



Marine Corps Base Camp Butler–Okinawa, Japan

"Sustaining Our Environment, Protecting Our Freedom"

Introduction

Overview. Marine Corps Base Camp Butler (MCB Butler) is a dynamic installation located on the island of Okinawa, Japan approximately 900 miles from Tokyo (mainland Japan). While Okinawa is only 67 miles long and approximately 463 square miles, less than half the size of Rhode Island, it has a population of almost 1.4 million.

Key Location. Perhaps the most unique characteristic about Okinawa is that unlike most duty stations, MCB Butler is physically

separated throughout the island into a number of different camps (total acreage 45,276). All the Marine Corps camps on the island fall under the one title, MCB Butler.

As a solution to the camps' physical isolation from each other, MCB Butler's Environmental Management System (EMS) was regionalized, significantly increasing the Marine Corps' ability to track ongoing environmental program requirements and provide cost effective solutions.

Because Okinawa is close to China and Korea it is not only a key training location for the Marine Corps but also for the Air Force, Army, and Navy. As such, over 30,000 personnel live, work, or use facilities within the fence-line of MCB Butler on a regular basis. Most of these personnel are subject to one or more environmental training requirements. This can result in costly travel to the U.S. to fulfill training requirements.

As a result, MCB Butler has taken the initiative to provide on-island training opportunities for all services. In fiscal year (FY) 09-10, we provided training to over 13,000 military, U.S. and Japanese civilians which is a significant cost savings.

Mission. MCB Butler is the base support command for III Marine Expeditionary Force and 1st Marine Aircraft Wing. III MEF is a Marine-Air-Ground Task Force that is rapidly-deployable to conduct operations across the spectrum from



The island of Okinawa, Japan is a key training location for the Marine Corps. MCB Butler's innovative soil erosion efforts have been instrumental in protecting this vital coral habitat. *Photo by MCB Butler Environmental*

Go Green United States Marine!

MCB CAMP BUTLER EARTH WEEK EVENTS (APRIL 2010 SCHEDULE)

- SCHWAB**
 - 14 Marine/Aviation Beach Cleanup (Contact Env Office)
 - 19 Japan Green Day Beach Clean Up
- HANSEN AND COURTNEY**
 - 16 Green Green Seminar (Contact Env Office)
 - 17 Adult Learning Series Going Green Presentation (Library)
 - 19 Month School Earth Day Theme (Library)
 - 24 Professional Development Earth Day Theme (Library)
 - 24 24/7 Green and Marine April Day Theme
 - 25 Environmental Learning (Camp Butler)
- LESTER**
 - 14 Camp Lester Clean Up (Contact Env Office)
 - 15 100% Lester Environmental Display (Hospital Lobby)
- FOSTER**
 - 15 Adult Learning Series Going Green Presentation (Library)
 - 16 Month School Earth Day Theme (Library)
 - 16 Green Green Seminar (Contact Env Office)
 - 16 Teen Green Fashion Show (Library)
 - 17 Green Seminar (Camp Butler)
 - 17 Environmental Seminar (Contact Env Office)
 - 22 Earth Day Fun Run/Walk
 - 22 Camp Foster Perimeter Fence Cleanup
 - 23 Foster Community Earth Day Celebration
- FUTENMA**
 - 14 USMC Fireworks and Dinner
 - 13 Station Cleanup and BBQ (Contact Env Office)
- KINSER**
 - 16 24/7 Green Earth Day Action Paper Bag Project (Community)
 - 16 24/7 Green Seminar (Contact Env Office)
 - 17 Adult Learning Series Going Green Presentation (Library)
 - 17 Adult Learning Series Going Green Presentation (Library)
 - 18 Kinsler Community Earth Day Celebration

MCB CAMP BUTLER 2010 EARTH WEEK 40TH ANNIVERSARY

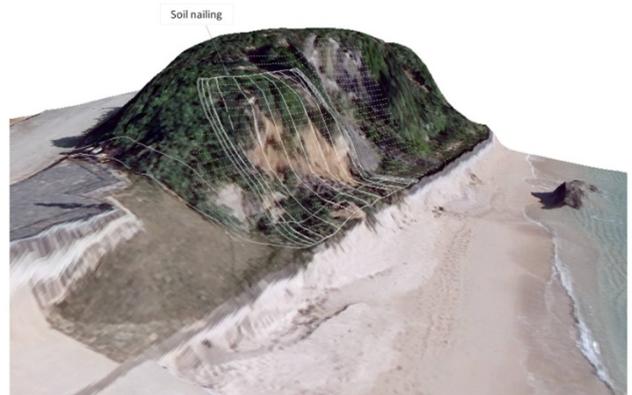
Contact your camp/station environmental office for more information

