Determining the Water Bootprint of the Army’s Supply Chain

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Army Environmental Policy Institute
What is a Water Bootprint?

• The water bootprint (footprint) is an indicator of water use

• Direct (operational) water refers to the water used in support of daily operations e.g. drinking, washing vehicles, watering lawns, etc.

• Indirect (supply chain) water use refers to water that is “embedded” in the energy, materials, and other products the Army procures

• The water footprint is the volume of water used to produce one unit or piece
Water Bootprint Components

• There are three primary components of a water bootprint

  – *Blue water*

  – *Green water*

  – *Grey water*

• Depending on the processes, blue and green water that is not consumed will become grey water.
Water Bootprint of a Product

- Water bootprint of a product is the sum of the water footprints of all the process steps
- Coca-Cola determined the water footprint of its 0.5 liter bottle of Coca-Cola –
  - Product Packaging
  - Product Ingredients
  - Plant Operations
- Study concluded that approximately 35 liters of water are used to produce a single 0.5 liter bottle of soda
Study Objective

• Quantify how much water is needed to produce the goods and services the Army obtains

• Identify related sustainability issues and policy implications

• This enables the Army to render proactive supply-side policy decisions
Methods

• Identify Supply Chain/Commodities
• Identify Key suppliers
• Develop a water factor for each commodity
• Learn the usage of each commodity

• Assumptions
  – Skip direct water usage (on-installation utilities)
  – Water factors and Procurement data are available numbers
Water Factor Calculation Alternatives

- Obtain water use data directly from all producers/suppliers
- Develop water use factors from the literature
- Apply economic activity levels to Life Cycle Assessment (LCA) model outputs by sector use. Use the ECO–LCA Model
IMPAC Bootprint Calculation Steps

• Determine total amount Army spent in FY10 on IMPAC transactions from DoD GSA Smart Pay data
• Align to appropriate Eco-LCA model economic market sector (sector = retail trade)
• Adjust expenditures to 1997 economy using CPI conversion factor (for retail trade = 0.811)
• Multiply adjusted expenditures by retail trade water use factor per $1M (= 7,536,079 gallons) to determine total water bootprint
<table>
<thead>
<tr>
<th>Merchant Group</th>
<th>Total Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale Trade</td>
<td>$1,020,772,923</td>
</tr>
<tr>
<td>Business Expense</td>
<td>$588,842,074</td>
</tr>
<tr>
<td>Other</td>
<td>$290,688,096</td>
</tr>
<tr>
<td>Office Services</td>
<td>$267,531,165</td>
</tr>
<tr>
<td>Building Services</td>
<td>$161,460,031</td>
</tr>
<tr>
<td>Office Supplies</td>
<td>$77,918,039</td>
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<tr>
<td>Hotels</td>
<td>$76,548,798</td>
</tr>
<tr>
<td>Mail/Telephone</td>
<td>$71,432,848</td>
</tr>
<tr>
<td>Medical</td>
<td>$65,971,891</td>
</tr>
<tr>
<td>MRO Supplies</td>
<td>$64,237,331</td>
</tr>
<tr>
<td>Vehicle Expense</td>
<td>$49,725,698</td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>$42,625,626</td>
</tr>
<tr>
<td>Other Travel</td>
<td>$21,123,509</td>
</tr>
<tr>
<td>Money</td>
<td>$16,689,932</td>
</tr>
<tr>
<td>Auto/RV Dealers</td>
<td>$11,431,725</td>
</tr>
<tr>
<td>Rental Cars</td>
<td>$5,654,685</td>
</tr>
<tr>
<td>Landscaping and Horticultural Services</td>
<td>$4,330,949</td>
</tr>
<tr>
<td>Retail Services</td>
<td>$2,318,210</td>
</tr>
<tr>
<td>Veterinary Services</td>
<td>$1,509,487</td>
</tr>
<tr>
<td>Agricultural Cooperative</td>
<td>$551,528</td>
</tr>
<tr>
<td>Airline</td>
<td>$525,937</td>
</tr>
<tr>
<td><strong>Grand Total as of 30 June 2010</strong></td>
<td><strong>$2,841,890,482</strong></td>
</tr>
</tbody>
</table>
Civil Works & MILCON Bootprint Calculation Steps

