



REGIONAL PROGRAM OF ACTION FOR PEACE AND SECURITY

SUB-PROGRAM OF ACTION FOR JOINT SECURITY MANAGEMENT OF COMMON BORDERS

PROJECT NUMBER 1.1.4

DEMINING AND MINE ACTION IN THE GREAT LAKES REGION

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1. Introduction¹

The conflict scenario that has characterized the member countries of the IC/GLR during the last decade or so, has 'endowed' these countries with a common legacy. The confrontations between the different armed groups, both government and rebel groups, elicited use of landmines, with anti-personnel mines (APMs) being the favorite due to its easy availability, cheapness and portability among other attributes, including its 'trustworthiness' and 'loyalty as a silent sentinel'. Due to these attributes an APM became a 'weapon of choice' for the opposing armed parties. The intra-country conflicts had spill-over effect into neighboring countries, and drew the neighbors into the internal confrontations. Subsequently, large swathes of the fields of all IC/GLR countries are littered with APMs, MOTAPMs and other explosive remnants of war (ERW).

The conflict environment has left the IC/GLR countries burdened with the responsibility and cost of clearing up the mess i.e. clearing the mines and facing up to the plights of the victims. The impact of landmines on the environments, societies and economies of the IC/GLR countries has been heavy and has had far-reaching consequences. Individually, the IC/GLR countries cannot carry effectively the burden of redressing the negative impact of land mines in their respective countries.

1.1 The Ottawa Convention - A Window of Opportunity

The eleven signatories to the Dar es Salaam Declaration are all State Parties to the Ottawa Treaty². None of them has fulfilled the full requirements of Article 9 of the Ottawa Treaty i.e the full implementation of the legislative and legal requirements for domestication of the treaty³.

Whilst Dar Es Salaam Declaration signatories pointed out that illicit small arms and light weapons were a threat to the aspirations towards peace and stability in the region, they also gave equal emphasis on the threat posed by landmines (paragraph 22).

The Mine Ban Treaty (MBT) implementation mechanism, to which the IC/GLR countries are active participants, is well-structured and elaborate. The implementation mechanism comprises the Intercession Structures starting with Standing Committees on victim assistance and socio-economic reintegration; mine clearance, mine risk education and mine action technologies; stockpile destruction; and general status and operations of the Convention.

¹ This paragraph, as well as "the Ottawa Convention", "National Programs" and "Individual country programs", is drawn from a desk review by Lare Okungu, commissioned by the AU/UN Joint Secretariat, distributed to the National Experts during the 2nd TTF in Nairobi in June 2005.

² Also known as the Ottawa Convention, the Mine Ban Treaty, or the Convention on the prohibition of the Use, Stockpiling, Production and Transfer of Anti personnel Mines and on their Destruction. Many of them are also members of the Convention on Conventional Weapons and its Amended Protocol 11, on landmines, booby traps

³ Article 9, on National Implementation Measures, stipulates that each State Party shall take all appropriate legal, administrative and other measures, including imposition of penal sanctions, to prevent and suppress any activity prohibited to a State Party under the treaty undertaken by persons or on territory under its jurisdiction or control.

1.2. National Programs

National mine action and de-mining programs are generally carried out with close partnership with international organizations, the latter providing funding and technical assistance. Also, participation in these programs involves close collaboration between Defense, Justice and foreign Affairs ministries. In this regard, all the states parties in the IC/GLR are at various stages of domesticating the MBT⁴. For monitoring purposes, the extensive research network of the landmine monitor researchers is currently a significant mechanism to ensure compliance with MBT. Mine Risk Education is a significant component of the mine action activities in most of countries, although the lack of resources hinders the implementation of MRE in some of them. In the context of the IC/GLR peace and security projects, risk education on mines in border zones has been included in sensitization activities against the use of illicit small arms.

1.3. Individual Country Programs

Angola

In its reply to the Joint Secretariat's questionnaire, the Angolan Government mentioned having already removed 64'096 landmines. The National De-mining Institute (INAD) has been put in place to implement the Government's and National Parliament's administrative and legislative actions. Training centres exist within the Armed Forces and the National Police. Mines reportedly reduce the access for ex-combatants to pre-settlement areas during the DDR process.

The Angolan government in collaboration with international and local organizations is engaged in programs aimed at mitigating the impact of landmines. The National Inter-Sectoral Commission on Demining and Humanitarian Assistance (CNIDAH) is the national Mine Action Coordinating and Planning body. It has two sub-commissions dealing with issues on de-mining and Mine Risk Education, and another on Mine Victim Assistance. NGOs and other relevant actors participate in monthly meetings of the sub-commissions. This has enhanced regular contact, through CNIDAH, between international humanitarian partners and the Angolan government focal points, and a positive forum for dialogue has evolved in this way. A detailed national mine action plan is underway, with technical assistance provided by Survey Action Centre (SAC), using the results of Landmines Impact Survey (LIS).

Burundi

UNMAS identified the Department of Civil Protection (DCP) of the Ministry of Interior as the most suitable mine action coordination body, but has also stated that DCP does not have the capacity to implement or coordinate mine action in line with international standards. Limited MRE activities have been carried out so far. According to the Burundian reply to the AU/UN Joint Secretariat's questionnaire, minefields are located in the North-West (Kibira Forest), along the common border with Tanzania, upstream of the valleys leading to Bujumbura, along the Rusizi River at the DRC border, in Bujumbura rural province and the Buyengero commune (South-West).

⁴ Tanzania and Rwanda maintain that the existing laws in their countries are sufficient to provide coverage for the MBT.

