Exhibit R-2, RDT&E Budget Item Justification							February 2004	
Appropriation/Budget Activity RDT&E BA 4				R-1 Item Nomenclature: Humanitarian Demining 0603920D8Z				
Cost ($ in millions)	FY 2003	FY 2004	FY 2005	FY2006	FY 2007	FY 2008	FY 2009	
Total PE Cost	12.627	13.108	13.747	13.982	14.213	13.739	14.104	
Humanitarian Demining/P920	12.627	13.108	13.747	13.982	14.213	13.739	14.104	

A. Mission Description and Budget Item Justification:

The Humanitarian Demining R&D program element focuses on the testing, demonstration and validation of equipment for immediate use in international humanitarian demining missions and environments. The goal is to assess equipment capabilities in actual demining conditions by providing it to the international demining community. The equipment developed under this program also has military applications. Several pieces of equipment are being evaluated under the Joint Area Clearance Advanced Concept Technology Demonstration (JAC ACTD). The Humanitarian Demining R&D Program focuses on R&D technology development to reduce the time and cost associated with demining while improving operator safety. This is accomplished through adaptation of commercial-off-the-shelf equipment, the integration of mature technologies, and leveraging past and current R&D project activity in the Army's Night Vision and Electronic Sensor's Directorate (NVESD) tactical Countermine and Science and Technology mission areas. The program aims to improve existing technologies for: individual mine and minefield detection; wide area survey; mechanical/mine and vegetation clearance; mine neutralization; individual deminer/soldier protection; detection of explosives in buried mines (biosensors); verification of the presence of mines; marking and mapping of mines/minefields; post clearance quality assurance (QA); mine awareness training; and individual deminer tools. Areas of emphasis are determined/validated at annual Humanitarian Demining Workshops that bring the international Non-Governmental Organizations (NGOs) and Mine Action Centers (MACs) together to assist in this process.

B. Program Change Summary:

	FY 2003	FY 2004	FY 2005
Previous President's Budget	12.893	13.299	13.771
Current President's Budget	12.627	13.108	13.747
Total Adjustments			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Undistributed Reductions/Withholds	.266	.191	.024

C. Other Program Funding Summary: NA

D. Acquisition Strategy:

Following a rapid prototyping/development strategy, the program emphasizes the use/modification of existing commercially available items and components to build functional prototype equipment suited for humanitarian demining operations. This approach is required due to the immediate need for new humanitarian demining technologies in the face of ongoing casualties in mine-affected countries. The program develops prototype equipment by acquiring off-the-shelf equipment from industry using competition to the maximum extent possible, by leveraging ongoing countermine R&D efforts in other U.S. and foreign R&D activities, and by taking advantage of extensive in-house developmental capabilities at the Army's Night Vision & Electronic Sensor's Directorate (NVESD).

Exhibit R-2a, RDT&E Project Justification							February 2004	
Appropriation/Budget Activity RDT&E. BA 4				Project Name and Number Humanitarian Demining 0603920D8Z				
Cost ($ in millions)	FY 2003	FY 2004	FY 2005	FY2006	FY 2007	FY 2008	FY 2009	
Humanitarian Demining/P920	12.627	13.108	13.747	13.982	14.213	13.739	14.104	

B. Mission Description and Budget Item Justification:

The Humanitarian Demining R&D program element focuses on the testing, demonstration and validation of equipment for immediate use in international humanitarian demining missions and environments. The goal is to assess equipment capabilities in actual demining conditions by providing it to the international demining community. The equipment developed under this program also has military applications. Several pieces of equipment are being evaluated under the Joint Area Clearance Advanced Concept Technology Demonstration (JAC ACTD). The Humanitarian Demining R&D Program focuses on R&D technology development to reduce the time and cost associated with demining while improving operator safety. This is accomplished through adaptation of commercial-off-the-shelf equipment, the integration of mature technologies, and leveraging past and current R&D project activity in the Army's Night Vision and Electronic Sensor's Directorate (NVESD) tactical Countermine and Science and Technology mission areas. The program aims to improve existing technologies for: individual mine and minefield detection; wide area survey; mechanical/mine and vegetation clearance; mine neutralization; individual deminer/soldier protection; detection of explosives in buried mines (biosensors); verification of the presence of mines; marking and mapping of mines/minefields; post clearance quality assurance (QA); mine awareness training; and individual deminer tools. Areas of emphasis are determined/validated at annual Humanitarian Demining Workshops that bring the international Non-Governmental Organizations (NGOs) and Mine Action Centers (MACs) together to assist in this process.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005	
Accomplishment/ Effort/Subtotal Cost	12.627	13.108	13.747	

