Singapore Management University

Institutional Knowledge at Singapore Management University

Social Space | Lien Centre for Social Innovation

2010

APOPO: Building a Rats-based Detection Technology with the Capacity to Detect Landmines

Lien Centre for Social Innovation

Follow this and additional works at: https://ink.library.smu.edu.sg/lien_research

 Part of the Social Welfare Commons

Citation

Lien Centre for Social Innovation. APOPO: Building a Rats-based Detection Technology with the Capacity to Detect Landmines. (2010). *Social Space*. 132-135.
Available at: https://ink.library.smu.edu.sg/lien_research/57

This Magazine Article is brought to you for free and open access by the Lien Centre for Social Innovation at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Social Space by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email cherylds@smu.edu.sg.

APOPO

Building a Rats-based Detection Technology with the Capacity to Detect Landmines

Beneficiary countries: Thailand/Cambodia, Southeast Asia

One of APOPO's mine detection HeroRATs in action, sniffing out a landmine. - *Photo by Sylvain Piraux*

Rats are traditionally viewed as pests in most societies. APOPO turns this stereotype on its head by training rats to detect mines in a wide-scale effort to push forward demining efforts in post-conflict countries.

Organisation Bio

APOPO is a social enterprise that researches, develops, and deploys detection rat technology for humanitarian purposes. APOPO is a registered charity in Belgium and is headquartered in Tanzania.

http://www.apopo.org/

Mine Detection Rats (MDRs), also affectionately called HeroRATs, are a sustainable landmine detection technology, adapted to low resources settings. Rats have a highly developed sense of smell. They can detect the smallest traces of explosives emitted by the mines. Rats are intelligent creatures that also love to perform repetitive tasks for a small food reward. They live up to 8 years, giving a good return of the initial nine months training investment. And it is key that these rats only weigh a maximum of 1.5 – 2 kilos, and therefore they are at minimal risk to set off a mine.

APOPO is a Dutch acronym for Anti-Personnel mines Demining Product Development

THE THEORY/PROBLEM

Cross-border communities on the Thai-Cambodian border are the most heavily mined and most neglected areas in Southeast Asia. Yet, humanitarian mine action is a difficult, dangerous and expensive task.

THE INNOVATIVE IDEA

The team will introduce a detection technology that uses rats to enhance humanitarian demining efforts. There are potential spin-offs for tuberculosis screening, detection of improvised explosive devices, screening of cargo for contraband, etc. The innovation also turns the normal perception of rats as pests on its head.

HOW IT WORKS

Mine Detection Rats (MDRs), also affectionately called HeroRATs, are a sustainable landmine detection technology, adapted to low resources settings. Rats have a highly developed sense of smell. They can detect the smallest traces of explosives emitted by the mines. Rats are intelligent creatures that also love to perform repetitive tasks for a small food reward. They live up to 8 years, giving a good return of the initial nine months training investment. And it is key that these rats only weigh a maximum of 1.5 – 2 kilos, and therefore they are at minimal risk to set off a mine.

Trained rats work either on a leash searching for mines in the open field, or assess samples in an evaluation cage. The latter system has many potential spin-off applications. APOPO has already successfully trained rats to screen for pulmonary tuberculosis, by training rats to detect the smell of bacteria in human sputum samples collected from hospitals.

Four staff will be selected from the communities to undergo a three-month training curriculum at APOPO's base at the Sokoine University of Agriculture in Tanzania. Upon their return, they will be assisted by a technical on-site officer. The three-year project will involve community mobilisation efforts, training, mine action planning, fundraising for year 1, implementation and evaluation for year 2 and continued mine release for year 3. Cost-saving compared with traditional methods of mine detection is estimated to be 70%.

STEPS TAKEN TO IMPLEMENT PROJECT

APOPO has begun talks with partner organisations in Thailand, such as the Population and Community Development Association.

IMMEDIATE CHALLENGES TO PROJECT

- The lack of funding is the key issue. Demining typically works with million dollar budgets. However, by using a cost-effective local technology a great deal of work can be done with less funding (i.e. US$500,000 or more). Since demining is an expensive task, financing is the key challenge.
- Funding from the Lien i3 Challenge is a great start towards capacity building and setting up a framework for mine-action. However, the funds are insufficient to start up a mine action programme, which is why APOPO is seeking to first continue fundraising to a level of US$500,000 before beginning implementation.

A HeroRAT in training

Members of APOPO's Mozambique Mine Action team, who are working with the HeroRATs to clear the Gaza Province and help make Mozambique a mine impact free country by 2014. - *Photo: Eric Nathan*

APOPO is a humanitarian organisation, serving vulnerable communities. The situation in Thailand is different as the Thai military controls mine action. There is a strong need to cooperate with the military to be successful, but APOPO's ultimate goal first and foremost is to serve the communities impacted by landmines.

- We have also been joined in our efforts by partner organisations such as the General Chatichai Foundation, Peace Road Organisation, Thai Mine Action Centre (TMAC), the Population and Community Development Association (PDA) and the Thai Campaign to Ban Landmines (TCBL). APOPO is a humanitarian organisation, serving vulnerable communities. The situation in Thailand is different as the Thai military controls mine action. There is a strong need to cooperate with the military to be successful, but APOPO's ultimate goal first and foremost is to serve the communities impacted by landmines.
- APOPO's strategy is to create a consortium with the Thai Mine Action Centre (TMAC) and other partners to guarantee that international standards are met. The Geneva International Centre for Humanitarian Demining (GICHD) is now a partner of the project.

CHALLENGES THAT HAVE ARISEN, WHICH WERE NOT ANTICIPATED WHEN DRAFTING PROJECT PROPOSAL

- Gaining acceptance by TMAC is key to the success of the project, as it is a branch within the government responsible for mine clearance. APOPO is well on the way to establishing a fruitful relation with the TMAC.
- There is an absence of quality information on areas that are likely to be heavily mined. To remedy this situation, we are currently developing a non-technical survey. However, the survey will take at least six months to be completed. Mine clearance consists of various stages, of which a non-technical survey is the first step. This survey will provide a clear picture of the mine problem at the Thai-Cambodian border and will help to focus mine action in areas of high risk, while

also highlighting areas that may have very little risk. It will reduce the scope of the mine problem in Thailand considerably. Our work will also help support TMAC and the Thai authorities in general in their efforts to tackle the mine problem. Standardised procedures for such non-technical surveys have been developed by the GICHD.

PLANS FOR ENGAGING WITH COMMUNITY

- APOPO's short-term goal is to execute a non-technical survey. Thereafter a national Land Release strategy will be devised.
- GICHD will be assisting us in conducting this non-technical survey.
- The work will involve interacting with civilians, going through databases and working with local institutions to acquire quality information.

COMMUNITY RESPONSE TO THE PROJECT

- Thai partners will go to Tanzania to be trained on the use of rats, while the non-technical survey is being conducted.
- Community response and participation in the project will then be further developed. The initial phase of building trust and improving transparency is absolutely critical to community engagement.

A HeroRAT receives a food reward for a job well done. - *Photo: Eric Nathan*