

FY 2016 Secretary of Defense Environmental Awards

Environmental Quality – Overseas

USAG BAVARIA, Germany

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Introduction

Department of Defense

U.S. Army Garrison (USAG) Bavaria, headquartered in Grafenwoehr, Germany, is the largest overseas garrison within Installation Management Command Europe (IMCOM-E).

The garrison supports four geographically dispersed military communities: Tower Barracks (TB) at Grafenwoehr, Rose Barracks (RB) at Vilseck, Hohenfels and Garmisch. The garrison jointly operates Grafenwoehr Training Area (GTA) and Hohenfels Training Area (HTA) with the 7th Army Training Command.

Annually, approximately 180,000 troops from more than 35 countries participate in training at Hohenfels and Grafenwoehr.

GTA (56,000 acres) is the largest multinational training area in Europe with 44 digitally connected computerized ranges – more than on any other Army installation. HTA (40,300 acres), the largest U.S. Army Europe (USAREUR) maneuver training area, hosts realistic force-on-force maneuver training for USAREUR combat battalions and NATO forces.

USAG Bavaria has a population of approximately 9,500 military personnel, 7,300 civilian employees, 16,000 Family members, and 5,000 rotational military personnel.

Judging Criteria



Program Management



Orientation to Mission



Impact & Outcomes



Technical Merit



Stakeholder Interaction



Transferability

Background

The U.S. Army is a signatory to the Supplement to the NATO Status of Forces Agreement (1998) which requires the Army to follow specific German laws and European directives for environmental protection. These requirements are in addition to U.S. Federal law, and U.S. Army and Department of Defense regulations. No notices of violation are current or pending.

The Grafenwoehr and Hohenfels training areas are special areas of conservation (SACs) under the European Bird and Habitats Directives, also known as NATURA 2000. Continuous coordination with Host Nation (HN) regulators is essential to ensure impacts are minimized.

In 2013, three garrisons (Grafenwoehr, Hohenfels and Garmisch) were combined to create USAG Bavaria. Many challenges arose from merging the environmental programs from different geographical areas, especially when identifying needs that addressed ongoing missions and developing trends.

The environmental program enables Soldiers to conduct military training in compliance with environmental laws, while minimizing impacts on the military mission.

Program Summary

 The environmental program receives **strong support** from garrison leadership and maintains **strong working relationships** with mission representatives and HN partners.

Garrison Commanders (GC) and installation managers receive an environmental briefing within 60 days of their arrival. The GC and Deputy GC personally invite Environmental Quality Control Council (EQCC) members to quarterly meetings and take the lead in handling current issues and completing objectives.

The garrison team includes professionals covering pollution prevention, remediation, natural resources and training land management that work closely with community boards and working groups. Garrison environmental staff provide expert advice on many issues, including energy, sustainability, asbestos and lead-based paint management. The environmental program has enabled implementation of long-term strategies to protect the environment, support changing mission requirements and sustain the future.

In 2004, the garrison adopted an **Environmental Management System (EMS)** approach, strengthening the effectiveness of its environmental program. In 2009, the garrison's EMS was certified as following the international ISO 14001:2004 standard and was recertified to the same standard in 2011 and 2014. EMS procedures and processes helped the garrison to **adapt to the following environmental challenges**:

- **Merging three previously independent environmental programs.** In 2013, the garrison successfully combined environmental programs by establishing Bavaria-wide management plans. Work duplication was eliminated, EMS sub-groups were developed and the implementation of an Environmental Division (ED) structure with three branch chiefs having Bavaria-wide responsibility was accomplished. This successful management model was later adopted by other Directorate of Public Works (DPW) divisions to ensure common levels of support throughout the garrison.

- **Introducing battalion-level European Rotational Forces (ERF) for 60-day training events.** Since 2014, the garrison has supported ERF by providing suitable facilities like motor pools and

equipment storage, as well as offering hazardous substances handling and spill prevention training. Additional training was implemented to overcome differences in environmental standards between U.S. and NATO partners. 

