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IMPLEMENTATION COMPLETION REPORT
(CPL-41190 TF-29117)

ON A

LOAN

IN THE AMOUNT OF US\$42 MILLION

TO THE REPUBLIC OF

CROATIA

FOR A

COASTAL FOREST RECONSTRUCTION AND PROTECTION PROJECT

December 10, 2003

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 30, 2003)

Currency Unit = Kuna (HRK)
1 = US\$ 0.158210
US\$ 1 = 6.32151

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BNPP	Dutch Partnership Trust Fund
CAS	Country Assistance Strategy
ECA	Europe and Central Asia
ERR	Economic Rate of Return
FAO	Food and Agricultural Organization
GIS	Geographic Information System
HS	Hrvatske Sume
ICR	Implementation Completion Report
IOT	Institute of Tourism
LIL	Learning and Innovation Loan
MAF	Ministry of Agriculture and Forestry
MoI	Ministry of Interior
NFPS	National Forest Policy and Strategy
NPV	Net Present Value
PIU	Project Implementation Unit
WWF	World Wildlife Fund

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CROATIA
COASTAL FOREST RECONSTRUCTION AND PROTECTION PROJECT

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<i>Project ID:</i> P008334	<i>Project Name:</i> COASTAL FOREST RECONSTRUCTION AND PROTECTION PROJECT
<i>Team Leader:</i> Gerhard Dieterle	<i>TL Unit:</i> ECSSD
<i>ICR Type:</i> Core ICR	<i>Report Date:</i> December 30, 2003

1. Project Data

Name: COASTAL FOREST RECONSTRUCTION AND PROTECTION PROJECT *L/C/TF Number:* CPL-41190; TF-29117

Country/Department: CROATIA

Region: Europe and Central Asia Region

Sector/subsector: Central government administration (90%); Forestry (10%)

Theme: Other environment and natural resources management (P); Biodiversity (P); Rural non-farm income generation (P)

KEY DATES

	<i>Original</i>	<i>Revised/Actual</i>
<i>PCD:</i> 03/02/1995	<i>Effective:</i>	07/31/1997
<i>Appraisal:</i> 02/01/1996	<i>MTR:</i> 06/30/1999	11/09/1999
<i>Approval:</i> 12/11/1996	<i>Closing:</i> 06/30/2002	06/30/2003

Borrower/Implementing Agency: GOVT. OF CROATIA/MINISTRY OF AGRICULTURE & FORESTRY

Other Partners:

STAFF	Current	At Appraisal
<i>Vice President:</i>	Shiego Katsu	Johannes F. Linn
<i>Country Director:</i>	Anand K. Seth	Andrew N. Vorkink
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2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

Outcome: S
Sustainability: L
Institutional Development Impact: M
Bank Performance: S
Borrower Performance: S

Quality at Entry: QAG (if available) ICR
S
Project at Risk at Any Time:

3. Assessment of Development Objective and Design, and of Quality at Entry

3.1 Original Objective:

Croatia's coastal region is a renowned tourist destination and, as such, is an important economic asset to the country. The coastal region is famous for its beautiful scenery, including the blue waters of the Adriatic Sea and green, forest-covered hills. Tourism accounts for more than 10% of Croatia's GDP, with more than 95% of the total yearly tourist overnight stays occurring in the coastal region. During the war in 1991-92, Croatia's coastal and island forests were severely damaged. Over 11,000 hectares of forest were completely destroyed by fire, caused by incendiary bombs, rocket attacks and other war activities. Tourism along the coast dropped drastically.

Following the war, reconstruction of the coastal areas was a priority concern for the Government. In particular, rehabilitation and protection of forests were considered key elements for encouraging tourism and restoring economic activities along the coast. However, due to the war, the institutions responsible for managing coastal forests and suppressing forest fires were ill equipped to restore forests effectively. The financial and institutional resources of Hrvatske Šume (HS) were not sufficient to maintain the high standards of inland forest management while coping with a backlog of investments and the aftermath of serious war damages along the coast. The Ministry of Interior (MoI) lacked the budgetary allocation to establish a comprehensive system of fire management. In response, the Government of Croatia requested funding from the World Bank for the Coastal Forest Reconstruction and Protection Project, and the project became effective in 1997.

The main objective of the US\$ 67.3 million project (Credit US\$ 42.0 million) was to restore and protect forest land in the coastal zone of Croatia in order to enhance landscape and recreation values of the region and thereby contribute to restore tourism to its pre-war level. To achieve this objective, the project aimed to (i) restore the environmental role of coastal forests destroyed by the war, by protecting soils and waters and initiating the restoration of the natural vegetation; (ii) address the problem of forest fire that is a crucial threat to coastal areas; and (iii) develop the knowledge base for improved management and protection of coastal forests.

The objectives were important to the country's economic and social development and realistic in scale and scope. They were also timely and appropriate to the needs of the Borrower. The project was consistent with the Bank's Country Assistance Strategy (CAS) and the global and ECA forest policy strategy and guidelines.

3.2 Revised Objective:

The project objectives were not revised during implementation of the project.

3.3 Original Components:

The project included the following three components:

- i. Coastal Forest Reconstruction (US\$ 11.9 million). Under this component, the project planned to: (a) rehabilitate 5000 hectares of private and public forests affected by war activities along the coast, including clearing destroyed stands of burned trees and reforesting burned areas; (b) reconstruct the nursery in Zadar, to grow seedlings of species utilized in reforestation programs in the coastal areas; and (c) reconstruct the Arboretum in Trsteno, which was originally established in the 15th century and is one of the oldest arboretums in the world.

ii. Forest Fire Management (US\$ 47.9 million). This component was designed to improve fire management for coastal forests through fire prevention, pre-suppression and suppression activities. Prevention activities included campaigns to raise public awareness of fire risk and roadside forest cleaning and thinning. Pre-suppression activities included the provision of equipment to forecast weather and completion of a network of fire-fighting roads. Suppression activities included the provision of equipment to strengthen the fire-fighting capacities of the Ministry of Interior. Specifically, the project was going to purchase one new seaplane for aerial fire-fighting, and pay for the reconstruction of one hanger and several stand-by facilities at airbases along the coast for maintenance of the seaplane. The project was also going to establish a comprehensive telecommunication system, to improve communication and coordination of fire-fighting activities, and provide fire trucks and smoke-jumping equipment, to improve terrestrial fire-fighting.

iii. Support Services (US\$ 7.5 million). This component was designed to include four main sub-components. The first included provision of a Geographic Information System (GIS) to improve the efficiency of Croatia's forest fire Operational Centers. The second subcomponent developed a research program, to test methods of improving reforestation efforts and forest fire management. The third provided technical assistance to HS to restore its profitability. This would involve (a) developing a cost-efficient accounting system that would clearly separate commercial from non-commercial functions, and (b) preparing a plan to complete the ongoing privatization of non-core assets. The plan would address human resources issues related to privatization, including necessary reductions in administration staff. Finally, the project was designed to provide technical assistance for project management and monitoring (including establishment of a Project Implementation Unit in the Ministry of Agriculture and Forestry).

