

Annual Report 2008

apopo





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Mic Billet

1. Message of the President

2008 was a year of transformation and consolidation for APOPO.

Besides the technical achievements in the training and research programmes, APOPO went through a phase of restructuring and strategic revision of future plans. I firmly believe that this collective effort will result in a more sustainable social enterprise with a higher social impact in the future.

I am also proud to say that the long anticipated output of the Mine Detection Rats finally materialized in Mozambique, and we are confident this will trigger more operational deployment of the Mine Detection Rats in the region soon.

The research carried out with the TB detection rats not only resulted in a major scientific publication, but also brought many patients into treatment and prevented further spread to many more.

The Skoll Award given to APOPO by the Skoll Foundation was a major recognition for our work this year.

I would like to welcome our new members to the board, general assembly and staff, and would like to thank all my employees, colleagues, volunteers, partners and supporters for contributing to the success of our remarkable HeroRats.

A handwritten signature in black ink, appearing to be 'Mic Billet'.

Professor Mic Billet
President APOPO



With all handlers employed during the last quarter of 2008, the MDRs cleared 2000sqm per day.

2. Activities

2.1. Demining operations in Mozambique

During the first half of the year, APOPO was tasked by the National Institute of Demining (IND) on the clearance of minefields in the Macia District. These fields were suitable for the deployment of manual deminers rather than the Mine Detection Rats (MDRs) or the Komatsu Bush Cutter.

After discussion with the IND, a 2nd task was allocated to APOPO, and this was the clearance of the Pumbe Minefield in the Guija District of the Gaza Province. In this large area of 500,000 square metres (sqm), the APOPO tri-part system, comprising of MDRs, manual deminers and a mechanical capacity, could be fully deployed, and therefore a 2nd operational camp was set up.

It was during this period that the Programme Manager, Sam Mcleod, ended his contract with APOPO, leaving the staff to commence operations without managerial supervision; they performed this admirably, much to the credit of the 3 Tanzanian members of staff (Mkumbo, Kombani and Shirima), and the line managers within the Mozambican staff.

The new Programme Manager, Andrew Sully, arrived at the beginning of August, just when the IND were formalising a new work plan for the remaining Humanitarian Demining organisations in Mozambique. In this work plan, APOPO was tasked as the sole operator for clearance of the Gaza Province.

Whilst formulating the clearance plan for Gaza province, it quickly became visible that running two camps simultaneously was not an optimal deployment option, so efforts were focused on finishing the Macia manual de-



mining tasks with all possible haste. Challenges at the Pumbe site also included mechanical difficulties with the Komatsu, purely due to this being the sole method of ground preparation, and under constant heavy use. This highlighted the need for a 2nd machine, especially if completion of the Gaza province is to be obtained by 2014.

During the set up of the 2nd operational camp, a new MDR training area was established. Once this was completed, a complement of accredited MDRs was moved up to the Pumbe site, for acclimatisation and training in the new environment.

MDR deployment on the Pumbe minefield began in October, after the manual deminers had prepared safe lanes and search boxes. After a short period, it was found that productivity increased dramatically by doubling the size of the boxes; hence all new boxes created were 20m x 10m (rather than the original 10m x 10m). With all handlers deployed, the MDRs could clear 2000 sqm per day. However, in order to maintain this clearance rate in the long term, additional training time would have to be made available for the non-operational rats. Three new handlers were brought in for training and the programme is still looking to employ two additional handlers in 2009. The Manual Demining tasks in Macia were completed in November, and the handing-over ceremony was honoured with the presence of the Belgian Ambassador to Mozambique in December.

The Mozambique mine clearance activities by APOPO were made possible through the kind support of the Flemish and Belgian Governments.

In total, 130,272 sqm were cleared by APOPO in 2008:

Months	Sqm	Metals	Mines	UXO	SAA	Minefield
JAN	1554	310	0	0	4	Tuane
FEB	9887	491	0	0	0	Tuane
MAR	4845	3013	0	2	32	Tuane
APR	14646	1948	0	0	1	Tuane
MAY	0	0	0	0	0	
JUN	0	0	0	0	0	
JUL	1108	165	1	0	10	Maguaza/Pumbe
AUG	6965	263	2	0	0	Maguaza/Pumbe
SEPT	11634	1624	2	0	0	Chiossane-1/Pum
OCT	24066	602	16	0	0	Chiossane-2/Pum
NOV	38381	1021	22	0	0	Gangane/Pumbe
DEC	17186	303	0	0	0	Ngondza/Pumbe
Total	130272	9740	43	2	47	

