Corps Balance: Making Sustainability Systemic

Written by: Eric Tegler on February 13, 2011

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Juan Marin Delgadillo, a carpenter with TRICON Construction, cuts a metal track for installation in a bulkhead wall while working at the Department of Defense Office Complex (Base Realignment and Closure 133) project site at Mark Center, Aug. 30, 2010. The Corps is aiming to qualify for LEED Gold certification with the construction of the Mark Center, a facility for 6,400 personnel. USACE's environmental strategies are expected to yield significant water savings and the center's two principal office towers are forecast to use 30 percent less energy than comparable office buildings. Photo courtesy of the U.S. Army Corps of Engineers, Marc Barnes

Through most of its history, the U.S. Army Corps of Engineers (USACE) operated with one goal in mind: executing the mission, whatever it might be. But for years now, the Corps has recognized that simply building a piece of infrastructure or altering a waterway to suit a singular purpose is not sufficient. Because of its special status as steward and manager of environmentally critical national land and water infrastructure, USACE must thoughtfully weigh the positives and negatives of accomplishing any mission before pressing ahead. Today and in the future, the Corps will measure mission success by overall environmental impact as much as by the achievement of a particular end.

This philosophy is called “sustainability” and USACE has crafted a document to guide and encourage this critical new Corps balance. The Strategic Sustainability Performance Plan (SSPP) will change the way the Corps approaches new projects and manages its existing infrastructure and mission activities.

The SSPP is a response to the Obama administration’s October 2009 Executive Order (EO) 13514: Federal Leadership in Environmental, Energy, and Economic Performance, which requires all federal agencies to meet expanded energy reduction and environmental performance criteria. Reviewed by the Council on Environmental Quality and the Office of Management and Budget, each agency’s SSPP, including the Corps, will be subsequently updated and reviewed annually.

The Corps’ SSPP sets out 10 sustainability goals, many of which include sub-goals and targets. All are compatible with the federal sustainability requirements enumerated in EO 13514. While the SSPP, unveiled on Sept. 9, 2010, lays out specific goals and performance targets, it also is intended to foster an institutionalized mentality of sustainability within the Corps.

“The goal is to manage the Corps missions in a way that is consistently sensitive to environmental and sustainability requirements,” John Coho, USACE’s senior adviser for environmental compliance, said. “Whatever missions the Corps [are] engaged in must be planned and executed in ways that are inherently sustainable.”

Coho is quick to point out that the Corps has embraced the sustainability ethic for some time. The Corps formally institutionalized sustainability in 2002 with the adoption of its “Environmental Operating Principles” (EOP). Consistent with the Army’s “Triple Bottom Line Plus: Mission Environment, and Community

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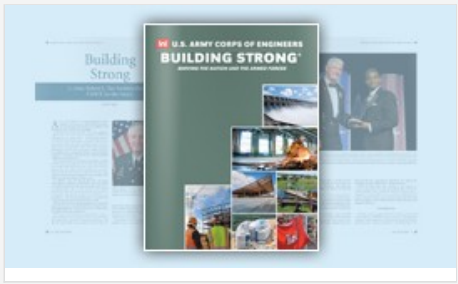

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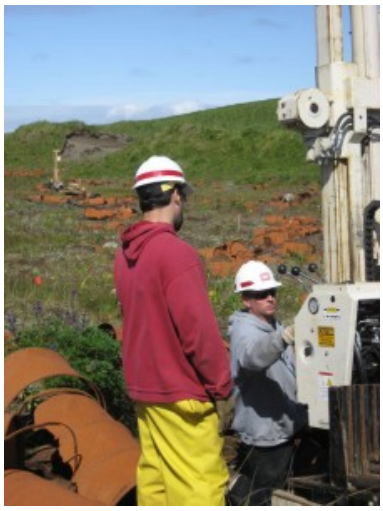
plus economic benefit, USACE's EOP made sustainability its first principle. It emphasized that "an environment maintained in a healthy, diverse and sustainable condition is necessary to support life."

USACE Commanding General Lt. Gen. Robert L. Van Antwerp is fully committed to institutionalizing sustainability. In an April 2010 Earth Day blog post ("The Nation's Environmental Engineer"), he discussed the Corps's environmental policy, recognizing that no other federal agency is addressing environmental issues of the same scope and magnitude as the Corps. Van Antwerp also acknowledged USACE's legacy, citing Lt. Gen. Henry J. Hatch, the 48th chief of engineers, who, in the early 1990s, laid out a vision for taking care of the environment, which neatly sums up the sustainability ideal the Corps is currently embracing.