3.4 Revised Components:

All three components were revised to some extent during project implementation. These revisions provided the initially very technically oriented project with a much broader enabling institutional and policy framework that took into account the overall stabilizing political, economic and social climate in Croatia. All revisions were detailed in supervision mission reports and follow-up letters to the Government and copied to the relevant Executive Director. Because the changes could be accommodated within the existing project objectives, they did not require Board approval.

Under the coastal forest reconstruction component, reforestation on public land was reduced by about 3800 ha. Many areas that burned during the war regenerated naturally, reducing the need for manual reforestation. Additionally, much of the manual reforestation that did take place under the project was very unsuccessful. Due to unusually dry weather conditions and poor seedling stock, only 35% of the seedlings that were planted survived. In response, the Bank agreed with HS to reduce reforestation activities and focus instead on activities to thin stands of natural regeneration and clean areas of burnt forest. The project also expanded its program of forest works on private land, which had strong community support and proved to be very successful in reducing fire risk and improving landscape attractiveness for tourists.

As a consequence of the Government's decision to decentralize institutional responsibility for fire suppression from the Ministry of the Interior to local governments procurement of the GIS and telecommunication systems under the forest fire management component was cancelled. However, to maintain the spirit of this activity, funding earmarked for the GIS system was reallocated to support the establishment of the Regional Fire Management Center in Split, its training center and its outreach activities to assist local fire management structures. Funds were used to improve fire fighting coordination and capacities under the new framework including (a) acquisition of a basic start-up GIS for the Civil Rescue and Protection Service Regional Centre "Divulje" in Split.(b) a pilot community education program to build awareness of fire prevention, (c) improved training facilities for local fire-fighters, and (d)

technical assistance to the Regional Center.

The forest fire management component also originally included funding to reconstruct an airplane hanger and construct stand-by facilities at airbases along the coast for the new seaplane. Shortly after the project became effective, alternative facilities for the seaplane were identified. The Government requested that the money for the hanger be reallocated for demining forest areas in Srd. The per hectare cost of demining, however, was too high and could not be justified under the project's economic analysis. Consequently, the Bank and Government agreed that the funding could be used to purchase two initial fire attack airplanes, to increase MoI's aerial fire-fighting capacity.

The research activities envisaged as part of the support services were cancelled. After in-depth discussions establishing the procedures for accessing and using loan funds for research, the Forest Research Institute, which was directly responsible for research activities under the project, believed it was no longer in a position to participate in the project following the loss of five of its scientists in a tragic traffic accident. When a broad national request for research proposals failed to solicit interest, and with only two years left during project implementation, the Bank agreed with the Government that the research component should be dropped from the project. Some of the funding was reallocated to provide technical assistance for preparation of a study for the strategic restructuring of Hrvatske Sume. The remainder of the funds were not used and were cancelled at the end of the project.

The most substantial change introduced during project implementation took account of the Government's new policy on reforming and restructuring State enterprises. The Ministry of Agriculture and Forestry (MAF) requested Bank assistance for the preparation of a comprehensive plan for the strategic development of HS as a limited liability company. The project provided international technical assistance to develop a plan for restructuring HS into an environmentally responsible, economically viable and profitable forest company. The work was carried out during the period between October 2001 and March 2003. The restructuring plan was adopted by the Government as proposed in July 2003.

To complement this process, MAF also requested the Bank's assistance to prepare a National Forest Policy and Strategy (NFPS) that would provide an enabling framework for forest sector reforms. The NFPS was prepared in 2002 and 2003, with funding from the Dutch Partnership Trust Fund, and was adopted by the Government in July 2003. The NFPS process was the first fully participatory process in the Croatian forest sector and received wide attention at national and international levels.

The project also secured additional funding for the development of National Standards for sustainable forest management. These standards provide internationally accepted criteria and indicators for sustainable forest management and forest certification and are an essential requirement for improving access to environmentally sensitive markets in Western Europe. This activity was also financed by the Dutch Partnership Trust Funds (BNPP), with additional funding from the WWF/World Bank Alliance, and is expected to be finalized by the end of 2003.

3.5 Quality at Entry:

The project's quality at entry is rated satisfactory. The project was designed in response to the political and economic situation in Croatia following the war. In particular, the project responded to the Government's priorities to reconstruct war-damaged areas, invest in infrastructure, and build institutional capacity. The project duration was appropriate to complete the project activities. The range and scope of project activities was realistic given institutional capacities.

Conformity with Country Assistance Strategy. The project was consistent with the Bank's Country

Assistance Strategy (CAS) in pursuing its policy objective of rebuilding and upgrading war-damaged infrastructure in Croatia. The project was one of several environmental projects envisaged under the CAS as part of a long-term program to restore and maintain favorable ecological conditions in Croatia's coastal areas.

Consistency of project with Bank's safeguard policies. In accordance with OP 4.01, an environmental assessment of the project design was carried out. The assessment concluded that the project would have an overall positive effect on the coastal environment. Concerns raised during the assessment were integrated into the project design: the species composition under the reforestation component included broadleaves, and no fertilizers were used when planting and maintaining seedlings. Strict guidelines were developed to ensure that construction of new fire-fighting roads caused minimal damage to the environment and never occurred within 50 meters from water-courses. In accordance with OP 4.04, the project supported the rehabilitation of degraded natural habitats and maintenance of their ecological functions by restoring degraded forests along the coast. The project design was also consistent with the Bank's safeguard policy, OP 4.36, on forestry.

Project risks: At the time of project design, the project was foreseen to have few risks. Resumption of hostilities was considered to be a minimal risk, especially for project investments. The potential risk of reduced economic benefits from the project, due to delay in the recovery of tourism, was mitigated in the project design by adopting conservative values in the project's economic analysis. However, the designers did not take into consideration risks associated with weather and overall climate change. Extremely dry and windy conditions in 2000 were to blame for one of Croatia's worst fire seasons, when more than 37,000 hectares of forest burned along the coast. The damage from this one year alone was three times the amount of damage that occurred during the war. Failure to anticipate this risk makes re-calculating the benefits of the project problematic. Although forest fire management efficiency increased considerably as a result of the project, calculations of reduction of forest fire frequency and average size did not materialize.

The project designers also were not in a position to anticipate the risks associated with institutional change and, in particular, decentralization of the responsibility for forest fire management to local governments. Poor operation and maintenance of fire-fighting equipment was considered a minimal risk, given the Ministry of Interior's previous experience and excellent training program. However, the capacity of local governments to fund and support fire suppression was not considered. When fire-fighting responsibilities were decentralized to local governments in 2001, many local fire brigades were under-funded and ill-equipped to take on responsibilities for fire-suppression, maintenance of fire-equipment and coordination of activities at local, regional and national levels.

