

Forest Service Strategic Framework For Responding to Climate Change

Implementation- the First Steps

Prepared by the Framework Team for the Climate Council.

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The conservation of natural resources is the key to the future. It is the key to the safety and prosperity of the American people, and all of the people in the world, for all time to come. The very existence of our Nation, and of all the rest, depends on conserving the resources which are the foundations of its life.

- Gifford Pinchot

STRATEGIC FRAMEWORK FOR RESPONDING TO CLIMATE CHANGE

Implementation - First Steps

INTRODUCTION

This document describes the process and first steps for implementing the agency's Strategic Framework for Responding to Climate Change. Initial actions will set the foundation for the future work as the Forest Service seeks to fulfill its mission under a changing climate. This document covers the following areas:

- Background
- Implementation Team Process
- First Steps - Actions and Teams

BACKGROUND

The Chief's February 15, 2008 letter chartered the Climate Council, composed of the Associate Deputy Chiefs and the External Affairs Officer to prepare a long-term agency strategy and appointed a Framework team. The Framework team completed the "Strategic Framework for Responding to Climate Change" October, 2008.

The seven key goals outlined in the Framework will help the Forest Service carry out the mission of sustaining forests and grasslands for present and future generations under a changing climate.

To achieve these goals, the Forest Service will need to work collaboratively with a broad range of agencies, partners, and stakeholders, including other federal agencies, States, Tribes, communities, private landowners and the public at large. Internally, the Deputy Areas and functional lines will need to work together to make full use of expertise and resources to accomplish this work.

The Forest Service goals outlined in the Framework are:

1. **SCIENCE - Advance our understanding** of the environmental, economic and social implications of **climate change** and related adaptation and mitigation activities on forests and grasslands.
2. **ADAPTATION - Enhance the capacity of forests and grasslands to adapt** to the environmental stresses of climate change and maintain ecosystem services.
3. **MITIGATION - Promote the management of forests and grasslands to reduce the buildup of greenhouse gases**, while sustaining the multiple benefits and services of these ecosystems.

4. **POLICY - Integrate climate change into all Forest Service policies, program guidance, and communications** and put in place effective mechanisms to coordinate across and within Deputy Areas.
5. **SUSTAINABLE OPERATIONS - Reduce the environmental footprint** of Forest Service operations and be a leading example of a green organization.
6. **EDUCATION - Advance awareness and understanding** regarding principles and methods for sustaining forests and grasslands, and sustainable resource consumption, in a changing climate.
7. **ALLIANCES - Establish, enhance, and retain strong alliances and partnerships** with federal agencies, State and local governments, Tribes, private landowners, and non-governmental organizations to provide sustainable forests and grasslands for present and future generations.

Climate change is already affecting the health and productive capacity of forests and grasslands in the United States and around the world. If the Forest Service is to continue to fulfill its mission, the time for action is now. The Framework team identified several actions that are critically needed in order to build a foundation for the future.

IMPLEMENTATION TEAM PROCESS

This section describes the general process, assignments, and the responsibilities of the teams assigned to carry out the designated first step actions. Over time, many skills and expertise will be needed to build a foundation of knowledge, experience, and partnerships. The actions listed later on in this document are only the start of many more actions that must be taken to achieve the vision of sustainable forests and grasslands in a changing climate.

Climate Council

The Climate Council, composed of the Associate Deputy Chiefs from each Deputy area and the Director of External Affairs, was established by the Chief's February 15, 2008 letter to the National Leadership Council. The Climate Council guides the overall implementation of the Framework.