Task	Start	Finish	Area	Mines	UXO
Tuane	01-Jan-08	30-Apr-08	30932	0	2
Maguaza	21-Jul-08	19-Aug-08	3960	1pmn	0
Pumbe	06-Aug-08	08-Dec-08	90174	39pmd-6	0
Chiossane-2	19-Set-08	22-Oct-08	2820	2pmn	0
Chiossane-2	24-Out-08	03-Nov-08	331	0	0
Gangane	07-Nov-08	21-Nov-08	979	1pmn	0
Ngondza	22-Nov-08	28-Nov-08	1076	0	0
Total of Area			130272		
Total of mines				43	
Total of uxos					2



2.2. Tuberculosis detection

None of the current techniques in practice used for the detection of pulmonary tuberculosis are suitable to curb this fast spreading disease in the developing world. At present, a lab technician using ZN microscopy can screen a maximum of 40 samples per day if performing the task according to today's World Health Organization (WHO) standards. For example, a recent study found that hospitals in Tanzania operate at an average of 37% accuracy in Tuberculosis (TB) screening. The burden on potential TB positive patients to reach the hospital, produce the samples, and return for results is significant, such that 48% of those who die from Tuberculosis have never been diagnosed.

The novel screening method developed by APOPO aims to match all requirements set by the WHO-TB diagnostic working group. They want to replace the existing test with one that:

1. Can handle big volumes of samples;
2. reduces results within minutes;
3. Has a high detection rate;
4. Can be performed with minimal skills;
5. Has a long shelf life without refrigeration;
6. Is suitable for use in an active case finding strategy;
7. Utilizes a non-invasive sampling technique.

The results of the TB detection rats demonstrate the strong potential for our screening methods to meet these demands. In 2008, the rats screened a total of 22,281 samples from the four best TB clinics (each a WHO supported DOTS (Direct Observation and Treatment Strategy) Center, from the Tanzanian capital Dar Es Salaam. These samples were first evaluated by smear microscopy in the clinics, which resulted in 18,849 negative and 3,432 positive samples.

Most patients produce three samples, and some only two, so the total number of patients involved in these tests was close to 8,000, of which some 15%, or about 1,200 patients were found infected with TB.

On top of these 1,200 patients, the TB detection rats detected an additional 344 patients that were missed

by microscope in the TB clinics, but confirmed positive by APOPO. The work of the rats increased the overall detection rate of TB positive patients by almost 30%. Due to APOPO's relationship with these hospitals and the procedure to collect the cell phone numbers of each patient found without TB in the hospitals, these 344 patients were recalled by the DOTS centers and are now receiving treatment. Considering that every non-treated TB patients in average infects another 15 people per year, the work of the rats directly prevented a potential infection of more than 5,000 people in 2009 alone.

In collaboration with the Max Planck institute in Berlin, APOPO is continuing to investigate which volatile organic compounds the rats in the TB positive sputum samples detect. The same study is also comparing the detection rates on a series of pathogenic and non-pathogenic Mycobacteria, as well as other bacteria.

Further validation tests of the technology, which compares the results from the rats against the results from cultures, ZN microscopy and florescent microscopy, are ongoing in collaboration with the National Institute for Medical Research and the National Tuberculosis and Leprosy program.

Meanwhile, there is a strong interest from an incentives based initiative HIV prevention in South Africa, managed by Men on the Side of the Road to use the TB rats to screen a population of 300,000 people, with the goal to begin work in 2010.

The peer reviewed 'International Journal for Tuberculosis and Lung disease' accepted the scientific work of APOPO for publication, which is expected early 2009.





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2.3. New Developments

By introducing automation in the evaluation cages used for sample screening, APOPO hopes to further improve and standardize the detection technology. The process for evaluation used for screening of Tuberculosis samples and REST (Remote Explosive Scent Tracing), can equally be used for detecting any other substance of interest. Similar applications are used in aviation and transport security and could be used by customs.

In 2007, the semi-automatic circular cage was developed. The rats indication is registered via an optical sensor above the sample in the sniffer hole and automatically reinforces the behavior with a food reward. Additionally, in 2008, APOPO began transitioning the Line Cage to become fully automated and aims to have this system operational within the second quarter of 2009.