4. Achievement of Objective and Outputs

4.1 Outcome/achievement of objective:

The overall rating of the project's outcomes is satisfactory. The project achieved its objectives of enhancing the landscape and recreational values of the region. It improved national and local capacity to prevent and fight forest fires, and raised public awareness of fire risk and prevention measures. The following project activities had particularly positive outcomes:

- i) The program to involve private land owners in the restoration of degraded and abandoned forest and agricultural land was very successful. It provided funding for cleaning overgrowth and agricultural waste and planting young olive trees. The program was particularly instrumental in encouraging the return of persons displaced during the war. In addition, the program increased local awareness of fire risk associated with abandoned land, and enhanced landscape values. Participants have an incentive to maintain the land after the program, in return for increased olive production.

ii) The project initiated important activities to build capacity and encourage institutional reform to improve the management and protection of coastal forests. In particular, the project provided technical assistance to HS for institutional strengthening, including preparation of a restructuring study and implementation plan for increasing HS efficiency and profitability. This achievement goes far beyond the activities initially envisaged under the project for HS by providing the organization with a holistic approach towards reform at local, regional and headquarters levels. The reorganization model chosen for Croatia can be regarded as a best practice model in Europe, similar to successful examples in Latvia, Austria, Hungary, Ireland and Germany.

iii) As noted above, the project was instrumental in leveraging additional financing for activities to strengthen the regulatory framework for forest management in Croatia, including participatory development of a National Strategy and Policy and National Forest Standards. The outcome of these two processes is, in comparison with international standards, of high quality and can be seen as a key step in fulfilling Croatia's commitments within the framework of the international forest regime (i.e., follow-up to Rio, UN-IPF, UNFF) and the European Ministerial Forest Process (i.e., follow-up to Helsinki). Few countries in Europe or worldwide have applied similarly participatory and systematic approaches when preparing national forest policies and strategies. The National Standards for forest management are in line with international best practice approaches and will boost Croatia's access with certified products to environmentally sensitive markets in Western Europe and North America.

4.2 Outputs by components:

The outputs achieved under each of the following components are considered satisfactory:

Coastal Forest Reconstruction

Rehabilitation of Coastal Forests. As noted above, the need for reforestation on public lands was reduced considerably, due to a higher rate of natural regeneration of burnt forest land and in response to poor seedling survival rates. In the end, the project funded reforestation of only 1,219 ha instead of 5,000 ha. Instead, the project focused on thinning natural regeneration of Aleppo pine to improve growth rates (1,087 ha) and clearing burnt sites (1,132 ha). Forest works on private land were also increased. Initially conceived only for the Dubrovnik area, the program was so successful that it was expanded to include private forest owners all along the coast and on coastal islands. Over 2,200 private land owners received project funds to restore 1085 ha of abandoned land. Thus a total of 4,523 ha was restored, compared with the 5000 envisaged at appraisal.

Rehabilitation of Zadar nursery. The project funded the design and construction of a modern nursery near the city of Zadar. The project also financed procurement of state-of-the-art nursery equipment, with capacity to produce 3 million seedlings. The equipment package included training for nursery staff to operate and maintain the new equipment.

Rehabilitation of the Arboretum of Trsteno. The project funded several activities at the Arboretum in Trsteno. A wire fence was erected around the perimeter of the Arboretum; a water hydrant system was installed for fire-fighting; and the Arboretum's aqueduct was restored.

Forest Fire Management

Prevention. This sub-component was very successful, especially in the area of Zadar. HS cleaned 336 ha of roadside forests by removing flammable undergrowth and pruning lower branches to reduce fire risk and

act as fire breaks. HS also thinned 1,024 ha of roadside forests to reduce the amount of flammable material in pine stands and increase their resistance to fire.

The project initially provided funding for billboards, posters and television advertisements to raise awareness of forest fire risk and fire damage, especially among tourists. Statistics from MoI, however, indicated that 70% of fires are caused by local resident negligence, particularly when burning agricultural waste, while tourists are only responsible for 2% of forest fires. In response, the Institute of Tourism was contracted to develop a pilot program that would raise fire awareness by targeting local communities, rather than tourists and the general public. The pilot program was highly successful and amply demonstrated that awareness campaign activities must be targeted to local communities if fire incidence is to be reduced. Based on the success of the pilot program, Croatia is seeking additional funding to replicate the program in several communities along the coast.

Pre-suppression. To improve pre-suppression of forest fires, the project purchased a weather forecasting system for the State Weather Bureau to improve fire prediction and provide MoI with information on high risk areas for placement of fire-fighting equipment and seasonal fire-fighting brigades. The project also funded the construction of nine fire lookout towers and equipped the towers with radios, cellular phones and binoculars. In addition, the project funded construction of 198 km of new fire-fighting roads and reconstruction of 431 km of existing roads. The site-selection of roads and reconstruction activities was determined according to criteria established by the Bank, in consultation with HS. The roads were constructed in accordance with environmental standards, to address erosion and drainage concerns.

Suppression. Given the geographical features of Croatia's coast, fighting fires from the ground is often difficult. Forests on steep slopes cannot be accessed by fire-fighting vehicles, and islands often lack the equipment and manpower to fight large fires themselves. Consequently, fires often need to be fought from the air. To strengthen the ability of the Ministry of Interior and local fire brigades in suppressing forest fires, the project purchased aerial and terrestrial fire-fighting equipment. Three airplanes were purchased to assist in aerial fire-fighting, including one Canadair C-415 seaplane and two initial attack airplanes. In addition, 30 fire-fighting vehicles were distributed to fire brigades along the coast. The project also procured 15 sets of smoke-jumping equipment.

Support Services

Under this component, the project strengthened the institutional capacity of institutions participating in the project. A basic GIS unit was procured for the Civil Rescue and Protection Service Regional Center “Divulje” in Split. To strengthen the forestry sector, the project funded the preparation of the HS restructuring study. It also funded study tours for senior HS and MAF staff to visit European forest management organizations in Ireland, Poland, Germany and Austria and learn about their restructuring experiences. Finally, the project funded technical assistance for monitoring and evaluating the economic and environmental impacts of the project.

4.3 Net Present Value/Economic rate of return:

During project preparation, an economic analysis was carried out to calculate the economic rate of return for the project's forest reconstruction and forest fire management components. Estimates were made of benefits from: (a) the value of visible landscapes, (b) the existence value of regional forests, (c) wood production, (d) hunting, and (e) erosion control. The analysis estimated that the reconstruction component had a Net Present Value (NPV) of US\$2.8 million and an economic rate of return (ERR) of 24% for pre-selected sites. The estimated ERR for the forest fire management component was 13%, with a NPV of about US\$7.7 million. The ERR for the whole project was estimated at 15%. This was considered to be a conservative rate, because many benefits (e.g., benefits to the local population, benefits from harvesting

non-timber forest products and watershed protection benefits) could not be quantified due to lack of sufficient data.