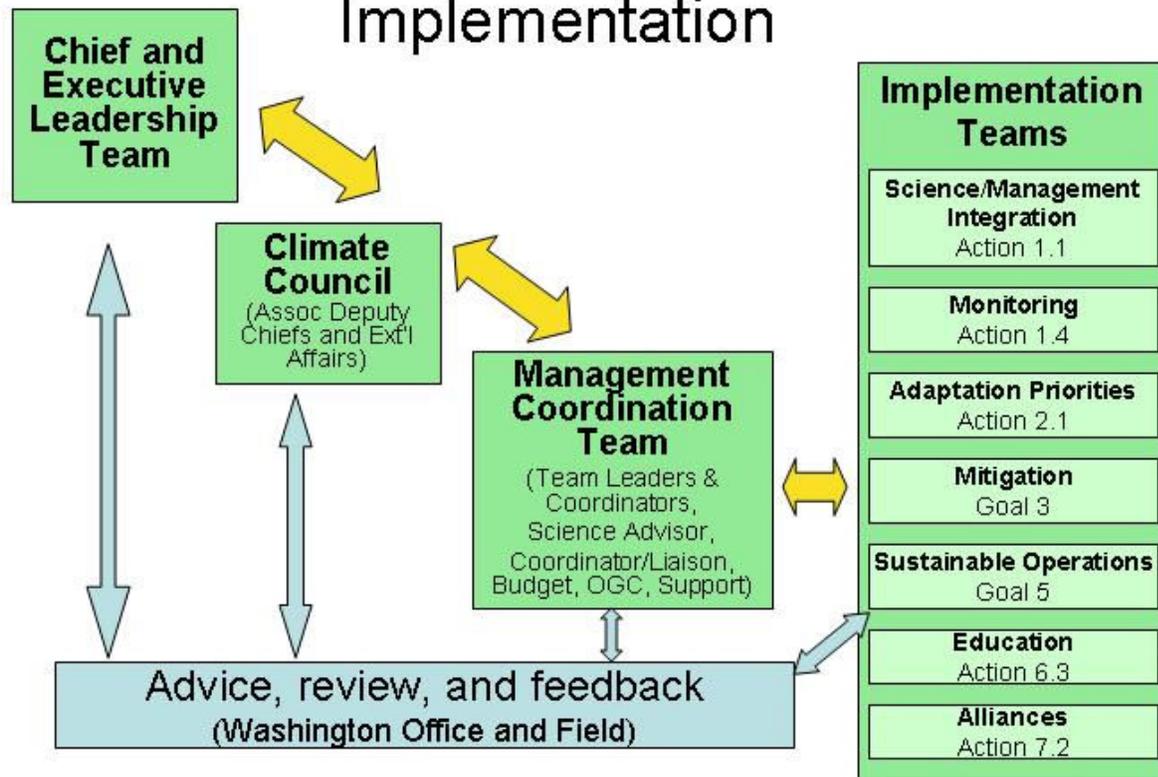
Responsibilities of the Climate Council

- Provide accountability across Deputy areas.
- Identify strategic issues and decisions for consideration by the Executive Leadership Team and National Leadership Council.
- Involve Washington Office Staff Directors through review and consultation.
- Consult with representatives from Regions, Stations and Areas.
- Agree to the allocation of time, people and money to implement the Framework.
- Assign team leaders and teams to implement the Strategic Framework.
- Review implementation plans:
 1. ensure that the necessary direction is developed for implementing those actions
 2. track progress of implementation
- Recommend subsequent actions.

Relationship of Council to the Teams

The following diagram shows the relationship of the Climate Council to the teams assigned to implement the initial steps from the Strategic Framework.

Climate Change Framework Implementation



Management Coordination Team

The team leaders and coordinators are expected to work together as the Management Coordination Team. The team will act as a resource for the Council and provide regular updates on progress and recommendations. The Management Coordination Team consists of the executive sponsor, the coordinator/liaison, science advisor, budget advisor, team leaders and coordinators, and the Office of General Counsel advisor and administrative support staff.

Executive sponsor

- Associate Deputy Chief, responsible for overall implementation of the Strategic Framework
- Serve as primary channel for guidance
- Serve as primary channel for communications with the Climate Council, Executive Leadership Team, and the National Leadership Council.

Coordinator/liaison

- Assist Executive sponsor
- Act as resource regarding the Strategic Framework
- Work with team leaders and coordinators
- Coordinate work and prepare periodic updates for the Climate Council.

