

Advancing Healthy Watersheds through Healthy Forests

A Conservation Innovation Program to Effect Improved Watershed Function through Improved Management and Retention of Non-Industrial Privately Owned Forests

4. Project Description: (INTRODUCTION)

a. Project narrative

The U.S. Endowment for Forestry and Communities, a not-for-profit public charity established at the request of the Governments of the United States and Canada (the Endowment) proposes to provide \$2,000,000 for a one-to-one match of \$2,000,000 in Conservation Innovation Grant (CIG) “Grants Leveraging Funds.” The Endowment will seek to generate additional leverage to exceed the one-to-one match thus growing the funding pool before all funds are then matched again on-the-ground by sub-grantees at the 50% or greater level through in-kind or cash-match. Thus, at a minimum, a \$2 million CIG investment would generate \$6 million in programmatic impact. The Endowment will not use any of the CIG funds to address its own overhead needs, instead investing 100% of the CIG funds **and** the Endowment match in program impact on the ground with the Endowment investing another \$75,000 in in-kind staff support for project management/oversight.

i. Capacity and Ability to Administer and Manage Grants

The Endowment was established at the request of the Governments of the U.S. and Canada and was endowed with \$200,000,000 in funding. Currently the Endowment has grants and agreements with the U.S.D.A. Forest Service totaling \$3,250,000 over the next three years.

ii. Agreement process to define roles, responsibilities, expectations, and requirements for grant recipients

The Endowment proposes an open and inclusive process with NRCS-designated parties being a part of the overall review and decision-making process at multiple levels – initial selection of watersheds and partners through to determination of on-the-ground practices and EQIP-eligible sub-grantees should that be desired.

iii. Oversight ability to help ensure that deliverables are on time

The Endowment has in-house and contracted professional staff members that are fully capable of servicing the needs of this initiative.

The Endowment will establish a thematically-targeted, geographically-focused sub-grants program in two (2) to three (3) identified watersheds in the Eastern U.S. for the purpose of advancing water management and conservation through watershed health and forest retention. The initiative will pilot innovation of programs, technologies, and strategies with Environmental Quality Incentives Program (EQIP)-eligible non-industrial private forest landowners and certain identified agricultural producers (where forestry is a higher and better use of certain lands) at scales that yield not only measurable results but that also can be transferred nationwide to many other private-ownership dominated forested watersheds.

b. Project background (Technical Relevance and Merit)

More than a decade has passed since New York City (NYC) entered into an historic Memorandum of Agreement with U.S. Environmental Protection Agency (EPA) (January 21, 1997) designed to positively affect the surface and groundwater watersheds that supply potable water to 9 million people. The agreement provided a waiver from EPA that avoided or significantly delayed \$6 billion in filtration system investments and \$300 million in annual operating costs to NYC. (*Watershed Management for Potable Water Supply: Assessing the New York Strategy, 2000*).

While high-visibility watersheds, such as the Chesapeake Bay and the NYC system, have been the subject of heavy public investment to enhance water quantity and quality, smaller watersheds that supply water needs for the majority of the nation's population have not received similar attention. Water has for decades been a concern of western communities where limited rainfall and water rights issues combine to put water and watershed management on the public policy radar. In the face of population growth, increasing demands, climate change, and shifting rainfall and land use patterns, areas in the Eastern U.S. that never considered potable water needs as an issue are awakening to new challenges. Recent national attention to a multi-year drought's effects on water supplies for greater Atlanta serves as a prime example. The Government Accounting Office reports that 36 states anticipate water shortages over the next decade.

Seventy percent of the Earth's surface is covered by water, but less than 1% is freshwater. The cleanest water flows from healthy, forested watersheds. Forest Service data suggests that nearly two-thirds of the nation's citizens (180 million people) obtain their water from

forests (*Climate Change and Water, USDA Forest Service, June 2008*). At the same time, the Forest Service projects that as much as 44,000,000 acres of forests – primarily in the east and south – will be lost to non-forest uses by 2030 (*Forests on the Edge, USDA Forest Service, May 2005*). Unsustainable draws on groundwater must be added to the mix. For example, the State of Mississippi -- a heavily forested state -- uses 2.5 billion gallons of water each day with 80% coming from 18 major aquifers. (*Mississippi Land Marks, Mississippi State University, Fall 2008*). Rapid depletion of aquifers is driving policy makers to look at surface water to meet growing demand. The soon-to-be-built Toyota plant in northeast Mississippi will require one million gallons of water daily, all to be drawn from surface waters by the City of Tupelo that switched from ground water to surface water 20 years ago (*Mississippi Land Marks*). Thus, climate change and shifting rainfall patterns, continuing loss of forest to non-forest uses and the need to shift from groundwater to surface waters are a perfect storm that will make water in the Eastern U.S. a high priority for sustainable communities in years ahead.