Several studies were undertaken during project implementation that provided additional information on the benefits of project activities. Based on these studies, a post-project summary economic analysis was performed. Benefits were calculated for visible landscape values accruing to tourists and local residents from global and local protection activities. Landscape benefits were calculated using three different approaches: contingent valuation, Hedonic price method, and expert assessment. Benefits were also calculated for the amount of forest fire reduced, based on the costs of damage to forest and agricultural land, forest rehabilitation costs, losses to tourism, and environmental costs associated with carbon sequestration. Benefits were estimated to accrue for 30 years from the start of the project, and a discount rate of 5% was applied. The summary analysis found that the project has an economic rate of return ranging from 15.75% to 21.48%, depending on which approach is used for valuing landscape benefits. Similarly, the Net Present Value of the project ranges from US\$50.3 million to US\$84.2 million.

4.4 Financial rate of return:

Not applicable.

4.5 Institutional development impact:

The overall institutional development impact of the project is moderate.

(i) *Ministry of the Interior.* Despite the decentralization of fire fighting responsibilities to local governments, the impact of the project on MoI was moderately substantial. The methodology of fire fighting has been improved considerably and is widely applied throughout the country. Terrestrial and aerial fire fighting capacities increased substantially and will be maintained in the coming years. New methods of training fire-fighters have been introduced, and the new training center is expected to significantly improve the skills of local fire-fighting brigades. Fire fighting in Croatia is cost efficient, compared to Croatia's Mediterranean neighbors, and reaction times for aerial fire-fighting are up to international standards. Further adjustments of institutional responsibilities for fire management are being considered and are expected to result in a more balanced mix between centrally executed and locally executed fire-fighting responsibilities. Such arrangements will further improve the sustainability of forest fire management capacities in Croatia..

(ii) *Ministry of Agriculture and Forestry (MAF).* Overall, the project helped strengthened MAF's policy and supervisory role for the Croatian forestry sector. Despite its limited resources, MAF developed significant capacities to lead participatory processes and discussions on forest policy. With support of the project, MAF prepared a National Forest Policy and Strategy (NFPS), which was the first participatory process of its kind in Croatia, and National Standards for Sustainable Forest Management and Forest Certification. The NFPS and National Standards will have a long-term impact on the future development of Croatia's forest sector. Through these documents, MAF has laid the foundation for a thorough re-orientation of the forest sector, integrating Croatia into the international forest regime and establishing compatibility with EU accession standards. With certification, management of Croatia's state forests will become more sustainable and high conservation value forests will be better protected. This is a highly satisfactory and sustainable achievement.

However, in light of Hrvatske Sume's reorganization and increasingly commercial functions, only initial steps could be achieved to re-structure the forest administration and forest service under MAF (forest inspection, extension services, public good forest management etc.). Significant planning and capacity building is still necessary to build up these important oversight functions. As the owner of Croatia's State

forests and provider of support/control functions vis-a-vis private forest owners, it is important that in the future MAF further strengthens its policy making role by taking back responsibility for the management of the OKFS funds (environmental funds to manage and rehabilitate non-production forests in coastal region, currently being managed by HS). A considerable increase in human resources capacities is also needed to carry out the Ministry's future roles and functions.

(iii) *Hrvatske Šume (HS)*. Compared to its initial objectives, the project's impact on the institutional development of HS is substantial. The HS restructuring plan that was prepared under the project provides a solid base for reforming HS over the next five years. If implemented correctly, it will transform HS into a leading and profitable European forest organization. These change processes, however, will not come without further hard work and pro-active behavior, especially of HS's top management. Considerable investments and additional technical assistance are necessary to implement the phased action plan and human resources action plan. Success of this important process will depend on an enabling overall political climate, willingness for reform inside the organization and Government, and improved public sector governance. Privatization of non-core activities and outsourcing of forest operations will stimulate the development of private sector activities, especially in wood harvesting and transporting operations.

5. Major Factors Affecting Implementation and Outcome

5.1 Factors outside the control of government or implementing agency:

Several factors outside the control of government affected project implementation. Unusually warm, dry and windy weather increased the risk of forest fires, and in 2000 was responsible for one of Croatia's worst fire seasons ever. These extreme weather conditions also contributed to poor survival rates of seedlings planted under the reforestation component.

The presence of land mines, remaining from the war, also affected project implementation. Because the project could not justify demining activities for forest land, areas that were mined were not eligible for project activities. Mined areas also posed extreme hazards for fire-fighting (even from aerial planes).

The project was influenced by the overall post-war socio-political climate, which made decision-makers less open to institutional changes and reform.

5.2 Factors generally subject to government control:

In 1999 and 2000, the project suffered from delays in receipt of counterpart funding. Without counterpart funding, the PIU was unable to finalize payments for goods procured under the project. As a result, delivery of goods, including the seaplane and fire-fighting vehicles, was delayed. This was particularly detrimental in 2000, when Croatia suffered from numerous fires and would have benefited from the provision of additional fire-fighting equipment.

As a positive development, the Government of Croatia adopted a strategy in 2000 to encourage the privatization and restructuring of all state-owned enterprises, such as HS. This policy was instrumental in providing the motivation for the project to provide assistance to HS for a restructuring study.

The decentralization of fire suppression from the Ministry of Interior to local governments was influential in the decision to cancel the GIS and telecommunications system from the project. After decentralization, there was a decreased capacity for coordinated fire response and poor communication between local fire fighting authorities. The project was instrumental in reestablishing coordinating and fire management responsibilities and to address bottlenecks.

During the project period, there was no clear separation within HS of commercial activities from administration and forest service functions. The allocation of public funds to HS (through the OKFS Fund for management of coastal forests) acts as a state subsidy, providing HS with a comfortable financial situation. As a result, HS had less interest in reform and greater efficiency, fearing the loss of future state transfers. In addition, change towards more transparency and openness to increased competition is often seen as a potential threat.

5.3 Factors generally subject to implementing agency control:

There is a strong culture of forest management in Croatia that often caused resistance, especially at the beginning of the project, to new ideas and procedures. Alternative and foreign approaches were seen as threats to long-standing traditions, rather than opportunities for innovation and change. In particular, HS seems to maintain a limited understanding of its role in managing a public good, and continues to see forest resources as a private asset, rather than a public asset. HS tends to focus on its traditional role as forest manager, rather than integrating its functions with the needs of the community, to address concerns like forest fire prevention, forest recreation for tourism, etc.

At the local level, HS's participation in the reforestation component was initially disappointing. In the beginning, HS did not consider alternatives to traditional reforestation techniques or calculate the financial value of species it was using, even after seedling survival rates decreased significantly. However, local forest staff has become increasingly aware of the benefits of these aspects and a step-by-step change of behavior was observed.

Prior to the project, MAF had limited capacity (e.g., human resources) to guide reform processes and oversee implementation of project activities. This lack of resources meant that MAF's capacity to manage the reform process and develop strategies took time. While MAF's capacity to organize and lead participatory processes and discussions on forest policy has improved significantly, MAF continues to lack a clear role, as forest owner on behalf of state, in regulating and administering forest activities carried out by HS and the wood industry sector.