Camp Foster	645-5970	Camp Schwab	625-2683
Camp Hansen/Courtney	633-4495	Camp Lester	643-7949
MCAS Futenma	636-2066	Camp Kinsler	637-4405

Humanitarian Assistance to Amphibious Assault and High Intensity Combat. MCB Butler also provides services and support to other commands including 20 non-Marine Corps tenants. Because of the various types of training and facilities that are supported by MCB Butler, the environmental program is constantly focused on supporting military readiness while balancing environmental sustainability.

Environmental/Geographical Setting. Okinawa is home to more endangered species than the rest of Japan. A quarter of the total number of Japanese national endangered species exists in Okinawa Prefecture which occupies only 0.6% of the entire Japanese territory. In addition, over 3,000 species of flora and fauna can be found on MCB Butler, of which approximately 260 are rare, threatened or endangered.

- The island's subtropical climate also supports a dense northern forest, where MCB Butler's Jungle Warfare Training Center (JWTC), the only DoD jungle training facility, is located. As a direct result of MCB Butler's outstanding natural resources management program, 2010 surveys identified that the population of one protected species, Okinawa Rail (flightless bird), has significantly increased in the JWTC over the past five years.
- The waters around Okinawa sustain more than 340 coral species, three times more than recorded species at the Great Barrier Reef. This is why MCB Butler has gone above and beyond to help keep these beaches pristine by using innovative soil erosion control methods, conducting twelve beach clean-ups collecting over 12,000 pounds of trash, and implementing new storm water education programs.
- MCB Butler also has excelled at protecting significant Okinawan cultural resources and archaeological sites dating back over 6,000 years. Examples include: employs the only DoD archaeologist in Japan to conduct in-house cultural monitoring for small-scale projects; discovered dwelling structure of the Gusuku Period (Okinawa's Medieval Eras – 12th to 15th Century); preserved a historic property (water well of stone masonry) by coordinating with the local municipal authority and re-routing the construction; and conducted 17 archaeological test excavations.



MCB Butler continues to be a leader in Okinawa for controlling soil erosion by utilizing advanced 3D imagery.

Political/Community Setting. As an overseas installation, MCB Butler also faces a unique political climate. In 2005, the governments of Japan and the U.S. agreed to relocate over 8,000 Marines to the U.S. territory of Guam and move selected Marine Corps camps to the less populated northern part of Okinawa. As a result, there have been numerous rallies to oppose the relocation of the base in Okinawa. The success of MCB Butler's environmental program has been critical in improving relations between the people of Okinawa and the Marine Corps by demonstrating the Marine Corps' commitment to environmental sustainability. In 2009 and 2010, MCB Butler was awarded the U.S. Forces Japan Installation Environmental Excellence Award in Environmental Compliance.

Background

Significant environmental aspects of the mission and other environmental challenges.

Environmental challenges include: (1) soil erosion that threatens coral habitat due to frequent rainfall; (2) limited available landfill space which makes the success of our recycling and waste management program critical; and (3) the intense sub-tropical heat poses excessive energy demands. MCB Butler has risen to these environmental challenges while fostering excellent community relations with the people of Okinawa.

MCB Butler is a leader for controlling soil erosion by utilizing advanced 3D imagery to best determine soil erosion control methods. The use of 3D imagery to design construction methods for soil erosion has significantly improved efficiency in manpower, reducing the time to analyze slopes from a few weeks to a few days.

Organization. We have the second largest environmental staff on Okinawa, second only to the Okinawa Prefecture (State) Government. Our environmental staff consists of 69 personnel - 34 U.S. and 35 Japanese civilian employees. Amongst DoD environmental offices in Japan, MCB Butler has the highest ratio of Japanese to U.S. civilian employees which further helps to strengthen our relationships with local environmental agencies and non-governmental organizations.

