



GREENING FROM THE GROUND UP:

SUSTAINABLE OPERATIONS IN THE FOREST SERVICE

**A REPORT ON THE 3-YR INVESTMENT
BETWEEN THE FOREST SERVICE
WASHINGTON OFFICE
AND THE
ROCKY MOUNTAIN REGION (R2)**

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A special green thank you goes out to the hundreds of employees who took responsibility themselves for furthering the idea of sustainable operations at their particular location, and in so doing, created a momentum for the agency that couldn't be stopped. Without these insider agents of change carrying the torch and banging the drum, we would not have garnered the attention needed to help us develop a consumption ethic commensurate with our land ethic. Today we have a network of sustainability champions as diverse as the ecosystems we steward. There are champions at all levels of the agency and from all disciplines, leading green teams or going it alone. As the agency maps out a second century under the environment of a changing climate, we must remember that the heart of sustainability is people and our choices about resource use. Our champions are a constant reminder of this—they are redefining conservation through their actions.

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GREENING FROM THE GROUND UP

INTRODUCTION

The effort that began as a small pilot in one region has expanded to include an ever-growing number of green teams (over 50 at last approximation), publication of two national environmental footprint documents that began to describe our consumption, a national website, three sustainable operations summits (a continuing effort), and recognition by other agencies and the USDA that the Forest Service is a sustainable operations leader.

Today sustainable operations and environmental footprint are part of our language as an agency. The sustainable operations effort acknowledges that being a conservation leader requires us to connect our land management role to the resources we use. Sustainable operations offers a new vision of stewardship that acknowledges the impacts resulting from our use of resources and strategizes ways to reduce these impacts in concordance with our agency mission and in ways that capitalize on and reinforce the best elements of our agency's culture.

Sustainable operations has offered new ways for the various arms of the forest service to cross internal boundaries, both organizational and geographic. A tremendous self-organizing network of sustainable operations champions exists across forests, stations, and areas and is continually expanding to include our neighboring sister agencies and communities.

This document takes a look back at the various factors that influenced sustainable operations through its inception, implementation, and propagation throughout the agency. The purpose for this retrospective is to capture the spirit and intent with which sustainable operations was founded, to recognize those individuals who have contributed to its success, to describe some of the less conventional aspects of the mindset by which it was established (and which contributed to success), to lay out some of the critical future challenges to taking sustainable operations to the next level, and to identify some key capacities which can be nurtured within the workforce to bring about these changes.

INCEPTION AND EARLY VISION

Sustainability is not a new concept for the Forest Service. The agency is in its second century of service, and our mission has been, and continues to be, one of sustainability. However, the way we are defining and applying that concept is expanding. We are adding a sustainable consumption ethic to our sustainable resource management mission.

Currently the agency's mission is articulated as "sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and



future generations.” The agency’s mission statement includes the key intergenerational principle underlying sustainability—being present and future oriented at the same time. Today when we use the term sustainability, we seek to integrate environmental, social, and economic issues. This ‘triple bottom line’ principle focuses on understanding the connections among the environmental, social, and economic realms and considering the choices to minimize or avoid unintended consequences.

“Gifford insisted conservation be reinvigorated, revived, renamed, revitalized by each successive generation, its implications, its urgencies, its logistics translated in terms of the present of each of them.”

~Cornelia Pinchot~

As we began our new century of service, there was a growing realization that many agency actions and initiatives were not connected, all aspects of the agency’s work were not necessarily focused on delivering the agency’s mission, and that each and every employee did not understand how they could contribute to more sustainable solutions. In 2005, Forest Service Chief Dale Bosworth touched on this when he stated that a future challenge for the agency is “supporting our land ethic with a sound, well-focused consumption ethic.”

Cast of Characters

In 2005, a 3-year, sustainable operations partnership was forged between the Rocky Mountain Region and the Washington Office. The partnership owes its creation to the right combination of timing and leadership. It was a natural offshoot of our need to connect the agency’s day-to-day operations with delivering the agency’s

mission in an era of climate change, and Joel Holtrop, the agency’s corporate domestic lead for sustainability, and Rick Cables, a field leader also interested in advancing sustainability, were committed to making that connection.

Although there had been much work done previously regarding resource consumption, it hadn’t been put into practice. Even though sustainability has long been at the heart of the Forest Service mission, it was not clearly visible in our day-to-day operations. The partnership provided a venue to put sustainability into actual practice in our facilities, our fleet, and our purchasing and waste habits. The essential goal was to bring the ideal of a consumption ethic into real life.

Three people were entrusted by Joel Holtrop and Rick Cables to move the partnership forward and to keep them informed along the way—Glenda Wilson and Anna Jones-Crabtree from the Rocky Mountain Region (Region 2) and Ruth McWilliams from the Washington Office.

The Learning Lab Model

Rick’s direction was “I’ll tell you when you are outside my comfort zone” which offered tremendous latitude to identify obstacles, barriers, and successes in a way that focused on a learning approach. This learning approach was a unique for the agency, and the partnership quickly catalyzed into a learning laboratory. The learning lab began with the idea that certain activities could spur continuous improvement and behavioral change that was long lasting.

Financial resources were provided to move out with key activities and actions that could lead to significant, enduring improvements. These included the creation of a sustainable operations coordinator position, an environmental footprint report document, several green teams, and a sustainable



operations summit as starting points. It soon became clear that the cultivation of these activities was creating tremendous momentum within the agency. The learning lab needed a ‘line support structure’ as a way to move through institutional barriers and use successes in one place as a springboard to implementation in another so that outcomes of the lab could be owned by the agency and not just as a Rocky Mountain Region pilot.

Early Vision

Tackling the global issue, however, needed to be grounded in the reality that “sustainable development begins at home.” A board of directors was created to facilitate overall coordination and collaboration of sustainable

operations practices throughout the region, with representatives from other parts of the Forest Service (including the Washington Office and neighboring regions and stations) to help champion ideas, share the lessons learned from place-based work, and grow the effort throughout the agency in collaboration with partners.

The board developed the following vision, recognizing that sustainable operations is not a program of the Forest Service but part of everything the agency does to deliver the mission. The board also endorsed a tag line developed by the Rocky Mountain Region—“creating habits today, conserving resources for tomorrow”—which underscores the importance of behavioral change.

A Forest Service Conservation Leadership Vision

The Natural Resource Conservation Ethic has defined our First Century. As we embark on our Second Century, we understand the imperative to couple this with a Sustainable Consumption Ethic.

We will create within our operations those habits that inspire individual and organizational decisions leading directly to conserving natural, economic and human resources for tomorrow through all the decisions we make.