• Obtain from HQ, USACE total amount spent in FY10 on Civil Works & MILCON construction
• Align various construction categories to appropriate Eco-LCA model economic market sectors
• Adjust expenditures to 1997 economy using CPI conversion factors
• Multiply adjusted expenditures in each construction category by applicable water use factor/$1M to determine total water bootprint
## Civil Works

<table>
<thead>
<tr>
<th>Program Component</th>
<th>FY10 Funded ($M)</th>
<th>FY11 Request ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$ 2,028</td>
<td>$1,690</td>
</tr>
<tr>
<td>Operation and Maintenance</td>
<td>$ 2,400</td>
<td>$2,361</td>
</tr>
<tr>
<td>Investigations</td>
<td>$ 162</td>
<td>$ 104</td>
</tr>
<tr>
<td>Mississippi River and Tributaries</td>
<td>$ 340</td>
<td>$ 182</td>
</tr>
<tr>
<td>Flood Control and Coastal Emergencies</td>
<td>$ 0</td>
<td>$ 30</td>
</tr>
<tr>
<td>Regulatory Program</td>
<td>$ 190</td>
<td>$ 193</td>
</tr>
<tr>
<td>Expenses</td>
<td>$ 185</td>
<td>$ 185</td>
</tr>
<tr>
<td>Office of the Assistant Secretary (Civil Works)</td>
<td>$ 5</td>
<td>$ 6</td>
</tr>
<tr>
<td>Formerly Utilized Sites Remedial Action Program</td>
<td>$ 134</td>
<td>$ 130</td>
</tr>
<tr>
<td>Totals</td>
<td>$5,446</td>
<td>$4,881</td>
</tr>
</tbody>
</table>

### Civil Works Bootprint Calculation

<table>
<thead>
<tr>
<th>Civil Works/MILCON Component</th>
<th>FY10 Funded ($M)</th>
<th>CPI Conversion Factor&lt;sup&gt;a&lt;/sup&gt;</th>
<th>FY10 Expenditures ($M) (Adjusted)</th>
<th>Water Use (L/$1M)</th>
<th>Water Use (Gal/$1M)</th>
<th>Total Water Use (Gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 2,028</td>
<td>0.74</td>
<td>$1,501</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>7,287,326,913</td>
</tr>
<tr>
<td>Operation and Maintenance&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 2,400</td>
<td>0.74</td>
<td>$1,776</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>8,622,446,767</td>
</tr>
<tr>
<td>Investigations&lt;sup&gt;c&lt;/sup&gt;</td>
<td>$ 162</td>
<td>0.74</td>
<td>$ 120</td>
<td>10,728,093</td>
<td>2,834,062</td>
<td>340,087,467</td>
</tr>
<tr>
<td>Mississippi River &amp; Tributaries&lt;sup&gt;d&lt;/sup&gt;</td>
<td>$ 340</td>
<td>0.74</td>
<td>$ 252</td>
<td>20,769,003</td>
<td>5,486,590</td>
<td>1,382,620,686</td>
</tr>
<tr>
<td>Regulatory Program&lt;sup&gt;e&lt;/sup&gt;</td>
<td>$ 190</td>
<td>0.74</td>
<td>$ 141</td>
<td>38,689,146</td>
<td>10,220,591</td>
<td>1,441,103,328</td>
</tr>
<tr>
<td>Expenses&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 185</td>
<td>0.74</td>
<td>$ 137</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>665,132,436</td>
</tr>
<tr>
<td>Office of the ASA(CW)&lt;sup&gt;f&lt;/sup&gt;</td>
<td>$ 5</td>
<td>0.74</td>
<td>$ 4</td>
<td>9,469,558</td>
<td>2,501,593</td>
<td>10,006,370</td>
</tr>
<tr>
<td>FUSRAP&lt;sup&gt;g&lt;/sup&gt;</td>
<td>$ 134</td>
<td>0.74</td>
<td>$ 99</td>
<td>43,738,844</td>
<td>11,554,580</td>
<td>1,143,903,426</td>
</tr>
<tr>
<td>MILCON&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$7,000</td>
<td>0.74</td>
<td>$5,180</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>25,148,803,071</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>$12,446</strong></td>
<td>N/A</td>
<td><strong>$9,210</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>46,041,430,464</td>
</tr>
</tbody>
</table>

