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| Exhibit R-2, RDT&E Budget Item Justification | | | | | | | February 2003 | |
|---|---------|----------------|----------------|--|----------------|---------|---------------|---------|
| Appropriation/Budget Activity RDT&E BA 4 | | | | R-1 Item Nomenclature: Humanitarian Demining 0603920D8Z | | | | |
| Cost (\$ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY2006 | FY 2007 | FY 2008 | FY 2009 |
| Total PE Cost | 13.220 | 12.893 | 13.299 | 13.771 | 14.010 | 14.236 | 13.746 | 14.083 |
| Humanitarian Demining/P920 | 13.220 | 12.893 | 13.299 | 13.771 | 14.010 | 14.236 | 13.746 | 14.083 |
| A. Mission Description and Budget Item Justification: | | | | | | | | |
| <p>The Humanitarian Demining R&D program element focuses on the testing, demonstration and validation of equipment for immediate use in various international humanitarian demining missions and environments. The goal is to provide equipment to the international demining community to assess equipment capabilities in actual demining conditions. The equipment developed under this program also has many uses for military applications as several pieces of equipment are being evaluated under the Joint Area Clearance Advanced Concept Technology Demonstration (JAC ACTD). This program focuses on R&D technology development that reduces the time and cost associated with demining while improving the overall safety of the operator. This is accomplished through the adaptation of commercial-off-the-shelf equipment, the integration of mature technologies, and the leveraging from past and current R&D project activity in the tactical countermine and unexploded ordnance clearance mission areas. The program aims to improve on existing technologies for: mine and minefield detection; wide area survey; mechanical/mine vegetation clearance to clear large areas quickly and more efficiently; individual deminer 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 hand tools. The annual Humanitarian Demining Workshop brings the international community's Non-Governmental Organizations (NGO's) and Mine Action Centers (MACs) together to identify areas of emphasis.</p> | | | | | | | | |
| B. Program Change Summary: | | | | | | | | |
| | | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | | | |
| Previous President's Budget | | 13.220 | 13.355 | 13.529 | 14.074 | | | |
| Current BES/President's Budget | | 13.220 | 12.893 | 13.299 | 13.771 | | | |
| Total Adjustments | | | | | | | | |
| Congressional program reductions | | | 462 | | | | | |
| Congressional rescissions | | | | | | | | |
| Congressional increases | | | | | | | | |
| Reprogrammings | | | | | | | | |
| SBIR/STTR Transfer | | | | | | | | |
| C. Other Program Funding Summary: NA | | | | | | | | |
| D. Acquisition Strategy: | | | | | | | | |
| <p>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).</p> | | | | | | | | |

| Exhibit R-2a, RDT&E Project Justification | | | | | | | February 2003 | |
|--|---------|---------|---------|---|--------|---------|---------------|---------|
| Appropriation/Budget Activity RDT&E, BA 4 | | | | Project Name and Number Humanitarian Demining 0603920D8Z | | | | |
| Cost (\$ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY2006 | FY 2007 | FY 2008 | FY 2009 |
| Humanitarian Demining/P920 | 13.220 | 12.893 | 13.299 | 13.771 | 14.010 | 14.236 | 13.746 | 14.083 |
| A. Mission Description and Budget Item Justification: | | | | | | | | |
| <p>The Humanitarian Demining R&D program element focuses on the testing, demonstration and validation of equipment for immediate use in various international humanitarian demining missions and environments. The goal is to provide equipment to the international demining community that assesses the equipment's capabilities in actual demining conditions. The equipment developed under this program also has military applications and several pieces of equipment are being evaluated under the Joint Area Clearance Advanced Concept Technology Demonstration (JAC ACTD). This program focuses on R&D technology development to reduce the time and cost associated with demining while improving overall safety for the operator. 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's (NVESD's) 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; 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 hand 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.</p> | | | | | | | | |
| B. Accomplishments/Planned Program | | | | | | | | |
| | FY 2002 | FY 2003 | FY 2004 | FY 2005 | | | | |
| Accomplishment/ Effort/Subtotal Cost | 13.220 | 12.893 | 13.299 | 13.371 | | | | |
| <p>Continued to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging existing technology from the tactical countermine area. Continued to develop wide area detection, improved handheld detection, mine/minefield marking capabilities and individual mine neutralization. Evaluated an area reduction system based on vapor detection in a cooperative endeavor with international partners. Continued to develop vegetation and mechanical clearance and neutralization systems suitable for removing dense vegetation from mined areas, and for excavating and clearing landmines for large area reduction and QA operations. Continued development and demonstration of individual deminer protective equipment. Continued development and fielding of equipment suitable for area reduction and quality assurance operations. Initiated/fielded operational evaluations of detection, mine/vegetation clearance, neutralization and personal deminer protection systems in mine infested regions of the world. This includes the Mine Clearing Cultivator and the Mine Clearing Sifter in Angola, the MEDDS and Nomatics Fido explosive detector in Croatia, the MAXX mini-mulcher in Namibia, a Tempest vegetation clearer in Cambodia, a Tempest and the Survivable Demining Tractor in Thailand, and another Tempest in Mozambique. Completed the 2002 Humanitarian Demining R&D Program video to assist with the global demining effort. Continued to develop and demonstrate individual deminer protective equipment. Continued development of equipments suitable for area reduction and quality assurance operations. 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 to determine/validate areas of emphasis for technology development.</p> | | | | | | | | |
| | FY 2002 | FY 2003 | FY 2004 | FY 2005 | | | | |
| Accomplishment/ Effort/Subtotal Cost | 13.220 | 12.893 | 13.299 | 13.371 | | | | |

FY 2003 Plans:

Continue to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging technology from the tactical countermine area. Continue to develop wide area and 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. Continue to develop and demonstrate individual deminer protective equipment. Conduct site survey(s), country assessment(s) and initiate 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 to develop and demonstrate individual deminer protective equipment. Continue development of equipments suitable for area reduction and quality assurance operations. Continue wide area detection cooperative endeavor with international partners. Complete and distribute the 2003 Humanitarian Demining R&D Program Developmental Technologies video to assist with the global demining effort. Conduct the annual HD Workshop in July.