Democratic Republic of Congo

DRC has a mine action coordinating body called National Commission to Fight Antipersonnel Mines. It was created within the Ministry of Justice to prepare national implementation legislation. DRC has asked for legal assistance from France, Zimbabwe, UNDP and ICRC to do this. The Commission is tasked with coordination of all mine action activities, development of an action plan, writing the MBT Article 7 reports, promotion of the understanding of the MBT, mobilizing international help and expertise, and educating the public about dangers of mines.

Kenya

Kenya has established an International Mine Action Centre (IMATC) and currently receives technical and financial support from the British government. The Government has so far destroyed 35'774 land mines⁵. Mine/Unexploded Ordinance risk education is carried out by the Kenyan military, as well as the Nairobi Rotary Club in conjunction with the Kenya Boy Scout movement, the National Council of Churches and the Association of Physically Disabled Persons.

Rwanda

Mine Action coordination in the country is carried out by the National Demining Office (NDO) under the Ministry of Defence. It comprises a coordination unit, a survey team and operational teams. It is tasked with proposing mine action policies and strategies to the government, developing and supervising a sustainable and integrated mine action plan, coordinate demining activities in the country and maintain a national data base using the Information Management for Mine Action (IMSMA) system.

Tanzania

The Belgium government has provided funds for the APOPO Research Project, which is based at the Sokoine University of Agriculture (SVA) in Morogoro, for a six year project on research for reliable, inexpensive means for demining in southern Africa.

Uganda

The final draft of national implementation legislation has been submitted to parliament for debate. Army deminers have been deployed to northern Uganda to clear mines. There is no comprehensive data collection system on landmine casualties. There is collaborative effort between many organizations including AVSI, Ministry of Health-Disability Department and Uganda People's Defence Force in Mine Risk Education.

Zambia

The national coordination body is the Zambia Mine Action Center (ZMAC). It is tasked with setting the perimeters for Mine Action in Zambia, and coordination of the same. Its objective is to develop survey capacity, develop a sustainable management, develop quality assurance capacity and develop IMSMA to assist in planning and priority setting. There is no national MRE program as such, however the Army and the Ministry of Home Affairs conduct impromptu MRE when carrying out mine clearance. Mine detection and de-mining exercise have taken place in the Southern Province, in particular the Gwembe area at the Zimbabwean border⁶.

⁵ Reply from the Kenyan Government to the AU/UN Joint Secretariat's questionnaire.

⁶ Reply from the Zambian Government to the AU/UN Joint Secretariat's questionnaire.

Sudan

UNMAS has established the National Mine Action Center in Khartoum, and its southern Sudan annex Southern Sudan Mine Action Coordination Office in Rumbek. Both offices use the IMSMA system. SLIRI (Sudan Landmine Information and Response Initiative) was also established to create a comprehensive information network throughout all potentially mine-affected areas of Sudan in order to develop accurate landmine and unexploded ordnance (UXO) related information which will be stored and used for demining work at a later date.

2. Specific technologies and capacities within IC/GLR member states

2.1. The Vapour Detection Technology “APOPO”⁷

The Belgian humanitarian demining organization ‘Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling’ (APOPO vzw), in collaboration with Sokoine University of Agriculture (SUA) and the Tanzanian People’s Defence Forces (TPDF), developed a new vapor detection technology, utilizing the extremely developed olfactory sense of trained African giant pouched rats. Research and development of this technology has been funded by multiple donor organizations and governments. Mine detection rats have been tested according to International Mine Action Standards (IMAS), officially accredited by the Mozambican Mine Action Centre (IND) and are currently being applied in minefields in Mozambique, as a complementary tool in integrated demining.

2.2. The Kenyan International Mine Action Training Centre (IMATC)

The International Mine Action Training Centre is a joint venture between the Kenyan and British Governments established to alleviate the suffering caused by landmines through provision of quality mine action training. It is under the Government of Kenya’s (GoK) Department of Defence command and control. The centre became fully operational in 2005 and is located at Embakasi, Nairobi, adjacent to Jomo Kenyatta International Airport (JKIA). The International Mine Action Training Centre is fully funded and utilized as a center of excellence in providing high quality training, advice and expertise on all aspects of the humanitarian de-mining. Requesting governments or organizations, who want to utilize the training facilities, will be required to sponsor their candidates for the course(s) at the rates prevailing (see Annex 2).

According to the Kenyan proposal the approach can be immediately applied in context of the projects on Joint Security Management of Common Borders in the Great Lakes Region, Disarmament of All Armed Groups in Eastern DRC; Disarmament of Armed Nomadic Pastoralists and Promotion of Sustainable Development in Zone 3, Development of Border Zones and Promotion of Human Security in the Great Lakes Region.

⁷ A detailed description is attached as Annex 1

3 Objectives

The overall goal of this project is to enhance peace, security and well being of the populations along the GLR borders in a medium and long term (10 years and above) through the provision of specific expertise already available some IC/GLR member states.

Overall Objective:

To make available to the other GLR countries existing expertise in mine detection and mine action, thus speeding up the development start in affected areas.

Specific Objectives:

Objective no 1: Increase mine-detection, road and area verification capacities of GLR countries

Objective no 2: Increase the capacities of mine action of GLR countries through provision of training

4. Project strategy

Tanzania and Kenya have proposed an independent de-mining project within the IC/GLR process, based on respective submissions building on their specific experiences. The Member states of the International Conference on the Great Lakes Region (ICGLR) have endorsed this project during the Regional Preparatory Committee meeting in Luanda. The project basically consists of two complementary approaches: one for mine detection, based on the module 1 of the Tanzanian proposal, and a second one as focusing on training and capacity building for de-mining. Countries embarking on projects in border triangles under the Joint Security Management of Common Borders project are encouraged to resort to the utilization of these technologies. This proposal covers an initial period of 5 years of action, and shall be followed by an evaluation, which shall determine the way forward. The level of demand for such expertise within IC/GLR will be key in determining the level of implementation of the project. A survey on different techniques and the dissemination of comparative results will generate the demand from member states for the provision of the project specific expertise.