Science advisor

- Serve the Council and teams as its science resource for climate change
- Provide scientific review of climate change products from the teams and Council
- Provide advice on emerging issues in global change science.
- Serve as a point of contact with other research agencies working on climate change.
- Represent the Climate Council on global change science matters before specialized audiences.

Budget advisor

- Provide expertise to teams.

Team leaders and coordinators

- Coordinate efforts for the Climate Council
- Serve as a resource for the Climate Council
- Coordinate efforts with other teams' assignments
- Develop costs of implementation plans
- Consult with the Science advisor and Office of General Counsel advisor
- Provide feedback to the budget advisor
- Provide updates to Washington Office staff directors and staffs.

Office of General Counsel Advisor

- Provide legal and policy expertise.

Implementation Teams

Team composition:

- Inter-deputy group
- Mix of Washington Office and field
- Led by a Washington Office staff director, regional forester, or station director.

General team activities:

1. Identify and build on existing efforts and actions
2. Identify needs and opportunities
3. Develop implementation plan and additional actions
4. Consult with experts and the field
5. Coordinate with other agencies
6. Work with the other chartered teams to avoid duplication and maximize effectiveness.

In addition:

1. Products should be effective and cost-efficient.
2. Implementation plans should include an estimate of costs (people and money).
3. Each team should provide periodic updates through the Management Coordination Team to the Climate Council.

Each team will dissolve when its task is accomplished. The Climate Council will hand off recommended actions to other teams as needed to accomplish the next round of tasks.

For most teams, short (several months) but intense activity will be required to produce the desired outcomes and identify additional actions. Assume 50-75% of each employee's time during duration of the assignment. Team members may seek some relief of their current duties to meet limited duration high priority assignments if approved by the employee's Director or line officer and recommendation of the Climate Council Executive Sponsor.

Additional task teams and support staff from the Washington Office and the field can be requested as needed through the Climate Council, appropriate Directors and line officers.

Team Leader and Coordinator

Each team will be headed by a Washington Office staff director, regional forester, or station director and have a team coordinator. Team leaders and coordinators report to the Climate Council, and are part of the Management Coordination Team. Duties include:

- Organize work, meet deadlines, solve problems, and provide quality control
- Manage conflict and interference
- Coordinate with other team leaders and coordinators
- Coordinate with other agencies and external partners
- Communicate results.

Teams

- Six person inter-deputy team
- Member attributes:
 1. Aptitude for teamwork
 2. Ability to organize and get things done
 3. User, scientist, subject matter specialist, or multidisciplinary perspective

Each team is to consult and coordinate with the other chartered Framework teams to avoid duplication and maximize effectiveness. Teams are encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Regional Forester and Station Director Representatives

The representatives for Regional Foresters and the Station Directors responsibilities are the following:

- Act as the Regional Forester and Station and Area Director liaisons to the Climate Council.
- Advise the Climate Council on strategic and policy matters and assist in the preparation of issues and decisions for consideration by the Executive Leadership Team and National Leadership Council.

Representatives from Regions, Stations, and Areas

The representatives from Regions, Stations, and Areas:

- Represent the Region/Station/Area and director in guiding further development of the national Strategic Framework and in planning implementation of critical national actions.

- Assist in recruiting Region/Station/Area talent for specific tasks and national work teams.
- Communicate regularly with Region/Station/Area director and leadership team about national climate change effort and with the Climate Council about the needs and views of the Region/Station/Area
- Provide summary and update information on Region/Station/Area projects and initiatives that contribute to the national dialogue on climate change and to the implementation of the Strategic Framework. Help the Climate Council and national teams anticipate implementation problems and issues.
- Develop and implement partnership strategies with companion Region/Station/Area strategies for cross-deputy approaches to Climate Change.

Other Experts and Users

Teams are encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

FIRST STEPS - ACTIONS AND TEAMS

The initial actions chosen for implementation of the Strategic Framework build a critical foundation for the future. The actions are linked and teams will need to consult with each other. At this time, Policies (Goal 4) is not included as an action for the first step; many policies and programs will be informed by the work of the first steps.

