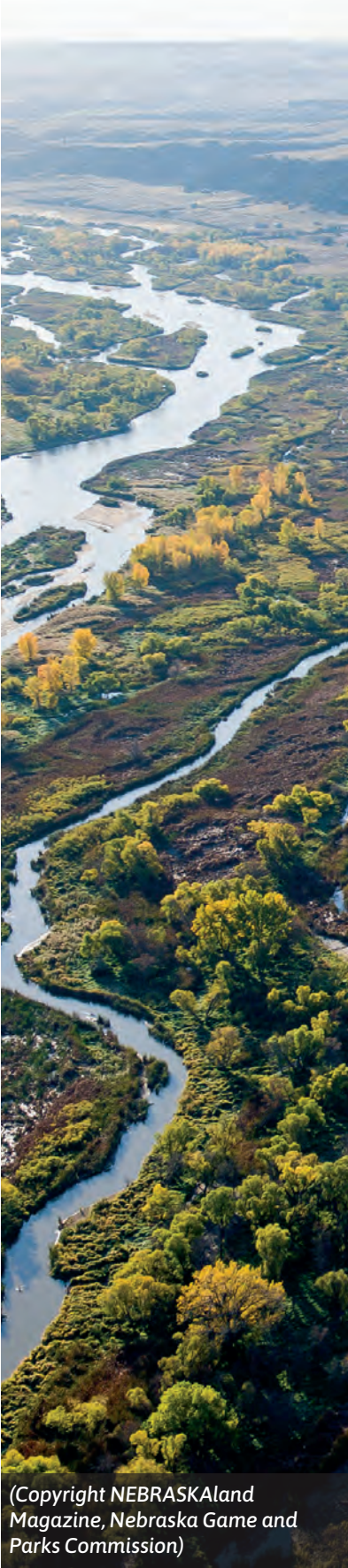


Chapter 10: Crosswalk 2010/2015/2020 FAP Goals

Current FAP goals were cross referenced with the *Nebraska Statewide Assessment and Strategy – 2010* and the *2015 Forest Action Plan* to evaluate the progression of agency goals. An immediate observation was in the NFS' approach to drafting the document. In the current version, the NFS used a grassroots method—incorporating staff feedback, public input, and partner expertise—to draft this assessment and strategy. Previous FAP plans used a top-down method, which was then shared for review and feedback. The grassroots approach has allowed the agency to balance the planning process across all programs and issues areas. As a result, the agency has aligned all stated goals to address each of the three national priorities, while attempting to achieve a desired future condition across the priority forest landscapes (PFLs) discussed in Chapter 3.

These goals were then compared to the national priorities to evaluate changes over time. The NFS assessed how priorities were previously addressed and how adaptations were implemented. As expected, goals and focus areas have changed, along with the priorities within each program. However, this exercise aligns agency resources for the implementation of adaptive management, allowing the NFS to move between PFLs and stated FAP goals to meet the national priorities as circumstances evolve.



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Table 62: 2010-15 Goals Comparison with 2020 FAP Goals

2010-2015 FAP GOAL	2020 FAP GOALS
1 Actively and sustainably manage forests	2 Manage trees and forest landscapes to include rural and community forest settings 3 Manage the function of forest and tree systems in Nebraska for maximum and sustained benefits 8 Maintain the natural environments of Nebraska including trees and forests, waterways, and rangelands
2 Restore fire-adapted lands and reduce risks of wildfire impacts	5. Restore fire-adapted landscapes to reduce risk of wildfire impacts on Nebraska's trees, forests, and communities
6 Assist communities in planning for and reducing wildfire risks	
3 Identify, manage, and reduce threats to forest and ecosystem health	6 Manage for the health and productivity of Nebraska's trees and forests
4 Protect and enhance water quality and quantity	9 Manage Nebraska's forest and trees to enhance the water resources of Nebraska
5 Improve air quality and conserve energy	10 Improve air quality and energy conservation through tree planting
7 Maintain and enhance economic benefits and value of trees and forests	7 Manage and build the capacity of Nebraska's trees and forests, in conjunction with the forest products industry, agriculture, and communities, which are all vital to Nebraska's economy
8 Protect, conserve, and enhance fish and wildlife habitat	4 Improve, protect, and enhance fish and wildlife habitat in Nebraska
9 Connect people to trees and forests and engage them in environmental stewardship activities	11 Connect people to the state's trees and forest resources 12 Engage Nebraskans in the stewardship of trees and forests
10 Manage and restore trees and forests to mitigate and adapt to global changes in climate	1 Enhance and promote the role of Nebraska's forests and trees for mitigation and adaptation to the global change in climate