At present three GLR border zones have been identified were these approaches should be put in action: Zone 3 (Sudan, Uganda, Kenya), Zone 8 (Angola, Zambia and DRC) and Zone 9 (Burundi, DRC and Tanzania) and in refugee camps and settlements in these zones. If other zones will be identified having landmine problems, these can as well be considered.

5. Management and implementation arrangements

This project is fully owned by the IC/GLR member states and will be managed by the Secretariat of the IC/GLR follow up mechanism. Countries desiring to appeal for the implementation of specific aspects of it will do so through the IC/GLR Secretariat, which will then liaise with the adequate expertise provider. The Secretariat could also help in funding mobilization for training or increased technical capacity as well as for the in-country implementation of demining activities using such techniques.

6. Budget

The document contains a budget for the Tanzanian Demining APOPO technology to be applied in zones 3, 8 and 9. The budget for the Kenyan Demining Approach has been estimated based on hypothetical needs of 5 IC/GLR countries. It could be further defined after technical assessments and evaluations of the respective situations on the ground.

V. Result Framework, Workplan and Budget (Version of 20 September 2006)

Project Title:	De-mining and Mine Action in the Great Lakes Region⁸
Overall Objective:	To make available to the other GLR countries existing expertise in mine detection and mine action, thus speeding up the development start in affected areas
Intended Outcome :	Minefields in the GLR surveyed, mapped and cleared of explosive devices, thus set free for social and economical activities
Outcome indicator:	Reduction of mine related casualties among the population, increased food production and cross-border social cohesion
Partnership Strategy:	The project will foster partnership and ownership over provision of capacities within the GLR, and continue to seek support from governments, institutes and development partners

	Expected results	Indicative Activities	Calendar												Resp. Partner	Foreseen Budget (Total 15'281'835)		
			2007				2008				2009-11					Finan cRes.	Description of Budget	Amount USD
			Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4				
Objective 1 : Increase mine-detection, road and area verification capacities of GLR countries⁹																		
1.1.1	Tanzanian Training and Research facility capable to offer its specific expertise to GLR countries	Enhance mine and explosive detection capacity													Tanz Govt/ APOPO	Gvt.	Equipment, personnel costs	4'410'158
1.1.2		Setting up road and area verification capacities for suspected area, inclusive of assessing target area													Tanz Govt/ APOPO	Gvt.	Equipment, personnel costs	973'590
1.1.3		<u>Benchmark indicators :</u> equipment purchased, # of experts, # of missions	Operations of survey team and REST sampling team in border zones													Tanz Govt/ APOPO	Gvt.	Personnel, mission costs

Objective 2 : Increase the capacities of mine action of GLR countries through provision of training and expertise

⁸ The budget is derived from two sources: The first referring to the activities undertaken by APOPO from a respective document including the budget. The second part of figures has been taken from IMATC, Kenya. Regarding the activities 2.1.1 and 2.1.2, details can be found in the table. Both documents are attached as annexes to this document.

⁹ for more detailed activities and budget breakdowns, see module 1 from the attached Tanzanian proposal

2.1.1	IC-GLR countries sensitized on landmine situation in the region and fully informed on the different mine action and de-mining approaches	Carry out a survey on different mine detection and de-mining techniques in use in the GLR and on the continent															NGO, expert	PB	Survey team of 3 persons for 30 days to various countries which qualify) 31'500; 8'400 Subsistence and accommodation 13'500	53'400	
2.1.2	Benchmark indicators: Level of participation in the debate, # of IC/GLR countries requesting the project expertise	Organize a regional presentation and debate on the survey reports and its comparative results																Agencies Involved such as APOPO and IMATC		Translation of 50 pages 3'000 Print of 2200 copies 8'800 Report launch for 33 IC-GLR Member state representatives and 4 resource persons Subsistence And accommodation 16'650; Travel 23'100 Interpretation 7'800	59'350
2.2.1	IC/GLR countries capable to implement national de-mining programmes	Training of five de-mining companies (@ 100 persons each) in selected IC/GLR countries.																Kenya IMATC	Gvt	Training for 500 students : 500'000 Travel cost for 500 : 350'000 15 % administration: 127'500	977'500
2.2.2	Benchmark indicators: surface of cleared minefields	Provision of de-mining equipment for 5 companies																Kenya IMATC	PB	Equipment	750'000
2.2.3	IC/GLR countries implementing cost/time efficient de-mining programmes	Increase the capacity of mine detection and de-mining technique based on the use of trained rats																Tanz Govt/ APOPO	Gvt.	Equipment, training of human resources	1'904'228
2.2.4	Benchmark indicators: # of request for REST technology, surface of cleared minefields	Implement de-mining activities based on the use of trained rats																Tanz Govt/ APOPO	PB	Mine clearance operations	3'794'240
Subtotal : 13'892'577																					
10 % of unforeseen : 1'389'258																					
OVERALL TOTAL : 15'281'835																					

Attachment no 1

Project proposal
BORDER SECURITY MANAGEMENT IN THE GREAT LAKES REGION

DEMINING IN THE GREAT LAKES REGION

September 2005

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GLOSSARY OF ABBREVIATIONS

APOPO: Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling

CBO: Community Based Organization

GICHD: Geneva International Center For Humanitarian Demining

GLR: Great Lakes Region

GC/ECD: Gas Chromatography, Electron Capture Detection

IEC: Information, Education and Communication

IMS: Ion Mobility Spectrometry

IMAS: International Mine Action Standards

IMSMA: Information Management System for Mine Action

IND: Institut Naçional de Desminagem

MAC: Mine Action Centers

MRE: Mine Risk Education

NPA: Norwegian Peoples Aid

PARADIS: A Prototype for Assisting Rational Activities in Humanitarian Demining Using Images from Satellites

PDA: Personal Digital Assistant

REST: Remote Explosive Scent Tracing

SUA: Sokoine University of Agriculture

SOPs: Standard Operating Procedures

TPDF: Tanzania People Defence Forces

UA: University of Antwerp

UNMAS: United Nations Mine Action Service

UXO: Unexploded Ordnance

Executive Summary

The Belgian humanitarian demining organization 'Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling' (APOPO vzw), in collaboration with Sokoine University of Agriculture (SUA) and the Tanzanian People's Defence Forces (TPDF), developed a new vapor detection technology, utilizing the extremely developed olfactory sense of trained African giant pouched rats. Research and development of this technology has been funded by multiple donor organizations and governments.