MoI failed to take advantage of opportunities provided by project to develop a strategic framework for fire management in Croatia and consider options for decentralizing fire management.

5.4 Costs and financing:

The project was expected to cost US\$67.3 million, with financing of US\$42 million from the World Bank loan, US\$11.0 million from the Government, and US\$14.3 million from HS. Due to the cancellation of some activities, US\$3.23 million in loan funds remained at the end of the project and had to be cancelled. Overall, the Government of Croatia financed US\$10.3 million in project activities, and HS financed US\$7.1 million. In addition, the project leveraged about US\$0.25 million in funding from the WWF/World Bank Alliance and the Dutch Partnership Trust Fund to assist Croatia to develop the National Standards for forest management. Funding from the Dutch Partnership Trust Fund was also used to develop the National Forest Policy and Strategy.

Care was taken during project implementation to ensure that the unit costs for forest works and fire-fighting roads did not exceed the rates agreed upon during appraisal and justified by the economic analysis. Proposed activities, such as demining, that exceeded agreed unit costs were not added to the project. In general, the costs for equipment procured under the project were slightly lower than the costs estimated at appraisal. The seaplane, which was the largest single expenditure under the project, was estimated to cost US\$26 million. The actual cost for the plane, including spare parts, was US\$25 million.

6. Sustainability

6.1 Rationale for sustainability rating:

There are concerns that some individual investments may not be sustainable. In particular, the sustainability of nursery investments is still unclear. The nursery was originally intended to produce one million forest seedlings per year for reforestation of coastal forests. Experience of project has shown, however, that forests regenerate naturally better than they can be manually reforested. Moreover, HS's plans for post-project reforestation in the coastal area are limited. It is therefore unlikely that one million seedlings of coastal forest species will be needed. While the nursery can also provide seedlings for reforesting inland conifer forests, the nursery will be only viable if other existing HS nurseries will be closed down according to plan.

Overall, however, the project is considered to be sustainable for several reasons. Fire-fighting equipment procured under the project is being fully utilized, despite concerns that local governments would have insufficient funds to cover operation and maintenance costs. The program of forest works on private land has raised landscape values and significantly reduced fire risk. Results from this program also indicate that private forest owners who have participated in the program continue to maintain their areas after the program is finished.

The most sustainable aspects of the project, however, are its institutional impacts. While new planes and fire-trucks will equip Croatia to better fight forest fires for ten to fifteen years, investments to train fire-fighters will improve fire management for much longer. Activities that strengthened the capacities of MAF and HS to manage Croatia's forests in a way that is both profitable and sustainable will have long term environmental and economic benefits if the overall climate of reforms is favorable. Much depends also on strong and decisive leadership over the coming years. For both aspects the accession process to the European Union will have a positive impact.

6.2 Transition arrangement to regular operations:

same as Sec. 6.1

7. Bank and Borrower Performance

Bank

7.1 Lending:

Satisfactory. The Bank's performance in the identification, preparation, and appraisal of the project was satisfactory. The project team strove to design a project that addressed the government's development priorities after the war and the Bank's country assistance strategy. During preparation and appraisal, the Bank employed top foresters and forest fire specialists to ensure that the project design was technically sound and economically viable. Special attention was focused on ensuring that the project had a positive environmental impact. During preparation and appraisal, the Bank had a consistently good working relationship with the Borrower.

7.2 Supervision:

“Satisfactory. During the first two years of project implementation, the Bank's performance was unsatisfactory. Procurement of equipment, including procurement of the seaplane, was delayed several times, due to Bank insistence on unrealistic procurement methods given available global supplies.”

Overall, however, the Bank's performance was highly satisfactory. Despite several changes in team leaders, supervision of project implementation was continuous and responsive to the needs of the Borrower. The Bank secured several trust funds to ensure that supervision missions included appropriate expertise,

including foresters, fire-fighting specialists and forest institution experts, and could provide excellent advice on technical matters. Over the course of the project, the supervision team worked to shift the project focus from a fairly technical design to one that addressed the changing needs of the country. In particular, the Bank encouraged institutional reform, promoted development of sound sector policies, and encouraged participatory processes.

7.3 Overall Bank performance:

Satisfactory. Overall, the Bank performance was satisfactory during project preparation, appraisal and implementation. There was excellent coordination between the project team and the country's implementation unit.

Borrower

7.4 Preparation:

Satisfactory. Following the war, the Government focused on projects that would rehabilitate areas destroyed or damaged by fighting. Given the importance of tourism for Croatia's economy, reconstruction of the coast and the ambient value of its coastal forests was a high priority. MoI, HS and MAF were all cooperative and active participants during project preparation and appraisal.

7.5 Government implementation performance:

Satisfactory. During project implementation, it became apparent that there was a broader need within the forestry sector for policy reform and institutional strengthening. At the same time, the Government had begun a program to restructure and privatize large state enterprises. In this context, the Government welcomed suggestions to incorporate a restructuring study for HS into the project. The Government was also actively involved in preparing the new Forest Policy and Strategy.

7.6 Implementing Agency:

The performance of MAF was highly satisfactory. MAF provided key leadership and oversight of project activities and was instrumental in preparation of the National Forest Policy and Strategy and National Forest Standards. The performance of MoI was also highly satisfactory. The Ministry responded promptly to project implementation needs and provided technical support for procurement of fire-fighting equipment. The performance of HS was satisfactory. Local coastal HS offices successfully carried out forest works and enthusiastically participated in the project. At headquarters, HS management was fully committed to supporting project activities, despite occasional disagreement about Bank procedures. The PIU was very successful in managing project activities and ensuring that procurement of equipment and services was carried out in a timely manner.

7.7 Overall Borrower performance:

Satisfactory. The overall performance of the Borrower was satisfactory.

8. Lessons Learned

One key lesson is that, in rapidly changing, post-conflict, transitional economies, a flexible approach to design of components is necessary. At appraisal, the forest restoration component was directed at state forest lands. However, as the project progressed, assistance in restoring private forest lands and characteristic Adriatic olive trees proved more successful, so the project shifted its focus to this activity during the last few years. Similarly, the fire management component was re-oriented, with a greater focus on community involvement and fire-resistant silvi-cultural techniques. This flexibility to change circumstances, while maintaining consistency with project objectives, helped achieve successful outcomes.

The project was a model for the region in terms of encouraging policy reform, development of standards

and institutional restructuring. The participatory approach Croatia undertook to prepare its forest policy and strategy and forest standards was a best-practice example.

The restructuring study financed under the project was strongly supported by Government, but only halfheartedly embraced by HS. As a result, the restructuring study was less influential than it could have been, and opportunities for the project to support implementation of the restructuring study were lost. Future projects that support restructuring programs must have strong stakeholder agreement, especially from the institution undergoing reform.

In order to ensure that project objectives are embraced by the implementing agency, the PIU should be fully integrated into the agency. If possible, the PIU should be staffed with full-time workers, appointed by the implementing agency to manage and carry out project activities.

