	1,649,480
Other costs	289,058	3,670
<b>Operating Result</b>	<b>781,936</b>	<b>83,217</b>
Financial Result	(77,383)	171,011
Extraordinary Result	5,123	142,096
<b>Net Income</b>	<b>709,675</b>	<b>396,324</b>



## DONATIONS & SUBSIDIES 2015 IN EURO\*

● Government grants .....	2,484,828
● UNDP .....	264,124
● Foundations .....	987,996
● Research grants .....	179,595
● HeroRAT public campaign .....	707,829
● Other unrestricted income .....	97,359
● Corporate support .....	1,114,741



## EXPENSES AND INVESTMENTS 2015 PER ACTIVITY IN EURO\*

● Mine Action Mozambique .....	1,094,388
● Mine Action Angola .....	559,283
● Mine Action Cambodia .....	1,251,710
● Mine Action Vietnam .....	54,361
● Mine Action Laos .....	4,599
● Training Mine Detection Rats .....	171,015
● TB program Tanzania .....	439,358
● TB program Mozambique .....	271,945
● Research and Development .....	173,357
● Management costs Tanzanian office .....	313,348
● Management costs Belgian office .....	302,009
● Provision APOPO US Foundation .....	164,771
● Provision APOPO Swiss Foundation .....	188,392
● Financial costs .....	121,702

\* Cash based



## APOPO VZW

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Photos APOPO except for:  
Briana Marie (2,9,12,14,15,16,17,22)  
Eric Soboleski (27)  
James Oatway (5)  
Jeroen Van Loon (6,12,15)  
Lieve Blancquaert (8,16)  
Maarten Boersema (cover,15,16)  
Martin Schoeller (24)  
Matthias Canapini (23)  
Miriam Deprez (14)

## SUPPORT OUR WORK

### HeroRAT Adoption Program

For 5€ per month or more you can contribute to APOPO's life saving mission and receive updates of your own HeroRAT

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