ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

June 2001

BUDGET ACTIVITY
3 - ADV TECHNOLOGY DEV

PE NUMBER AND TITLE
0603734A - Military Engineering Advanced Technology

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15338	5160	4747	0	0	0	0	0	0	0
T08 COMBAT ENG SYSTEMS	3645	5160	4747	0	0	0	0	0	0	0
T12 RAPID TERRAIN VISUALIZATION	11693	0	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

The objective of this program element (PE) is to mature and demonstrate technologies that provide capabilities required for the engineer and logistician to successfully plan, rehearse and execute missions in support of the commander and the transformed force projection Army. Critical deficiencies exist in the Army's ability to rapidly acquire, update, maintain and distribute terrain data in support of both terrain and battlefield visualization; to apply physics-based reasoning to planning and executing mobility, counter-mobility, survivability, and general engineering missions; to conduct logistics-over-the-shore operations in adverse sea states; to establish in-transit visibility of materiel and supplies; and to manage logistics distribution and logistics automation. The demonstration projects in this PE focus on the technologies required to correct these critical deficiencies. Capabilities demonstrated will be applicable to missions at all echelons within the force structure during either combat operations or operations other than war. Demonstrations are integral components of Army Advanced Warfighting Experiments, Advanced Concept Technology Demonstrations, other Advanced Technology Demonstrations, and joint field training exercises. Emphasis is placed on rapid transition of technologies into Command and Control (C2) systems, combat/war models and simulations or simulators. This provides shared situational awareness, common representation of terrain and consistent predictions or assessments of mobility, counter-mobility, survivability, and logistics missions in the linkage of C2 systems, models, and simulations being developed by the Army to exploit information technologies. The work in this PE is aligned with the Army's vision for the Objective Force and is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The PE contains no duplication with any effort within the Military Departments. Work is performed by the U.S. Army Engineer Research and Development Center (ERDC).

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	15762	5207	4725	0
Appropriated Value	15881	5207	0	
Adjustments to Appropriated Value	0	0	0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	-424	0	0	
c. Omnibus or Other Above Threshold Reductions	-64	0	0	
d. Below Threshold Reprogramming	0	0	0	
e. Rescissions	-55	-47	0	
Adjustments to Budget Years Since FY2001 PB	0	0	22	
Current Budget Submit (FY 2002/2003 PB)	15338	5160	4747	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - ADV TECHNOLOGY DEV	**0603734A - Military Engineering Advanced Technology**	**T08**

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
T08 COMBAT ENG SYSTEMS	3645	5160	4747	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The objective of this project is to demonstrate, at full scale, a capability to conduct logistics-over-the-shore (LOTS) operations at sea-state 3 (significant wave height - approx. 3 to 5 feet). This will greatly increase LOTS throughput of equipment and supplies from ship to shore, and significantly reduce the time and materials required to establish linkages between LOTS sites and the inland transportation infrastructure. This directly supports the Chief of Staff's requirement to put a combat capable brigade anywhere in the world in 96 hours, a division on the ground in 120 hours, and five divisions in 30 days. In the event that ports do not exist in the area of operations or that ports are inadequate or access to ports is denied through enemy action or geopolitical considerations, LOTS/JLOTS operations will be required to close the force. LOTS/JLOTS can also be used to augment existing available port facilities and to shorten lines of communication to enhance the Commander in Chief (CINC) scheme of maneuver. Present LOTS operations are limited to Sea State 2 (significant wave heights - approx. 1 to 3 feet) or less; this is an unacceptable limitation to force projection and Chairman of the Joint Chiefs of Staff (CJCS) has mandated Sea State 3 capability by 2005. A complete engineering design of a full-scale Rapidly Installed Breakwater (RIB) will be developed based on detailed engineering analyses, and laboratory and ¼-scale field tests. In the final year of the ATD, a full-scale demonstration of the RIB that reduces Sea State 3 wave conditions by 50 percent will be performed. Evaluations of the full-scale deployability, transportability, mooring loads, structural integrity, and potential of RIBS for storm survival will be conducted. The capability to rapidly, and with minimum logistics burdens and reduced engineer equipment, stabilize beach sands and soft soils for roads, material storage areas, heliports, and other horizontal operating surfaces associated with LOTS operations will be demonstrated. Note: Sea-state is based on the Pierson - Moskowitz Sea Spectrum which includes wind, wave height and frequency. The work is performed by the U.S. Army Engineer Research and Development Center (ERDC). This project supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 1495 - Completed initial engineering design for full-scale RIB based on detailed engineering analyses, laboratory tests, and ocean scale field tests; provided the capability to rapidly stabilize beach sands with minimum logistics burdens and reduced engineer equipment.

  - Completed initial engineering design for full-scale RIB mooring system that incorporates high strength mooring line, elastomers, and high holding power/non-slip anchors.
- 450 - Developed concept for RIB Advanced Technology Demonstration (ATD) to include RIB deployment and sandy beach field demonstration.

FY 2000 Accomplishments (Continued)

- 1700 - Completed field test of mid-scale final version ATD RIB that demonstrated: mooring system; potential employment methods; fabrication advances; and survivability options.

Total 3645

FY 2001 Planned Program

- 3417 - Develop RIB XM 2001 (two segments per leg) to include: fabrication of four interchangeable RIB segments and connectors; design, procurement, and testing of mooring system for RIB XM 2001; demonstration of RIB employment alternative(s); fabrication of Nose Assembly for RIB.
- 179 - Complete final design of RIB Nose Section.
- 298 - Complete final design of ATD RIB to be used in FY 2002.
- 218 - Complete plans for FY 2002 ATD.
- 894 - Provide plan, acquire materials for FY 2002 ATD sandy beach stabilization demonstration.
- 154 - Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 5160

FY 2002 Planned Program

- 3722 - Perform ATD Field Demonstration to include: fabrication of four interchangeable RIB Segments; deployment of full scale full length RIB; and employment/recovery of RIB by barge system.
- 400 - Design, procure, and deploy ATD RIB mooring system.
- 300 - Demonstrate ATD Beach Stabilization Technology.
- 325 - Design ATD RIB System and Beach Stabilization methodology.
- - Fabricate additional segments to be used with the engineering development model tested in FY 2001.

Total 4747