Healthy, resilient watersheds are the best insurance for changing and uncertain ecosystem patterns. To address these challenges it is vital that the ecosystem services value of forests and certain agriculture lands that would be better in forests – especially as relates to water quantity and quality -- be addressed in ways that yield greater attention to retention and sustainable management of healthy, well-managed working forests and farms.

c. Project objectives

This initiative is not designed to duplicate basic research that shows the importance and value of forested watersheds to downstream water quality and quantity. Rather it will seek to test, implement and demonstrate how best to get non-industrial private forest and certain agricultural owners to adopt practices, technologies, policies, and approaches to improve forest management, enhance forest health, increase the footprint of forest cover, and thereby effect measurably improved water quality and more sustainable stream flows. A major collateral benefit of these actions will be to increase awareness of the importance of healthy, well-managed forests and farms in meeting society's needs for clean water (linking water consumers with the sources of their supply). This initiative will also determine which programs, policies, and practices are most readily implementable in terms of costs, social and landowner acceptance, and effectiveness at generating critical mass of EQIP-eligible landowners to produce desired water quantity and quality results on the ground.

d. Project methods (Technical Approach/Work Plan)

The initiative dovetails with the Endowment's "theory of change" (TOC) that underpins all Endowment work. The basis of the Endowment's TOC recognizes the interdependence of forested watersheds, and the communities deriving their vital needs (including water supplies) from those forests. One cannot easily separate the fortunes of such communities from that of the forest. The Endowment envisions a future where healthy working forests provide a multitude of forest benefits or outputs, that, when captured, lead to healthy and sustainable forest-reliant communities. Healthy forest-reliant communities in turn

steward their forests in sustainable ways that maintain healthy working forests. Success is known as “sustainable forestry.”



The initiative will identify 2-3 watersheds that are directly linked to either a significant portion or the total supply for a target community’s water supply. Watersheds will be selected based on the following criteria, among other considerations.

- Provide potable water via surface water supply to a local community.
- Component of larger scale “Priority Watersheds” as recognized by USDA and/or EPA.
- Watersheds at-risk of accelerated loss of forest cover due to development pressures.
- Existing watershed conditions and trends with potential for measurable improvement of water quantity and water quality.
- Watershed scale, configuration, land management, and land ownership compatible with initiative objectives.
- A compatible framework of local land use programs, regulations, and controls that support a long-term watershed / forest management program.

Hence, watersheds will be selected that have clear potential to provide a sustainable watershed management program through this conservation innovation initiative.

Another critical dimension of watershed selection will be assurance of the willingness of community and water utility leaders to enter into the initiative. Identified watersheds/communities will be mapped using Geographic Information Systems (GIS) to identify land resources and land management conditions within the watershed, as well as every ownership within the watershed by type and relationship/importance to downstream water flow. The database of owner information derived from this process will be used to identify those land resources most critical for participation in the initiative (due to soils, slopes, or existing conditions), as well as the owners / potential cooperators in the project. Subsequent steps will involve confirmation of EQIP eligibility, and other aspects of capacity to perform the requirements of the program.

We anticipate developing a “Watershed Health Index” (WHI) not only to establish a baseline for each watershed but also to prioritize and “value” each individual ownership with regard to its importance to water. This index will interface with NRCS’s “Rapid Watershed Assessment” (RWA) program, using applicable tools from RWA concepts to assure this initiative is properly focused on watersheds with greatest potential for success. Also, this watershed selection and practice implementation program will inform the agency’s “Conservation Effects Assessment Project” (CEAP), providing valuable insights to program effectiveness. The WHI will then be used to determine and implement a range of technologies, practices and policies to achieve desired outcomes – stabilize and expand numbers of acres in well managed forests with water defined as a key output as well as to identify sustainable sources of revenue and community structure to support programmatic

implementation that can be exported to other watersheds.