**Water Bootprint (Gal)**: 46,041,430,464

Or 69,759,743 Olympic sized swimming pools.
Supply Chain Components

• The supply chain primarily consists of the ten categories (classes) of products and services the Army routinely procures through the supporting supply system, and purchased energy, which are briefly described as follows:
  – *Class I* – Subsistence (food) and gratuitous health and welfare items
  – *Class II* - Clothing, individual equipment, tentage, tool sets and tool kits, hand tools, and administrative and housekeeping supplies and equipment.
  – *Class III* - Petroleum, oils, and lubricants: petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquid and compressed gases, chemical products, coolants, deicing and antifreeze compounds, together with components and additives of such products, and coal.
  – *Class IV* - Construction materials to include installed equipment and all fortification and barrier materials.
  – *Class V* – Ammunition and explosives
  – *Class VI* - Personal demand items (nonmilitary sales items) - these items are procured through the Army and Air Force Exchange Service (AAFES)
  – *Class VII* - Major end items – a final combination of end products which is ready for its intended use and principal items (for example, launchers, tanks, mobile machine shops, and vehicles)
  – *Class IX* - Repair parts.
  – *Class X* - Materiel to support nonmilitary programs (for example, agriculture and economic development) not included in Class I through IX. Many Class X items are nonstandard items (windmill parts, kits, and plows, for example)
• Logistics Metric Analysis Reporting System (LMARS) maintains the logistics pipeline information for all wholesale items.

• Data pulled for FYs 2002 – 2010 used only closed procurement requests to represent material actually being purchased.

<table>
<thead>
<tr>
<th>FY</th>
<th>Total Amount</th>
<th># of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>$8,673,399,476.11</td>
<td>252,171</td>
</tr>
<tr>
<td>2003</td>
<td>$9,792,416,350.89</td>
<td>252,313</td>
</tr>
<tr>
<td>2004</td>
<td>$11,026,673,033.22</td>
<td>275,041</td>
</tr>
<tr>
<td>2005</td>
<td>$12,237,547,927.88</td>
<td>274,204</td>
</tr>
<tr>
<td>2006</td>
<td>$12,691,574,514.12</td>
<td>258,066</td>
</tr>
<tr>
<td>2007</td>
<td>$13,016,250,306.43</td>
<td>256,032</td>
</tr>
<tr>
<td>2008</td>
<td>$12,890,383,149.95</td>
<td>256,038</td>
</tr>
<tr>
<td>2009</td>
<td>$11,805,196,188.17</td>
<td>255,922</td>
</tr>
<tr>
<td>2010</td>
<td>$18,946,912,972.27</td>
<td>246,492</td>
</tr>
<tr>
<td>Total</td>
<td>$111,080,353,919.05</td>
<td>2,326,279</td>
</tr>
</tbody>
</table>
Supply Class VI
Bootprint Calculation Example

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AAFES Sales Category/Eco-LCA Model Market Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gas/Petroleum Refining</td>
</tr>
<tr>
<td>CY10 Retail Sales</td>
<td>$ 748,472,049</td>
</tr>
<tr>
<td>CPI Conversion Factor</td>
<td>0.425(^a)</td>
</tr>
<tr>
<td>CY10 Retail Sales (Adj)</td>
<td>$ 318,100,621</td>
</tr>
<tr>
<td>Water Use (L/$1M)</td>
<td>44,136,271</td>
</tr>
<tr>
<td>Water Use (Gal/$1M)</td>
<td>11,659,569</td>
</tr>
<tr>
<td>Total Water Use (Gal)</td>
<td>3,708,909,026</td>
</tr>
<tr>
<td>Water Bootprint (Gal)</td>
<td>32,787,013,214</td>
</tr>
</tbody>
</table>
Using the Data – Case Studies

- Abrams tank (M1, M1A1, M1A2)
- 1993 estimated cost per unit $4.3 million
- 8,800 made total from 1980 to 1993.
- There are 11 major suppliers of the Abrams. Final assembly at Lima, Ohio, a GOCO, where other components are made such as the turret.
- Note three* are located in desert environments
- 634 Trillion gallons or
- 72 million gallons/tank

