

EUDEM Research Survey

EUDEM2 Questionnaire2 (Research Centers/University Labs/Governments (R&D))

PART I: Relationship with military/humanitarian demining. Problem knowledge.	DATE:19/2/03
Organisation (name + web address) Rheinmetall Landsysteme Gmbh, www.Rheinmetall-Ls.de Contact Person (name + e-mail): Axel Kaspari, axel.kaspari@Rheinmetall-Ls.com Ask a business card!	
Level of knowledge/understanding in military demining: 5	(1:none, 5: in depth)
Level of knowledge/understanding in humanitarian demining: 4	(1:none, 5: in depth)
No. of years involved in HD: 6 years Details (type of involvement): Development of systems & products	
Main sources of information on humanitarian demining: <input checked="" type="checkbox"/> direct contacts with deminers, (1:little, 5: mostly used) 2 <input checked="" type="checkbox"/> field visits, (1:little, 5: mostly used) 3 <input checked="" type="checkbox"/> literature, (1:little, 5: mostly used), which literature source is used on a frequent basis 3 Journal: Janes defence, military technology <input checked="" type="checkbox"/> Internet, (1:little, 5: mostly used), which site is used on a frequent basis 4 Web address: search engines, US sites, GICHD + University Switzerland	
Frequency of field visits: 1: none; <input checked="" type="checkbox"/> sporadically (once a year) 3: regularly (several times a year) Where: indicate geographical zones/countries: mainly Europe, Croatia	
Frequency of contacts with deminers: 1: none; <input checked="" type="checkbox"/> sporadically (once a year) 3: regularly (several times a year) Who (names + contact details): CROMAC	
Knowledge of demining operations: 5	(1:none, 5: in depth)
(ex. SOPs (Standard Operating Procedures)) Details: Learned from presentations & contacts with deminers Training attended for deminers by German Engineer School Military school – special training for HD – email contactperson	
Knowledge of deminers' requirements: 3	(1:none, 5: in depth)
(ex. SORs (Statements Of Requests), "wish lists") Details: Especially high tech systems not so much for low level equipments	
Financial Sources of your research activities (who is financing the research carried out): HD – no money from company is spent – contracts for German & French militaries – goal is to develop dual use items. + EC 90 % funding : probably the last project that will be dealt with	
Would you like to know more on humanitarian demining (yes/no/yes and already planned): What and at which frequency: <input type="checkbox"/> ad hoc courses, <input type="checkbox"/> field visits; <input type="checkbox"/> weekly <input type="checkbox"/> monthly updates <input type="checkbox"/> yearly : HD is not a priority from business point of view	

Knowledge of the UXO problem (UneXploded Ordnance): 4 (1:none, 5: in depth)

UXO problem taken into account in your research: 5 (1:no, 5: fully)
 How has it been taken into account? (describe) Special developed equipment – HD equipment to detect UXO + mines (dual use)

Technologies studied (list which ones) :

GPR
 MD
 Combined multi sensor detection systems (details, which sensors): GPR, EMI, Multispectral camera (3 channels RGB + near IR, T & E, water air spade, decoy devices for magnetic + TR, NQR, vehicle based
 mechanical equipment
 remotely operated detection systems
 remotely operated area reduction systems
 chemical systems (eg. Biosensor)

Kind of research (applied):
 Short Term
 Long Term: aim to 2008

In which application areas:
 hand held
 vehicle based
 air borne

Aimed at
 AP
 AT
 UXO

Overlaps between technologies from other application domains (e.g. medical/geoscience): which ones and how?
 NO – technology only for demining, GPR elsewhere could be used but this is not their business.

Research activities related to a specific country or area: Equipment developed could be used anywhere (ex. Cambodia)

PART II: Knowledge of other (R&D) activities, esp. EC.

Knowledge of ongoing EC R&D projects related to humanitarian demining: 4 (1:none, 5: in depth)
 Hope, clearfast, ...
 Knowledge of other R&D projects related to humanitarian demining: 4 (1:none, 5: in depth)

Details: MMSR (dual use project), US (Histamids)

Would you like to know more on current research activities
 yes
 no (visits to companies, attend conferences, follow literature + internet already)
 yes and already planned:

What and at which frequency:
 newsletter,
 workshop,
 conference, (Eudem2– SCOT Conference + presentation)
 e-mail;

weekly updates
 monthly updates

Preference for “push” or “pull” technique: Pull
 (ex. receiving possibly unsorted e-mail, or looking up oneself and selecting the information)

PART III: Involvement in Product/System testing.