Management approach & extent of EMS conformance. Our approach is to proactively identify and share lessons learned, and to implement innovative technologies and processes which have improved environmental quality and provided cost effective solutions. The success of our EMS is also reflected by Headquarters (HQ) Marine Corps certifying that our EMS was in full conformance in January 2009 with all 18 required Marine Corps EMS elements. In June 2010, our EMS was also recognized by the U.S. Environmental Protection Agency (EPA) senior EMS personnel as being a robust EMS especially because it is communicated in both English and Japanese.

Partnerships. MCB Butler is also a leader in partnering with stakeholders such as U.S. and Japanese agencies and non-governmental organizations and routinely meets with local government environmental agencies. In August 2009, we partnered with a prominent Japanese University from Tokyo (Keio University) and initiated a joint study for urban heat, solar and wind energy, and soil erosion. We hosted the 8-person team (professors and students) for a 4-week period which resulted in solutions to reduce energy consumption and minimize our environmental footprint in Japan.

Significant Plans. We surpassed our goal by completing eight major plans all by in-house staff saving the Marine Corps almost \$1,000,000 in contracting costs over the past two fiscal years:

- Integrated Natural Resources & Cultural Resources Management Plan – Updated Jan. 2009
- Hazardous Waste Management Plan – Updated Oct. 2009
- Spill Prevention Control and Countermeasure (SPCC) Plan (Hansen) – Completed Dec. 2009
- Polychlorinated Biphenyl (PCB) Elimination Plan – Updated Jan. 2010
- Water Systems Emergency Contingency Plan – Jun. 2010
- Solid Waste Management Plan – Updated Jul. 2010
- Potable Water Master Plan (Fuji) - Sep. 2010
- Site Specific Spill Plans – Updated throughout 2009/2010



Partnered with prominent Japanese University to assist in joint urban heat modeling program.
Photo by MCB Butler Environmental

Environmental Quality Accomplishments

1. Environmental Management System (EMS)/Training:

EMS. MCB Butler's EMS is unique as the only Marine Corps installation that incorporates energy conservation under Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy and Transportation Management*.

MCB Butler's EMS also stands out by obtaining uncommon support and participation with the commanding general (CG) and cross-functional teams. Because of the CG and his senior staff's involvement, EMS objectives and targets are raised to the top level which has been instrumental in helping to integrate environmental management with Marine Corps units, and energy and transportation activities. As a result of this stakeholder involvement we met and exceeded numerous EMS targets such as:

- FY09 Objective: Reduce the impact of solid waste generation.
Accomplishment: Diverted 40% of solid waste from landfill. Increased public awareness on recycling. Implemented recycling programs for barracks and common areas at Camp Kinser.
- FY10 Objective: Reduce vehicle air emissions and fuel consumption.
Accomplishment: Reduced the number of fossil fuel vehicles. Implemented anti-idling campaign. Maximized use of on-base bus service. Introduced 24 Electric Vehicles. Increased monitoring of government vehicles addressing idling and unofficial use.

We also consistently tailor communications to reach the widest audience, especially Japanese civilian employees who comprise almost 70% of the workforce. For example, the recently signed environmental policy statement by the Marine Corps Bases Japan CG, Lieutenant General Robling, is provided in both English and Japanese, is widely distributed and displayed, and is available on our highly-publicized EMS website. In addition, during FY09-10 over 30 environmental documents were translated into Japanese.

During FY09-10, we conducted four EMS audits (including by HQMC and U.S. EPA). As a direct result of these EMS audits, we successfully reduced the number of deficiencies by 22%. As a result of the EMS audits, we also developed over 140 environmental procedures and completed eight management plans in-house in the last two fiscal years.

We have also made significant progress in EMS implementation as reflected in the success of our recent sanitary survey of Marine Corps Bases Japan drinking water systems. Based on the previous sanitary survey conducted three years ago, standard operating procedures were developed to improve water collection and management. Results from the 2009 sanitary survey show a significant decrease in deficiencies as a result of the EMS process.

Training. We are the premier DoD environmental training program in Asia offering a wide variety of outstanding courses in English and Japanese. MCB Butler provided comprehensive environmental training and general awareness training to over 13,000 military, U.S. and Japanese civilians between FY09-10 which is a significant cost savings avoiding expensive travel to the U.S.