"Environmental ethics and values must be more than an overlay," Hatch affirmed. "They must be a bone-deep part of our way of doing business."

Similarly, USACE's Campaign Plan, rolled out in late 2008, recognized sustainability as one of its four main goals. Goal 3 – delivering effective, resilient, sustainable solutions – joins overall readiness, enhanced water resources management, and quality recruiting as a pillar of the Corps' 21st century vision. Thus, the SSPP actually builds on more than a decade's worth of increasing emphasis on a culture of sustainability.



Will Mangano (left) and Jacob Sweet, USACE Alaska District, are operating the Ultra-Violet Optical Screening Tool (UVOSTA®) and Geoprobe drill rig on Tanaga Island in the Aleutians. The innovative UVOSTA® field-screening technique allowed real-time identification of petroleum and confirmed clean areas as part of a U.S. Army Corps of Engineers environmental project. The district was the winner of the FY 2009 Secretary of the Army Award for Environmental Restoration (Team). Photo courtesy of the U.S. Army Corps of Engineers, Alaska District, Scott Kendall

While the SSPP is a policy statement, its performance targets will challenge USACE across the board, requiring personnel to apply sustainable logic in every aspect of their mission activities to achieve the stated requirements.

"The real meat of [the SSPP]," Sustainability Program Manager Antonia Giardina said, "is in the second section, which covers goals, targets, federal requirements, and performance. Goal 1 is reducing greenhouse gases, primarily through a reduction in energy and petroleum consumption and increased use of alternative energy sources. There is a lot rolled into this goal and it has the most emphasis from the administration."

Specifically, the SSPP and federal requirements call for a 23 percent reduction in greenhouse gas emissions, an undertaking that Coho explained will require focus on "facility energy consumption, non-tactical vehicle fleet petroleum consumption, and floating plant petroleum energy consumption. Looking Corps-wide, most of that consumption falls on the Civil Works side of the house. Civil Works will have the challenge of figuring out, over the next 10 years, how to make those reductions happen.

"One of our key thoughts on implementing this," Giardina added, "is that we don't want to [figuratively] peanut butter spread a 23 percent reduction in greenhouse gases across every division and district. We want to strategically target where we might get the biggest bang for the buck in terms of benefit to the Corps and performance toward the goal."

And there are other targets. USACE will strive to reduce its potable water consumption by 26 percent by 2020. By 2015, the Corps expects to have reduced its overall facility energy consumption by 30 percent. Propelling it to that goal will be a greater utilization of renewable energy sources, which, as soon as 2013, are to provide 7.5 percent of the agency's electricity.

In USACE's Sacramento District, its New Hogan Lake Park Headquarters facility is operating a solar electricity system. New Hogan is one of nine Sacramento District park and dam operation offices to install solar systems, paid for with funds provided by the American Recovery and Reinvest Act. Photo courtesy of the U.S. Army Corps of Engineers, Sacramento District, Todd Plain

The Corps has already made progress toward these and other sustainability goals whether by building green, cleaning up environmental damage at formerly used and active military sites, or by leveraging alternative energy sources such as hydro and solar power.

Among its wide range of responsibilities, USACE is the Army's construction agent. To square its construction tasking with the goals set forth in the SSPP, the Corps has adopted standards set by the U.S. Green Building Council (USBGC) for sustainable design and development. USBGC Leadership in Energy and Environmental Design (LEED) standards have become the building industry's green benchmark, applied to all types of building projects. LEED® Silver certification is the baseline standard the Corps is using for military construction and is in the process of adopting for Civil Works' facilities.

The Corps is supporting its customers

requirements by building to LEED standards on construction projects including the 4th Infantry, 1st Brigade and Battalion Headquarters building at Fort Carson, Colo. With guidance from Omaha District USACE personnel, the design team and contractors employed native plants, natural daylight, an interior courtyard, and reflective, energy-efficient, blast-resistant windows to create a sustainable building that earned LEED Gold certification.

The Corps is likewise aiming to qualify for LEED Gold certification with the construction of the Alexandria, Va., Mark Center, a new office facility for 6,400 Defense Department personnel that is part of the Army's Fort Belvoir Base Realignment and Closure Act relocation. Environmentally sustainable construction and site development strategies are expected to yield significant water savings and the center's two principal office towers are forecast to use 30 percent less energy than comparable office buildings.