Table 63: FAP Goals 2010-15 and 2020 Crosswalk to National Priorities

NATIONAL PRIORITY	2010-2015 GOALS	2020 GOALS
Conserve working forest landscapes	1, 7	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Protect forests from harm	2, 3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Enhance public benefits from trees and forests	4, 5, 6, 7, 8, 9, 10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12



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Chapter 11: Summary of 2015 FAP Update - Implementation and Challenges

This chapter summarizes the implementation of the ten 2015 FAP goals and challenges that occurred between 2015 and 2019. This section provides an evaluation of previous activities, and these summaries were used in the formation of the FAP goals in this assessment. Table 64 is a comprehensive list, but it is not intended to be all-inclusive.

Table 64: 2015 FAP Goals, Implementation Strategies, and Challenges

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
1: Actively/ sustainably manage forests	<ul style="list-style-type: none"> ▶ Provided green infrastructure training for over 35,000 professionals ▶ Engaged 300 communities with project investments for the creation, support, and management of resilient landscape practices & programs ▶ Organized over 600 presentations to 35,000 people ▶ Produced thousands of news items (newsletters, news releases, news coverage) to support the need/opportunity to actively manage the forest resource, reaching an estimated 25% of the state's population ▶ Provided direct technical assistance to over 2,200 woodland owners with existing Stewardship Plans and provided assistance to 2,000 new contacts 	<ul style="list-style-type: none"> ▶ Gaining recognition within UNL system of the necessity/benefits of fire management topics to students in natural resources fields ▶ Encouraging communities to adopt practices which lead to meaningful and lasting change beyond the scope of project implementation ▶ Measurable and ongoing climate variations and weather extremes (drought, floods, and temperature fluctuations) continue to degrade community forests. Municipal budget fluctuations have limited consistent, long-term investments in community tree planting efforts ▶ The current volunteer base is aging and recruitment of younger volunteers has lagged, leading to a decrease in community enthusiasm and engagement

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
	<ul style="list-style-type: none"> ▶ NFS staff prepared over 100 Forest Stewardship Plans covering over 100,000 acres to help woodland owners access financial assistance programs to implement stewardship practices ▶ Provided technical assistance to landowners on timber sales 	<ul style="list-style-type: none"> ▶ Scheduling workshops at appropriate times to draw participants, especially during times of the year when they'd prefer to be outdoors ▶ Woodland owner participation in organizations and networks that provide land management assistance has declined ▶ Windbreak plantings have declined significantly, fueled by increasing crop prices and land values ▶ Existing windbreaks have been removed and the land planted to commodity crops in response to changes to the federal tax code that provides tax credits for agricultural land improvement ▶ Catastrophic wildfires in the Pine Ridge and Niobrara Valley have destroyed almost two-thirds of the ponderosa pine woodlands and forests of Nebraska since 2006 ▶ Many burned lands are not regenerating due to destruction of seed banks, loss of shade, as well as the destruction of mature, cone bearing trees ▶ Forest restoration efforts in the Pine Ridge and Niobrara Valley, and the use of ponderosa pine in windbreaks and shelterbelts, have been largely unsuccessful due to high mortality of planted bare-root seedlings ▶ Eastern redcedar is widely planted through the western two-thirds of Nebraska for soil, water, and livestock protection ▶ Need improved access to more detailed, locally-available woody biomass volume information from forestlands, non-forestlands with trees, and urban areas ▶ Eastern redcedar has spread into the understory of native forests, woodlands, and savannas and is replacing understory species, resulting in a slow conversion of species, the loss of natural forests, decrease in the quantity and quality of wildlife habitat, and increased potential for uncharacteristic wildfire