The increase in personnel trained in this time period over previous cycles is directly attributable to the staffing increase at MCB Butler Environmental Training Section. The addition of an Environmental Trainer has allowed us to carry out more general awareness training and significantly increase our impact on the population (both DoD personnel and their families) on installation.

We achieved this by exceeding our in-house compliance training goal by training over 3,400 Marines and civilian personnel. The Environmental Compliance Course is designed to train Marines and others with significant roles or involvement in environmental compliance issues. These courses are also taught in Japanese to increase environmental awareness to the widest audience.

We hosted cutting-edge training to not only Marines and civilians but also to Airmen, Sailors, Soldiers, and State Department personnel from throughout Asia at a significant cost savings to the government. Approximately 4,500 personnel were trained in over 35 different courses encompassing a diverse range of environmental and energy topics. Some of our notable training during the achievement period include: (1) courses by the Coast Guard's National Strike Force, who are the preeminent responders in the U.S.; (2) Leadership in Energy and Environmental Design (LEED) provided by the University of Florida; and (3) innovative technologies in air conditioning systems provided by Department of Energy (DoE) National Renewable Energy Laboratory. Also MCB Butler was the first DoD installation to receive Energy Star Building training provided by EPA.

2. Waste Reduction Efforts:

Recycling. With the large number of personnel and limited landfill space, our recycling program has been instrumental in reducing waste generation and promoting partnerships with the surrounding community. Despite the tremendous local market downturn for recyclable sales, our recycling program has continued to expand. Recycling successes during the achievement period include:

- Prevented nearly 14,000 tons (almost 28 million pounds) of recyclables from entering Okinawa landfills that are close to maximum capacity.
- Diverted up to 99% of 16,330 lbs of spent fluorescent bulbs to recycling.
- Expanded recycling program to include additional barracks.
- Improved the recycling program to provide pick up service at Marine Corps and Army ranges for expended small arms cartridge casings generating revenue of \$480,600 from brass sales.

Waste Management. We are also proud of the substantial reductions of hazardous waste, hazardous material, and pesticides due to the combined efforts of our programs:

- Reduced hazardous waste generated by over 255,000 lbs directly saving nearly \$360,000.
- Improved Glycol Recycling program; reduced waste stream by approximately 75%; recovered glycol issued for reuse at a cost reduction of \$7,500; and eliminated \$30,000 in waste disposal fees.

MCB Butler goes beyond the DoD Measures of Merit (MoM) goal of maintaining the achieved MoM pesticide reduction goal in 2000. We're not just maintaining, we're continually reducing pesticide use while maintaining effective pest management. This is quite an accomplishment considering the size of the installation and the combined annual pounds of active ingredient (PAI) contributions of four pest control shops. We reduced pesticide application by over 50% since FY 08 due to our emphasis on pest monitoring and effective use of non-pesticide application measures.

3. Community Relations:

In 2010, MCB Butler held the largest Earth Week campaign on island – with 3,000 participants in over 30 events. Through a massive advertising campaign via local radio and TV stations, we directly enhanced environmental awareness and community involvement for base personnel and residents. Compared to previous years, we tripled the number of events by partnering with various organizations, including a nonprofit Japanese organization, the Marine Learning Center, which provides storm water education programs.

Our outreach accomplishments during FY09-10 included:

- Coordinating twelve beach cleanups with almost 800 participants who collected over 12,000 pounds of trash.
- Educating over 2,500 students through local schools, unique library and commissary events.
- Partnering with the installation motor pool to provide free vehicle checks, change recycled fluids, and recycled batteries to over 700 patrons.
- Planting over 25 ceremonial trees by Marines, local Japanese and American student volunteers.
- Sponsoring Earth Day relay races (bike, swim, run) with over 180 participants.



Photo by LCpl. Antwain J. Graham (4/22/2010)

What is unique about our outreach efforts is that it is done with minimal funding and is a result of installation environmental staff providing extra time and dedication to involve the community.

4. Environmental Planning/Energy Programs:

Environmental Planning. One of the distinct features of our environmental program is that we complete numerous environmental plans and environmental impact analyses by using in-house staff. This saved almost \$1,000,000 in contracting expenses in FY09-10, enhanced project flexibility, and ensured mission readiness. Our participation in the environmental planning process contributed to the success of over 152 projects.