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 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. Complete and distribute the 2004 Humanitarian Demining R&D Program Developmental Technologies catalog to assist with the global demining effort. Conduct an annual HD Workshop.

FY 2005 Plans:

Continue to develop and demonstrate detection technologies for discrimination and confirmation to include leveraging technology from 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. Complete and distribute the 2005 Humanitarian Demining R&D Program Developmental Technologies video to assist with the global demining effort. Conduct an annual HD Workshop.

C. Other Program Funding Summary: NA

Acquisition Strategy. Following a rapid prototyping, spiral development 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.

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| Exhibit R-3 Cost Analysis | | | | | | | | | | Date: February 2003 | | |
|---|------------------------------|--------------------------------------|----------------------|-----------------|---------------------|-------------|----------------------|-------------|----------------------|------------------------------|---------------|--------------------------------|
| APPROPRIATION/BUDGET ACTIVITY | | | | PROGRAM ELEMENT | | | | | | PROJECT NAME AND NUMBER | | |
| RDT&E / BA 4 | | | | 0603920D8Z | | | | | | Humanitarian Demining / P920 | | |
| Cost Categories (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 | 73907 | 6455 | NA ³ | 6650 | NA ³ | 6886 | NA ³ | 28036 | 121934 | NA ⁴ |
| Ancillary Hardware Development | | | | | | | | | | | | |
| Systems Engineering | | | | | | | | | | | | |
| Licenses | | | | | | | | | | | | |
| Tooling | | | | | | | | | | | | |
| GFE | | | | | | | | | | | | |
| Award Fees | | | | | | | | | | | | |
| Subtotal Product Development | | | 73907 | 6455 | | 6650 | | 6886 | | 28036 | 121934 | |
| Remarks: | | | | | | | | | | | | |
| <p>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.</p> <p>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.</p> <p>3. The HD Program goal is to award all individual efforts to ensure DoD performance goals are met or exceeded.</p> <p>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.</p> | | | | | | | | | | | | |
| Development Support | | | | | | | | | | | | |
| Software Development | Various ¹ | Various ² | 3345 | 602 | NA ³ | 665 | NA ³ | 689 | NA ³ | 2804 | 8105 | NA ⁴ |
| Training Development | | | | | | | | | | | | |
| Integrated Logistics Support | | | | | | | | | | | | |
| Configuration Management | | | | | | | | | | | | |
| Technical Data | | | | | | | | | | | | |
| GFE | | | | | | | | | | | | |
| Subtotal Support | | | 3345 | 602 | | 665 | | 689 | | 2804 | 8105 | |
| Remarks: | | | | | | | | | | | | |
| See remarks for notes 1, 2, 3 and 4 in the Product Development Section. | | | | | | | | | | | | |

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| Exhibit R-3 Cost Analysis (page 2) | | | | | | | | | | Date: February 2003 | | |
|--|------------------------------|--------------------------------------|----------------------|-----------------|---------------------|-------------|----------------------|-------------|----------------------|------------------------------|---------------|--------------------------------|
| APPROPRIATION/BUDGET ACTIVITY | | | | PROGRAM ELEMENT | | | | | | PROJECT NAME AND NUMBER | | |
| RDT&E / BA 4 | | | | 0603920D8Z | | | | | | Humanitarian Demining / P920 | | |
| Cost Categories (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 | CECOM NVESD Fort Belvoir, VA | 2753 | 400 | NA ³ | 399 | NA ³ | 413 | NA ³ | 1682 | 5647 | NA ⁵ |
| Tooling | | | | | | | | | | | | |
| GFE | | | | | | | | | | | | |
| Subtotal T&E | | | 2753 | 400 | | 399 | | 413 | | 1682 | 5647 | |
| 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 | 4243 | 1015 | NA ³ | 1064 | NA ³ | 1102 | NA ³ | 4486 | 11910 | NA ⁴ |
| Government Engineering Support | NA | CECOM NVESD Fort Belvoir, VA | 4268 | 870 | NA ³ | 931 | NA ³ | 964 | NA ³ | 3925 | 10958 | NA |
| Program Management Support | Various ¹ | Various ² | 5282 | 1451 | NA ³ | 1463 | NA ³ | 1515 | NA ³ | 6168 | 15879 | NA ⁴ |
| Program Management Personnel | NA | CECOM NVESD Fort Belvoir, VA | 725 | 143 | NA ³ | 133 | NA ³ | 138 | NA ³ | 561 | 1700 | NA |
| Travel | NA | NA | 1769 | 300 | NA ³ | 266 | NA ³ | 276 | NA ³ | 1122 | 3733 | NA |
| Labor (Research Personnel) | NA | CECOM NVESD Fort Belvoir, VA | 6654 | 1657 | NA ³ | 1728 | NA ³ | 1788 | NA ³ | 7291 | 19118 | NA |
| Overhead | | | | | | | | | | | | |
| Subtotal Management | | | 22941 | 5436 | | 5585 | | 5783 | | 23553 | 63298 | |
| Remarks: See remarks for notes 1, 2, 3 and 4 in the Product Development Section. | | | | | | | | | | | | |
| Total Cost | | | 102946 | 12893 | | 13299 | | 13771 | | 56075 | 198984 | |
| Remarks | | | | | | | | | | | | |