9. Partner Comments

(a) Borrower/implementing agency:

Background

The overall aim of the Coastal Forest Reconstruction and Protection Project was to support the Government's post-war economic and social recovery programs in the coastal part of the country by facilitating the rehabilitation and protection of forests which were considered key elements for encouraging tourism and restoring economic activities along the coast. More specifically by helping develop the institutions responsible for managing coastal forests and suppressing forest fires required for a modern market-based economy and sustainable use of natural resources.

Specific Comments of the Borrower on Project Implementation

When evaluating the achievements of the project, it should be noted that the practical objectives of the project were to help improve institutional set-up in order to be able to sustainably manage and protect forest resources and contribute to restoration of tourism to its pre-war level in the coastal zone of Croatia. From that point of view, the project has fully met its objectives.

a) Project design

With the help of the FAO / World Bank's team of dedicated specialists, the project was very well developed, clearly identifying each of the components together with the relevant budget components. Such approach helped, to the great extent, to understanding of the local teams implementing the project components, what and how needs to be done. Consequently, the understanding of the clearly set objectives and of the available resources, and procedures to be followed resulted with the project "ownership" by the implementing agencies.

b) Project implementation

Project teams from the Borrower's side involved in implementation in all of above mentioned components strictly followed the objectives set in the Project and extensively used the assistance provided by the dedicated team of the World Bank. This close (literary day-to-day co-operation) resulted in a very productive project implementation and timely closure of the loan.

The World Bank's project support team, rendered, practically, on-line support in all on-going technical issues. Such support resulted in good and timely selection of appropriate and competent

consultants with a rather fast turnover of major consultancy and equipment procurement contracts within the Bank's approval process;

The latest Task Team Leader succeeded in obtaining additional support to the forest sector improvement, through Dutch trust grant funding for the development of National Forest Policy and Strategy that was adopted by the Government of Croatia in July 2003 and has become a principal document for the forest sector development in next ten years. The Dutch trust grant also funded the development of National Standards for Sustainable Forest Management.

The selected Croatian Team Leaders, both from Hrvatske Šume and the Ministry of Interior, were competent individuals and demonstrated strong enthusiasm in project implementation;

The Public Awareness Campaign met its primary objectives. However, it became obvious that forest fire issues are rather new prospective of local population thinking. Consequently, more effort needs to be invested in the future to further educate local populations in the coast;

Taking the above into account, under given circumstances, it could be stated that the project was implemented in line with the World Bank's rules and policies, creating a solid base for further development of the Croatian forest sector and its contribution to development of national economy.

During the project implementation all three project components were revised to some extent in order to better meet the project objectives within the changed legal, environmental and business environment.

Revisions of project components allowed for initially technically oriented project to shift to more institutional and policy oriented project. Revisions of components are described in details in the Project ICR.

c) Bank Performance

The performance of the World Bank's team assigned to the project, can be described as highly cooperative and supportive. Frequent changes of task team leaders did not affect the project implementation as all task team leaders followed the same policy. Each member of the team demonstrated the sensitivity and good understanding of the Croatian specific business environment. It should be highlighted that they were available, practically at all times, for consultations and assistance in resolution of ongoing issues. The task team leaders continuously followed the work of the PIU which helped avoiding problems in advance.

Probably one of the main points in the Bank's staff performance was the accessible continuity of the individuals assigned to the project, their cooperative attitude and their familiarity with the local specifics of the country.

Project Sustainability

Having reached its objectives, the project created the right framework for further development of the Croatian forest sector.

On behalf of the Government it is well understood that additional actions need to be taken in order to justify the current investment and to over-come the transition period. This particularly concerns the restructuring

of Hrvatske Sume, which now under the ruling of the Commercial Companies Law needs to transform from the public enterprise into a competitive commercial company. This, in-itself, is an enormous challenge, which needs to be implemented in next five years. Although being a troublesome process, it has been already initiated by developing the restructuring plan for the strategic development of Hrvatske Sume.

It is to be mentioned that the Government fully understands the current situation and demonstrated its continued commitment to the sustainable management of forest resource.

Future Operations

Within the action plan to raise the awareness of the local populations in the coastal areas towards forest fires, the Government is seeking funds to implement the nation-wide awareness program estimated at US\$5 million. The Government would welcome the cooperation with the World Bank in implementation of the nation-wide awareness program through the Bank's LIL program.

Conclusions

Summarizing the above comments, the following could be said about the project:

- it is essential to have well designed Project (including estimates for each of the project components), as a technical guideline for all parties involved;
- the understanding of the World Bank's team of the local circumstances is one of the keys to the success of the project;
- election of appropriate individuals for heading specific project components, in the Borrower's scope, is equally important for the success of the project;
- competent project management function (PIU) with clear mandate and responsibility. Within the project, the PIU demonstrated to be a useful bridge between the Bank's team and the implementing agencies. It particularly helped the project implementation in line with the World Bank's policies and procedures;
- within its scope and objectives the project fully met its objectives, implemented with active Borrower's support and participation in line with the World Bank's policies and procedures, within the allocated budget and within the perceived schedule.

(b) Cofinanciers:

(c) Other partners (NGOs/private sector):

10. Additional Information

Annex 1. Key Performance Indicators/Log Frame Matrix

Outcome / Impact Indicators:

Indicator/Matrix	Projected in last PSR ¹	Actual/Latest Estimate
Improved landscape and environmental conditions of coastal forests.	Increase in landscape and environmental values in reforested areas, as measured by flora/fauna count, water quality, etc.	Long-term impacts of reforestation expected to improve landscape and environmental values
Rehabilitation of forests destroyed in the war increases the economic benefits from tourism.	Project activities to rehabilitate coastal forests yield a 15% rate of return.	Tourism benefits from project increase. Total landscape benefits resulting from project activities from 1997 – 2001 estimated at US\$23.9 million.
Improved fire management in coastal areas as a result of project activities.	Increased detection and suppression of forest fires using new equipment, and improved response times.	Improved suppression techniques and shortened response time meet international standards for the Mediterranean region. US\$2619 of damage avoided for every hectare of forest saved from fire through prevention and suppression activities.
Improved institutional capacity to manage Croatia's forest.	HS's profitability improved.	Restructuring plan prepared for HS to increase profitability and improve efficiency. Increased capacity at MAF to manage forest policy and safeguard Croatia's forests.