We will realize this Vision by engaging all employees in:

- Reducing our reliance on unsustainable energy sources and contribute to the market for sustainable energy;
- Creating an understanding of and implementing practices supporting sustainable water resources;
- Employing practices to elevate the sustainability performance of purchased goods and services, and the performance of our suppliers, contractors, partners, and other governments;
- Improving our transportation and travel practices, reducing harmful emissions, increasing operational and fuel efficiency, and reducing non-renewable fuel use; and
- Minimizing waste generation and reducing landfill use

As we make progress on these goals, we will seek continual improvement, strive to share our learning, serve as an example to others, and work to live up to the public trust.



Key Accomplishments

The learning lab model established an opportunity to roll out the structure, knowledge, and enthusiasm to increasingly broader cross-sections of the agency. These activities included the development of the first environmental footprint report for the agency that summarized the consumption side of our stewardship role. The first sustainable operations summit was held in Fort Collins, Colorado in November 2005. Since that time, summits have become an annual tradition which continues to mobilize financial, environmental, and human resource savings agencywide.

Armed with quantified information about our agency consumption from the footprint report and some action items identified during the 2005 summit, key leadership meetings were then targeted as a way to begin to tell the story about linking our resource use with our more traditional resource management role. Sustainable operations became a sought-after topic on agendas of regional leadership teams, national staff meetings (such as communications), and a deputy regional forester meeting. In April 2007, a 10-minute sustainable operations presentation (a part of a larger climate change topic) at the national leadership team meeting tasked our leadership with taking action.

As more employees became engaged and aware that the agency was serious about integrating conservation into our day-to-day operations, sustainable operations became self-reinforcing. Soon the original green team established in the Rocky Mountain Region was copied and replicated throughout all levels of the agency. Employees who had long felt the disconnect between our mission and the large vehicles sitting in our parking

lot, our lack of recycling, or our energy use became empowered to take actions that created realignment with our conservation mission.

BUILDING A CULTURE SHIFT

The learning lab structure allowed us to concentrate on building sustainable operations as a cultural shift. Several elements contributed to this shift and also facilitated the propagation of sustainable operations in a very short time. In this section, we describe elements which provided the foundations for building sustainable operations not as an initiative, program, or effort but as a cultural shift.

The Systems-based Approach

Sustainable operations has a direct connection with our value structure as an agency and therefore requires focus on a cultural change in our behavior. Behavioral change is especially difficult to bring about using conventional methods, so we adopted a systems-based approach which helped us identify leverage points which would maximize limited resources. Systems thinking is a framework based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation.

By applying the systems approach to sustainable operations, we expanded our perspective to address the consequences of our agency energy and resource consumption and disposal choices and subsequently connect those consequences with our land stewardship role. By addressing problems in their context as part of an overall system, rather than focusing on individual outcomes,



we can avoid unintended consequences. Systems thinking helps us connect our agency mission with concerted actions to reduce our waste and environmental impacts within the larger 'system' of a sustainable way of living on the planet and helps us to incorporate this work into our management strategies.

The systems perspective embodies the belief that small catalytic events can cause large changes in complex systems. This can be seen in sustainable operation's emphasis on interconnectedness: strategic use of scarce resources for 'leverage,' catalyzing the 'snowball' effect, cultivating sources of inspiration, creativity, initiative, and self-organization are all examples. Organizational communication is key. Sustainable operations has defied a more typical 'silo' approach to assigning/accepting responsibility, experimentation, learning, and sharing success.

Echoes from Dialogos

Sustainable operations is a significant part of our adaptation to this changing world. The 2008 Dialogos report, *Taking Steps Towards Change*, focused on informing the Forest Service concept of cultural change, an effort which is as applicable to fire and safety as it is to sustainable operations, resource management, or our culture of consumption. Each of these is especially relevant in the context of climate change.

In a departure from narrow, top-down implementation direction, the sustainable operations learning lab concentrated on efforts which were small, organic, customized across geographic and administrative boundaries, and which exemplified the freedom to explore, try, learn, and adapt sustainable practices to work on individual units. The table below summarizes some of the contrasting features between sustainable operations and a more conventional approach.

Contrasting features between sustainable operations and a more conventional approach

Sustainable Operations	Conventional Approach
Bottom up	Top down (wait for direction)
Flexible	Rigid
Innovative, contemporary, evolving	Bound by artifacts of past organization
Supportive and daring learning environment	Adhere to 'the rules'
Success is self-defined	Success externally defined
Continuous improvement	Do the minimum required (targets/legal requirements)
Everyone can be empowered to be a genuine leader	Leadership exists at the top
Shared learning	Divide and conquer
Form atypical partnerships, learn and share successes with other agencies and partners	Little incentive for interaction with other agencies or outside entities



DIALOGOS PRINCIPLES: DISTRIBUTED RESPONSIBILITY, STRATEGIC USE OF MANAGEMENT TOOLS, CONNECTIVITY AND COLLABORATION

The Dialogos report noted three key conditions for cultural change which we feel are particularly resonant with what sustainable operations set out to accomplish. We capture them here as principles. In the next section, we will use them to report progress, recommendations, and finally challenges and opportunities to moving ahead. A more detailed breakdown of the relationship between the Dialogos principles and sustainable operations is contained in appendix B.

1. Empowering local, place-based actions by employees. (Distributed responsibility – Dialogos).
2. Identifying and using management tools that support reporting/celebrating successes and continuous improvement and reward changes in consumption patterns (perseverance and learning in the face of difficulty – Dialogos).
3. Fostering organizational connectivity and collaboration to support long-term sustainability (Commitment to operating in a new way – Dialogos).

**PRINCIPLES ➡ PROGRESS
➡ RECOMMENDATIONS**

In this section, we revisit each of the principles gleaned from the Dialogos report and describe the specific activities which embody those principles: what they are and what they did. For each activity, we offer recommendations to moving from ‘low hanging fruit’ to continuous and enduring improvement. Finally, we offer an assessment of our progress towards full

implementation of sustainable operations into the Forest Service culture, using the three principles outlined above.

1. Distributed Responsibility: Empowering Local, Place-based Actions

How well we empower local, place-based actions is important because it encourages employees to make changes at their particular place in ways that can be long-lasting and adaptive, given local infrastructure and community needs. Local place-based actions have significant consequences for our employees. Employees who engaged in place-based actions became empowered to not wait for direction from the top but rather became innovative and shared learning with others in their particular location. Under the context of a changing climate, local solutions are often the most resilient and adaptive, and they give those involved a critical sense of ownership in outcomes. The establishment of green teams, annual sustainable operations summits, and microgrants were three activities the sustainable operations learning lab grew as ways to distribute responsibility for our consumption. The expanding use of nonmonetary and formal awards programs, such as the regional forester awards, were also key to continuing the place-based momentum as they showed that leadership support existed.