- **Managing training lands effectively**, to allow the more than 800 legally protected flora and fauna species within the garrison's boundary to flourish, while supporting training requirements. Recently, the garrison experienced the **re-emergence of highly threatened species** that had been absent since the 19th century (white-tailed eagle, European lynx, fish otter, wild cat and common crane). With the sensitive nature of these species, increased monitoring and detailed project reviews are required. 



The first sighting of a European wolf in GTA by a wildlife camera was breaking news in German media in September 2016.

Environmental Compliance – Assessment and Program Management

The garrison fully meets all **permit and regulatory requirements** and maintains permits and compliance records through its EMS document control system. To reduce efforts for tracking storm sewer permit requirements and expiration dates, Master Planning and ED staff negotiated with German authorities to receive a **collective storm sewer permit** instead of more than 40 separate permits. Additionally, all permits were linked to a map to enable a quick overview for environmental reviews or other tasks. 

Interaction with nearby garrisons during annual internal **Environmental Performance Assessments** 



System (EPAS) and follow-on EMS audits, helped obtain an objective outside view on current environmental processes, and considerably improved compliance assessments. Findings are tracked through an online database and discussed with the garrison command during quarterly EQCC meetings.

Based on a cooperative agreement, **HN regulators periodically conduct courtesy reviews** of the environmental program, enabling the garrison to incorporate their advice to prevent non-compliance, while providing no-cost training to ED staff. Since then, external EPAS findings have continuously decreased.

“Regular on-site visits have proven that German legal standards were always met and in some areas even exceeded. Especially filling stations, double-walled used-oil collection systems and storage tanks on motor pools and motor parks are great examples of a high level of work efficiency and occupational health care”.

Roland Rossi, Environmental Protection Authority, County of Neustadt/WN, HN POC for hazardous substances handling in GTA since 1991

To support operational requirements and a skilled workforce, the Garrison offers a **comprehensive professional training** program for Soldiers and USAG Bavaria employees.

The garrison updates environmental standard operating procedures and guidelines in German and English on a regular basis and puts them on an easily accessible SharePoint portal to help tenant units, rotational forces, and training units stay in compliance with HN and U.S. environmental requirements.



Sustainable Range Program (SRP) personnel, in cooperation with environmental staff, developed Soldier field cards in hardcopy and mobile app format in four languages (English, German, Dutch and French). Training units receive an environmental range briefing prior to using training ranges.

A 2015 change in German asbestos laws required additional training for persons handling asbestos. In response, the garrison organized nine on-site classroom training courses for personnel throughout IMCOM-E. 180 personnel attended, saving the Army approximately \$60,000 tuition fees and



Annually, the Garrison Commander presents an award to the best Environmental Officer to recognize motivation and dedication to protecting the environment

\$180,000 in temporary duty costs. These classes were organized in addition to 18 regular Environmental Officer and spill prevention classes.

Waste Reduction Efforts

The garrison has a number of ongoing waste reduction, energy efficiency and human health initiatives underway.

Waste reduction:

- Through a cooperative agreement with two county governments, **electronic waste** is picked up and recycled at no cost to the U.S. Army. A total of 15-20 tons at RB and TB save disposal costs of \$4,000 to \$5,400 per year.
- Approximately 60 tons of **lead-acid batteries** per year are sent for recycling or reclamation through a Defense Logistics Agency, Disposition Services sales contract leading to annual proceeds of \$8,300.
- In partnership with a local company producing biofuel, approximately 28,660 lbs. of **waste grease** is picked up from the garrison at no charge and used as biofuel. By partnering with local entrepreneurs, the garrison reduced CO2 output to the environment by almost 22,046 lbs. per year.
- Despite new challenges with rotational units, the solid waste diversion rate is still at 63.9 percent, leading to \$3,632,061.71 in cost avoidance.
- Community volunteers manage two **Freecycle Centers** in RB and TB, where community members

can drop off and pick up used items like clothes, books, toys and furniture for free. Volunteers worked more than 11,000 hours saving \$255,000 in labor costs.

- The garrison purchased a **food waste separator** for the dining facility at RB. The separator reduces kitchen waste by 80 percent, saving \$11,000 in disposal costs annually.