Because environmental planning under EO 12114, *Environmental Effects Abroad of Major Federal Actions*, is unique from National Environmental Policy Act (NEPA) requirements in the U.S., we identified a need to provide training to installation facilities planning staff who are the first in line to identify proposed actions and potential alternatives. As a result, in FY10 we provided a combined 3-day NEPA and EO 12114 training course to over 50 personnel. This was particularly successful to help streamline the process between environmental and facilities planning staff in identifying proposed actions and appropriate alternatives, and minimizing the potential costs for mitigation measures.

An example of how well our environmental planning program supports military readiness is a recent runway repair project. In January 2009, the helicopter landing pad taxiway and runway at Ie Shima Training Facility needed mission-critical upgrades in order to obtain certification and conduct necessary training for Marines. We ensured that the environmental impact analysis was conducted ahead of schedule and that monitoring by the base archaeologist was completed expeditiously. These efforts directly supported the Marine Corps mission and saved over \$50,000 in contracting costs.

Energy. MCB Butler is at the forefront of combining environmental and energy efforts and implementing innovative energy solutions. We expanded our environmental program to include energy conservation and we are the only Department of Navy installation to merge the two programs.

One of our outstanding accomplishments is the innovative use of heat-resistant coating. The coating is derived from a special thermal concrete developed for Joint Strike Fighter vertical takeoff pads and runways. MCB Butler is the first and only DoD installation to begin using this coating on buildings. A solution was needed to reduce soaring energy costs from the intense sub-tropical sunlight on concrete buildings. This urban heat island effect impacts energy costs and air and water quality. Initial tests indicate a single application of the new coating on a rooftop reduces the heat of the rooftop by nearly

50 degrees Fahrenheit. The coating also has further environmental benefits as it contains no hazardous materials, nearly qualifies as a no volatile organic compound (VOC) coating, and has anti-fungal properties which are essential in Okinawa's humid climate. The new coating was placed on select buildings in January 2009 and will save more than \$15,000 per year per building or \$150,000 for the 10 year warranted life of the coating. This is a ground-breaking energy saving coating that cuts heating and cooling costs. The coating has shown an 8-10% annual energy savings. This data has been shared with various organizations within and outside of DoD, from the U.S. Ambassador to Japan, to senior staff from the Deputy Under Secretary of Defense (Installations & Environmental), to the Senior Engineer Conference in Tokyo and numerous publications.

Additional energy accomplishments in FY09-10 include:

- First Department of Navy installation to develop a site data package (SDP) to use DoE's new super Energy Savings Performance Contract (ESPC). MCB Butler's SDP is now being used as the model for other Department of Navy installations. MCB Butler's ESPC includes upgrades in lighting, water fixtures, and HVAC systems to over 200 buildings, as well as renewable energy technologies which aim to generate up to five megawatts of power to help us meet the new EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* requirements.
- In 2010, hosted U.S. EPA's Energy Star Building Program team and the first to begin an Energy Star partnership between EPA and a DoD installation.
- In FY10, several energy conservation projects were approved for funding. Small wind turbines (possibly the first within DoD in Asia) and photovoltaic panels on rooftops will be installed.



Initiated a joint study to conduct collaborative efforts for urban heat, solar and wind energy solutions.
Photo by MCB Butler Environmental

Conclusion

Despite the challenges of being in a remote overseas location with a unique environmental and political climate, MCB Butler has been a leader in enhancing environmental quality while sustaining the Marine Corps' ability to effectively train and maintain readiness. We continuously strive to ensure that our program supports military readiness – examples include our ability to complete numerous plans and environmental analyses by in-house staff, our robust environmental training, and our extensive natural and cultural resources sustainment which is critical to training effectiveness.

MCB Butler stands out by integrating both environmental quality and energy conservation into its EMS at a regional level. Our success is reflected in the numerous achievements such as our improvements in energy awareness, significant increases in recycling, and reductions in waste generated. Our program used innovative techniques - from our successful soil erosion 3D imagery to being the first DoD installation to apply thermal insulated coating to buildings. The success of our stakeholder interaction is reflected in our numerous partnerships with prominent Japanese universities and U.S. agencies to share information and identify new and innovative solutions.

MCB Butler's environmental program has been leading the way in improving the relationship between the people of Okinawa, Japan and the Marine Corps. Our continued development of innovative solutions have proven environmental sustainability and energy conservation enhance military readiness.