Output Indicators:

Indicator/Matrix	Projected in last PSR ¹	Actual/Latest Estimate
Rehabilitation of coastal forest affected by war activities and fire	5000 hectares of forest land rehabilitated (including thinning, cleaning, and reforestation)	1,219 hectares of forest reforested 1087 ha of natural regeneration thinned 1132 ha of burnt forest land cleaned: 1085 ha of abandoned private land restored
Nursery in Zadar constructed.	Nursery constructed with annual capacity of one million containerized seedlings	Nursery built and equipped with annual capacity of three million seedlings.
Reconstruction of the arboretum in Trsteno.	Water supply line replaced Firebreaks reopened Critical machinery replaced Greenhouse rehabilitated	Water hydrant system repaired. Fire-breaks re-opened. Fence and aqueduct reconstructed
Roadside cleaning and pine stand thinning for improved forest fire prevention.	560 hectares of roadside forest cleaned. 1200 hectares of roadside pine forest thinned	336 hectares of roadside forest cleaned 1024 hectares of pine stands thinned
Fire-fighting roads constructed to improve fire pre-suppression.	Build 500 km of fire-fighting roads	198 km of new fire-fighting roads built 431 km of existing fire-fighting roads rehabilitated
Improved detection of forest fires	Procure one seaplane, 30 fire-fighting vehicles, and 15 sets of smoke jumping equipment Telecommunication system established.	Procured one seaplane, 2 initial attack airplanes, 30 vehicles and 15 sets of smoke jumping equipment Following feasibility study, telecommunication system cancelled
Increase capacity to combat forest fires	Telecommunication system operational.	

<p>Improve regional Mol Operational Centers Test new methods to improve the efficiency and technical quality of reforestation efforts Provide technical assistance to strengthen institutions managing Croatia's forests</p>	<p>Operational Centers equipped with GIS Research activities carried out to study efficiency and quality of reforestation efforts. Establish new cost accounting system in HS. Assist HS to develop privatization plan and address related human resource issues.</p>	<p>GIS system cancelled Research program cancelled Cost accounting system established Funded study tours for senior decision makers Completed restructuring study for HS; plan approved by Government</p>
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¹ End of project

Annex 2. Project Costs and Financing

Project Cost by Component (in US\$ million equivalent)

Component	Appraisal Estimate US\$ million	Actual/Latest Estimate US\$ million	Percentage of Appraisal
Coastal Forest Reconstruction	11.90	7.23	60.72
Forest Fire Management	47.90	47.00	98.13
Support Services	7.50	1.97	26.27
Total Baseline Cost	67.30	56.20	
Total Project Costs	67.30	56.20	
Total Financing Required	67.30	56.20	

Project Costs by Procurement Arrangements (Appraisal Estimate) (US\$ million equivalent)

Expenditure Category	Procurement Method ¹			N.B.F.	Total Cost
	ICB	NCB	Other ²		
1. Works	1.80 (0.70)	6.50 (3.00)	10.90 (1.80)	0.00 (0.00)	19.20 (5.50)
2. Goods	7.90 (7.70)	0.00 (0.00)	27.00 (26.60)	0.00 (0.00)	34.90 (34.30)
3. Services	0.00 (0.00)	0.00 (0.00)	5.90 (2.20)	0.00 (0.00)	5.90 (2.20)
4. Recurrent Costs	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	7.30 (0.00)	7.30 (0.00)
5. Miscellaneous	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
6. Miscellaneous	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Total	9.70 (8.40)	6.50 (3.00)	43.80 (30.60)	7.30 (0.00)	67.30 (42.00)

Project Costs by Procurement Arrangements (Actual/Latest Estimate) (US\$ million equivalent)

Expenditure Category	Procurement Method ¹			N.B.F.	Total Cost
	ICB	NCB	Other ²		
1. Works	0.00 (0.00)	5.86 (2.60)	5.94 (1.76)	0.00 (0.00)	11.80 (4.36)
2. Goods	9.05 (7.09)	0.00 (0.00)	32.70 (26.24)	0.00 (0.00)	41.75 (33.33)
3. Services	0.00 (0.00)	0.00 (0.00)	1.96 (1.08)	0.69 (0.00)	2.65 (1.08)
4. Recurrent Costs	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
5. Miscellaneous					

	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
6. Miscellaneous	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Total	9.05 (7.09)	5.86 (2.60)	40.60 (29.08)	0.69 (0.00)	56.20 (38.77)

^{1/} Figures in parenthesis are the amounts to be financed by the Bank Loan. All costs include contingencies.

^{2/} Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.

Project Financing by Component (in US\$ million equivalent)

Component	Appraisal Estimate			Actual/Latest Estimate			Percentage of Appraisal		
	Bank	Govt.	CoF.	Bank	Govt.	CoF.	Bank	Govt.	CoF.
Coastal Forest Reconstruction	4.00	0.90	7.00	3.11	0.98	3.61	77.8	108.9	51.6
Forest Fire Management	34.40	7.70	5.80	35.03	7.96	4.01	101.8	103.4	69.1
Support Services	3.60	2.40	1.50	0.63	1.34	0.00	17.5	55.8	0.0

Annex 3. Economic Costs and Benefits

Project Preparation

The economic analysis that was carried out during project preparation attempted to quantify the range of benefits that would flow from the reconstruction and protection of Croatia's coastal forest. Estimates were made of the following benefits: (a) the value of visible landscapes, (b) the existence value of regional forests, (c) wood production, (d) hunting, and (e) erosion control.

Benefits for the projects two main components were calculated separately. For the reconstruction component, calculations were based on detailed, site-specific information obtained for each proposed reforestation area. The analysis estimated that the reconstruction component had a Net Present Value (NPV) of US\$2.8 million and an Economic Rate of Return (ERR) of 24% for pre-selected sites. Criteria were established for selection of additional reconstruction sites, to ensure that the ERR for these sites would be at least 15%. For the forest fire management component, benefits were based on two complex mathematical models that estimated the reduction in forest area burnt. The estimated ERR for the forest fire management component was 13%, with a NPV of about US\$7.7 million. The ERR for the whole project was estimated at 15%. This was considered to be a conservative rate, because many benefits (e.g., benefits to the local population, benefits from harvesting non-timber forest products and watershed protection benefits) could not be quantified due to lack of sufficient data.

Summary Economic Analysis

A new comprehensive economic analysis is not attempted here for three reasons. First, much of the data needed to calculate a comprehensive economic analysis of project impacts is either unavailable or inconsistent. Second, many of the assumptions on which the original analysis was based are no longer valid. For example, the analysis assumes that investments in forest fire equipment would save at least 1,270 ha of forest per year. Unfortunately in 2000, Croatia suffered one of its worst fire seasons in several decades, with over 80,000 ha of forest and agricultural land burnt. While it is certain that the equipment purchased under the project was used extensively and was instrumental in fighting these fires, it is difficult to estimate many hectares were saved as a result of the equipment. However it is assumed that the 1,270 ha of originally saved forests provide a low bound estimate of the forests that were saved in 2000.

Several studies were undertaken during project implementation that provide useful findings on the benefits of project activities. A study evaluating the economic effects of project implementation arising from ambient value of forests from 1997 - 2001 was executed by the Institute of Tourism. Additionally, a study was executed in 2003 by Coillte to identify incentive mechanisms for improved fire prevention on private land. This study calculated the damage to forests and agricultural land of the coastal fires that occurred in 2000.