Have you already been involved in equipment testing:

(yes, ongoing, no) yes

Details:

Do you have own test facilities? (Yes/no) yes

Which ones?

and box indoor

sand box with environmental control facilities indoor

and box outdoors

sand box with environmental control facilities outdoors

dummy minefields in controlled conditions: Germany

dummy minefields in less controlled conditions (eg. Croatia, Angola etc) Germany

What kind of tests are performed? All kinds of indoor & outdoor tests in all seasons with real time data fusion systems on test lanes + real minefield + measurements of signatures with different weather conditions, all Seasons and different sensors

and how?

own test methods

ITEP proposed methods

nationally indicated methods

Information on test methods is not publicly available

Is any further equipment testing planned: yes

(none; in the lab, under internal controlled conditions, under external controlled conditions, in the field)

Details: same as above

Type of product/system at which you are aiming + indication of how (with which funding/partners):

What is the state of maturity of your programme?

Research,

Breadboard (preliminary assembly of hardware to prove feasibility of proposed system, without regard to packaging, reliability or, often, safety).

Prototype, demonstrator, next phase full scale development

Pre-Production,

Production (if so what volume has been produced to date and what is the planned production rate per annum).

Produced + in service equipment for UXO & some mechanical mine clearing systems

What further budget will you require to reach each stage? 1ME MINIMUM FOR PRE-PRODUCTION

Have you used your: equipment / prototypes / research breadboards on test sites? YES

What test sites?

How many mines? 90

What type? Russian German NATO – AP AT without metal and with metal

What performance statistics did you obtain?

Under controlled conditions or optimum weather 98 % - but not always – wet & specific vegetation influenced most

What sample set size did you use? 20 by 2.5 m for different soil types

What soil weather conditions did you use?

All – (8 – 10 different soil)

How did the operators perform?

Full automatic system – result does not depend on the operators

What was their response / performance

Speed – parameters are different when you want to see all the mines – development to be made is to reduce false alarms

Assuming budget availability, how soon could you personally carry out demining operations with your equipment? in days, weeks months years?

In 2008 system must be on the market until then budget is available, the system will work very fast with special sensors. They will operate much faster, when a confirmation sensor is included. Maybe not the

<p>Biosensor since it depend largely on the soil type and the humidity. This was researched by the university and the German forces (Sillerfeld). Also LIPS (Laser Initiated Plasma) and Acoustic Wave Stimulation. A metal detector is useful for metal mines, a GPR is useful for non-metal mines. For the surface laid mines one needs a multisensor system</p>
<p>Are you taking into account social studies: <input type="radio"/> socio-economic surveys/ <input checked="" type="radio"/> environmental factors/ <input checked="" type="radio"/> physical limitations of the technologies/ <input checked="" type="radio"/> operational scenarios:</p> <p>How: B W B – DGA : scenarios : military + dual use for HD area clearing</p> <p>Do you disseminate the results? Yes</p> <p>How? <input checked="" type="radio"/> Participation to conference <input checked="" type="radio"/> Scientific Journals <input type="radio"/> other specialised publications <input type="radio"/> JMU/MAIC?</p>
<p>PART IV: General Comments:</p>
<p>Comments on the EUDEM2 initiative in general: Don't know</p> <p>Questionnaire: Some aspects are not asked – not so useful for him – demining is more than detecting mines. A complete system has more than detection decoin. Next to detection, it has a command & control system & a clearance system. In total this makes 6 vehicles. You need 4 vehicles at least. QA is needed – need another technology than for detection. Technologies destroy mines</p>
<p>Comments on the concept of an Open, Detailed Web based Database/Information Center (ex. EUDEM2):</p> <p>OK</p>
<p>For EC projects only: what exploitation plans exist and when will the first pre-production models be available for evaluation?</p> <p>2006 final trials</p>
<p>Comments on the way EC projects are financed, suggestions: HD – highly sophisticated systems – no sense to spend this money. NGO's will not have money to try high tech systems, don't have trained people.</p>
<p><i>*Please send us a copy of your reference material together with the fully approved complete questionnaire by separate mail to the following address:</i></p> <p>Karin De Bruyn EUDEM2 Survey Project Vrije Universiteit Brussels ETRO Dept., Fac. of Applied Sciences Pleinlaan 2 B-1050 Brussels, BELGIUM Fax: +322 6292883 or via mail kdebruyn@vub.ac.be</p>

Other remarks: Since 2000 there is a strict division between military demining and humanitarian demining activities in Germany. The ministry of foreign affairs is testing equipment in Angola. There is only a small budget available. The ministry of education and science and the military focus on military demining. HD is also part the military business because it brings in knowledge and money. The MMSR is a good example of this as it is meant for dual use purposes.