GREEN TEAMS – ZERO TO 50 IN 3 YEARS

What it is: Green teams are where the rubber meets the road. They are groups of like-minded employees who are passionate about environmental issues and dedicated to making a difference on their units. Green team members ask “What can we do about this NOW?” They are the agents of change who promote more sustainable ways of doing



business, and they inspire the rest of us to get involved and change our habits.

What is the status: Green teams are booming. Employees want to be part of making a difference locally, dispelling the myth that “people at the top will take care of it” and fostering the work of sustainability champions. The Forest Service concept of green teams has transferred to other agencies, and in some cases, there are interagency green teams working across traditional agency and geographic boundaries.

Why they work: Green teams provide “walk the talk” success stories that can be shared internally and externally; they create an open forum for raising issues that need to be dealt with at higher levels; and they provide a safe environment where employees can try out and support new consumption habits and behaviors. Green teams have served as the momentum generators in the agency.

Recommendations: Continue to foster, fund, and celebrate green teams; they are tremendous problem identifiers and solution finders. Continue implementation of tools such as the green team tool kit [<http://www.fs.fed.us/sustainableoperations/green-teams.shtml#toolkit>], which helps network green teams’ successes and provides a clearinghouse for information. This will be critical to helping green teams avoid duplication of efforts. Develop additional mechanisms to support the agencywide celebration of green team success stories as has been done in the environmental footprint report. If green teams are not supported by leadership recognizing success and removing barriers, there is a risk that green team champions will begin to fatigue, reaching their capacities to enact meaningful change.

SUSTAINABLE OPERATIONS SUMMITS

What it is: Once in a blue moon, a group, place, or “scene” generates extreme

creativity. The term, coined as “scenius”, describes the infectious environment at the sustainable operations summits. These events have inspired some of the best and most creative changes sustainable operations has produced.

"Scenius stands for the intelligence and the intuition of a whole cultural scene. It is the communal form of the concept of the genius."

~ Brian Eno ~

Summits bring interested employees together to talk about our consumption and bridge with many other federal agency partners such as the Environmental Protection Agency, Department of Energy, National Renewable Energy Laboratory, Department of Defense, and local community governments. Summits provide energizing forums where new ideas can be shared in a continuous improvement environment and where internal and organizational boundaries are bridged.

What is the status: From the first regional summit in 2004, we have grown from defining sustainable operations; to connecting our consumption with ecosystems; to working across disciplines, agencies, generations, and communities to create sustainability. Attendance at the summits has nearly tripled, giving more employees the space to experiment with, and talk about, new consumption behavior. The 2008 summit (our fourth), coming up in November will be hosted jointly by four Forest Service units (Forest Products Lab, Region 9, Northwest Area, and Northern Research Station). Presentations from the summit will be available via video teleconferencing and web conferencing. Utilizing video and web technology for the 2008 summit not only reduces our travel and fuel consumption footprint, it also makes the



summit accessible to employees throughout the agency.

Why they work: Sustainable operations summits embody “scenius.” The scene of the summits allow individuals to produce their best work, inspired by their like-minded peers and the environment around them. Summits create the space the sustainable operations community needs to foster their innovative, risky, world-changing work and fuel each other’s passion. Sustainable operations summits have become a gathering place for champions, legitimizing the sustainable operations effort and re-energizing the employees most able to change our culture. They provide a constructive and open forum for employees to engage with leadership about barriers to sustainability and support a continuous learning process.

“Factors which cultivate scenius-

- **Mutual appreciation** -- Risky moves are applauded by the group, subtlety is appreciated, and friendly competition goads the shy. Scenius can be thought of as the best of peer pressure.
- **Rapid exchange of tools and techniques** -- As soon as something is invented, it is flaunted and then shared. Ideas flow quickly inside a common language and sensibility.
- **Network effects of success** -- When a record is broken, a hit happens, or breakthrough erupts, the success is claimed by the entire scene. This empowers the scene to further success.
- **Local tolerance for the novelties** -- The local "outside" does not push back too hard against the transgressions of the scene. The renegades and mavericks are protected by this buffer zone.”

~Kevin Kelly~

Recommendations: Continue the summits and continue to connect sustainable operations with the factors which cultivate

scenius. Scenius is difficult, if not impossible, to create on demand; however, it can erupt almost anywhere, at any scale. Provide the time and leeway for interested employees to organize and host the summits, and provide resources and infrastructure to make future summits successful. Invest in and advance technology which will allow more participation at remote sites to reduce travel impact. Sustainable operations summits have created a strong sense of unity among attendees and have empowered them to take meaningful action. The scenius of these events is the ‘magic something’ needed to help us take the next steps to integrate our consumption ethic with our land ethic, foster collaboration, and build new habits as we learn what it means to inhabit a planet with a changing climate.

MICROGRANTS

What it is: Microgrants put resources into the hands of people with passion to make changes. The idea that a small amount of money in the right hands can lead to large scale change started with a “show me the money” program at the 2005 summit. This concept, based on the idea of microcredit, provided funds to employees who had the ideas and passion to implement activities that could directly and quantifiably reduce the agency’s environmental footprint. Generally, employees apply for funding and then report back after implementation with a quantifiable environmental savings and a story that can be shared with others.

What is the status: Today, microgrants deliver the resources local employees need to identify and implement strategies for reducing the agency’s environmental footprint. What started as a small idea at the first summit has expanded and is implemented across several regions. In 2008, regions 2, 4, and 5 and Pacific



Southwest Research Station all sponsored microgrant programs.

Why it works: One of the first microgrant ideas was the purchase and installation of over 30 vending misers at various locations in Region 2. In one year, this resulted in a projected energy cost savings of over \$6,000 and dwarfed the initial \$3,500 investment. Microgrants may seem small but the individual actions, taken in total, are significant and are cumulative from year to year. Microgrants are a way to spread ideas for environmental and financial cost savings. They help support our champions with tangible funding resources, and they offer employees a way to participate or correct something about which they feel strongly.