1. *Ashot Ashkelon, Israel- Drive Train, Suspension and Mobility solutions for Tanks & APC's; Tungsten Based Armor Penetrators and Fragments Manufacture
2. ATI Electronique, France - Military Interconnect Products
3. BEI Precision Systems & Space Company, AR - Optical Encoders, Scanners and Accelerometers
4. Bose Corporation, MA - Bose® Military Headsets
5. Cobham Defence Communications, UK - Platform Communication Systems
6. Data Device Corporation, NY - High-Reliability Data Networking Technology
7. Diehl Remscheid Germany- Armoured Vehicle Tracks
8. *Esterline Defense Technologies CA- Combustible Ordnance Products for Military Applications
9. ISO Group FL - Spare Parts, Components and Logistics
11. *Parvus Corp UT- Rugged COTS Embedded Computer and Network
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Back-up Slides
Utility Energy Methods

Water Consumption Associated with Purchased Electricity and Steam

• Water Bootprint study considers water consumed in the generation of electricity that is produced off-post and purchased by the Army
• Water consumption associated with electricity or steam generated on-post has been captured elsewhere, and is not accounted for in this study
• Data collected to support initial reporting of Greenhouse Gas (GHG) Inventory (pursuant to EO 13514) can be leveraged to support this study (e.g., installation energy consumption data from the Energy Management Data Report)
• Water consumption estimates will be generated by multiplying energy purchased by water consumption factors derived from scientific literature, which consider:
  ▪ Mining, extraction, beneficiation, production, and transportation of raw fuels used to generate electricity and steam
  ▪ Water consumed while producing electricity (e.g., cooling water, make-up water, flue gas desulfurization)
• Water consumption estimates will be compared with other modeling techniques
MILCON

Source: U.S. ARMY CORPS OF ENGINEERS – DIRECTORATE OF MILITARY PROGRAMS
441 G STREET NW; WASHINGTON, DC 20314
http://usace.army.mil/CEMP/Pages/Home.aspx
Interagency & International Support
Bootprint Calculation Steps

- Obtain from HQ, USACE total amount spent in FY10 on I&IS construction and other services
- Align various construction categories to appropriate Eco-LCA model economic market sectors
- Adjust expenditures to 1997 economy using CPI factors
- Multiply adjusted expenditures in each construction category by applicable water use factor/$1M to determine total water bootprint
## Interagency & International Support Bootprint Calculation

<table>
<thead>
<tr>
<th>IIS Program Component</th>
<th>FY10 Funded ($M)</th>
<th>CPI Conversion Factor&lt;sup&gt;a&lt;/sup&gt;</th>
<th>FY10 Funded ($M) (Adjusted)</th>
<th>Water Use (L/$1M)</th>
<th>Water Use (Gal/$1M)</th>
<th>Total Water Use (Gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interagency Support&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 2,014</td>
<td>0.74</td>
<td>$1,490</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>7,233,921,690</td>
</tr>
<tr>
<td>International Support, Europe, South America, Pacific, and Middle East&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 7,006</td>
<td>0.74</td>
<td>$5,184</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>25,168,221,504</td>
</tr>
<tr>
<td>International Support, Foreign Military Sales&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 940</td>
<td>0.74</td>
<td>$ 696</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>3,379,066,776</td>
</tr>
<tr>
<td>Cooperative Threat Reduction&lt;sup&gt;b&lt;/sup&gt;</td>
<td>$ 59</td>
<td>0.74</td>
<td>$ 44</td>
<td>18,378,103</td>
<td>4,854,981</td>
<td>213,619,164</td>
</tr>
<tr>
<td>Civil-Military Emergency Preparedness&lt;sup&gt;c&lt;/sup&gt;</td>
<td>$ 2</td>
<td>0.74</td>
<td>$ 1.5</td>
<td>20,769,003</td>
<td>5,486,590</td>
<td>8,229,885</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td><strong>$10,021</strong></td>
<td><strong>N/A</strong></td>
<td><strong>$7,416</strong></td>
<td><strong>N/A</strong></td>
<td><strong>N/A</strong></td>
<td><strong>36,003,059,019</strong></td>
</tr>
</tbody>
</table>

**Water Footprint (Gal)**  36,003,059,019  Or 54,550,089 Olympic Sized Swimming pools worth of water

Notes:
- <sup>a</sup>: =161.3/218.1
- <sup>b</sup>: Model sector = Other Construction
- <sup>c</sup>: Model sector = Social Assistance
Class III Methods