FY2003 Accomplishments

Continued to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging existing technology from the tactical countermine area. Continued to develop: Improved handheld detection using new developments in electro-magnetic induction, ground penetrating radar and acoustic technology; individual mine neutralization technologies using both high and low order detonation methods to include neutralization of mines under water; vegetation and mechanical clearance systems suitable for removing dense vegetation from mined areas and for excavating and clearing landmines for large area reduction and QA operations; and a solar powered battery charging system for field operations. Initiated/fielded operational evaluations of detection, mine/vegetation clearance and neutralization technologies in mine infested regions of the world. This includes the Mine Clearing Cultivator and Mine Clearing Sifter in Angola, the Uni-disk in Mozambique, the MAXX mini-mulcher in Namibia and Rwanda, a Tempest vegetation clearer in Thailand and Mozambique, the Survivable Demining Tractor and Tools in Thailand, the Sifting Excavator for a new operational field evaluation in Honduras, and Setco tires to Halo Trust (a humanitarian demining non-governmental organization) in Sri-Lanka, Djibouti and Georgia. Conducted site surveys/country assessments for Azerbaijan, Honduras, Angola and Mozambique to provide advice on specific prototype items developed under the program would be best suited based on the situation in the country and also assist in future development efforts. Conducted the annual HD Workshop in July 2003 to determine/validate areas of emphasis for technology development.

	FY 2003	FY 2004	FY 2005	
Accomplishment/ Effort/Subtotal Cost	12.627	13.108	13.747	

FY 2004 Plans:

Continue to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging technology from the tactical countermine area. Continue to develop improved handheld detection technologies, and mine/minefield marking. Continue to develop vegetation and mechanical clearance and neutralization systems suitable for removing dense vegetation from mined areas and excavating and clearing landmines for large area reduction and quality assurance operations. Initiate a comparative analysis of existing individual mine neutralization technologies. Continue to develop and demonstrate individual deminer tools and equipment. Conduct site survey(s), country assessment(s) and initiate/sustain operational field evaluations of prototypes developed under the program in the area of detection, mine/vegetation clearance, neutralization and personal deminer protection systems in mine-infested regions of the world. Continue on-going operational field evaluations of mine/vegetation clearance systems in heavily mined regions throughout the world. Continue development of equipments suitable for area reduction and quality assurance operations. Complete and distribute the 2003 Humanitarian Demining R&D Program Developmental Technologies video to assist with the global demining effort. Conduct an annual HD Requirements Workshop.

FY 2005 Plans:

Continue to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging technology with the tactical countermine area. Continue to develop detection technologies to improve detection capability and reduce false alarms. Continue to conduct site survey(s), country assessment(s) and operational field evaluations of detection, mine/vegetation clearance and neutralization systems in mine infested regions of the world. Continue to develop and demonstrate individual deminer protective equipment. Continue development of equipment suitable for area reduction and quality assurance operations. Continue wide area detection cooperative endeavor with international partners. Continue the mine neutralization technologies comparative evaluation initiated in FY2004. Complete and distribute the 2004 Humanitarian Demining R&D Program Developmental Technologies catalog to assist with the global demining effort. Conduct an annual HD Requirements Workshop.

C. Other Program Funding Summary: NA

Acquisition Strategy. Following a rapid prototyping process, the program emphasizes the use/modification of existing commercially available items and components to build functional prototype equipment suited for humanitarian demining operations. This approach is required due to the immediate need for new humanitarian demining technologies in the face of ongoing casualties in mine-affected countries. The program develops prototype equipment by acquiring off-the-shelf equipment from industry using competition to the maximum extent possible, by leveraging ongoing countermine R&D efforts in other U.S. and foreign R&D activities, and by taking advantage of extensive in-house developmental capabilities at the Army's Night Vision Laboratory.