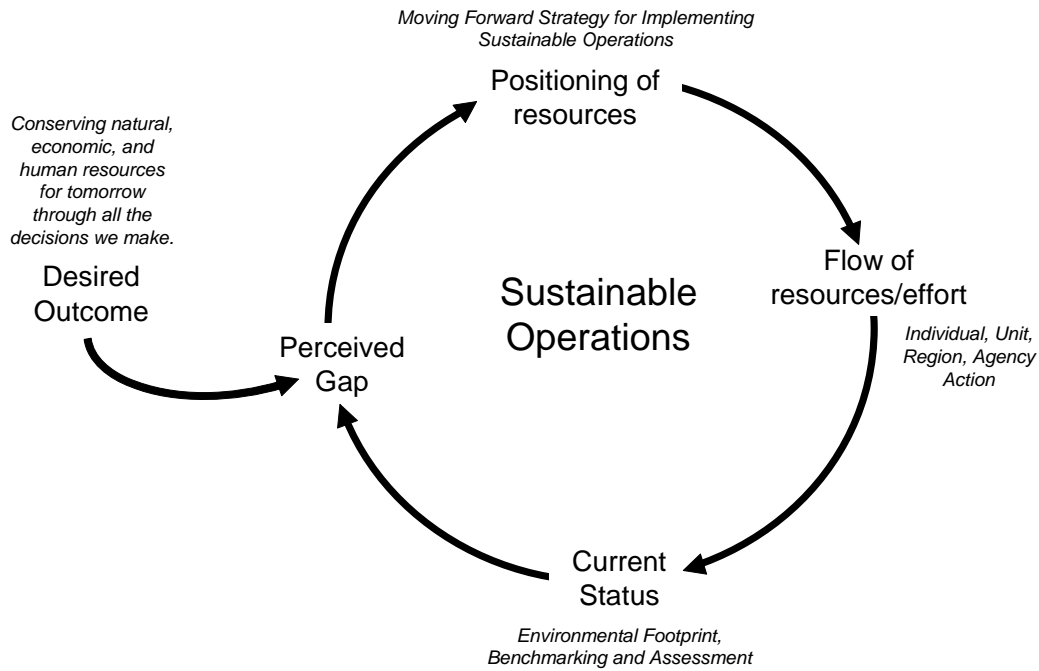
Recommendations: Recognize regions and stations that have implemented microgrant programs, and provide support for programs in new units. Institute an annual, competitive macrogrant program through the WO to provide larger amounts of funding (\$20,000+) for green team projects to showcase examples of sustainable operations for the entire agency. Continue to share microgrants successes through the environmental footprint report.

2. Learning in the Face of Difficulty: Strategic Use of Management Tools

Sustainable operations isn't about implementing a checklist of footprint reduction activities. It's about creating an environment where employees are allowed to look critically at our resource consumption habits and create change. Creating a culture where it is OK to take risks for the sake of learning is difficult. Instituting a culture

where every employee has a responsibility to identify and implement improvements is even more difficult and demands an agencywide strategic approach to sharing ideas, learning from experiences, and avoiding duplication of effort. Each and every employee has a responsibility to help the agency reduce our environmental footprint. Employees should be empowered to take actions and bring forward ideas and challenges that exist for their particular discipline and/or staff area. Implementing cultural change will take all of us bringing the strengths and diverse perspectives of all of our disciplines.

Strategic use of management tools such as environmental footprint reporting, environmental management systems, and a strategy for moving sustainable operations forward allows for the creation of learning cycles against which success can be gauged and improvements attempted at multiple scales. Within this system of continuous improvement, resources can be positioned (through strategy documents, among partners at sustainable operations summits) and actions executed (fleet improvements through EMS, place-based actions by green teams) that make the most of limited resources and create self-reinforcing feedback loops to encourage conservation and discourage inefficient or excessive resource use (see figure on page 6). Strategically using management tools can help us close the gap between our desired outcome for sustainability and where we are today with our resource consumption. Management tools help us narrow the gap by identifying and creating space in which to take strategic action.



ENVIRONMENTAL FOOTPRINT REPORTING

What it is: The environmental footprint report is an accounting of our consumption in six areas: energy, water, waste prevention/recycling, green purchasing, fleet/transportation and sustainable leadership. The report highlights our understanding about the systems we have to track our agencywide consumption and activities in each of the six areas. It also couples those agencywide numbers with actual success stories of meaningful actions taken by green teams and other champions.

The two agencywide environmental footprint reports can be found at <http://www.fs.fed.us/sustainableoperations/communications.shtml#reports>.

The reports are meant as a reflective look, a way to track our progress, and as a feedback loop to recognize units that have taken active

steps to implement sustainable operations practices.

What is the status: The first report was done at a regional scale for the Rocky Mountain Region. It focused on our consumption and impacts in six environmental footprint areas—water, energy, waste prevention/recycling, fleet/transportation, green purchasing and sustainable leadership—and served as the format for the two national footprint reports. The reports have been effective diagnostic tools for finding and communicating problems and have shown us the cumulative effects of our consumption. Our footprint reports have been well received and held up as a superb example of an integrated approach to reporting requirements for Executive Order (EO)13423. Other agencies are pointing to the Forest Service as a leader in this arena. The status of data collection and preparation



of the FY2008 environmental footprint document is unknown.

Why it works: Using environmental footprinting to assess current practices creates the feedback loop of continuous improvement illustrated in the previous figure. The environmental footprint reporting process provides information about our consumption patterns we didn't have before, makes that information relevant to the agency at multiple levels, and gives it to the people who can act right now. This feedback loop is also a way to recognize units that have taken active steps to implement sustainable operations practices. As one example, through the process of identifying energy consumption at the forest level, we discovered we were paying bills for buildings we no longer owned. Telling this story through the footprint report enabled many more people to realize there was a problem and to work to correct it.

Recommendations: Continue environmental footprint reporting at the regional and national levels, using existing reports as benchmarks for measuring success and reporting that success to the Department of Agriculture and the Office of Management and Budget. Developing a system and assigning responsibility for information collection are critical steps to continuous improvement. Interpretation of data, analysis, and reporting of progress against benchmarks are equally important. How this is done will determine whether or not the information is ultimately integrated into the everyday choices made by each employee in the agency.

Share the vision of this footprint document widely, and use existing capacities in research and development to promote the findings, messages, and gains in efficiency. Share the results and recommendations widely also with partners outside the agency.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

What is it: EMS is an agencywide system that helps us identify, clarify, and implement activities that reduce our environmental footprint. Its formalization is the result of EO 13423 and the 2008 Planning Rule. While the environmental footprint report is forward-looking and all-encompassing, the EMS takes us to specifics for implementation.

Why it works: Our EMS efforts are leading to reduced duplication of effort and a more integrated long-term approach connecting our traditional land ethic with a consumption ethic. It also can help the agency integrate national priorities and meet the requirements of EO13423. For example, our focus on fleet and transportation has already made progress towards rightsizing our fleet with biodiesel, natural gas, hybrid, and other fuel-efficient vehicles.

What is its status: EMS was initially adopted as a management tool to help the Forest Service continuously improve the way we address our environmental impacts in the future. Currently the agency is struggling to define and articulate how the tool should be used. EMS has been assigned to two separate staff groups with differing approaches and responsibilities, and there is little integration between the groups. Lack of complete coordination and integration at the national level is compartmentalizing EMS and could prevent it from becoming an integral, effective tool that leverages our strengths and helps connect our operations and land management stewardship activities under an umbrella of sustainability.