- Water Bootprint study considers water consumed in the production and transportation of bulk fuels purchased by the Army
- Water consumption associated with use of the fuel to generate steam, heat, or electricity or in aircraft, vehicles, and equipment is not captured
- Fuels include: coal, oil, natural gas, gasoline, diesel, aviation gas, jet fuel, and biofuels (e.g., ethanol, biodiesel, and biomass)
- Data collected to support initial reporting of GHG Inventory (pursuant to EO 13514) can be leveraged to support this study (e.g., FAST fuel consumption data and other non-fleet fuel consumption data from DLA purchases)
- Water consumption estimates will be generated by multiplying fuel quantities by water consumption factors derived from scientific literature, which consider:
  - Mining, extraction, beneficiation, production, and transportation of fuels
- Water consumption estimates will be compared with other modeling techniques
Supply Classes

Bootprint Calculation Steps

• Class III – Fuels
  – Obtain fuel consumption data by type from FY10 Army GHG inventory
  – For each fuel type, apply known water use factor (e.g., 3-7 gallons of water per gallon of gasoline) to total quantity purchased

• All other supply classes
  – Obtain annual aggregate purchase data for various product categories from appropriate source(s) (e.g., AAFES provided CY10 Class VI gross sales data in 4 categories – gasoline, retail less gasoline, food & beverages, concessions)
  – Adjust sales data to 1997 economy using CPI conversion factors
  – Align annual purchases to appropriate Eco-LCA model sector(s)
  – Apply model to estimate aggregate water bootprint
NSN Nomenclature

- Federal Supply Group or FSG Code is the 1st 2 digits of the Federal Supply Class (FSC)
- FSC Code is a 4 digit general description assigned based on end use
- National Item Identification Number or NIIN is a 9 digit number that when combined with the FSC code provide the National Stock Number (NSN)
- The FSC plus the NIIN = NSN (National Stock Number)

FSC     NIIN
6645-00-123-4567 = NSN
Analytical Approach

- DoD identifies material into 10 classes of supply. The class of supply did not provide enough detail to match model market sector coefficients from ECO-LCA.
- First identified the current list of Federal Supply Group (FSG) which represents the 1st 2 digits of the Federal Supply Code (FSC). There are approximately 80 FSGs.
- Still not enough level of detail in the FSG description so went to the FSC level which is the 1st 4 digits of the NSN. There are approximately 650 FSCs.
- Best fit matches for all FSCs except 40. Matches could not be determined because:
  - The FSC description was too general and the ECO-LCA model market sector was specific down to type of material used for the items (e.g. wood vs. metal vs. plastic etc.)
  - The FSC descriptor was too general and needed additional information to make a match.
- Determined that there was a need to go down to the NIIN (last 9 digits of an NSN) level to determine ECO-LCA model market sector fits for those 40 FSCs.
- Obtained Army wholesale procurement data from LMARS (Logistics Metrics Analysis Reporting System) from FYs 2002 – 2010, and matched actual NIIN level data for the 40 FSCs.
- By applying the actual LMARS NIIN data from FYs 2002 – 2010, it expanded the number of variables for the 40 FSCs to over 65,000 records.
- Determined best fit matches from ECO-LCA based on NIIN level descriptions. For those FSC/NIIN combinations where the level of detail was still not sufficient to make a clear determination for a model market sector, “Wholesale trade” model market sector was used as a default.
Class I
Subsistence

food and water

A Nonperishable
  DLA/DCS

C Combat Rations
  DLA/DCS

R Refrigerated
  DLA/DCS

S Other Nonrefrigerated
  DLA/DCS

W Water
  DLA/DCS

Supply Chain
Class II
General Items

clothing, individual equipment, tools, tents, admin. supplies

A  Air
   DLA Troop Support

B  Ground Support Materiel
   DLA Troop Support

E  General Supplies
   DLA Troop Support

F  Clothing
   DLA Troop Support

G  Electronics
   DLA Troop Support

M  Weapons
   DLA Troop Support

T  Industrial Supplies
   DLA Troop Support
FSC 9110
Solid Fuel

All items except coal

DSCP-BP

Coal

DESC-A
FSC 9130
Bulk Petroleum Based Liquid Propellants and Fuels

Military specification supply items (both ground and aviation fuels)
DESC-B (may procure packaged fuel items for direct delivery)

Commercial specification supply items (both ground and aviation fuels)
DESC-P (may procure packaged fuel items for direct delivery)

Petroleum based liquid propellants for Aerospace Energy program
DESC-M
FSC 6810
Chemicals

DSCR-EP
(through commodity privatization contract)
FSC 6830
Compressed and Liquefied Gases