2.4. Rat training and breeding

2.4.1. Field training

The training program of Mine Detection Rats in Morogoro was significantly improved throughout 2008. With a beginning goal of accrediting 50 rats, APOPO surpassed this goal with a total of 53 rats internally accredited by APOPO in Morogoro.

Apart from increasing the total output of the number of trained rats, there was also a significant improvement in the training efficiency. The total average training time per rat was reduced from 318 days in 2007 to 264 days in 2008. This includes all training stages starting from nursing when the rats are 4 weeks old until the final accreditation on the test field. There is a general shift toward training rats on the "stick" system, whereby the rat is tethered to a short leash at the end of a fishing rod, rather than training with the "rope" method, whereby the rat runs freely on a rope connected between the two trainers.

APOPO currently has a stock of 57 internally accredited Mine Detection Rats ready for deployment in 2009.

44 rats are in pre-training stages.

2.4.2. REST training

APOPO has currently a total of 19 rats in training for REST. These are working in 4 different detection experiment configurations (rectangular, square, line, and circular) The rats have been tested on several soil types spiked with varying concentrations of explosives and mine extracts.

2.4.3. TB training

24 rats are fully trained on the detection of TB Mycobacteria in human sputum samples and continue maintenance training on a daily basis. Some of these rats are undergoing validation tests, others are evaluating different types on Mycobacteria from the Max Planck institute, and another group is involved in the ongoing second screening of samples received from DOTS Centers in Dar es Salaam.

2.4.4. Breeding

APOPO faced a slowdown of the breeding output during the first half of the year, after which a new breeding stock was introduced and handling procedures were modified. This resulted in a surge of the breeding output during the last quarter of the year. A total of 92 rats were born in 2008, 12 of which died in the first few weeks, and the remaining 80 began training.

There are many complex components to breeding effectiveness, some of which we have studied and many that need to be investigated. These issues are being put on the general research agenda and will be addressed in the form of PhD or Msc study subjects.



The 6 key strategic goals



3. Management

3.1. Strategic plan

During 2008, the APOPO board and management team have been strongly focused on outlining a very clear strategic path for the coming years. This work was facilitated by the Philippson Foundation, under the professional guidance of US based Virtue Ventures.

APOPO defined its mission statement: 'To become the centre of excellence in detection rat technology to enhance the impact of life saving actions.'

An in depth analysis was made of APOPO's strengths and weaknesses, opportunities and threats, and the key strategic goals articulate the direction of APOPO's efforts and achievable aims over the next three years.

The model on the opposite page pictures the 6 key strategic goals, with the mission statement at its core.

3.1.1. Centre of excellence strategy

Transitioning from a time bound project orientated organization to a centre of excellence directly relates to all other strategic issues. As a centre of excellence, APOPO will build expertise in the local scientific and academic community, establish quality standards for detection rat technology, and increase publication of its research material.

3.1.2. R&D/ Training strategy

APOPO will be carrying out more research in order to answer the many unknowns in animal training and olfaction, which will then in turn result in the optimization of its current technology and the development of new applications.

APOPO is, in collaboration with Dr. Roger Abrantes working on a training curriculum for its trainers, supervisors and instructors, which have to train and operate the required capacity of detection animals. The training package is being finalized during the first quarter of 2009.

3.1.3. Implementation strategy

In order to maximize its social impact, APOPO is considering different implementation models for its technology. Full implementation, as currently the case in the Mozambique Mine Action program, is not a recommendable long-term strategy, but rather an intermediate phase to 'showcase' the technology. APOPO aims in the near future to work through partnerships with existing Mine Action operators or Health initiatives, in order to evolve to a real customer/service provider model. Our goal is to offer our core competency of rat detection technology and effective training- thus providing the technology and the resources necessary for its implementation.

3.1.4. Funding strategy

While APOPO is currently operating mainly under public grant funding model, it aims to attract more funding available for social enterprises while transitioning to an earned income model.

Parallel to this APOPO plans to expand the income from citizen based public campaigns, such as the current HeroRat adoption program and the Poppy campaign.

3.1.5. Branding strategy

Based on an audience analysis, APOPO will create a clear distinction between the APOPO and HeroRAT brands and determine the appropriate brand for specific audiences.

3.1.5. Capacity building strategy

APOPO will strengthen its capacity to transition. Capacity requirements include increasing board capacity and making a governance plan, restructuring of roles and responsibilities, formalizing communications, developing business plans, improving management information systems, strengthening financial management systems, establishing social impact measurement framework and setting up appropriate legal structures.