Recommendations: Elevate the importance of EMS as a tool to reduce the agency's environmental footprint and as a tool that clearly connects sustainable operations with sustainable resource management. Continue agencywide EMS, and foster integration and



information sharing across staff and deputy areas. To use EMS effectively, all deputy areas and levels of the agency must participate fully in implementation, and all of our products, services, and activities must be scrutinized not only for how they contribute to global warming, but also for how they fit into the systems that make up the agency's footprint. Roles, responsibilities, and connections between EMS and sustainable operations work need to be clarified so all employees understand the linkages and not just the components.

MOVING FORWARD ON A STRATEGY FOR SUSTAINABLE OPERATIONS

What is it: This strategy for implementing sustainable operations connects a longer-term vision for the agency's consumption with clear short-term goals, objectives, and actions. Based on feedback from the 2007 sustainable operations summit and national environmental footprint report, the strategy emphasizes creation of a culture of education, reward, and recognition. The strategy supports linking place-based sustainable operations initiatives with a national framework encouraging agencywide change.

What is its status: The moving forward strategy was sent to multiple stakeholders at the WO level, including those working on climate change, via a formal letter from Region 2. There has been no response or dialog about how the strategy can be used as a tool for the agency. It is unclear whether the strategy will be a part of national efforts; however, it is being used at the regional level (in regions 1 and 2) to guide sustainable operations work.

Why it works: The strategy not only outlines longer-term goals for the agency, such as net zero energy, but it also puts forth specific activities that must be taken over the

next few years for each footprint area to move us towards those bigger goals of meeting EO 13423. It is a strategy that can easily be adapted and adopted at a variety of scales within the agency.

Recommendations: Implement Phase II of the learning lab by matching national resources with combined resources of the units in the intermountain west. At this time, Regions 1, 2, 3, and 4 and Rocky Mountain Research Station are discussing a way they can jointly move out by creating a virtual network of sustainable operations champions. The moving forward strategy will be used to craft action items for this network.

3. Fostering Connectivity and Collaboration

We have outlined above how sustainable operations offers a system approach from which EMS, climate change, and external partnerships can strategically connected to create overall agency success. Success will not happen in absence of a third critical factor: connectivity and collaboration. Today it takes a web of knowledge and relationships—within the agency (intra-organizational) and with partners (inter-organizational)—to bring together the resources and build the networks needed to address complex issues threatening the sustainability of the Nation's forests and grasslands.

INTRA-ORGANIZATIONAL

What is it: The Forest Service has the opportunity to connect expertise and other resources within the agency to reduce our consumption and/or change consumption patterns. Big issues like climate change should cause us to think and act in more integrated ways—bringing together expertise and other resources within single units of the



agency and coalescing the expertise and other resources that exist in different parts of the agency within geographic places.

What is its status: As an agency, we now recognize sustainable operations as important work, and have used the environmental footprint approach to identify key opportunities for reducing consumption and/or changing consumption patterns. But we have not yet successfully connected sustainable operations with programs and practices the agency uses to deliver the agency’s stated mission on a day-in and day-out basis. Science for sustainability is in its infancy; and integration is not the norm. For instance, green purchasing provides an opportunity for the Forest Service to change procurement practices but also to alter our consumption patterns through the design of our facilities; or to modify our business practices by adding ‘sustainability’ specifications to our contracts; or to change the production of goods entering the marketplace through research and development; or to increase the reach of government through interagency coordination and community partners.

FS Mission
 “to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations.”

Why it works: Delivering the agency’s mission in the face of big issues like climate change requires knowledge and learning about sustainable operations and its connection to sustainable natural resources management. The agency has significant authorities, expertise, and other resources to contribute from within each deputy area. Employees get energized by working with colleagues, learning from each other, and finding ways to address recurring problems.

As their collective competence grows, they develop a shared practice and the agency’s overall capacity increases.

Recommendations: Challenge teams working on environmental footprint areas to identify specific ways to use sustainable operations as a tool for achieving sustainable natural resources management, thereby pulling together a more diverse mix of expertise to tackle specific issues and encouraging units of the agency to work across administrative boundaries and collaborate within shared geographic areas (e.g., Rocky Mountain Region and Rocky Mountain Research Station). Use EMS as a catalyst for integration across agency units and programs. Use science for sustainability to integrate conservation and consumption ethics into agency practice through quantified and analytical use of benchmarks, goals, learning cycles, and system understanding.

INTER-ORGANIZATIONAL

What is it: Today, when problems seem to be more global and more local at the same time, knowledge and relationships are critical assets to creating large-scale change. Besides bringing together expertise within units of the agency and coalescing different parts of the agency within geographic areas, the Forest Service must also learn from, join with, and engage partners in our work to customize solutions to the ecosystems where we live and work. Together we must create connections across organizational and geographic boundaries to scale up our impacts and reduce our overall consumption as a country.

What is its status: We have taken some significant initial steps as an agency to connect sustainable operations across both organizational and geographic boundaries. At an ecosystem scale, the Forest Service and National Park Service now co-lead a



sustainability sub-committee of the long-standing Greater Yellowstone Coordinating Committee (GYCC). In the west, the Rocky Mountain Region has joined the Federal Network for Sustainability which is a voluntary collaborative network of federal agencies focused on fostering and furthering sustainability through agency operations and related group initiatives. At the national level, the Forest Service participates on USDA's Sustainable Operations Council; and is also linking sustainable operations to broader sustainable development discussions of the Department through USDA's Council on Sustainable Development. Internationally, USDA's Council on Sustainable Development is involved in dialogue on sustainable consumption and production through the 10-year Marrakech Process.

Why it works: Federal policies that encourage interagency collaboration on consumption-related issues have been updated, goals have been set, and progress is being tracked. Interactions among government agencies and others are, of course, aided by digital and communications technologies. Consumer demand and other market forces are encouraging all organizations to be more environmentally and socially responsible.

Recommendations: Sustainable operations needs to be seen as mission critical, and associated policies, programs, and practices must be better aligned across both the public and private sectors. The large scale impacts of various efforts will not be obtained unless this alignment is fostered within the agency. All levels of the agency have the responsibility to do the following:

- ◆ Encourage more regional partnerships to link sustainable operations with sustainable natural resources management (e.g., GYCC).

- ◆ Engage more actively in existing sustainable operations networks to share and learn from federal partners (e.g., FNS).
- ◆ Find ways for place-based efforts and regional partnerships to inform servicewide efforts to break barriers and share innovations.
- ◆ Integrate Forest Service Research and Development factions into current engineering and land management sustainable operations efforts.