Mine Detection Rats have been tested according to International Mine Action Standards (IMAS), officially accredited by the Mozambican Mine Action Centre (IND) and are currently being applied in minefields in Mozambique, as a complementary tool in integrated demining.

The overall goal of this project is to enhance peace, security and well being of the populations along the GLR borders in a medium and long term (10 years and above). This proposal covers an initial period of 3 years of action, and shall be followed by an evaluation, which shall determine the way forward.

The main objective of this project is to apply this technology in the field along the GLR borders in following zones: Zone 3 (Sudan, Uganda, Kenya), Zone 8 (Angola, Zambia and DRC) and Zone 9 (Burundi, DRC and Tanzania) and in refugee camps and settlements in these zones. If other zones will be identified having landmine problems, these can as well be considered.

Essentially, this project has three components:

1. landmine detection and removal;
2. Cargo screening and parcel check at border crossings;
3. Early detection of pulmonary Tuberculosis amongst HIV vulnerable persons.

The anticipated outcomes of this project are:

1. Suspected mined areas in border regions shall be surveyed, mapped, and reduced to actual minefields;
2. Minefields shall be cleared of explosive devices and set free for social and economic activities;
3. Illegal trafficking of SALW across borders in the region shall be discovered and curbed by border police;
4. Pulmonary Tuberculosis shall be detected earlier and faster amongst displaced populations along the borders and in refugee camps, especially vulnerable target groups e.g. women and children;
5. Functional capacity of existing defence and security institutions shall be enhanced.

Funding is anticipated to come from the countries within the region, and from the international donor community.

Assumptions

- Sources of funding will be ascertained from the region and elsewhere;
- The political climate and stability in the region sustains and continues to improve at the current pace;
- IEC is imparted to the local governments and communities into accepting the projects' activities;
- Collaboration between the partners runs smoothly.
- A successful initial assessment and information survey can be done before proposed actions start

Potential threats for successful implementation of the project:

- Natural calamities (earth quakes, floods, outbreaks of fatal diseases)

1. Introduction

The SUA-APOPO project has developed a new technology for the detection of landmines and explosives using the olfactory capacity of African Giant Pouched rats. APOPO has been developing two parallel systems, one for area reduction of suspected minefields, and a second one for the direct location of buried landmines.

Only a small percentage of suspected minefields do actually contain mines, however, due to uncertainty of the limits of the minefields, demining organizations often spend a lot of resources clearing areas where there are no mines at all. Therefore, there is a great demand for reliable area reduction systems, which can define the borders of the actual minefield.

APOPO has been developing the REST (Remote Explosive Scent Tracing) technology, where dust samples are collected from the suspected minefield area and brought to the laboratory for evaluation by trained sniffer rats. The rats will detect minute explosive traces, and indicate areas that are contaminated with explosive devices, such as mines and unexploded ordnance. The REST system provides additional information to traditional survey techniques, where suspected areas are mapped on basis of military and civilian information, which is often subjective or unavailable. Clearly, a combination of both techniques provides a better demarcation of the mined areas.

Once the boundaries of a minefield are delineated, the task of locating and removing the landmines and UXO can start. To speed up the process of demining, mine detection rats are used to directly indicate the exact positions of buried landmines. On average, it takes a rat less than half an hour to search a 100m² surface. Mine detection rats are trained in Morogoro, Tanzania, and are operational in Mozambique, where they have passed official accreditation tests.

APOPO's central training and research facilities are based at the Sokoine University of Agriculture in Morogoro, Tanzania. APOPO has grown into an internationally renowned knowledge center in training for trace detection technologies, using both rodent olfaction and analytical instruments. In this capacity, APOPO is co-operating with demining organizations, research institutions and international agencies, including SUA, UA, TPDF, GICHD, NPA.

Spin-offs of this technology are finding applications in medical diagnosis and transport security. For instance APOPO is currently doing a pilot study for the detection of pulmonary tuberculosis in human sputum samples by the sniffer rats and has played an advisory role for rapid cargo screening methods.

2. Scope of the project

At this stage, the focus of the project is to broaden its operational demining capacity in the great lakes region and to pursue the projects research potential. Continued research is particularly necessary to increase the output of the program, as well as to further develop and test the spin off applications which are of importance for the region.

3. Objectives of the proposal

3.1. General objectives:

The outcome of this project promotes regional development by:

- Improving security in the border zones of the great lakes region by alleviating the landmine problem
 - The landmine threat poses great risks to local populations, especially women and children, by denying access to land for food production pastures and collection of water and firewood.
 - Mined roads obstruct the supply of aid and relief goods to communities and hamper general trade and transport after civil wars.
 - Mines in border regions prevent the safe return of internally displaced people and refugees.
- Reducing illegal traffic of arms and narcotics
 - Illegal border traffic of small arms and ammunition add to the risk of local conflict and regional instability.
 - Cross border trade of narcotics and other illegal substances enhances crime and general insecurity.
- Early detection of TB in HIV/AIDS vulnerable populations
 - Refugee populations in border are at great risk of contracting HIV/AIDS related infectious disease due to malnutrition, overpopulation and migration.
 - Border communities have been exposed to increased risks of HIV/AIDS due to abuse by passing war factions, and general infliction of wounds.