3.2. Human resources

3.2.1. Governance

APOPO increased its board capacity in 2008, with the addition of 3 new board members:

- Piet van Hove, Head of International Relations, University of Antwerp;
- Rudy van Eysendeyk, President of the Royal Zoological Society of Antwerp;
- Inge Weber, CEO of Levanto, Antwerp

Dr. Adeë Schoon, from the University of Leiden and Netherlands National Police, joined in the general assembly as a scientific adviser.

An analysis was made of the lacking capacities, which will demand for further board expansion in 2009.

3.2.2. Management team

APOPOs' management team is still under the required capacity, but will be expanded with a new Finance and Administration Officer in early 2009. A new Program Manager boosted the output of the Mine Action Program in Mozambique, and a new Communication Manager successfully reactivated the HeroRAT adoption program.

3.2.3. Staff

APOPO currently employs 51 Tanzanian staff, 52 Mozambican staff and 6 international staff on contractual basis. APOPO is further supported by 3 Tanzanian Co-coordinators, 2 International volunteers and 1 International researcher, seconded financed by the Geneva International Centre for Humanitarian Demining (GICHD).

3.3. Public Relations

APOPO was awarded the prestigious Skoll Award by the Skoll foundation in 2008, which triggered a lot of visibility for the project, especially in the US.

Bart Weetjens was invited the Global Agenda Council on Humanitarian Assistance in Dubai, through the global economic forum Network. He also delivered the keynote speech for an audience of over 2000 people

for the European Association for International Education in Antwerp, Belgium.

APOPO gave 3 presentations during the workshop 'Odour Detection By Animals, research and practice', organized by GICHD in Oslo, Norway.

'Detecting Danger - African Giant Rats', a documentary about APOPO was produced by Herbert Ostwald for ZDF/Arte, and won a number of awards including, "Best Storytelling" award in Guangzhou International Film Festival in China, "Best Screenplay" at the Ekotop Film festival in Czech Republic, "Audience Award" and "Science Award" at Naturvision in Bavaria, Germany, "Award of the Slovakian Ministry of Defense" in Bratislava and "Best documentary" award at Atlantis film fest in Wiesbaden, Germany. It is also nominated at Oekofilm tour in Brandenburg, Germany.

In the US, APOPO rats appeared on the front page of the Boston Globe newspaper, were featured in the October issue of National Geographic, and highlighted in the Washington Post Magazine in November.

3.4. Finances

3.4.1. Introduction

APOPO is very grateful to all governments, foundations, institutions and individuals who have contributed to the progress and implementation of the project.

Special thanks goes to the Flemish Government and the Belgian Ministry of Foreign Affairs for their continued commitment in supporting the APOPO mine clearance activities in Mozambique; to the GICHD for their continued support of the REST program, as well as their operational support for the Mine Clearance operations; to the National Demining Institute of Mozambique for entrusting APOPO with the clearance of the Gaza province; to the Province of Antwerp for their recurring yearly support to APOPO; to the UBS Optimus foundation and the National Institute of Health for their key support for the TB detection work; to the Skoll foundation for honoring APOPO with their prestigious award and grant; to the Philipsson foun-

dation for their financial support and coaching toward strategic planning; to Imperial for their support of our training program for Mine Detection Rats; to the King Boudouin Foundation and Global Giving for providing APOPO which channels of support in the US and Belgium; to the Lara Lee and George Gund fund for their operational support; to the LGT Venture Philanthropy for assisting APOPO with an LGT fellowship; to the International Conference of the Great Lakes for mandating APOPO as the lead demining agency in the GLR region; to Sokoine University of Agriculture, the University of Antwerp, Tanzanian Peoples Defense Force, the National Institute for Medical Research of Tanzania and the National Tuberculosis and Leprosy Program for their ever kind collaboration; to all individuals for their generous support for the HeroRat program, and to all volunteers who have been working so hard to make the APOPO public campaign and poppy project a success.

**Special thanks
in memoriam - Anita Huybens**



We are very sad to have lost one of the greatest supporters of APOPO, Anita Huybens, who left us in September 2008.

Anita started with the idea of making ceramic poppies, with reference to the minefields of Flanders, which were exhibited and sold for the benefit of APOPO. The funds raised enabled the purchase of an armored bush cutter to make the detection work of the rats possible.