AN EVALUATION OF SUSTAINABLE OPERATIONS

We evaluated the success of the sustainable operations effort by grading our implementation of each of the three key conditions identified on page 6. To structure our qualitative assessment, we evaluated the key conditions based on where we are in the process of cultural change as defined by the Dialogos report. According to Dialogos, cultural change has three repeating continuous improvement phases:

- ◆ A working core fosters a design for a whole system.
- ◆ Behaviors are shifted, and experimentation is sponsored.
- ◆ Successes are celebrated, work is anchored in new policies and structures, and learning is replicated.

Grades were roughly assigned based on the proliferation of each condition through each of the phases within this process of culture change. Like any student, we did better in some areas and have clear room for improvement in others. The grades given are clearly rooted in the perspectives of those who prepared this document; they are our own assessment of our agency's success on



the journey towards a culture of sustainability. Because shared learning and continuous improvement are key elements of effective culture change, other ideas, suggestions, and discussion by readers are welcomed as part of this evaluation process.

**SUSTAINABLE OPERATIONS
REPORT CARD**

Condition Needed for Cultural Change	Grade for Implementation
Empowering place-based action	A
Identifying and using management tools	B-
Fostering organizational connectivity	Incomplete

Empowering place-based action – A

We gave ourselves an **A** for “Empowering place-based actions” because those actions have promulgated throughout the three phases of culture change. Today there is a working core of employees who believe in and are taking actions to create a consumption ethic. The Forest Service, as a whole, is sponsoring experimentation and working to provide structure and replicate learning through such tools as green teams, summits, and microgrants. The reinforcing activities listed below support the grade.

- ◆ Growth of green teams continues.
- ◆ Summit attendance increased every year since the first summit in 2005.
- ◆ Employees at all levels across the agency are energized about sustainable operations.
- ◆ All employees have the opportunity to participate and demonstrate actions.
- ◆ Engaged in reporting process.

Use of Management Tools – B-

Our grade for use of management tools is **B-** because the agency has not yet fully shifted to a new sustained manner of functioning from a sustainable operations perspective. A core foundation has been created to support significant progress, but behaviors and organizational structure is not yet in place to support the long-term, sustained delivery of sustainable operation successes. The reinforcing activities listed below support the grade of **B-**.

- ◆ Each management tool is in use.
- ◆ Use of the tools is in its infancy/development stage.
- ◆ There are limited strategies for agencywide implementation of many of the tools, and they are not well integrated (there is a strategy for EMS).
- ◆ There is currently no organizational structure to continue the footprint reporting process.

Connectivity – Incomplete

Our efforts to establish connectivity received an **Incomplete**. Even though there are many inter- and intra-organizational pilot examples where connectivity exists and is working, we have only started to integrate our consumption and our natural resource management. One of our biggest challenges will be creating and maintaining the networks necessary to achieve sustainability both for us as an organization and as citizens of the planet. In some respects, this grade could have been stated as “to be continued” because it will take much more concerted efforts to create these networks. Some reasons for the grade of incomplete are listed below:



- ◆ There is a lack of coordination between the environmental footprint reporting process and EMS.
- ◆ There is a lack of integration between sustainable operations among various staff groups.
- ◆ Agency involvement in related networks (e.g., the Federal Network for Sustainability) is sporadic.
- ◆ Regional ecosystem-based partnerships are limited.
- ◆ Sustainable operations is not seen as delivering the agency mission at all levels.
- ◆ Research and development have not been integrated into land management and engineering sustainable operations efforts.

DELIVERING THE MISSION INTO THE FUTURE: NETWORK CREATION

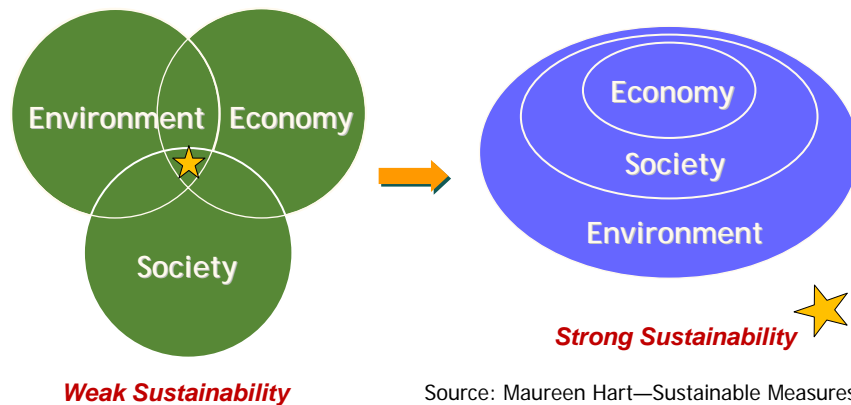
Moving from an ‘Incomplete’ grade to ‘Passing’ requires taking on the challenge of organizational connectivity and collaboration. This challenge is made even more urgent in this era of climate change when human impacts on the environment are increasingly recognized at a planetary scale. The world has changed; and some say the problems seem to be more global and more local at the same time.

If we heed Gifford Pinchot’s advice that conservation be revitalized by each

successive generation, then we should expect the agency’s roles and responsibilities in fostering sustainability to evolve.

Few (if any) organizations are as well positioned to truly offer an integrative approach to ‘continuous sustainability improvement’ which includes a resource management component and an operations component at such broad scale. We have commented a great deal on the operations component of this work, leaving unsaid that resource management has been working on sustainability issues for decades. A comprehensive summary of what these two pieces look like together is beyond the scope of this document, but it is a critical area for future discussions, summits, and integrative work as we explore our role on a planet with a changing climate.

This is not a ‘save the planet’ venture. Sustainable operations is a cost-effective, efficiency-oriented, pragmatic, and human-based venture. It requires a new mindset—specifically, a systems approach which can help integrate our understanding of human (and agency) behavioral change, in the context of a rapidly changing environment. Broadening and deepening our agency’s commitment to sustainability, as advocated by Joel Holtrop, depends upon more integrated, less compartmentalized approaches resulting in more interconnected environmental, social, and economic outcomes. This interconnection is the basis for the transition from weak to strong sustainability as illustrated in the following figure.



Source: Maureen Hart—Sustainable Measures

For sustainable operations to endure as part of the agency’s sustainability quest, it needs to contribute to the agency’s mission and add value. The 3-year partnership provided a way to connect our agency’s land management role to the resources we use and offered a new vision of stewardship, linking our land ethic with a new consumption ethic and reinforcing the model that every employee has a role in sustainable solutions. It provided a way for employees to close the seeming dichotomy of caring for watersheds when we don’t have low flush toilets or ecosystem appropriate landscaping or the dichotomy of talking about the role of trees in sequestering carbon when 80% of our fleet is 4-wheel drive vehicles averaging 11.5 miles per gallon.