Initial actions will focus on the following seven areas:

- Science/Management Integration
- Monitoring
- Adaptation Priorities
- Mitigation
- Sustainable Operations
- Education
- Alliances.

A description of each of these actions follows.

Science /Management Integration

Goal #1: SCIENCE - Advance our understanding of the environmental, economic and social implications of climate change and related adaptation and mitigation activities on forests and grasslands.

Action 1.1: *Develop and implement internal mechanisms to ensure a systemic, interactive dialogue between researchers, public and private land and resource managers, and other users to promote effective climate change science delivery.*

Team Name: Science/Management Integration Team

Assignment: Develop a plan for implementing a new mode of collaboration that will ensure improved and ongoing feedback between science and user communities on research needs and priorities, development of science-based tools and applications, and development of science syntheses and other educational materials.

A successful system will ultimately result in:

- Assessments and syntheses that will help guide land management actions (Action 2.3 and Action 4.1)
- Guidelines for periodic review and adjustment of research priorities (Action 1.2)
- Enhanced methods for moving science into application (Action 1.3)
- Easily available science findings and products for a diverse set of audiences (Action 6.3).

Due Date: Four months from assignment

Roles and Responsibilities

The work of the team should:

- Identify, review, and build on existing efforts and actions, including the July 2008 user/scientist workshop, the 2008 Forest Service Research and Development strategic plan for climate change research, and the USDA Strategic Plan for Climate Change Research (expected December 2008).
- Develop internal processes and a pilot demonstration that ensures systemic, interactive dialogue between researchers and users (managers, communicators, educators, citizens, and others) to align climate change science and science delivery efforts.
- Identify priorities for needs in each of four categories:
 - Information needs
 - Science based analysis and decision support
 - Syntheses of current knowledge for users
 - Communication tools and education products.
- Design the system to be effective and cost-efficient.
- Provide an estimate of costs (people and money) to implement the planned system.

Schedule of priorities: Present implementation plan and additional action items for review to the Climate Council at the end of the four month assignment. This critically important action will support many other Framework actions.

Team Organization: Inter-deputy team. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Cost for the Team

- Seven people for four months
 - Travel and per diem = \$84,000
 - Two workshops at \$15,000 each = \$30,000
- TOTAL = \$114,000

Note: The estimated cost for this team is only for the team work and does not include costs of implementing the action

Monitoring

Goal #1: SCIENCE - Advance our understanding of the environmental, economic and social implications of climate change and related adaptation and mitigation activities on forests and grasslands.

Action 1.4: *Develop a unified multi-scale monitoring approach building on existing efforts sufficient for:*

- *Improved evaluation national and regional trends,*
- *Assessing the effectiveness of adaptation and mitigation management activities*
- *Assessing progress in working across landscapes and ownerships, and*

- ***Understanding the interactions with environmental, social, and economic conditions.***

Team Name: Monitoring Team

Assignment: Develop a unified multi-scale monitoring approach that will provide the information necessary for informed management under a changing climate.

Due Date: Four months from assignment.

Roles and Responsibilities

The work of the team should:

- Identify information needs.
- Identify existing efforts and tools including Forest Inventory Analysis and Forest Health Monitoring programs and evaluate the extent to which current programs (or modifications to them) address critical information needs.
- Develop a unified multi-scale monitoring approach sufficient to:
 - Evaluate national and regional trends in climate change impacts and forest and grassland health and productivity
 - Assess the effectiveness of adaptation and mitigation management activities
 - Assess progress in working across landscapes and ownerships
 - Quantify interactions with environmental, social, and economic conditions.
- Design the system to be effective and cost-efficient.
- Provide an estimate of costs (people and money) to implement the planned system.

Suggested schedule of priorities

Present implementation plan and additional action items to the Climate Council by the end of the assignment.

Team Organization: Inter-deputy team. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Budget

- Seven people for four months
- Travel and per diem = \$84,000
- Two workshops at \$15,000 each = \$30,000

TOTAL = \$114,000

Note: The estimated budget for this Proposal is only for the team work and does not include costs of implementing the action.