Among approaches that would be implemented and evaluated are: payments from water users to water producers via the water utility; conservation easements focused on water quality (e.g. priority lands and riparian zones); application of EQIP-eligible conservation practices to restore native and/or riparian forests; education or incentive practices to increase application of Best Management Practices (BMPs); etc.

The initiative will be founded on an active adaptive management approach that promotes learning by doing. By actively making decisions (instituting practices, etc.) and monitoring results the work will improve understanding about complex systems and relationships.

e. Location and size of project area

Without assurances that CIG funding is forthcoming, specific watersheds/communities have not as yet been identified although we have already had several inquiries of interest. Candidate watersheds/communities would be selected based partly on the watershed criteria listed previously. Two to three target areas in the eastern U.S. would be targeted:

- Southeast (likely AL, GA, MS, or SC)
- Upper Mississippi or Western Great Lakes (MN, IL, WI, MI)
- Northeast (perhaps PA, NH, VT, ME)

A request for proposals would be targeted to each of these regions for priority watersheds, and meeting specific watershed objectives. Knowledge and experience derived from the

NYC and Chesapeake Bay watersheds would be defined such that on-the-ground work

could be done in an intensive manner to ensure critical mass of enrolled landowners using a variety of practices to foster and ensure strong evaluation programs and reliable results.

Case Example 1: A watershed providing potable surface water supply for a community in the Piedmont, Coastal or Upper Coastal Plain of the Southeastern U.S. where native forests have been either lost or converted to less-resilient species would be targeted for conservation and long-term management of a diverse, natural forest community to enhance forest health while stabilizing lands in working forest conditions to support long-term water needs of the receiving community. One option would be to choose a watershed within the range of the longleaf pine forest to incent restoration of this important forest ecosystem.

Case Example 2: A watershed providing surface water potable water supply for a community in the upper Mississippi River drainage where most forests have been cleared for row crops would be targeted for retention of existing forests and re-forestation of lands highly vulnerable to erosion and degradation of water quality, and re-forestation of bottomland forests and riparian buffer lands. These practices would serve to store carbon, enhance water quality by reducing nutrient and sediment run-off, restore degraded ecosystems, and reduce the demands on water supply.

f. Producer participation

Until specific watersheds have been identified and assessed it isn't possible to predict the level of EQIP-eligible forest landowner participation. However, the broader definition of

EQIP eligibility to include non-industrial forestland owners is expected to provide a much

expanded constituency of landowners for potential participation. Goals will be established to enlist an optimal percentage of owners (and acreage) within each watershed based upon WHI rankings and priorities. Given that there are more than 10,000,000 family forest owners, we anticipate that each watershed will have several dozens to hundreds of potential cooperators with capability to effect the program.

g. Project action plan and timeline

Upon notification of selection for the Grants Leveraging Category (anticipated as July 2009) the Endowment will work with its partners to solicit, screen and identify targeted watersheds/communities (July-September 2009). Program implementation (assessment, etc.) would begin in October 2009 and the entire project would run for three years. (October 2009-September 2012).

h. Project management

While the Endowment will be responsible for overall management of the initiative, at a local level the core participants could include:

- local conservation district (lead agency coordinating EQIP sub-grantees);
- a project lead (non-profit, university, contractor or other);
- individual sub-grantees (non-industrial forest landowners and farmers)

Local project leads would be under the direction of the Endowment.

Also, each watershed would have a team of ancillary partners potentially including:

- community water utility
- Cooperative Extension Service
- Resource Conservation & Development Council
- NRCS area/field office
- State forestry agency
- local or regional land trusts
- land grant university
- conservation and environmental partners
- Southern Rural Development Center (and its regional counterparts) (*strongly supportive of initiative*)
- USFS State & Private Forestry (*strongly supportive of initiative*)
- State department of environmental quality.

Selection of targeted watersheds and sub-grantees will be based upon review and input by a multidisciplinary team including representatives from the Endowment, NRCS (national office) and others.