Technical knowledge is not enough to understand the connections and consider the choices. Key sustainability competencies include:

- Systems thinking
- Lifecycle analysis
- Networking skills
- Change management
- Visioning skills

Integrating sustainable operations with sustainable resource management to achieve the agency’s mission requires some different competencies that help us link ideas and actions and to take a long-term view. We need to look at how we define sustainability. Is our current definition broad enough to aid in changing the culture of the agency and giving our employees the correct tools and skills to be successful? How do we help society be successful in transforming actions and activities performed completed in a sustainable manner?

Leadership opportunities, at all levels, both formal and informal, exist to help increase the agency’s capacity to foster more sustainable approaches, build legitimacy and support for sustainability internally and externally, and create value for the agency and society from our actions.

CONCLUSION

The agency’s sustainable operations journey during the 3-year partnership-turned-laboratory has helped broaden and deepen the agency’s commitment to sustainability. Much of the so-called “low-hanging fruit” has been picked, and the work has been



advanced to take advantage of the best aspects of the agency's culture. The transition to a servicewide venture is underway, and we need a framework that works with all parts of the agency and the work the agency does to accomplish the mission. This framework must be set up in a collaborative manner. Under the learning lab approach, it was easy to cross geographic, discipline and staff boundaries. The idea was to work with champions in a way that could move the entire agency forward vs. the more conventional, top-down approach.

We've made the point throughout this document that integration is the key to bringing the early gains of the sustainable operations effort to the next level of influence in our daily behavior, choices, impacts, and effectiveness in delivering our mission. Without conscientious attention to elements which have contributed to sustainable operations success, we risk losing a few hard-won gains.

Sustainable operations doesn't currently have a home. Its placement within the agency must foster a connection with the larger forest service and sustainability community; it cannot be just a box on a Forest Service organizational chart. At this point, there are less than five employees in the entire agency with specific assignments for supporting sustainable operations. The future investment in this form of work, and its outcomes, must be carefully considered and strategically placed.

The discussion of how, where, or for which purposes this comes about is a topic for future discussion. However, reflecting on the successes and struggles of sustainable operations to date, we can say that many of

the gains were realized because the people working on sustainable operations had the ability to think strategically and the resources to pursue a vision which was shared with leadership and a geographically and organizationally dispersed board of directors. The outcome may have been significantly different had these people been responding to a list of additional, assigned 'sustainability duties.'

It is our intent that this document has captured some of the experiments that were attempted, the learning which resulted, and the outcomes and savings that accrued. We have described how sustainable operations is part and parcel of our mission and the unique position the Forest Service has to offer insights to integrating operational and resource management toward sustainability goals. We have echoed the Dialogos report in three particular principles which have supported our learning experiments, and we have described elements of the systems approach which we believe have contributed to success. Looking forward, we have also relied on these principles and the systems approach to ground our recommendations for future placement of resources with the aim of leveraging these past three years into greater and greater success.

We have found this work to be extremely gratifying, adding meaning, challenge, and an interconnectedness with our fellow employees. We have been honored to serve in this work the past three years, and we hope the current sustainable operations efforts will continue to expand until sustainability is an indelible part of the Forest Service culture in the future.



APPENDIX A – IMPORTANT MILESTONES

Date	Event	Significance
1996	Sustainable operations added to FS vocabulary	
1999	The National Facilities Team’s facilities management strategy incorporated sustainability concepts from Anna in final document.	Started to bring the concept of sustainability into agency strategy documents.
2000	National sustainable development coordinator position established.	Provided national level staff support.
2004	Joel Holtrop named as corporate domestic lead for sustainability.	Established national level line officer leadership.
2005	*Region 2 and WO-S&PF develop three year laboratory which included a sustainable operations coordinator position.	Provided staff support to initiate actions and activities for the laboratory
	*Sustainable operations presentations to regional engineers and Region 2 regional leadership team.	Started the sustainable operations communication with line and staff.
	Region 2 walks the talk – installed vending misers at administrative sites. RO green team chartered. GYCC – sustainable operations charter signed. Region 2 presents first Regional Forester Honor Award for sustainability.	Demonstrated commitment and performance of actions to support sustainability. Provided recognition of champions.
	First sustainable operations summit held in Fort Collins. First environmental footprint document produced for Region 2.	First networking opportunity for early champions. Told our story on our use of resources.
2006	Region 2 establishes an energy management team. Second sustainable operations footprint document prepared. Region 2 sustainable operations website established. Sustainable operations communications strategy drafted.	Seeking means to identify potential opportunities to improve performance and to share available information and sources with others.
	Region 2 purchases renewable energy credits from WAPA. R2 joins the Western Federal Network for Sustainability.	Region reaches out to other opportunities to improve our performance and to learn from others.
	Presentations made to Region 4 regional leadership team and Washington Office directors.	Shared our story with other leaders.
	2 nd sustainable operations summit held.	Continued networking of champions.
	Sustainability board of directors established. board develops the sustainable operations vision.	Multi-unit board helps to charter the course.
	EMS pilots add sustainable operations.	To learn though the pilot studies.



Date	Event	Significance
2007	National FY06 environmental footprint document released.	Our first national telling of our story.
	Executive Order (EO) 13423 is rolled out.	
	Forest Service develops national strategy for EMS that includes sustainable operations at a focus area.	Joining of sustainable operations and EMS focus area 1 provides an integrated approach.
	USDA establishes Council for Sustainable Operations. Forest Service employees are on several working groups.	Provides opportunity for the Forest Service to be involved in departmental policy for implementation of EO 13423.
	Hank Kashdan and Boyd Rutherford, USDA visit Region 2 to learn first hand about sustainable operations.	Witness the energy of champions at the field level.
	LEED certified buildings are being constructed – Bessey Ranger District, Nebraska National Forest.	Demonstrated commitment through the implementation of projects on the ground. Great learning/sharing opportunity.
	Forest Service joins Climate Leaders.	
	2007 National Sustainable Operations Summit held in Denver, CO.	Continued networking of champions.
	Region 5 joins California Climate Action Registry.	Others administrative units outside of Region 2 demonstrate action.
	Region 1 fire cache is assessed.	Fire resources get engaged in sustainability.
	Extreme makeover video is prepared.	Shows what a ranger district can do.
2008	National and Region 2 <i>Moving Forward</i> strategy documents prepared.	Sets a path for the future.
	Roll-out of EMS.	Provides management tool for success.
	Survey monkey used for sustainable operations data call.	Used new technology to gather data.
	EPA award for sustainable operations.	Recognition by external partners.
	Region 2 awards ESPC contract.	Taking steps to meet EO 13423 metrics.
	Presentations at Regions 1, 2, and 4 forest engineers meetings.	SO communication with place based opportunities.
	Agency establishes the Climate Change Council.	National leadership is established.
	Sustainable operations included in climate change video.	Integration with climate change efforts.
	Region 6 hosts sustainable operations workshop.	Champions are supporting and initiating activities outside of Region 2.
	Draft sustainable operations manual direction.	Formalizes agency policy.
	Region 2 releases recycling strategy.	Developed policy to meet a regional need.
	Job Corps/EMS/SO connection made through executive leadership project.	Helps to bring Job Corps back into the mainstream of the agency.