3.2. Specific objectives:

- Improve the GLR capacity for addressing the landmine problem in the region by:
 - Enhancing mine and explosive detection capacity
 - Setting up a road and area verification capacities for suspected areas
 - Undertaking operational demining

- Develop a GLR capacity for rapid detection of cargo and traffic in the region by:
 - Design of a rapid non invasive cargo screening method based on scent detection

- Develop an active case finding strategy for pulmonary tuberculosis by:
 - Optimizing the olfactory screening method of sputum samples
 - Accrediting the new technology
 - Implement a pilot project vis a vis conventional TB detection technologies

4. Implementation plan

The implementation plan is structured in three modules, based on the specific objectives as presented.

4.1. MODULE 1: Improve the GLR capacity in alleviation of the landmine problem in the region

4.1.1. Enhance mine and explosive detection capacity

Background

Sokoine University of Agriculture in Morogoro, Tanzania, hosts APOPO's central administrative, training, and research facilities. The center was initiated in the year 2000, and currently employs over 60 people. APOPO accommodates about 300 rats, of which some are for breeding purposes, but most of them get trained as sniffer rats for landmine detection.

At the center, the sniffer rats are trained from the age of 4 weeks, according to a method developed by APOPO, in a variety of training and evaluation cages. APOPO also established 30 hectares of training and test fields, where more than 1500 defused landmines and UXO, provided by the TPDF, are buried. The rats are taken there every day in the early morning for training. After completion of the training, they are sent abroad for operational demining tasks. Other rats remain within the center and are specialized in the evaluation of REST samples derived from suspected minefields.

In support of the animal training program, APOPO has established an analytical laboratory with GC/ECD and IMS instruments, and is developing innovative sampling methods for explosive detection.

APOPO's facility will be used as the central training and co-ordination center for the activities outlined in this proposal.

Implementation plan

Indicative activities		Expected results	Required inputs	
<ul style="list-style-type: none"> - Expand the breeding and training program of mine detection rats; - Train 40 animal trainers, 2 instructors, extension workers and research assistants; - Continue developments to support improved operational sampling and direct detection systems; - Set up training programs and seminars for animal trainers, technical assistants and field officers coming from border regions in the great lakes; - Continue research to support training activities; - Administer the project activities. 		<ul style="list-style-type: none"> - Increased capacity of trained mine detection rats to be deployed in the great lakes region; - Increased human resource capacity at the central training and research center; - Improved training procedures, shorter training times and increase of output; - Optimization of the operational detection systems; - Increased human resource capacities of animal trainers, technical assistants and field officers in affected communities; - Established central co-ordination of training, research and field implementation. and liaisons with partner organizations. 	<ul style="list-style-type: none"> - Investments Improved training and storage facilities 49.800 \$ - Consumables Animal food, stationery, maintenance, travel, insurance, chemicals 124.500 \$ - Personnel Salaries program managers, researchers, supervisor, coordinators, veterinary doctor, trainers, laboratory assistants, attendants, drivers, security guards (60 people), co-ordination and travel allowances 585.150 \$ - Administration (15%) 113.917 \$ 	
Time line :		YEAR 1	YEAR 2	YEAR 3
Investments / identify new clients and target areas/ continuous R&D and training activities / supply ongoing operational activities / central coordination and administration.		Continuous process		Continuous process
Partner strategy:	Sokoine University of Agriculture (SUA) and Tanzania People Defence Forces (TPDF)			
		YEAR 1:		873.367 \$
		YEAR 2:		864.745 \$
		YEAR 3:		907.983 \$

4.1.2. Setting up a road and area verification capacities for suspected areas

Background

In a first step of the demining process, a survey defines the boundaries of a suspected minefield. This survey is traditionally based upon military and civilian information. APOPO has developed a capacity for REST, whereby surface samples of suspected minefields are evaluated by trained rats on the presence of explosives. This additional information can release major parts of suspected land which do not contain mines at all, and will therefore reduce the cost of the demining operation considerably.

On the field, samples are collected in the wheel tracks of Mine Protected Vehicles (MPV), which provide safe access to suspected minefields. These samples are sent to the APOPO analysis facility. Risk assessment maps based on the sample analysis outcome are combined with survey information in order to define the boundaries of the areas which need follow up demining.

APOPO proposes to set up a combined REST and survey team which can be deployed in the great lakes region. A PDA based data collections survey will allow integration of the results in the international Information Management System for Mine Action (IMSMA) database. This information is essential for efficient mine action planning in the region.