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
2&6: Restore fire-adapted lands; reduce wildfire risk; assist communities to plan/reduce risks	<ul style="list-style-type: none"> ▶ Established Nebraska's second Firewise community in 2017 ▶ Implemented a highly-leveraged Firewise community protection initiative to increase awareness, and reduce risk and loss ▶ CWPPs completed for: Missouri River Northeast, Wildcat Hills, Central Sandhills, Southwest Nebraska, Southeast Nebraska, Western Sandhills, and Central Platte regions ▶ CWPPs in progress for: Middle Northeast, Missouri River East, South Central East, and South Central West regions ▶ 300 projects fuels reduction projects completed on over 9,500 acres ▶ Constructed five SEAT bases (Valentine, Chadron, Scottsbluff, McCook and Alliance), plus developed one mobile base ▶ Completed training for four SEAT base manager (SEMG) trainees in addition to SEMG trainees from local VFDs or partner agencies ▶ Cooperating aerial applicators: 2010 – 26, 2015 – 19, 2020 – 20, with a total of 32 fixed wing aircraft and one helicopter ▶ Provided fire training to over 25,000 students in 745 classes with over 140,000 training hours ▶ FEPP/FFP: Placed 44 trucks/yr. Increased total trucks from 279 in 2006 to 850 in 2019. Replaced (upgraded) approximately 20/yr. ▶ Developed a Type 3 Incident Management Team with Nebraska State Fire Marshal's Office and Nebraska Emergency Management Agency ▶ Developed/continue to manage the Western & Eastern Nebraska Wildland Fire Academies ▶ Received 10 Wildland Urban Interface grants to provide fuels reduction cost-share, matched by state funding, to reduce forest fuels across the state ▶ Treated over 5,000 acres of woodlands to improve structure, function, and avert loss due to uncharacteristic wildfire ▶ Analyzed the hours expended in fire suppression by VFDs to detect trends ▶ Initiated preparations for the impacts of an increase in fire intensity and frequency, coupled with a nationwide decline in volunteerism 	<ul style="list-style-type: none"> ▶ Recruitment and retention of diverse staff ▶ Fuels reduction contractors must be educated on fuels reduction practices and stand manipulation ▶ Fuels reduction contractors require education on bidding fuels reduction projects and general business practices ▶ Lack of fuels reduction contractors ▶ Reduced volunteerism

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
3: Identify/manage/ reduce threats to forest/ecosystem health	<ul style="list-style-type: none"> ▶ Prepared and distributed new publications with information and recommendations for controlling forest pests, including 9 about the emerald ash borer and related ash problems; 2 about the mountain pine beetle and other bark beetles of pines; 5 about thousand cankers disease of walnut, pine wilt, Diplodia blight of pines, and iron chlorosis of broadleaf trees and conifers ▶ NE Tree Pest Detection Initiative confronts forest threats via comprehensive outreach and public/industry engagement and training ▶ Established Tree Pest Detector network with over 120 volunteers in 48 communities statewide to enhance detection of invasive tree pests and accelerate management interventions ▶ Implemented Nebraska's EAB Response Plan and continue to work with communities at risk or experiencing EAB ▶ Conducted detection surveys for EAB and thousand cankers disease of walnut in communities, parks, plantations, and high-risk sites 	<ul style="list-style-type: none"> ▶ Community forest resources remain threatened by invasive insects and diseases, extreme weather, and municipal and state budget limitations ▶ Specific actions needed to mitigate and reduce the negative impacts that accompany climatic change ▶ Impacts of a changing climate on Nebraska's tree and forest resources
4: Protect/enhance water resources	<ul style="list-style-type: none"> ▶ Provided direct technical assistance to implement over 500 acres of timber stand improvement projects, designed to increase the structure and function of riparian forests ▶ Created over 50 acres of riparian forest buffers through direct technical assistance of staff 	<ul style="list-style-type: none"> ▶ No challenges were experienced during the implementation of this objective

