



## Relationship Between Military Engineers and Environmental Issues

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According to the National Science Foundation, *Environmental Engineering* relates to understanding the impacts of human activities on the public health, natural environmental quality, natural resources and with developing the scientific basis for identifying, analyzing, solving, mitigating, or managing environmental problems caused by human activities.<sup>1</sup> There is an innate requirement to fully leverage information technology, training and education to provide integrated engineering and environmental management, execution, and technical services in support of the populace.

In addition to civilian government agencies and private sector stakeholders, nation's militaries should consider environmental issues and concerns at the strategic level particularly in view of the worldwide increase of severity and number of natural disasters over the past decade. At the operational and tactical levels, working with partner nation's militaries and governmental disaster preparedness entities has proven to build host nation capacities, positive international relationships, promotes governmental legitimacy and stability, and is an effective instrument for peace through engagement.

The principles of environmental stewardship and sustainability support environmental protection. *Environmental protection* is the application of human ingenuity and resources, through the disciplines of science and *engineering*, as required by environmental protection laws, regulations, and policies, to protect the natural environment.<sup>2</sup> The engineer forces' effectiveness to operate within a varied framework surrounding a collective international enterprise can be greatly enhanced by respecting multinational partners; their construction and engineering techniques; culture, religion, and customs.

The United States Southern Command (USSOUTHCOM) Command Strategy for 2016 provides a vision of a more joint interagency organization by collaborating with other U.S. Government (USG) agencies such as U.S. Agency for International development (USAID) and the U.S. Department of Agriculture in addition to nongovernmental organizations, international organizations, and partner nations to ensure security, enhance stability and enable prosperity in the Americas. The strategy states that "The security challenges in our hemisphere are not traditional military threats, and are often interrelated and involve both state and non-state actors. These threats, challenges, and conditions require a partnering and interagency approach."<sup>3</sup>



1. National Science Foundation: Where Discoveries Begin. Environmental Engineering Program, 27 September 2010, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501029](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029)
2. Department of the Army Headquarters. Environmental Considerations, 16 February 2010.
3. United States Southern Command Command Strategy 2016, Partnership for the Americas, p. 10.

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In the last decade USSOUTHCOM Command Engineers have promoted environmental engineering issues in their area of responsibility (AOR) in a collaborative way and have added the dimensions of human attitudes and values to the technical environmental protection process. Military engineers are valuable in providing advice and assistance on water management techniques, peacekeeping operations, post-disaster humanitarian assistance, reconstruction projects, renewable energy projects, consequence management and risk assessments, and humanitarian demining.

Because of their established command structure, transportation assets and construction capabilities, the armed forces have a unique ability to support civil authorities and regional organizations and help sustain the vital natural resource base on which nations depend. The military has high technical expertise in its engineer units and well developed planning techniques. The latest experience in post earthquake Haiti proved that USSOUTHCOM engineers can work with a variety of partners to secure the environment, and reconstruct key infrastructure in a seamless and effective fashion.

With assistance from The U.S. Army War College (USAWC) Center for Strategic Leadership (CSL) the USSOUTHCOM Command Engineers have organized a series of regional Military Engineering and Environment Conferences in the region. In addition to creating strategic alliances throughout the region, the objectives of these conferences include:

- Supporting host nations in building institutional capacities
- Increasing the sustainability and resilience of partner nations to natural disasters
- Identifying cooperative civil-military venues
- Providing recommendations on military engineering and environmental challenges facing the AOR

In 2008 the annual Military Engineer and Environment Conference for the Caribbean states was held in Puerto Rico. In 2009 the conference conducted in Chile covered the South American region, and in 2010 the conference took place in El Salvador for the Central American or CENTAM region.

## **THE 2010 CENTAM MILITARY ENGINEERS AND THE ENVIRONMENT CONFERENCE**

The most recent conference, held in El Salvador 9-13 August 2010, was co-organized by the Engineering Command of USSOUTHCOM and the Engineering Command of the Armed Force of El Salvador (CIFA). Other contributors included military engineers and their civilian counterparts from security and civil protection (natural disaster response/management) focus areas from Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Dominican Republic and the United States. The Dominican Republic also participated as they are a member of the Central American Integration System (SICA) and observers in the Conference of Armed Forces of Central America (CFAC).

The event began with an unprecedented opening ceremony that brought together distinguished personnel from a variety of departments of the host-nation government. Participants included Minister of Defense General David Munguia Payez, Chief of the Joint Chiefs of Staff Brigadier General Ramon Salinas Rivera, Chief of the Army Joint Chiefs of Staff Colonel Victor Daniel Maldonado Melara, Inspector General of the Armed Forces Colonel Edmundo Rodriguez Abrigo, Chief of the Engineering Command of the Armed Forces Colonel Camilo Benitez. The distinguished visitor audience included the participation of the USSOUTHCOM Command Engineer Colonel Norberto Cintron.