Carlton Owen, President & CEO of the Endowment would have primary project oversight on behalf of the Endowment. Owen is a forester and wildlife biologist with nearly 35 years of experience in both the for-profit and not-for-profit sectors. Among specific accomplishments related to this initiative, he was the originator of Project SHARE (Salmon Habitat and River Enhancement) in Maine that yielded strong support from private forest owners in voluntary conservation practices designed to protect habitat for threatened

Atlantic salmon. He also pioneered and marketed the idea of tying open space conservation with economic development via “Acres for America” – the highly successful program that has seen Wal-Mart commit to a 10-year, \$35 million investment to off-set every acre of the company’s U.S. development footprint. In only its first four years that initiative has led to the long-term conservation of more than 400,000 acres of vital wildlife habitats – nearly triple the 10-year goal.

i. Benefits or results expected and transferability (Energy Efficiency/Displacement, Rural Economic Development, Environmental Benefits)

Core products categories of information/knowledge derived will include:

Process Information	Practices Information	Measurable Results
Watershed selection	Priority practices	Scale of implementation
Critical lands identification/selection	Adaptability to local conditions	Proportion of targeted lands addressed
Landowner selection	Implementability of practices	Relative success of specific practices
Program administration	Cost of practices	Water quality indicators
Cooperator feedback	Effectiveness of practices	Water quantity indicators

These and other categories of process information, practice information, and measurable results will be manifested as beneficial knowledge on the effectiveness at a watershed-scale of this initiative. These outputs and benefits will directly inform NRCS’s CEAP to aid in determining the transferability of this program to other watersheds. Further, this information will aid in understanding the appropriate scale of such programs, validating

best and most effective practices, the acceptability of the recommended changes, and the value derived by the downstream potable water supply community.

Among other benefits derived from this project will be:

- Informing the partners of the potential for establishing previously unrealized sustainable revenue streams to non-industrial private forest landowners for ecosystem services;
- Enhancing linkages, understanding, cooperation and partnership between rural producers (forest owners) and the downstream water utility, and its water consuming customers;
- Alignment of economic interests with conservation objectives;
- Increased long-term retention of forests, and management of healthy working forests, in the face of increasing dual threats to forest resources through land conversion, and public demands for clean, abundant water.
- Identification of best practices both in terms of implementability, landowner acceptance, cost, and effectiveness.
- Knowledge of the transferability of practices to other private-ownership dominated forested watersheds across the country.
- Enhancement of the effectiveness and benefits of EQIP by realization of the collateral improvement of water quality and water quantity.

j. Project evaluation

The multi-disciplinary team working at each watershed and the benchmark assessment of conditions will support a strong foundation to determine the technical effectiveness of the program as well as its acceptance to the landowner/cooperators and the project partners, as well as the effectiveness of each practice. This approach is highly compatible with the NRCS's CEAP and will provide outputs of high value to the agency. The ability to compare and contrast the implementation of this program in two to three watersheds across the nation will increase the rigor and potential value of derived knowledge. Attention will be given to establishing a control (no additional interventions) watershed at each initiative site.

k. Environmental information and assessment of environmental impacts

As all approaches whether technology, practice or policy will lead to enhanced environmental quality against the base case there should be no need for environmental assessments beyond those needed to establish water quantity/quality from each watershed. That said, while the core focus of the initiative is on using water quantity/quality in forested watershed to increase forest retention and responsible forest management, there are significant collateral environmental gains. These collateral benefits will include open space conservation, carbon sequestration, terrestrial and aquatic wildlife habitat retention, and enhancement and increased stewardship understanding of conservation of biodiversity and associated ecosystem services, both to and from working lands.

Other Views on the Initiative

“With more than two-thirds of our water coming from forests, no single factor is more important to our Nation’s natural security. The Endowment’s proposal will help the public see the critical link between the faucet and the forest and, consequently, understand the need to conserve forests as our greatest freshwater filtration and storage system. I strongly support this bold and innovative approach that will provide tremendous leverage on every investment in forest conservation.”

Larry Selzer, President, The Conservation Fund

“The U.S. Endowment's CIG proposal offers a great opportunity to use EQIP funding to protect drinking water for communities that depend upon the management and conservation of privately-owned, forested watersheds. This proposal is geographically targeted to address a critical issue -- clean water -- while leveraging other funds from the Endowment and local partners. Environmental Defense Fund strongly endorses the Endowment's proposal.”

Robert Bonnie, Vice President, Land Cons. & Wildlife, Environmental Defense Fund