Implementation plan

Indicative activities		Expected results	Required inputs
<ul style="list-style-type: none"> - Set up an operational capacity for survey of suspected border areas and roads; - Set up an operational capacity for surface sampling of suspected areas and roads; - Develop a PDA based data collection tool for survey and REST data; - Increase the capacity for the evaluation of REST samples; - Liaison with regional demining organizations and training centers. - Survey and risk assessment of the landmine threat in Zones 9, 8 and / or 3 		<ul style="list-style-type: none"> - Detailed studies of areas reported by the local government and Mine Action Centers (MAC's), border communities or NGO's to have been mined at one time; - Creation of maps and data base of the problem in the affected areas; - Assessment of available statistics of the landmine problem and its relations to the anticipated scale of operations; - Social studies on the impact of the problem; - Risk assessment maps based on the surface explosive contamination of a given area or road; - Automated integration of field data in a larger database system (IMSMA, PARADIS); - Larger areas to be assessed by the analysis of surface explosive contamination. 	<ul style="list-style-type: none"> - Investments Mine protected vehicles (2), 4WDs (2), data collection hardware, sampling systems, protective gear, field camp equipment, communication equipment 522.900 \$ - Consumables Sample containers, travel, fuel, insurance, stationneries, operational costs, travel 149.400 \$ - Personnel Survey officer, REST sampling team, driver, medic 174.300 \$ - Administration (15%) 126.990 \$
Time line :		YEAR 1	YEAR 2
			YEAR 3
Purchase investment goods / PDA system development/ train and set up survey and REST teams/ identify target areas/ Impact assessment of the problem in target areas/ accreditation		Operations Survey team and REST sampling team in Zones 9, 8 and / or 3	Operations Survey team and REST sampling team in Zones 9, 8 and / or 3
Partner strategy:	local MAC's, TPDF, UNMAS, GICHD, NPA, Armed Forces and border communities of the respective countries constituting the indicated zones		

4.1.3. Undertaking operational demining

Background

APOPO rats are trained to search for the location of buried landmines on a leash connected to a search string. The animals progressively search half meter lanes, and it takes less than half an hour to search a 100 m² surface on a prepared box in the minefield. (Mechanical preparation of the boxes is the main limiting factor in the overall output, and heavily depending depending on environmental circumstances.) This system is operational in Mozambique, where the rats have been tested and accredited under IMAS standards, under supervision of the National Demining institute and the GICHD.

An integrated multi toolbox approach will increase the efficiency of the demining approach. In a first step, a mini flail will do the ground preparation, necessary for any mine detection or removal technique. The flail can both be used in a bush cutting mode or can detonate part of the mines by ground impacting. In a second stage, the rats will search the area and detect any remaining explosive devices. If the animals indicate a spot, it will be checked by a manual deminer who removes the mine.

Manual demining represents the backbone capacity in all humanitarian-demining organizations since it can be deployed under most circumstances with small capital investments. Manual demining alone is not cost efficient and effective, but it is a necessary supplement or integral part of all humanitarian-demining capacities.

Implementation plan

Indicative activities		Expected results	Required inputs						
<ul style="list-style-type: none"> - Set up an operational capacity of the free running rats; - Set up a manual demining team in support of the free running rat detection component; - Set up a mechanical capacity with mini flail bush cutter; - Carry out integrated multi tool approach demining activities; - Liaison capacity building with regional demining organizations and training centers. 		<ul style="list-style-type: none"> - Accreditation of integrated multi toolbox approach for efficient operational demining; - Clearance of mine affected areas; - Trained human resources; - Handing over of land to border communities. - Local communities empowerment through mine action capacity building. 	<p>- Investments MV4 Flail, 4WD flail carrier, 4WDs (5), ambulance, trailer, water trailer 684.750 \$</p> <p>Metal detectors, camp equipment, tents, protective gear, communication equipment 161.850 \$</p> <p>- Consumables Marking equipment, detonation equipment, medical equipment, stationery, clothing, travel 136.950 \$</p> <p>- Personnel Operations manager, desk officer, mechanical expert, logistics officer, medics, drivers, manual deminers, storekeeper, electrical technician, guards, maintenance personnel, radio operator 672.300 \$</p> <p>- Administration (15%) 248.378 \$</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">YEAR 1:</td> <td style="text-align: right;">1.904.228 \$</td> </tr> <tr> <td>YEAR 2:</td> <td style="text-align: right;">1.110.509 \$</td> </tr> <tr> <td>YEAR 3:</td> <td style="text-align: right;">1.166.035 \$</td> </tr> </table>	YEAR 1:	1.904.228 \$	YEAR 2:	1.110.509 \$	YEAR 3:	1.166.035 \$
YEAR 1:	1.904.228 \$								
YEAR 2:	1.110.509 \$								
YEAR 3:	1.166.035 \$								
Time line :	YEAR 1	YEAR 2	YEAR 3						
Purchase investment goods / train human resources/ accreditation/ identify demining tasks / operational mine clearance		Operational mine clearance	Operational mine clearance						
Partner strategy:	local MAC's, TPDF, UNMAS, GICHD, NPA, Armed Forces and border communities of the respective countries constituting the indicated zones								

4.2. MODULE 2: Develop the GLR capacity for rapid detection of cargo and traffic in the region

Background

The currently used REST system was originally developed for the detection of drugs and explosives in rail cargo, vehicles, trucks and houses. The REST technology, which has been further developed by APOPO for landmine detection, has attracted a lot of interest due to the recent terror scare. During a recent workshop 'Scent detection by sniffer animals and electronic noses' hosted by APOPO in August 2004, several delegations involved in transport security came to see the potential of the rats for this purpose. The rapid detection of explosive threats has a potential application in cargo screening, both in airports, seaports and border control posts.

At the moment, only big scanners, which require considerable investments and which are immobile, or manual checking, which causes unacceptable transport delays, are used for screening of big cargo. Vapour or particle detection could replace these techniques due to speed and mobility advantages.

A renewed interest in this technology has prompted increased demand for better sampling techniques, more sensitive detectors and accredited procedures of operation. Sampling techniques can be improved by studying the dynamics of vapour and particle transport in different enclosures. Sniffer rats can complement existing chemical detectors by providing more sensitivity and higher throughput.