The Military Engineers and Environment Conference was an excellent venue for civil-military cooperation on a variety of focus areas to include: engineers' role in operations of humanitarian assistance, peacekeeping and demining; environmental techniques for waste disposal and renewable energy; prevention of and response to natural disasters; sustainable innovations in infrastructure and engineering; and environmental security. Participating nations gave

presentations that highlighted their experiences and challenges in those areas. First impressions are there is a wealth of experience in natural disaster response both from a training and first hand perspective with the variety of contingencies such as hurricanes, earthquakes, floods and landslides that have affected the region. A major shortfall however, is the need for prevention techniques and having a regional qualified engineering unit available to evaluate and assess post-disaster damages. The audience also recommended future training and exercises on soil stabilization, water purification techniques; environmental security; modern techniques in vertical and horizontal construction; and demolitions. They also highlighted the necessity of enhancing institutional and organizational capacities, and recommended including the topic of environmental security in the political agenda. USSOUTHCOM Engineer plans for future engagement venues in the region will be based on these recommendations.

The 2010 CENTAM Military Engineers and the Environment Conference seemed quite well received by the audience. The conference attendees were mainly focused at the O-5/O-6 level and civilian equivalent. The training led to the participants having a better understanding of each other's capabilities and recognized the importance of working together in an integrated and interagency effort. The conference also facilitated information sharing, strengthening interagency and intra-country relationships, in addition to creating strategic alliances and raise awareness of issues affecting the region from the tactical through the strategic levels. For example, the entire experience of planning and executing the conference contributed to the strengthening of relationships between military engineers of El Salvador and the United States.



The conference evaluations filled out by the training audience were very positive in nature. The audience considered that the conference objectives were accomplished. Most participants considered the exchange of experiences and new activities/techniques learned in the areas of military engineering and environment will help them to:

- Improve plans in the armed forces for civil military operations
- Strengthen relationships between countries
- Improve cooperation and create a collaboration network in the region
- Face disasters and better adapt to their own situations

The event also made participants cognizant of the need to learn more about those issues in order to move from theory to practice, and that USSOUTHCOM should keep engagements in the region to promote continuity of the programs. The CIFA and CSL wrote a press release describing the objectives of the event, topics to be discussed and highlighted the importance of collaboration between countries to address engineering and environmental concerns.

The perspective of the U.S. participants, such as NAVSOUTH, AFSOUTH, MARFORSOUTH, ARSOUTH, SOCSOUTH, U.S. Army Corps of Engineers, USAID, CSL, USSOUTHCOM, and the Western Hemisphere Institute for Security Cooperation (WHINSEC), was that the conference proved a great information sharing and learning exercise. Additionally, the venue highlighted the challenges and requirements in theater and how the United States could leverage assets to provide optimum support. In accordance with the U.S. Army's Strategy for the Environment, military engineers should be major players in satisfying current and future needs in disaster response, cooperating with civil authorities to serve the population by improving the quality of life, benefitting the environment, and mitigating the effects of natural and man-made disasters.

The USSOUTHCOM Command Strategy for 2016 encourages:

1. Participation of partner nation planners in USG disaster response and consequence management exercises;
2. Partner nations to work regionally, share information, and become more interoperable with one another to share the burden of disaster response and consequence management.

The importance of environmental issues cannot be overstated since they play a major role in a variety of focus areas to include regional instability and conflict, exacerbating tensions resulting from religious or ethnic differences. These issues also affect local differences such as socio-economic disparities between rural and urban areas, rapid economic development, and border disputes. Conversely, environmental issues can also demonstrate good governance and promote regional confidence-building measures, creating opportunities for communication and cooperation between regional states that might in other ways be antagonists. They also provide an excellent opportunity for U.S. preventive diplomacy and Combatant Command security cooperation strategies.



Integration of environmental consideration for military engineers begins with planning. Hence these conferences are of great value to showcase ideas for technical experts and decision-makers promoting dialogue among experts. Once the political will and strategy is solidified and the strategic military objectives are developed, international collaboration will help build the capacities of the military to mitigate or otherwise respond to environmental problems, and contribute to stability in the region. One of the goals of USSOUTHCOM Engineers is to provide venues for multilateral defense and environmental collaboration between USG and partner nations, support host nations in building their institutional capacities, and increase sustainability and resilience of partner nations to natural disasters. The 2010 CENTAM Military Engineers and Environment Conference contributed to the achievement of this goal.

USSOUTHCOM will continue working with partner nations to create and train a specialized unit of military engineers to assess damages post-disaster and with CSL in the identification of strategies to address bilateral and regional environmental security concerns.

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