Through her tremendous efforts, and assisted by a group of devoted volunteers for making the poppies and organizing the exhibitions, the poppy campaign raised a total support of 269,000 € since 2004. APOPO will, in February 2009 purchase additional ground preparation machines from the raised funds to complement its operations in Mozambique. Above all of her financial and tangible contributions to APOPO, Anita acted as a tremendous source of inspi-

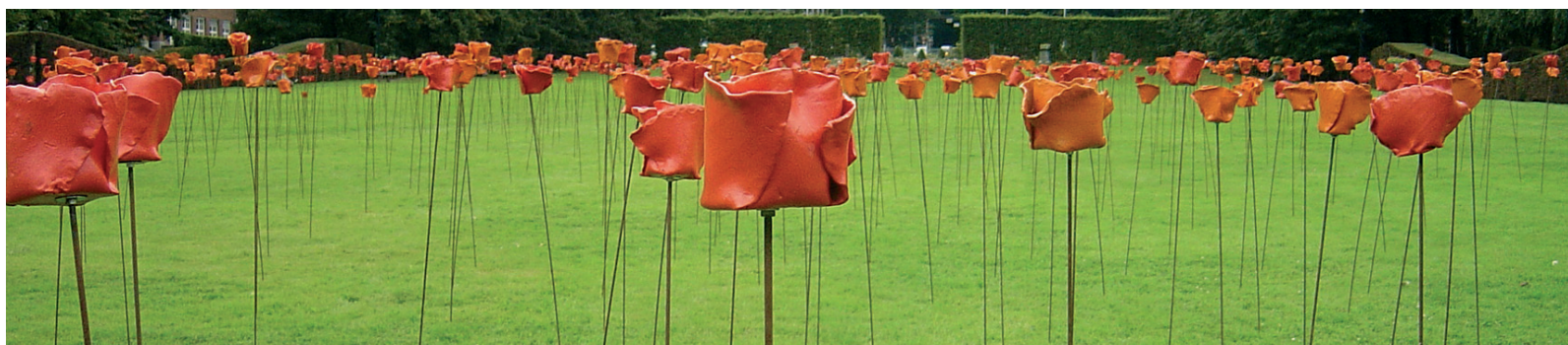


ration to everyone who knew her. Her strength and dedication was infectious and she will be deeply missed.

APOPO would like to thank her husband Laurent and the entire group of volunteers, for furthering Anita's efforts in the same extraordinary spirit.

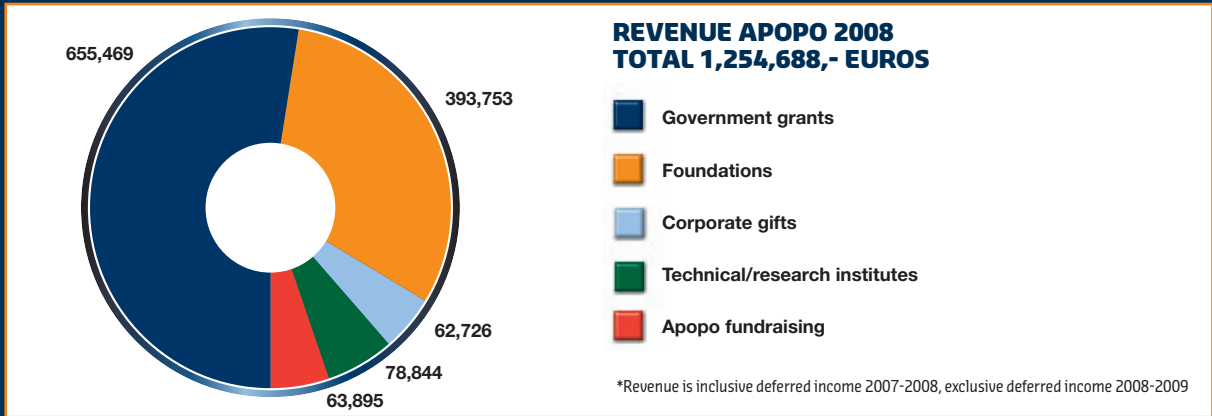
**'HeroRAT' Adoption
program**

The 'HeroRAT' adoption program, which was started some years ago, was given a new life through the devotion of Courtney Baggett and Greg Schnippel. Greg volunteered to redo the entire HeroRAT website, which resulted in 25.000 visitors in the last 7 months of 2008. Courtney volunteered for half a year in Morogoro to create blogs and inform the adopters on what's happening with their rats, resulting in 470 new adopters during the same period.