Adaptation Priorities

Goal #2: ADAPTATION - Enhance the capacity of forests and grasslands to adapt to the environmental stresses of climate change in order to maintain ecosystem services.

Action 2.1: *Set priorities for where, when, and how to employ adaptation activities and implement actions that will:*

- *Facilitate adaptation to the long-term effects of climate change by fostering resilient, productive, and functional ecosystems,*
- *Prioritize types and distribution of management activities for the greatest benefits to ecosystems and society.*

Team Name: Adaptation Priorities Team

Assignment: Develop guidelines for setting priorities for adaptation actions. Guidelines will assist managers and policymakers in focusing efforts in important areas. The Sustainable Landscape Management Board of Directors (Directors of the National Fire Plan; Watershed, Fish, Wildlife, Air and Rare Plants; Forest Health; Forest Management; Range; Forest Management Sciences) will be involved with developing the guidance.

Due Date: Provide guidance for National Leadership Council priority setting May 2009 for 2011 budget request; complete assignment June 1, 2009.

Roles and Responsibilities

The work of the team should:

- Identify existing priority setting efforts and actions related to adaptation.
- Identify existing resources and tools or innovative approaches that could be used to help set priorities
- Identify types of actions that can be taken with current knowledge to facilitate adaptation.
- Coordinate with other agencies, and consider models such as the Wildland Fire Leadership Council for interagency coordination.
- Develop national guidelines for use in identifying agency priorities.
- Develop guidelines for “adaptation demonstration projects”.
- Assist the Executive Leadership Team to identify agency priorities in preparation of the 2011 budget.
- Design the system to be effective and cost-efficient.
- Provide an estimate of costs (people and money) to implement the planned system.

Schedule of priorities

Provide support to Executive Leadership Team for priority setting May 2009 for 2011 budget request. Complete assignment June, 1, 2009

Team Organization: Inter-deputy team. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Budget

- Nine people for four months
- Travel and per diem = \$30,000
- Workshops = \$30,000

TOTAL: \$60,000

Note: The estimated budget for this Proposal is only for the team work and does not include costs of implementing the action.

Mitigation

Goal #3: MITIGATION - Promote the management of forests and grasslands to reduce the buildup of greenhouse gases, while sustaining the multiple benefits and services of these ecosystems.

The team is assigned all of Goal 3. The team should give top priority to Action 3.1: *Participate in the development of protocols for carbon accounting at the international, national, regional and state levels that fully incorporate the potential for forests, forest products, and grassland ecosystems and products to mitigate the build-up of greenhouse gases.*

- *Develop a consistent approach to guide that participation.*
- *Develop a national-level central “clearinghouse” for information and Forest Service positions on carbon protocols to provide consistency across efforts.*

Team Name: Mitigation Team

Assignment: The initial scope of work for the team includes: protocol development or adoption of existing protocols for carbon accounting; policy analysis and development; providing technical expertise to managers and policymakers; facilitating the synthesis of climate change mitigation science; development and design of climate change mitigation actions; economic analysis; education and technology transfer; coordination of actions authorized in the 2008 Farm Bill and other relevant statutes; maintaining strategic alliances at the international, national, regional, and state levels; and implementing ecosystem services demonstration and pilot projects for mitigation.

At a date agreed to by the team leader and the Executive Sponsor, the team is to provide to the Climate Council a plan of work consistent with the Framework and identify priorities. In addition, the workplan should include an estimate of costs (money and people) for accomplishing each priority. Implementation plans should also include an estimate of costs for implementation. Designs for systems should be effective and cost efficient.

The team is also expected to provide regular progress reports to the Climate Council.

Due Date: Team is chartered through FY2010 but work plan will provide due dates for each product.