Implementation plan

Indicative activities		Expected results	Required inputs	
<ul style="list-style-type: none"> - Develop sampling procedures for different types of containers and target substances, s.a. black powder, cleaning oils, narcotics; - Define concentrations of target scents; - Define and test detectors; - Conduct research on dynamics of target vapour and particles in enclosed cargo; - Liaise with the relevant regional police, customs and intelligence institutions. 		<ul style="list-style-type: none"> - A detailed analysis of the vapour dynamics and sampling opportunities for different types of containers; - Test and evaluation results of the detection system on pre-defined target substances; - Propose standard operating procedures (SOPs) to implement the technology; - Integrated customs and border detection system for use within the partner institutions' operational context. 	<ul style="list-style-type: none"> - Investments Ion scan/GC; handheld vapour detectors, lab equipment, 1 vehicle 186.750 \$ - Consumables Lab equipment, chemicals, travel, samples, stationery 37.350 \$ - Personnel Chemical engineer, lab assistants, animal trainers 99.600 \$ - Administration (15%) 48.555 \$ 	
			YEAR 1:	372.255 \$
			YEAR 2:	194.780 \$
			YEAR 3:	204.519 \$
Time line :	YEAR 1	YEAR 2	YEAR 3	
Research on dynamics / purchase detectors / laboratory test / attend workshops		Test and evaluation of the detection system	Propose operating procedures for a mobile cargo detection unit.	
Partner strategy:	Customs and Border police, Intelligence service, Sea and Airport officials, Revenue Authorities, International Research Institutions			

4.3. MODULE 3: Early detection of TB in HIV/AIDS vulnerable populations

Background

The HIV/AIDS pandemic is fueling TB-prevalence worldwide. Africa is affected more than any other continent, with highest mortality rates per capita worldwide. In spite of global efforts, TB incidence has quadrupled since the 1990s. A main bottleneck is the lack of a fast, cheap and reliable test for early TB diagnosis, suitable for screening of large populations in an active case finding strategy.

Due to lack of infrastructure in remote areas, National TB programs in the great lakes region struggle to provide public health services to displaced populations in camps and settlements in the border regions. In the Tanzanian border region e.g. some 750.000 Burundian and Congolese refugees remain in crowded camps and settlements along the border, living in poor conditions. Tanzanian health research in refugee camps in Kigoma shows a higher prevalence in the camps than can be anticipated elsewhere in the same region.

As a spin-off application of the REST technology, SUA-APOPO is currently training and testing rats as a TB-diagnostic tool, in co-operation with the Tanzanian medical research institutes. Intermediate results are very promising. The potential advantages of this approach are the capability of evaluating large sample sets in a short time, at low cost, requiring a low level of skills in the operators.

APOPO plans to develop a mobile prevalence survey unit that can screen displaced populations in settlements and camps in the border regions. Such unit can fast assess TB-incidence on location in refugee camps, as a complement to the existing public health services.

Implementation plan

Indicative activities		Expected results	Required inputs							
<ul style="list-style-type: none"> - Development of a point-of-care diagnostic test for early detection of <i>M. Tuberculosis</i>; - Design of a simple breath sample as alternative for infectious sputum samples; - Design and manufacturing of a mobile prevalence survey unit; - Carry out trials of the technology in an active case finding strategy by screening of displaced target populations in refugee camps and settlements in GLR border regions; - Continued research into vapor detection of infectious diseases by trained rats. 		<ul style="list-style-type: none"> - Operational capacity of trained disease detection rats to be deployed in the great lakes region; - Increased human resource capacity at the central training and research center; - Improved sample and sampling method for detection of disease to complement existing public health programs; - Optimization of the training and evaluation setup; - Complementary human resource capacities of animal trainers and lab technicians in the existing public health programs; - Central co-ordination of training, research and field implementation, and liaison with partner organizations. 	<p>Investments Improved samples and sampling method, Mobile analysis unit, additional infrastructure at SUA, vehicle 236.550 \$</p> <p>Consumables Animal food, stationery, maintenance, travel, insurance, chemicals 65.985 \$</p> <p>Personnel Salaries manager, researcher (biomedical engineer), research assistants (2), lab technicians (4), animal trainers (6), logistic support (4) consultancies 229.080 \$</p> <p>Administration (15%) 79.742 \$</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">YEAR 1:</td> <td style="text-align: right;">611.357 \$</td> </tr> <tr> <td>YEAR 2:</td> <td style="text-align: right;">393.547 \$</td> </tr> <tr> <td>YEAR 3:</td> <td style="text-align: right;">413.224 \$</td> </tr> </table>		YEAR 1:	611.357 \$	YEAR 2:	393.547 \$	YEAR 3:	413.224 \$
YEAR 1:	611.357 \$									
YEAR 2:	393.547 \$									
YEAR 3:	413.224 \$									
Time line :	YEAR 1	YEAR 2	YEAR 3							
Optimize training and evaluation set up/ consolidate results / identify areas of operation / Develop mobile unit		Develop and test breath sample / comparative studies in co-operation with hospitals	Pilot study in refugee camp							
Partner strategy:	SUA, TPDF, National and regional hospitals and Medical Research Institutes, NGOs and CBOs									

5. Budget Summary

	YEAR 1	(**) YEAR 2	(***) YEAR 3	TOTAL
MODULE 1.1	873.367 \$	864.745 \$	907.983 \$	2.646.095 \$
MODULE 1.2 (*)	973.590 \$	473.225 \$	496.886 \$	1.943.701 \$
MODULE 1.3 (*)	1.904.228 \$	1.110.509 \$	1.166.035 \$	4.180.772 \$
MODULE 2	372.255 \$	194.780 \$	204.519 \$	771.554 \$
MODULE 3	611.357 \$	393.547 \$	413.224 \$	1.418.128 \$
ALL MODULES	4.734.797 \$	3.036.806 \$	3.188.647 \$	10.960.250 \$

(*) this is a tentative budget for mine action in Zone 9. Modules 1.2 and 1.3 heavily depend on the outcome of the initial risk assessment and survey