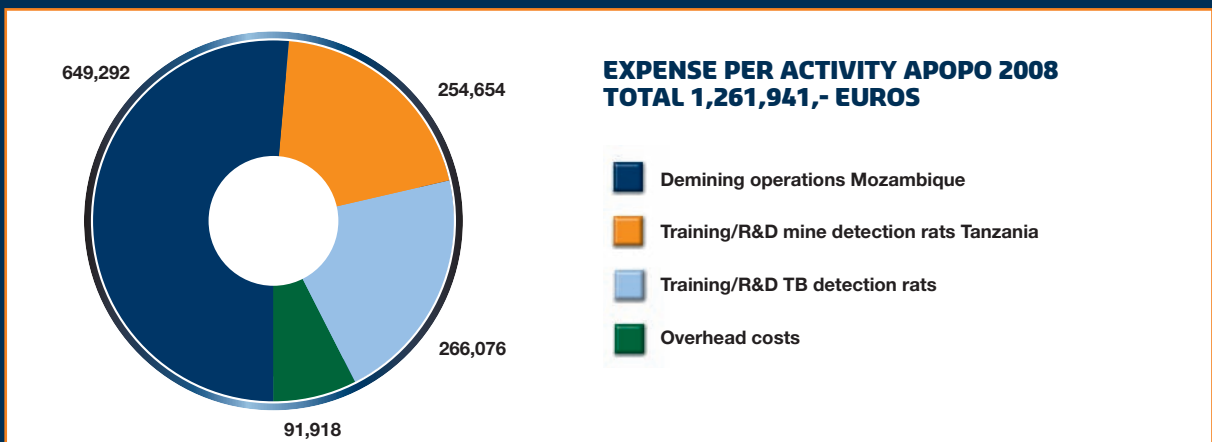
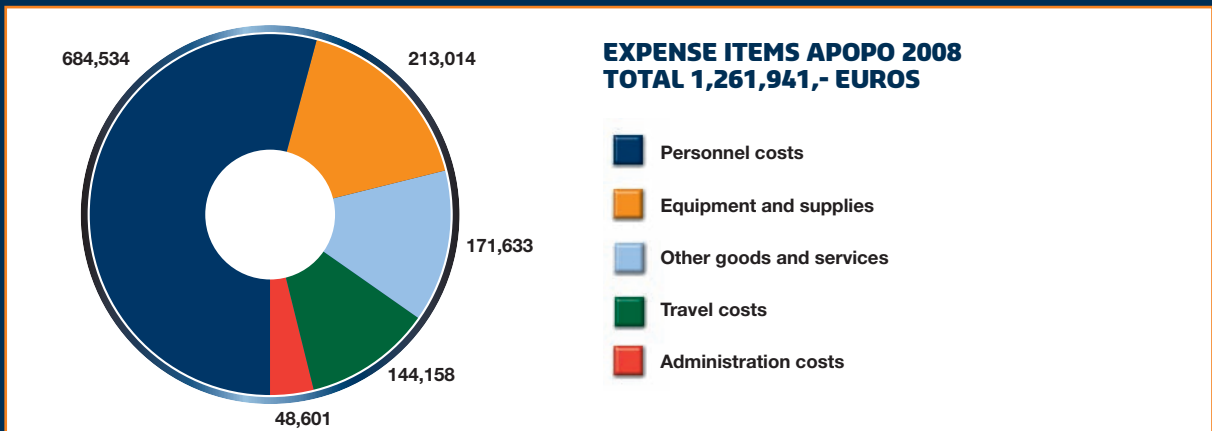
3.4.2. Revenue

The graph below presents the total revenue of APOPO for the year 2008*.



3.4.3. Expenses

The graphs below presents the expenditures of APOPO in 2008, respectively per expense category and per activity/geographical spending.



3.4.4. Assets and liabilities

ASSETS AND LIABILITIES	
Fixed assets	0.00
Payments in advance	0.00
Cash	816,777.32
Other receivables	4,767.99
Deferred charges & accrued income	100,000.00
Total Assets	921,545.31
Funds of the organization	328,046.34
Profit/Loss carried forward	-150,041.57
Long Term Debts	0.00
Other Payables	0.00
Current liabilities	37,779.84
Accrued Charges & deferred income	705,760.70
Total liabilities	921,545.31

Accounts have been checked and audited by accounting firm JorisryckenCo, www.jorisryckenenco.be

3.5 CONTACTS

APOPO Board members

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