- USAG Bavaria operates four innovative **water-recycling wash racks**, saving millions of gallons of water a year and reducing sewage output. More than 150,000 tons of sludge from these wash racks are treated annually in a garrison-owned **sludge treatment facility that reduces the total volume of sludge by 80 percent and leaves a minimum amount of filter cake for disposal.** The remaining filter cake is re-used by a local tile factory as an additive to its clay mixture.

- The garrison's **Hazardous Materials Management Program**, managed by the Logistics Readiness Center, saved \$936,801.56 in FY15 and \$725,622.15 in FY16 through the DoD Shelf-Life Extension Program and hazardous material reuse.

- An innovative approach reduced disposal quantities for contaminated soil at HTA by 40 percent. **Sieve drums** pre-treat contaminated soil (e.g. from spills) by separating large rocks and other materials.

- An **engine test stand** at HTA reduces air emissions by filtering exhaust gases with a catalytic converter.

Energy efficiency:

During the awards period, the garrison energy managers completed a variety of projects to **modernize infrastructure and improve energy efficiency.** Three new photovoltaic systems were installed. Together with the 17 photovoltaic and 20 solar thermal systems already in operation, construction of a wood chip heating plant (which reduced CO₂-emissions by 90 percent), the introduction of more than a dozen electric cars into the DPW in-house fleet, the replacement of 40,000 street lamps with light-emitting diodes (LED) versions, and the installation of high-efficiency heating pumps in 50 buildings, the garrison has significantly increased energy efficiency.

In August 2015, the energy manager at HTA received the Secretary of the Army Energy and Water Management Individual Award for Energy Efficiency/Energy Management. Since then, he has completed a project for a **heat and power cogeneration system** at Camp Nainhof that reduces annual greenhouse gas emissions by 1,300 tons and saves approximately \$900,000 in overall energy costs per year. A second system is currently under construction and will start operation in 2017 at Camp Poellnricht to provide district heat for two camps.



Heat and power co-generation system at Camp Nainhof

Human health considerations:

During the award period, asbestos was removed from 100 buildings. Additionally, 150 buildings containing asbestos were surveyed and warning labels were installed in 111 buildings. The **EMS target for asbestos abatement** was met.

Effective Use of Funds

USAG Bavaria implemented various **innovation and partnering initiatives** to reduce program costs.

The garrison remediation manager and the local HN water board came up with an innovative groundwater remediation approach for the **Grafenwoehr Class III Yard.** Changing from a pump and treat remediation to a new passive method reduced projected annual operation costs from \$500,000 to \$40,000. Performance-based contracting for this complex compliance project further resulted in savings of \$1,554,200, 40 percent less than the original cost estimate.



A **remediation project to reduce RDX (cyclonite) contamination** demonstrates close cooperation with HN partners. RDX was used for blasting operations at a limestone rock quarry resulting in groundwater contamination. Following multi-year testing, the garrison developed and implemented an innovative cleanup technique using molasses-stimulated biological degradation within constructed wetlands. Compared with ex-situ relocation, this concept reduced construction and maintenance costs from \$7,375,000 to \$2,330,000.

The community supported the construction of a new elementary school on TB in two ways. The **Regimental Engineer Squadron from the 2nd Cavalry Regiment** hauled approximately 24,543 cubic yards of excavation material from the future school site and included it in a project in the training area. This effort provided a training opportunity for the engineer unit and saved \$20,000. Grafenwoehr Elementary School students constructed and installed 100 bird and bat nesting boxes required by the HN as environmental compensation for the elementary school project, saving another \$50,000.



Grafenwoehr Elementary School students installed bird nesting boxes.

Environmental support was provided by **highly motivated volunteers** with scientific backgrounds recruited through MyArmyOneSource. They served 269 volunteer hours (equating to \$6,200) by conducting bat education programs for 600 U.S. students, assisting environmental school clubs and supporting other community events which would not have been possible without them.

Effective use of contracting/funding instruments:

All environmental contracts are evaluated for potential consolidation with other contracts within USAG Bavaria. 