APPENDIX B – CORRELATION BETWEEN SUSTAINABLE OPERATIONS AND THE DIALOGOS REPORT

The Dialogos Report – “Taking Steps Toward Change” – Follow-up to Initial Diagnostic Memo to U.S. Forest Service contains analysis regarding the transforming of Forest Service culture. Some of this analysis has direct relationship to the sustainable operations Region 2 and WO-State and Private Forestry Laboratory. The following are some of the correlations:

Dialogos report	Sustainable Operations
<p>“Distributed responsibility: Employees at every level, location, and across all disciplines assuming responsibility to act in new ways”.</p>	<p>For the Forest Service to make a cultural change and a commitment to reduce our environmental footprint, every employee has (1) responsibility at several levels; organizational, position and personal actions and (2) responsibility for agency success and are recognized as a champions who “walk the talk.”</p>
	<p>Small changes can have significant impact when added up across the entire agency; for example, turning off lights and computers. But getting employees in the habit of turning off lights when leaving a room or not turning them on when there is natural light available is quite a feat. Success for the Forest Service in reporting on our actions to reduce our environmental footprint is a summarization of the actions of every employee.</p>
	<p>Each situation is not the same, so many of the actions to reduce our environmental footprint are focus on the unique setting. Place-based opportunities have the potential for the greatest amount of success.</p>
<p>“Perseverance and learning in the face of difficulty”. Employees are allowed to participate in activities that allow the use of new behaviors and to experiment. Habitual actions affect our ability to make changes.</p>	<p>Sustainable operations summits allowed attendees to learn from others who had tried new things and to ask questions regarding changes needed to be successful.</p>
	<p>Recognition that use of a variety of tools that recognizes employees who have taken a risk to try new things, i.e. formal regional forester awards, green team chartered certificate, compact fluorescent light bulbs, sustainable backpacks, and water bottles, etc.</p>
	<p>Success is based on continuous improvement. Place-based efforts, including local green teams, facilitate local actions that improve our ability to reduce our environmental footprint.</p>
<p>“Leadership commitment to operating in a new way.” Demonstrate commitment, behavior models the commitment cultural change</p>	<p>Joel Holthrop and Rick Cables provided the leadership that supported the cultural change necessary to implement changes in how we do our operational business and how we report that information to others.</p>



Diologos report	Sustainable Operations
<p>effort is critical to providing a climate to encourage proactive actions and a common strategic approach and a clear sense of mission and to for rapid course correction</p>	<p>The Region 2 board of directors including the regional forester developed a sustainable operations vision that has been used extensively as part of the laboratory exercise.</p>
	<p>The footprint document contains area on sustainable leadership. This allows the agency to report on the actions being taken by leadership in our attempt to daylight our accomplishments.</p>
	<p>Employees at all levels of the agency are anxious to take action to make an environmental difference. They are not waiting for leadership to take action. Recycling programs have been in place on a large number of units for years. As an example, a concerned employee collected the empty pop cans and on his own time hauled them to the nearest recycling facility.</p>
<p>“We don’t have enough (or we don’t have the right) standards”. Clarifying and implementing standards is a key action needed by leadership. Need to understand each others roles and responsibilities.</p>	<p>Leadership needs to ensure that needed standards are in place promptly. For example, the FSH 6509.19 that addresses the financial management associated with recycling cites another FSM for implementation direction. That direction is currently not available, which makes it impossible for units to retain the receipts from recycling and other conservation efforts.</p>
	<p>“Moving Forward on a Pragmatic Approach to Climate Change A Strategy for Implementing Sustainable Operations Meeting EO 13423 and Energy Independence & Security Act of 2007 Goals by 2015 and Employing an Agency-Wide Culture of Sustainable Practices by 2020” identifies responsibilities for some of the actions but also indicates the need to further clarify roles and responsibilities.</p>
	<p>Sustainable operations is not a new initiative, it is rather about how we do our business as an agency – both operations and resource management. Integrating the implementation of the EO 13423 and the Energy Policy Act of 2005 with our agency implementation of an environmental management system (EMS) will facilitate how the agency can make the necessary shifts and track progress. The EMS management reviews will allow for timely assessment of program actions to determine if they are meeting the intended need and the ability to make informed course corrections as part of the continuous improvement cycle.</p>
	<p>As climate change has emerged as an emphasis area for the agency, sustainable operations has been included as a component. It nests together helping to shape the bigger picture across both operations and resource management activities</p>



Dialogos report	Sustainable Operations
<p>“Experts have the knowledge we need”. Organizational learning comes from; speaking out, creation of a robust teams to address complex issues quickly, sharing of new ideas, information and lessons learned. Producing lasting change involves making small improvements and acting differently with a common strategic approach for coordinated actions.</p>	<p>The use of tools developed as part of the sustainable operations laboratory have facilitated the sharing of information between units and with others outside the Forest Service and the federal government.</p>
	<p>Green teams, web site, vision statement, sustainable operations summits, footprint team mailing list, moving forward strategy and the environmental footprint document provided opportunities for employees to share information learn from each and to share the agency vision regarding reducing our environmental footprint.</p>
	<p>Creation of the WO-S&PF – Region 2 laboratory allowed for a small integrated group to focus on an emerging issue and to help position the agency for more robust actions with the start of national implementation of a new challenge facing the agency.</p>
	<p>The preparation of the national and Region 2 strategy document identifies a road map for success.</p>
	<p>EMS training that is required for all employees incorporates the use of visuals to help explain how EMS will help the agency improvement our performance to reduce our environmental footprint.</p>
	<p>Integrating sustainable operations within the climate change and EMS program of work allows for sharing of efforts, integration of actions, collection of data, reporting results and conveying a message that shows the inter-connectivity of the challenges facing the agency.</p>
	<p>Place-based green teams have developed momentum and local solutions to incorporate sustainable practices into our culture.</p>
	<p>Executive Order (EO) 13423 provided the goals to be met by the Forest Service in reducing our environmental footprint. The EO goals affect all aspects of the agency’s business, operational and resource management.</p>
	<p>Sustainable operations – the release of the Forest Service environmental footprint document has day-lighted the performance of the agency both internally and externally. This allows the agency to show how the goals of the EO are becoming a part of our mission. It also identifies areas for improvements as one voice for the agency.</p>