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
5: Improve air quality/conserve energy	<ul style="list-style-type: none"> ▶ Established a demonstration of alley-cropping systems (trees with hay crop between rows) at Horning Farm Demonstration Forest, providing a diversified agroforestry approach to management ▶ Tested woody florals planted within tree rows of windbreaks for non-traditional forest products ▶ Established a demonstration of “edible buffers” by restoring degraded field windbreaks that will now produce specialty forest products ▶ Established a demonstration arboretum and community forestry demonstrations to educate the growing urban populations of Douglas, Sarpy, and Cass Counties, and other cities and towns about tree planting techniques, species/cultivar choices, and landscape design ▶ Conducted community tree species and cultivar trials, including those adapted to a changing climate, tree planting techniques, pruning, and permeable pavement/green infrastructure in parking lots ▶ Established a cottonwood restoration project focused on the development of a woody biomass cover crop on a 5 to 7 year rotation ▶ Tested 14 varieties of fast-growing willow species at Timmas Farm Ecological Reserve to determine their suitability for woody crop production 	<ul style="list-style-type: none"> ▶ Changing and inconsistent weather conditions created challenges in the establishment of test plots and plantations. In both 2011 and 2019, flooding was a major problem along the Missouri River in eastern Nebraska
7: Maintain/enhance economic benefits/values of trees & forests	<ul style="list-style-type: none"> ▶ As a result of the passage of the Wildfire Control Act of 2013, NFS established the Forest Products Utilization program. The program seeks to identify new and expanding economic markets for Nebraska’s forest products. With local, state and federal partners, the NFS works with businesses and individuals to investigate new forest product options and conduct product and market development projects to improve market strength in the state, leading to increased forest management ▶ Developed the TREES Heat Nebraska program to provide technical and financial assistance to facilities desiring to convert to woody biomass energy 	<ul style="list-style-type: none"> ▶ Declining natural gas prices which make woody biomass energy less economically feasible ▶ Increasing insurance costs for logging operations and sawmills ▶ The reduction of sawmills in neighboring states due to the recession of the late 2000s ▶ Lack of statewide understanding of the importance of forest products markets ▶ Lack of technical assistance outside of the NFS for the development of new forest products ▶ Lack of financial assistance for the investigation and development of new forest products and forest products markets ▶ Maintaining consistent program contact with local government and their familiarity of project scope and implementation

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
	<ul style="list-style-type: none"> ▶ Completed preliminary or engineering feasibility studies for: <ul style="list-style-type: none"> • City of South Sioux City: city offices • Nebraska Department of Correctional Services: state penitentiary in Lincoln • Papio Valley Nursery: commercial greenhouse nursery in Papillion • Keya Paha County Schools and Courthouse: municipal facilities in Springview ▶ Received a 2015 Wood Innovation Grant to evaluate the feasibility of creating a district heating system originating from the existing woody biomass system at Chadron State College to include nearby school, city, and county facilities ▶ With the NSA, awarded 2015 Nebraska Environmental Trust project investment for Greener Nebraska Towns to make rural communities more resilient, sustainable, diverse, and water-wise ▶ Developed Nebraska's Ten Largest Communities program to provide support and training in NE's largest communities for tree planting, focused on critical issues of energy use, stormwater management, air/water quality, and a changing climate ▶ Developed an arborist safety program to recognize tree issues and mitigate degradation of forest resources ▶ Promoted/implemented certification standards and opportunities for NFS staff with 8 completing/maintaining ISA Certified Arborist, 3 completing ISA Municipal Specialist, and 4 completing Tree Risk Assessment Qualification ▶ Treated over 4,800 acres of woodlands and forests to increase their health and vigor through direct technical assistance of staff ▶ Renovated nearly 100 acres of field windbreaks through direct technical assistance of staff ▶ Assisted 72 landowners with the harvest of over 13 million board feet of timber with an estimated value of over \$275,000 ▶ Planted nearly 250,000 trees in Nebraska's woodlands through direct technical assistance of staff ▶ Planted nearly 1,150 acres of field windbreaks through direct technical assistance of staff 	<ul style="list-style-type: none"> ▶ Presenting quantifiable information to community leaders how changes in practices increase returns on green infrastructure investments