Significant cost savings were accomplished by choosing appropriate contracting agencies and contract vehicles. By **managing Architect/Engineer contracts on-site** instead of using the U.S. Army Corps of Engineers, lifecycle project management (LCPM) costs were reduced by 5 percent in FY16, saving \$145,000.

Awarding contracts on a competitive basis through the Regional Contracting Office reduced costs by approximately 20 percent and avoided LCPM costs (10-15 percent) resulting in an estimated annual savings of \$100,000 in FY16.

Environmental Planning and Analysis - Effects abroad

Based on a GC initiative, the garrison established long-term **lines of effort (LOEs)**. “Sustainable living and training” is one of four LOEs. A working group, led by the Chief/ED and consisting of garrison and mission staff, developed a 5-year approach on how to sustain training land considering mission and natural resources aspects. 

To manage all the different environmental aspects, the ED developed a centralized database and a **geographic information system (GIS)** containing 150 GIS layers for Grafenwoehr/Vilseck, Hohenfels, and Garmisch. In 2015, 48 layers were upgraded to the new Army adaptation of spatial data standard (SDS) version 3. 

Master Planning, military planners, environmental and engineering staff work hand-in-hand on the Bavaria-wide environmental **review process and policy**. The process starts early in the project lifecycle, saving coordination time and avoiding loss of design funds. During award period, environmental staff conducted environmental reviews on 13 military construction projects, checked 3,846 work requests for environmental impacts and provided comments to 562 work requests. The results of hazardous materials surveys for each building are entered into the real property inventory and administered through the General Fund Enterprise Business System (GFEBs). Using this system, more 

than 30,000 service orders per year are automatically checked for environmental impacts.

An **environmental checklist signed by the GC** is used to identify environmental costs prior to project design and all documents are stored on the DPW shared drive. The ED closely coordinates with project designers to ensure environmental review comments are incorporated into the design and implemented. The ED actively participates in **planning charrettes** and conducts environmental surveys at planned project sites. In recent years, several mission critical projects, such as a convoy live-fire training course, an unmanned aerial vehicle (UAV) hangar and a landing strip at GTA, as well as a short take-off and landing (STOL) strip and a drop-zone encroachment removal project at HTA were completed successfully and on time. All environmental issues were resolved through agreed upon mitigation measures, developed in close cooperation with the military trainers and HN authorities. To support the approval process for UAV operation, the ED conducted research on their possible impact on wildlife.

To further accelerate implementation of mission-critical projects, **eco-accounts**, having a monetary value of \$2,650,000, were established for both training areas. This reduces costs by:

- Incurring less planning, design and study costs;
- Saving maintenance costs. Part of the account is managed for free by the German Federal Forestry Service (FFS); and
- Constantly increasing the ecological (and thus also the financial) value of the account.

In 2015, USAG Bavaria and the FFS forwarded a request to HN authorities to add 64 hectares of environmental projects to the eco-account. Adding these additional hectares provides greater planning reliability for future mission-readiness projects.

The mission is further supported by evaluating **training requirements and scenarios** for potential environmental impacts. The EMS cross-functional team and sub-teams, consisting of garrison and mission representatives, identified flexible solutions for actions such as decontamination, gray/black water collection and disposal, field kitchen operation, field refueling, water purification, bridge training and ford sites.

In September 2014, the State of Bavaria changed the **Ordinance on Environmental Compensation** resulting in much stricter compensation requirements (up to six times more than previously required), more documentation requirements and higher costs for environmental compensation for construction projects. In a team effort, USAG Bavaria together with IMCOM Europe, USAREUR SRP and the German FFS negotiated with the Bavarian Ministry for the Environment to obtain an exemption. Now, mitigation is only required for projects exceeding certain thresholds, reducing the required compensation areas and thus contributing to training land sustainability.

Community Relations – Outreach

Environmental staff and energy and waste managers regularly participate in community events and use various media, including newspaper articles, radio interviews on the Armed Forces Network and weekly environmental tips on Facebook to increase energy savings and recycling rates, and to instill behavioral changes in garrison staff and community members ([facebook.com/USAGEnvironmental](https://www.facebook.com/USAGEnvironmental)).