(**) year 2 = year 1 – investments + 5% factor

(***) year 3 = year 2 + 5% factor

6. List of donors which have contributed to the realization of APOPO

Belgian government
 European Union
 Flemish Community
 Geneva International Center for Humanitarian Demining
 Province of Antwerp
 World Bank
 European Research Office US Army
 University of Antwerp
 Private Donations and Fundraising Initiatives
 Tanzania People's Defence Forces

7. List of the management committee of APOPO

Belgium: Prof. Dr. Mic Billet, Chairman
 Prof. Dr. Josse Van Steenberge, Vice-Chairman
 Prof. Dr. Ron Verhagen, Executive Director

Tanzania: Prof. Dr. Robert Machang'u, SUA-APOPO Co-ordinator
 Lt. Col. (Dr) Charles Muzanila, TPDF-APOPO Co-ordinator
 Mr. Christophe Cox, Managing Director
 Mr. Bart Weetjens, Managing Director

Attachment no 2

INTERNATIONAL CONFERENCE ON THE GREAT LAKES REGION

KENYA'S PROPOSAL: DEMINING TECHNOLOGY NEEDED FOR PROJECTS:

1. Common Border Security Management In The Great Lakes Region
2. Disarmament of Armed Negative Forces In EASTERN DRC and Promotion of Sustainable Development In Zone 1 & 10
3. Disarmament of Armed Nomadic Pastoralists And Promotion Of Sustainable Development In Zone 3
4. development of Border Zones and Promotion of Human Security in the Great Lakes Region

Requirement for de-mining emerged as a priority need while considering the above projects¹ This is Kenya's proposal regarding the above subject in the GLR. LINKED WITH THE Tanzania proposal, the approach would yield mine-free land for development faster.

September 2005

¹ Lusaka, RIMC/RPC meeting – report JULY 18 – 23, 2005, Rev 4 - PP3

1.0 Introduction

- 1.1. This is the proposal of services that Kenya offered for consideration as directed in the LUSAKA report of July 2005, IC/GLR.

2.0 Nature of the Center

- 2.1. The international mine action training center is a joint venture between Kenya And British Governments established to alleviate the suffering caused by landmines through provision of quality mine action training. It is under the department of defence command and control. The center became fully operational in 2005 and is located at Embakasi, Nairobi, adjacent to Jomo Kenyatta International Air Port (JKIA).
- 2.2. The **International Mine Action Training Center** is fully funded and utilized center of excellence for mine action in Eastern Africa. It is internationally recognized as providing high quality training, advice and expertise on all aspects of **the humanitarian de-mining**. However, for training requirements outside IMAC's mandate, the requesting governments or organizations will be required to sponsor their candidates for the course(s) at the rates prevailing.

3.0 Objectives

- 3.1. **The center offers the following:**
 - 3.1.1. Excellent training facilities including equipment
 - 3.1.2. Quality mine action training based on International mine action training standards (IMAS)
 - 3.1.3. Excellent accommodation and dinning facilities

4.0 Training Programmes

4.1 Course eligibility

- 4.1.1. Students with military engineering background are preferred and must be sponsored. Civilian de-miners with NGOs or UN sponsored de-mining organizations qualify to train at the center.

4.2 Course Duration:

- 4.2.1. The course duration is Six to eight weeks

4.3 Training Quality and Rates

- 4.3.2. The instructors must be qualified and have field de-mining experiences under the UN DPKO or trained through the IMATC
- 4.3.3. Cost of training a De-mining Company of about **100 students** is **US 250,000** of this **US 100,000** is for accommodation and feeding, and **US 150,000** for De-mining equipment procured through UN at discounted rates and are supplied to the de-mining company under training.
- 4.3.4. Kenya and British governments presently pay the instructors' salaries while deployed as mandated. Employment of the instructors elsewhere will attract special rates – not known at this stage.
- 4.3.5. The IMATC will charge the requesting government(s) or organizations for instruction requirement(s) that are outside her mandate at international rates.

4.4 Contributions - Funding

- 4.4.1. British government funded the IMATC project – **£ 3.6** million and the rest by Kenya Government.
- 4.4.2. To date De-mining operation has received over **£ 300,000 (Kshs. 42 million)** out of the funds available to peace support operation in **East Africa Region** for training and equipping Kenyan de-mining troops.
- 4.4.3. British Government annual contribution to de-mining training budget for Kenya (IMATC) is **£ 1.2 million or Kshs. 168** million
- 4.4.4. Training and equipment for: **Sudan's** de-mining course, HS6 -**US 250,000** and **Eritrea** course HS4 - **US100,000** for training only since the troops will take over the equipment from graduates of course HS3.

4.5. **Daily Clearance Rate**

- a. Kenya annual daily rate - 1,500 m²
- b. Integrated mechanical and manual daily rate – 15,000 to 20,000 m²

5.0. **Experiences**

5.1. **Humanitarian de-mining training data (Kenya)**

The IMATC has trained **477** de-miners: Kenyan and British instructors and troops to be employed in Sudan, Eritrea, and is planning a course for Nigerian troops.

5.2. **Humanitarian de-mining training data (Eritrea & Sudan)**

Eritrea: Four courses – HS 1 – 2002, HS 2 – 2003, HS 3 – 2004 and HS 6 – 2005

Sudan: HS 4 trained and projected for Sudan in October 2005 – one Coy (102)

5.3. **Kenya mine clearance achievement data (Eritrea)**

- a. Cleared over **600,000** m²
- b. **750** Anti-personnel mines cleared and numerous UXOs/ERWs found and destroyed
- c. Over 20,000 displaced families resettled in mine-cleared land
- d. No mine/UXOs casualty todate

5.4. **Daily Clearance Rate**

- a. Kenya annual daily rate - **1,500** m²
- b. Integrated mechanical and manual daily rate – **15,000** to **20,000** m²