Exhibit R-3 Cost Analysis			Date: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E / BA 4	PROGRAM ELEMENT 0603920D8Z		PROJECT NAME AND NUMBER Humanitarian Demining / P920

Cost Categories ($ in millions) (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various[1]	Various[2]	80.920	7.568	NA[3]	7.937	NA[3]	8.073	NA[3]	24.281	128.779	NA[4]
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			80.920	7.568		7.937		8.073		24.281	128.779	

Remarks:
1: The Humanitarian Demining R&D Program manages many individual contracts for the development of mine and minefield detection, mine and vegetation clearance, individual deminer tools and personal protection equipment, and mine neutralization technologies optimized for humanitarian demining. As such, one entry cannot be made for any category in this document. Competitive contracting is used to the maximum extent possible. Due to the nature of this program, which acquires very limited quantities (normally 1 or 2 each) of hand built or modified prototype items, most contract types are cost based.
2. Since so many performing organizations, both U.S. and foreign, are involved, one entry cannot be made for any cost category in this document.
3. The HD Program goal is to award all individual efforts to ensure DoD performance goals are met or exceeded.
4. Because individual contracts / task efforts seldom exceed a 12 month period of performance resulting in delivery of one or two prototypes, the total value of each individual contract is usually the same as the award amount for all cost categories in this document.

Development Support												
Software Development	Various[1]	Various[2]	3.146	.406	NA[3]	.426	NA[3]	.433	NA[3]	1.303	5.714	NA[4]
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			3.146	.406		.426		.433		1.303	5.714	

Remarks:
See remarks for notes 1, 2, 3 and 4 in the Product Development Section.

Exhibit R-3 Cost Analysis (page 2)			Date: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E / BA 4	PROGRAM ELEMENT 0603920D8Z		PROJECT NAME AND NUMBER Humanitarian Demining / P920

Cost Categories ($ in millions) (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation	NA	RDECOM NVESD Fort Belvoir, VA	2.744	.885	NA[3]	.928	NA[3]	.944	NA[3]	2.839	8.340	NA[5]
Tooling												
GFE												
Subtotal T&E			2.744	.885		.928		.944		2.839	8.340	

Remarks:
3. See remarks for note 3 in the Product Development Section.
5. For the HD R&D Program, Operational Test and Evaluation is the limited operational field evaluations of prototype equipment. These evaluations are performed by the governmental mine action organization, or a supporting non-governmental demining organization in the host nation under actual conditions. Funds for this category support the preparation and shipment of the equipment, and logistics support packages (training, manuals, spare parts, etc.) to support the field evaluation. Although foreign governments are responsible for performing their own evaluation, the performing organization for the purpose of this document is CECOM NVESD.

Contractor Engineering Support	Various[1]	Various[2]	5.374	.750	NA[3]	.787	NA[3]	.800	NA[3]	2.406	10.117	NA[4]
Government Engineering Support	NA	RDECOM NVESD Fort Belvoir, VA	4.940	.957	NA[3]	1.004	NA[3]	1.021	NA[3]	3.070	10.992	NA
Program Management Support	Various[1]	Various[2]	7.500	.900	NA[3]	.944	NA[3]	.960	NA[3]	2.888	13.192	NA[4]
Program Management Personnel	NA	RDECOM NVESD Fort Belvoir, VA	.797	.143	NA[3]	.150	NA[3]	.153	NA[3]	.459	1.702	NA
Travel	NA	NA	1.672	.300	NA[3]	.315	NA[3]	.320	NA[3]	.963	3.570	NA
Labor (Research Personnel)	NA	RDECOM NVESD Fort Belvoir, VA	8.747	1.199	NA[3]	1.256	NA[3]	1.278	NA[3]	3.847	16.327	NA
Overhead												
Subtotal Management			29.030	4.249		4.456		4.532		13.633	55.900	

Remarks:
See remarks for notes 1, 2, 3 and 4 in the Product Development Section.

Total Cost			115.840	13.108		13.747		13.982		42.056	198.733	

Remarks