Accomplishments achieved in FY15 and FY16:

- Seven eye-catching **roll-up banners** and a 48-page **environmental brochure** ([bavaria.army.mil/docs/Environmental_Brochure_English.pdf](https://www.bavaria.army.mil/docs/Environmental_Brochure_English.pdf)) were developed to present the environmental program to internal and external stakeholders. The banners won a design award during the LifeDefenseNature2mil Conference in France in July 2016.
- In addition to the existing nature trail on TB, **two new environmental outdoor facilities** were built to improve the welfare and resilience of Soldiers and their Families and to spark interest in local natural resources. The first was the green classroom on RB with seven informative boards, which opened in September 2015. The same design and content were used to construct a similar facility at Hohenfels, with in-house staff saving about \$25,000. Opening ceremonies at the outdoor facilities were enjoyed by more than 500 attendees, including HN officials. Guided tours were offered by environmental staff.
- By providing professional assistance, the garrison encouraged Department of Defense Education Activity teachers to organize **Earth Day**

events at their schools giving each child hands-on nature interaction. Approximately 3,000 students, including 100 German children, attended these events during this award period, versus only a few hundred in previous years.

- Approximately 250 students and 10 teachers participated in a HN “Experience Spring” contest hosted by the ED. Students enjoyed discovering local species through creative and/or scientific activities.

Reaching out to HN partners:



The German FFS and the District Nature Protection Council asked the ED to share its expertise in managing military training lands while conserving nature and protecting endangered species. The Bavarian Environmental Ministry requested ED staff to present case studies of remediation projects successfully underway at GTA to remediation experts from Germany, Austria and Switzerland.

During the award period, Army and HN stakeholders, politicians, local communities, non-governmental organizations (NGOs) and other interested parties received approximately 50 environmental field tours through the training areas. The garrison prioritized requests for informational tours to ensure missions were not interrupted. Examples of organizations visiting during the rating period are Bavarian Environmental Ministry, HN State Attorneys, Members of Parliament of the Green Party and the University of Prague.



Greater Horseshoe bat and mouse-eared bat caught by a photo trap at the entrance of a hibernating quarter at HTA



In a combined effort, HN authorities, nature protection NGOs and the garrison implemented a €1.2 million EU LIFE+ project. The purpose of the first EU LIFE+ project on an active military training area is to save the only reproducing population of the greater horseshoe bat in Germany. Survival of this

particular bat species within Germany has been due to the excellent foraging grounds provided by the open military training lands in HTA.

Exchanging information with foreign nations:

In close cooperation with SRP staff, there’s a vivid exchange of information with foreign nation militaries and organizations under the Defense Environmental International Cooperation and U.S. European Command Environmental Security programs to further excel in sustainably managing training lands. During the awards period, visitors came from the German Army, Armies of Lithuania, Latvia and Estonia, Israeli MoD, French MoD and NGOs and the Australian National University.



“The Nature Defense Force for Israel cooperation with the U.S. Army Environmental Division is a major factor for our initiative success beyond any expectations. No doubt that this achievement is due to what we have been learning from the U.S. Army Environmental Division proficiency and willingness to share it with us. We deeply appreciate the support and friendship we keep getting”.
 Brig. (res.) Asaf Agmon
 C. CEO, The Nature Defense Force Israel

In return, the Office of the Assistant Secretary of the Army (Installations, Energy & Environment) invited the garrison to present its environmental outreach program at the NATO NetZero Workshop (Wiesbaden, Germany). ED staff also provided their expertise on environmental outreach and training land management during the LifeDefenseNature2mil Conference (Nîmes, France) and the Estonia Environmental Security Event (Tallin, Estonia).

Conclusion

Through effective leadership, an actively managed EMS and cooperation between U.S. and HN partners, the garrison has met environmental program goals and improved business processes. The garrison’s environmental program lives up to its motto:

Protect the environment. Support the mission. Sustain the future.