- Majority of items in this FSC
- Natural gas, certain alternate fuel gases to include compressed natural gas and liquefied petroleum gas
- Compressed and liquefied gases used in the Aerospace Energy program

- DSCR-EP
- DESC-A
- DESC-M
FSC 6850
Miscellaneous Chemical Specialties

- Majority of items in this FSC including packaged fuel additives
- Bulk FSII (Fuel System Icing Inhibitor)
  - DSCR-EP
  - DESC-BC
FSC 9135
Liquid Propellant Fuels and Oxidizers, Chemical Base

All items in this stock class including gaseous and liquid hydrogen

DESC-M
FSC 9140
Fuel Oils

Military specification supply items including ground fuels and ships propulsion fuels

DESC-P
(may procure packaged fuel items for direct delivery if requested)

Commercial specification supply items including ground fuels and ships propulsion fuels

DESC-B
(may procure packaged fuel items for direct delivery if requested)
FSC 9150
Cutting, Lubricating, and Hydraulic Oils and Greases

All items in this FSC except certain bulk lubricants

Lubricating oils: aircraft turbine engine, aircraft piston engine (incl. non-dispersant mineral oil), shipboard, steam turbine, gear

DSCR-EP

DESC-BC

Class III
FSC 9160
Miscellaneous Waxes, Oils, and Fats

DSCP-BP
FSC 8120
Commercial and Industrial Gas Cylinders

Majority of items in this FSC

DSCR-EP

Gas cylinders for Aerospace Energy program: liquid gas tank, compressed gas cylinders, aluminum cylinders

DESC-M

Class III
Class IV
Construction Materials

Fortification, barrier, and construction material

A
Construction

DLA TS Construction Equipment Directorate

B
Barrier

DLA TS Construction Equipment Directorate
Class V Ammunition

A. Air Delivery
   - Majority of bulk propellants; loading, assembly, and packaging of large caliber (end) munitions, etc.
   - GOGO Installations & Facilities
     - AMC/JMC
   - GOCO Facilities
     - AMC/JMC

W. Ground
   - Ground and end components production (metal part, fuses), small caliber munitions (ground), etc.
   - GOCO Facilities
     - AMC/JMC
Class X
Nonmilitary or Civil-governmental Unique Items

DLA
## Interagency Support

<table>
<thead>
<tr>
<th>Supported Department or Agency</th>
<th>FY10 Funded ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of State</td>
<td>$630.0</td>
</tr>
<tr>
<td>Department of Veterans Affairs</td>
<td>$348.7</td>
</tr>
<tr>
<td>Environmental Protection Agency</td>
<td>$308.2</td>
</tr>
<tr>
<td>Department of Homeland Security, Customs &amp; Border Protection</td>
<td>$254.2</td>
</tr>
<tr>
<td>Department of Homeland Security, FEMA</td>
<td>$86.1</td>
</tr>
<tr>
<td>Department of Interior</td>
<td>$55.6</td>
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<tr>
<td>Department of Energy</td>
<td>$51.0</td>
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<tr>
<td>National Aeronautics and Space Administration</td>
<td>$28.1</td>
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<tr>
<td>Department of Justice</td>
<td>$17.7</td>
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<tr>
<td>Department of Homeland Security, Other</td>
<td>$16.6</td>
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<tr>
<td>Department of Commerce</td>
<td>$16.3</td>
</tr>
<tr>
<td>Agency for International Development</td>
<td>$13.0</td>
</tr>
<tr>
<td>Capitol Building, Architect of the Capitol</td>
<td>$12.6</td>
</tr>
<tr>
<td>Department of Health and Human Services</td>
<td>$11.8</td>
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<tr>
<td>Department of Agriculture</td>
<td>$10.7</td>
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<tr>
<td>Department of Transportation</td>
<td>$9.4</td>
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<tr>
<td>Government Corporations and Commissions</td>
<td>$8.6</td>
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<tr>
<td>Arlington National Cemetery</td>
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<tr>
<td>National Science Foundation</td>
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<tr>
<td>General Services Administration</td>
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<tr>
<td>Department of Housing and Urban Development</td>
<td>$1.3</td>
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<tr>
<td>Office of Personnel Management</td>
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<tr>
<td>Other Federal Agencies</td>
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<tr>
<td>State, Local, Tribal, and Private Sector</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$2,013.9</strong></td>
</tr>
</tbody>
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