GOAL	IMPLEMENTATION SUMMARY	CHALLENGES SUMMARY
8: Protect/conserve/enhance fish & wildlife habitat	<ul style="list-style-type: none"> ▶ In partnership with NSA and UNL Department of Entomology, awarded the Community as Habitat: Nebraska Communities Supporting Pollinators and Landscape Diversity Through Native WaterWise Plant Habitats ▶ Provided technical assistance to landowners resulting in the planting of trees and shrubs to create or improve wildlife habitat ▶ Chat Canyon Forest Legacy project protects 460 acres of Sandhills prairie and forestland along the Niobrara River in Cherry County; management activities are ongoing 	<ul style="list-style-type: none"> ▶ No challenges were experienced during the implementation of this objective
9: Connect people to trees/forests & engage them in stewardship activities	<ul style="list-style-type: none"> ▶ Continued investment in Community Marketing for Trees campaign ▶ Completed activities for Full Circle Benefits grant, focusing on market-driven conservation to capitalize on expanding benefits of trees (shade, edible forest landscapes, wood products) in a changing environment ▶ Developed an initiative to directly address declines in public perception of the value of Nebraska's forests ▶ Created and continue to promote social medial presence with an outreach of 15,000+ subscribers ▶ Restructured the Nebraska Community Forestry Council to a 15 member advocacy board with representatives of all major green industry organizations ▶ Completed the ReTree effort for NE, providing support for 220 ReTree Ambassadors and 28 ReTree participating nurseries ▶ Supported and promoted Arbor Day Foundation programs including: Tree City USA, Tree Campus, Tree Line, and Growth Awards 	<ul style="list-style-type: none"> ▶ Defining stronger emphasis on ecological benefits such as improved habitat, biodiversity, pollinator support, and use of native and regionally-adapted plant materials ▶ Low interest for new volunteer advocates
10: Manage/restore trees/forests to mitigate/adapt to global climatic change	<ul style="list-style-type: none"> ▶ Inventoried conservation trees in Nebraska via GPI II survey ▶ Established a cottonwood restoration project with short-rotation woody biomass ▶ Testing woody biomass systems and other uses of biochar to replace ancient carbon (fossil fuels) with carbon readily available within the system ▶ Testing short-rotation woody biomass species for growth and suitability as woody crops ▶ Planted 60 tree species to test suitability in Nebraska with considerations for alternative climatic conditions ▶ Planted over 225,000 pine seedlings in burned areas of Nebraska 	<ul style="list-style-type: none"> ▶ Finding local contractors with the ability to handle large planting projects





Chapter 12: Funding and Resources

Funding

The NFS has an annual operating budget of \$6.3 million. The funding sources are diversified with 51% coming from the State of Nebraska, 32% from federal sources, and 17% from competitive grant funds (both state and federal). Prior to 2010, the budget was more reliant on federal dollars at 56%, state 28%, and competitive funds 16%.

Today, the allocation of funding for personnel is 57% of the total budget. In 2010, personnel comprised 61% of the total budget. Because of decreasing revenues some positions have remained unfilled over the past several years. As a result, the NFS has reevaluated the structure of the agency to better address the needs around the state. The shift has put more positions in locations where staff can better address the needs of the forest resource and stakeholders. This was accomplished through grant funding, which supported positions to administer more cost-share programs for landowners, homeowners, and partners. The agency continues to leverage relationships to further this effort, working closely with Nebraska's Natural Resource Districts and the Natural Resources Conservation Service. Limitations to revenue will require the NFS and partners to continue to look for creative ways to better serve all Nebraskans. 🌿