Green remediation is being executed in a sustainable fashion, for example, at a former ordnance plant in Mead, Neb. A groundwater recirculation well there (which treats groundwater and soil contaminated with hydrocarbons) is receiving approximately 30 percent of the energy its pump requires from a wind-powered turbine. Other remediation efforts have earned the Corps recognition and awards.

For its work on Tanaga and Ogliuga Islands in the Aleutians, the Alaska District's Formerly Used Defense Sites (FUDS) Program received the highest honor in the field of environmental science and sustainability conferred by the Army, the Secretary of the Army's Award for Environmental Restoration. The FUDS team used innovative approaches and technology to clean environmental contaminants, unexploded ordnance, and buried munitions on the remote islands, 1,350 miles southwest of Anchorage, Alaska. The team relied on private-contractor support, bolstering economic sustainability by working with 17 contractors, 14 of which were small businesses. The team saved more than $5.2 million in mobilization and demobilization costs and its work is estimated to yield a potential $5 million to $15 million savings in future Aleutian Islands remediation costs.

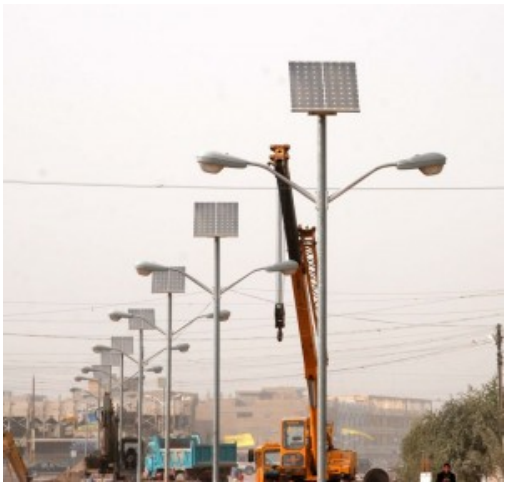
Solar-powered lighting is part of the Corps' infrastructure improvement projects in Iraq where the sun is always blazing. USACE's Gulf Region Division is helping the Iraqi government install approximately 1,500 solar-powered streetlights in the cities of Fallujah, Basra, Kharma, Saqlawiyah, and Baghdad. The streetlights have an 80-watt solar panel, a lead-acid battery, and an 18-watt fluorescent light bulb. For urban areas that are often without or low on electric power, the solar streetlights are an elegant, sustainable solution. Emissions-friendly, they also do not rely on any remote source of power. Solar panels are in use in Corps projects in parks and recreation areas in the Corps' Sacramento and Pittsburgh Districts as well.

Having the SSPP in place will encourage, facilitate, and normalize sustainable projects like those listed above and lead to a true system of sustainability, Giardina said.

"It's just a matter of continuous improvement. [The SSPP] is a big step toward institutionalizing sustainability within the Corps," she said.

Water resource management will be a key area to which a renewed sustainability approach will apply. As Coho explained, the interrelated nature of water systems and resources make coming up with a carefully considered management strategy absolutely vital.

"Very often you'll hear discussion about regionally based, systems-based management of water resources. One of the best examples is integrated watershed management. Each of the water resource management missions that we have has significant environmental impacts.



Solar panels power more than 1,200 street lights, providing illumination for more than 35 kilometers of roadway in and around Fallujah, Iraq. Photo courtesy of the U.S. Army Corps of Engineers

"Hydropower has a certain pool elevation that they want to maintain to generate the power to meet their customers' needs. Navigation needs a certain amount of water to effectively move commerce up and down rivers through locks. Recreation has [high public profile] resource issues. Endangered species considerations are another aspect. At times, we have to maintain a certain water level in a pool or release certain amounts of water and that requires an integrated management approach to our facilities to ensure that we're meeting requirements with limited water resources," he said.

Integrated water resource management has been a sustainability priority since 2002 when USACE commenced collaboration with The Nature Conservancy in the Sustainable Rivers Project (SRP). The SRP assesses ecosystem needs downstream of Corps projects, evaluating water management opportunities for potential operational changes or reallocations that enhance ecosystem values while improving primary project goals (water supply, hydropower, and flood risk). The SRP has now been broadened to eight river systems encompassing 36 federal reservoirs in 12 states. The quantification and implementation methodology it uses is similar to that being developed for the Corps' Environmental Management System (EMS).