Roles and Responsibilities

For Action 3.1:

- Identify existing efforts for developing state, regional, national, and international protocols for carbon mitigation. Identify Forest Service role in each effort.
- Develop a consistent approach to guide participation in international, national, regional, and state levels, and use science to guide approach whenever possible.
- Develop a national-level central “clearinghouse” for information and Forest Service positions on carbon protocols to provide consistency across efforts.
- Develop implementation plan, which should identify how to address gaps in Forest Service’s involvement in protocol development.
- Design the system to be effective and cost-efficient.
- Provide an estimate of costs (people and money) to implement the planned system.
- Complete production of central clearinghouse
- Establish a policy related to participation in carbon markets

Additional Priorities

The team should line out steps for approaching each priority in order to determine needs and estimate the time and cost of accomplishing the priority.

Team Organization: Inter-deputy team. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Cost for the Protocol Development

- Nine people through FY2010
 - Travel and per diem per year = \$60,000
- TOTAL: \$60,000

Costs for additional tasks should be estimated when the work plan is completed.

Note: The estimated budget for this Proposal is only for the team work and does not include costs of implementing the action.

Sustainable Operations

Goal # 5: SUSTAINABLE OPERATIONS - Reduce the environmental footprint of Forest Service operations and be a leading example of a green organization.

This goal includes several objectives:

- Forest Service leaders are international models for the best sustainable practices.
 - Model sustainable practices throughout all aspects of Forest Service program management and service delivery.
 - Create an informed citizenry by advancing environmental literacy.
- Forest Service operations exceed green standards in fleet and transportation, energy, watershed, purchasing, and waste.
 - Achieve zero green fleet and transportation emissions by 2015.
 - Become an energy neutral Agency by 2020; 25% by 2012; 50% by 2016; and 100% by 2020.

- Become the world leader for water conservation and water source protection by 2020.
- All purchased goods and services and the performance of our suppliers, contractors, and partners exceed green standards in packaging, storage, supply chain, and delivery.
- Achieve 40% waste diversion by 2010 and exceed sustainable waste prevention and recycling business practices throughout all Forest Service program activities.

Team Name: Sustainable Operations Team

Assignment: Establish a Sustainable Operations Team with a three year charter. The team is to consult and coordinate with the other chartered Framework teams to avoid duplication and maximize effectiveness.

Due Date: Products due over the 3 year charter.

Roles and Responsibilities

- Establish consumption baselines for fleet and transportation, energy, watershed, green purchasing, and waste management functions in the Agency.
- Assess and evaluate data collection, evaluation and reporting sources in the Agency related to these emphasis areas, and identify action items to modify information, applications, or systems as necessary.
- Create and implement a data repository/mining/interface for information related to these emphasis areas in order to facilitate the Agency's ability to articulate consumption information and establish reduction goals or targets at all four organizational levels.
- Identify and institutionalize a flexible and scalable data survey, collection, analyzing, and reporting mechanism for internal and external reporting.
- Work closely with Agency subject matter experts to establish incremental targets to achieve goals and performance indicators established by Executive Order 13423.
- Establish indicators for sustainable business practices throughout all aspects of Forest Service program management and service delivery.
- Work closely with Environmental Management System to establish a corporate reporting structure and ensure integration of sustainable business practices, targets, performance metrics and achievements. This corporate structure should provide central collection and access to data for all subject matter experts in order to provide upward/outward reporting for a variety of stakeholders.
- As the above components are developed and mature, provide transition strategy to facilitate redemption of lead role responsibilities by national and field leadership positions.
- Consult and coordinate with the other chartered Climate Change Framework teams. The team will also consult with other experts and users during their work.

Estimated budget

Enterprise team per year:

- FY09 = \$595,020
- FY10 = \$624,268
- FY11 = \$548,396

Note: The estimated budget for this Proposal is only for the team work and does not include costs of implementing the action.

Education

Goal #6: EDUCATION AND LIFE-LONG LEARNING - Advance awareness and understanding regarding principles and methods for sustaining forests and grasslands, and sustainable resource consumption, in a changing climate. This action links to Action 1.1 and other actions under Goal 6, as well as to actions under Goal 5 and 7.