Figure 39: Funding by Source

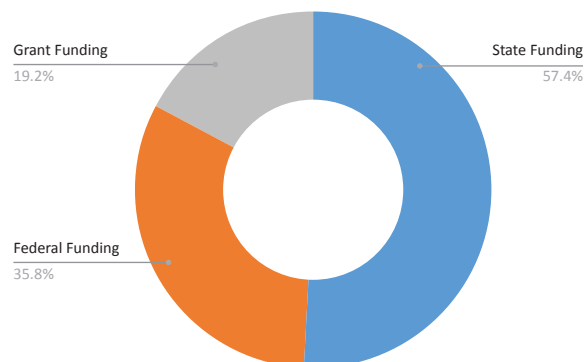
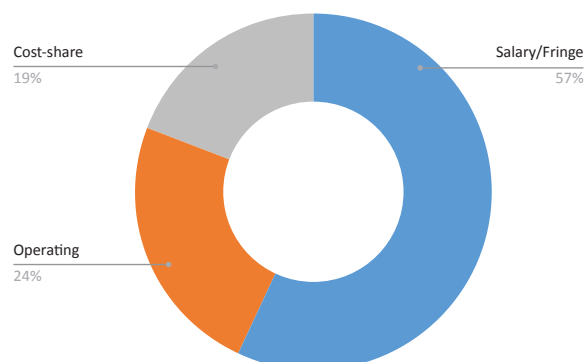


Figure 40: Expenditures by Source



Resources

The ambitious and aggressive strategy described in this FAP will require a comprehensive set of resources and additional capacity to support successful implementation. What follows is a summary of these needs, and the areas that should be bolstered in order to enhance the agency's effectiveness over the life of this plan.

Specific funding, capacity, or research gaps exist in:

- ▶ Personnel
 - Supporting marketing and utilization activities
 - Conservation education staff
 - Rural forestry staff to assist landowners
 - Community forestry staff to assist communities
 - Inventory staff
 - Forest health experts to help with EAB and other invasive pests
 - Fire and fuels specialists for training and WUI treatments
- ▶ Expanded inventory data acquisition and analyses
 - Rural forests and trees
 - Encroachment of aggressive native species and nonnative invasive species
 - Community forests canopy cover
- ▶ Expanded fuels reduction work in high-risk areas
 - Key anchor points for responding to fires
 - More WUI areas identified as additional CWPPs are developed
 - Key fuel breaks along ridges and other critical points
- ▶ Capital costs for conversion of thermal energy systems to woody biomass
 - Bioenergy systems (waste to energy)
 - Biosystems engineering (waste to improve efficiency)
- ▶ Capturing staff and program accomplishments
 - Consolidating activities of staff into one program to better track performance and accomplishment
- ▶ New and expanded cost-share programs
 - Tree planting
 - Thinning for forest health
 - Community canopy inventories and management planning
 - Agroforestry maintenance
 - Tree care workshops
 - Bioswales and pollinator habitat

- ▶ Research
 - Development of new wood products
 - Market development
 - Future invasive species
 - Current pests: range in the state, life cycles, best controls, etc.
 - Herbicide damage effects on trees and forests
 - Replacement species to adapt to a changing climate and test viability of species
 - New windbreak designs to emphasize diversity and decrease reliance on redcedar
- ▶ Funding for communities
 - Tree boards
 - Arbor Day Foundation programs
 - Tree advocate programs
 - Community and youth programing
 - Support for community forestry programs with limited or no annual budget
 - Firewise funding for communities
- ▶ Funding for increasing forest product utilization
 - Wood utilization, urban wood networks, and alternative-use programs
 - Wood innovation and market development
 - Marketing and utilization activities
- ▶ Funding for EAB preparedness and response
 - Rural communities with limited staff
- ▶ Support for forest management activities on private lands
 - Removal of overmature trees (and replanting) on private properties in poor neighborhoods
 - Support for eastern redcedar management
 - Support for restoring ponderosa pine ecosystems
 - Funding to acquire high-quality planting stock
 - Support for reducing encroachment of unwanted species into forests and rangelands
- ▶ Volunteer Fire Assistance grant funding level is below current need
- ▶ Support for training capacity within VFDs
- ▶ Support for agroforestry practices
- ▶ Support for marketing and re-establishment of the conservation tree program
- ▶ Marketing of trees and forests for water management
- ▶ Marketing of permeable landscapes and programs including trees and other vegetation