USACE has been at work on EMS for some time. The concept, which emphasizes systematically identifying and controlling environmental aspects of a project, will actually become part of the Corps' SSPP. Coho likens the still-developing EMS to an engine that will propel USACE to achieving the sustainability objectives in the SSPP.

“The SSPP embeds that concept, the systematic management of the environmental aspects of our business whether that’s military, civil, research and development, or any of the Corps missions. We want to manage the environmental aspects of those missions within an EMS framework.”

To get a feel of how the SSPP might apply to a large-scale USACE program, Coho described the sustainability discipline the document would bring to the Chesapeake Bay Environmental Protection Program (CBEPP). This vast $53 million program provides design and/or construction assistance to non-federal interests in Maryland, Virginia, and Pennsylvania for environmental projects that support the Chesapeake Bay estuary.

At least one project has been established in each of the three states. Design and construction costs are shared, 75 percent federal and 25 percent non-federal. The states are collaborating to select high-priority projects that meet multi-agency goals of restoring and protecting the Bay. That collaboration is important because of the size of the Chesapeake Bay watershed that includes numerous civil works and military facilities.

“Let’s say we focus on the Civil Works’ facilities within the watershed,” Coho proposed. “We’re looking at locks and dams, canals, and reservoirs that stretch well up into Pennsylvania, throughout the Baltimore and Norfolk Districts. We have to identify within our various missions what activities, products, or services impact the watershed. Once you’ve identified those, looking as broadly as flood control products in Pennsylvania and others, you have to identify what negative or positive environmental impact they may have on the watershed.

“For instance there are multiple aspects of sediment control, which may influence the Chesapeake. Because we have dams across major rivers throughout the watershed, we’re automatically taking sediment out of the rivers and holding it behind our dams. There are positives and negatives to that. The more sediment you build up in a flood-control dam, the less storage capacity you have. On the other hand, we are contributing to a decrease in the sediment load, which gets into the Chesapeake,” he said.

“That’s an example of how one of our activities or products impacts the Chesapeake. We have to consider whether we have policies and programs in place to enhance the positive or to reduce the negative. Where we don’t have programs in place or they’re not functioning properly, we need to improve those programs and measure their effectiveness in achieving sustainable objectives. These need to be reviewed annually and the results communicated internally throughout the Corps and to external stakeholders who reside in the same watershed or have political or statutory interests. We try to align Corps’ priorities for managing the watershed with the EPA [Environmental Protection Agency], the Chesapeake Bay Program Office, and concerned congressmen and senators. Its broad-looking systemic management of the environmental aspects of our business.”

Such management is certainly the aim of the SSPP but meeting its stipulations will require the work and forethought of everyone in USACE, Coho said. There will have to be consistent open dialogue between headquarters and the districts.

“The folks at the grassroots level are going to make or break the Corps in terms of achieving these goals. They’re the folks who are going to produce innovative ideas and they’re going to have to implement those ideas. We have the broad strategy but the details have to be worked out at the field level,” he said.

The Baltimore District’s status as a major player in the CBEPP is giving it real-world experience as a leader in sustainable planning for the regional watershed management team. The fact that this team includes local, state, and other federal agency officials deepens that experience and reinforces the reality that sustainable planning requires the Corps’ to consult and strategize with a variety of outside interests.

Inside, USACE will continue building a culture of sustainability by steadily communicating the message to its people.

“Over the years, we’ve been trying to get this idea embedded within our culture,” said Candice Walters, a Corps public affairs specialist. “We want Corps personnel to consider the environmental consequences of their actions at the beginning of a project instead of dealing with those consequences as an afterthought. So we’re sharing the information through all the command levels down to the districts, to all of our field personnel.”

Sustainability will continue to be covered in articles in internal newsletters, internal blogs, through messages from the chief of engineers, on the Corps’ Web sites, and feature articles appearing in outside media outlets. USACE will seek to grow a sustainability community of practice with an emphasis on an active flow of ideas between individuals and commands. As diverse and far flung an organization as it is, Walters said USACE should be a particularly fertile ground for sustainability ideas.

To “prime the pump” Giardina said the Corps is developing an awards program for sustainability, incentivizing the field to regularly submit ideas.

By identifying and understanding the social, economic, and environmental challenges of every undertaking, and by planning and managing its day-to-day operations with careful and deliberate attention to these challenges, the Corps of Engineers is working to achieve the all-encompassing balance that is sustainability.

This article first appeared in the *U.S. Army Corps of Engineers Building Strong®: Serving the Nation and the Armed Forces 2010-2011 Edition*.

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