Action 6.3: *Build environmental awareness, knowledge, and skills through enhanced educational programs and materials for various audiences including: agency employees; private landowners, and communities; Tribes; educational institutions, non-governmental organizations (including youth groups); visitors to National Forests and grasslands, the public, and the international community.*

Team Name: Education Team

Assignment: Coordinate existing efforts, identify and prioritize needs, and oversee development of products to disseminate science based knowledge and tools to a diverse set of audiences.

Due Date: One year charter. Products throughout the year.

Roles and Responsibilities

The work of the team should:

- Identify existing efforts and actions.
- Coordinate with other agencies including USDA Extension and non-governmental organizations.
- Coordinate Forest Service climate change websites.
- Identify and prioritize needs.
- Work with scientists, land and community managers, educators, and communications experts to translate climate change science into accurate, audience appropriate, and easily accessible tools and information.
- Oversee development of targeted, audience specific information and tools to meet the needs of:
 - Agency employees
 - Private landowners, and communities
 - Tribes
 - Educational institutions
 - Non-governmental organizations (including youth groups)
 - Visitors to National Forests and grasslands,
 - International community
- Provide for coordination and dissemination of tools and products.
- Identify and develop a range of climate change training courses for employees; where possible, deliver through existing training venues.
- Provide high quality educational and professional training programs for educators and youth, in partnership with the Department of Education, other federal agencies, and environmental education organizations.
- Develop implementation plans for communications and education efforts

- Design the system to be effective and cost-efficient.
- Provide an estimate of costs (people and money) to implement the planned system.

Proposed Schedule of priorities

- Three workshops composed of scientists, communication experts, education experts, and users to:
 - coordinate Agency climate change websites
 - identify needed communication tools
 - develop common messages
 - develop immediately needed communication tools
 - identify education needs and actions.
- Workshops should be conducted as soon as possible.
- Use information from the workshops to develop implementation plans for targeted, audiences, specific information, and for education efforts.

Team Organization

Inter-deputy team consisting of scientists, users, communications experts, and education experts. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Budget for team

- Nine people for one year
 - Travel and per diem = \$275,000
 - Workshops = \$45,000
- TOTAL = \$320,0000

Note: The estimated budget for this Proposal is only for the team work and does not include costs of implementing the action.

ALLIANCES

Goal #7: ALLIANCES - Establish, enhance, and retain strong alliances and partnerships with federal agencies, State and local governments, Tribes, private landowners, and non-governmental organizations to provide sustainable forests and grasslands for present and future generations.

Action 7.2: *Actively seek new partnerships and cooperative relationships with other federal and non-federal entities, including non-traditional partners, to address the multiple challenges of climate change across the U.S. and internationally.*

Team Name: Alliances Team

Assignment: The team is responsible for identifying existing and potential national level partnerships and alliances on behalf of the Climate Council. The Climate Council will lead the effort to establish dialogues at the national level and encourage such activities at all levels of the Forest Service.

Due Date: Action 7.2 is an ongoing task but one that should move forward quickly.

Roles and Responsibilities

- Contribute to the efforts of the Administration.
- Work with federal agencies, national associations (including state and local government associations), national Tribal organizations, national private landowner organizations, corporations, conservation organizations, and environmental advocacy groups that have identified climate change as a priority or have developed a climate change policy/strategy/position statement.
- Identify common interests.
- Identify additional Forest Service actions needed.

Suggested schedule of priorities *

Ongoing

Suggested Team Organization

Inter-deputy team to provide information to the Climate Council. The team is encouraged to make use of expertise outside the team by consulting with users and experts for advice, review, and feedback.

Estimated Budget

- Travel and per diem = \$10,000

Framework Team

Dave Dillard, National Forest System, Team Leader
Christine Rose, Research and Development
Susan Conard, Research and Development
Doug MacCleery, National Forest System
Loren Ford, Business Operations
Kathryn Conant, State and Private Forestry
Amanda Cundiff, State and Private Forestry
Josh Trapani, Fellow, American Academy for the Advancement of Science

Assisted by:

Kay Wiand, Program Budget and Analysis
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