Based on the data provided by these new studies, a summary economic analysis has been performed to estimate the benefits of the project. To calculate the project's Economic Net Present Value (ENPV) and Economic Rate of Return (ERR), the following benefits were estimated:

	Benefits	Assumptions
Landscape values		
For tourists,	Landscape values result from global and local protection	Benefits for global protection

	<p>activities. Global protection activities include the use of seaplanes, initial attack airplanes and other fire-fighting equipment to protect the whole coastal area from fires. Ten percent of the benefits from global protection activities are attributed to the project. Local protection activities include thinning pine stands, cleaning forests along roadways, and construction and rehabilitation of fire roads. Of the benefits from local protection activities, 5% are attributed to the project.</p> <p>Landscape values resulting from reforestation were also calculated during the project. However, because the methodology used for calculating the value of reforestation also included a program of protection for the reforested areas, only values for protection are used in this analysis to avoid the possibility of duplicating benefits.</p> <p>Three different methods have been used to estimate the landscape value of coastal forests in view:</p> <ul style="list-style-type: none"> • CV (Contingent Valuation) method, estimating USD0.97/tourist/day • Hedonic price method estimating USD1.10/tourist/day for protection • Interviews with hotel managers estimating USD1.83/tourist/day 	<p>activities begin in the second year of the project at 25% and increase to 100% by 2001.</p> <p>Benefits for local protection activities begin in 1997 and last for 10 years (assuming that after 10 years, they would need to be repeated to be effective).</p> <p>Actual number of tourist overnights in the project area used for 1997 – 2003. The number of tourist overnights in the project area after 2003 estimated to increase at 2% per year.</p>
For the local population	US\$22/person/year for protection	<p>Local population remains constant.</p> <p>Benefits for global and local protection activities accrue as they do for tourists (see above).</p>
Reduction of forest fires		
Avoided damage to forests	US\$2619/ha	Area for which the damage to forests is estimated to be avoided is 1,270 hectares in the conservative estimate. The damage costs gradually decrease five years after assumed rehabilitation in 2005 and 2006 (see below)
Avoided damage to agricultural land	US\$600/ha	Area for which the damage to agricultural land is estimated to be avoided is 1,169 hectares (92% of the area of forests).

Costs of reforestation / rehabilitation of burnt forests	US\$1201/ha	Forests estimated to be rehabilitated in two years, starting in 2005.
Carbon Sequestration	The University of Paderborn and GFA-Terra Systems calculated the benefits of improved fire management to keep carbon from being released in forest fires. The study found that for every hectare of coastal forest that is not burnt, 25.56 tons of CO2 emissions are avoided. The value of one ton CO2 is estimated to be US\$3.5.	1,270 ha of forest not burnt. 25.56 tons of CO2 emissions avoided per hectare, valued at US\$3.5/ton starting in 2008 (the first year funding would be available under the Prototype Carbon Fund).
Piket Nursery		
Market value of seedlings, minus operation and maintenance costs.	The production of forest seedlings at Piket nursery will provide additional benefits. However, the total market value of the seedlings could not be included in the results, implying a conservative calculation of the ERR.	
Private Land Rehabilitation		
Increased olive production	Project activities to rehabilitate abandoned private land increased olive production. However, the amount of olives produced could not be quantified for this analysis, so the resulting ERR is a lower bound estimate.	

Benefits are estimated to accrue for 30 years from the start of the project, and a discount rate of 5% has been applied since it is a forestry project which generally has lower accepted benchmarks. An extensive world review of plantation and managed forest showed a FIRR of 3.22% for Birch in Finland, 3.18% for Sitka spruce in Scotland, 2.99% for Scotch pine in Sweden and 3.88% for Douglas Fir in British Columbia and 2.82% in Scotland. The results for the different methods chosen are shown in the following table.

<i>Indicator</i>	<i>With CV method</i>	<i>With HP method</i>	<i>Based on interviews with hotel managers</i>
Economic Rate of Return (ERR)	15.75%	16.85%	21.48%
Economic Net Present Value (ENPV)	US\$50,308,513	US\$58,132,350	US\$84,246,803

According to the summary analysis, the project has an economic rate of return (ERR) ranging between 15.75% and 21.48%, and an economic net present value (ENPV) of US\$50,308,513 to US\$84,246,803 depending on the method chosen to estimate the landscape benefits. These are conservative estimates, because they do not include all potential benefits of the project, such as increased olive production, forest seedling production, or environmental benefits. It also is based on a low estimate of the number of hectares of forest saved from fire.

Annex 4. Bank Inputs

(a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating		
	Month/Year	Count	Specialty	Implementation Progress	Development Objective
Identification/Preparation					
1994					
1997					
Appraisal/Negotiation					
1996					
1997					
Supervision					
03/15/1997	2	TEAM LEADER, FORESTER (1); ECONOMIST (1)	S	S	
10/11/1997	1	TEAM LEADER, FORESTER (1)	S	S	
06/27/1998	2	TEAM LEADER, FORESTER (1); PROJECT ASSISTANT (1)	S	S	
12/11/1998	3	TTL, ECONOMIST (1); PROJECT ASSISTANT (1); FORESTRY SPECIALIST (1)	S	S	
06/26/1999	7	TTL, ECONOMIST (1); PROJECT ASSISTANT (1); FORESTRY SPECIALIST (2); FOR. INSTITUTIONS SPEC (1); FOREST FIRE SPECIALIST (1); PROCUREMENT SPECIALIST (1)	S	S	
05/12/2000	4	ECONOMIST; TEAM LEADER (1); OPERATIONS ANALYST (1); FOREST FIRE SPEC. (1); SENIOR FORESTER (1)	S	S	
11/03/2000	3	TEAM LEADER (1); LEAD FORESTRY SPEC. (1); FOR. INSTITUTIONS SPEC (1)	S	S	
06/09/2001	1	TASK MANAGER (1)	S	S	
10/12/2001	2	TASK MANAGER (1); FOREST INSTITUTIONS SP (1)	S	S	
08/14/2002	1	TEAM LEADER (1)	S	S	
02/06/2003	2	TEAM LEADER (1); FORESTRY SPECIALIST (1)	S	S	
ICR					

(b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US\$ ('000)
Identification/Preparation	54.8	372.9
Appraisal/Negotiation	24.6	74.6
Supervision	99.1	503.6
ICR	1.8	58.3
Total	180.3	1,009.4

Costs include FAO and Trust Funds.

Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

	<u>Rating</u>				
<input type="checkbox"/> <i>Macro policies</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Sector Policies</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Physical</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Financial</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Institutional Development</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Environmental</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA

Social

<input type="checkbox"/> <i>Poverty Reduction</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Gender</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Private sector development</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input checked="" type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Public sector management</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA

Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

6.1 Bank performance

Rating

- | | | | | |
|--------------------------------------|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Lending | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Supervision | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

6.2 Borrower performance

Rating

- | | | | | |
|--|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Preparation | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Government implementation performance | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Implementation agency performance | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

Annex 7. List of Supporting Documents

All supporting back-to-office reports, aide-mémoires and PSRs are on file. The following documents are also available.

1. *Evaluating Economic Effects of Project Implementation Arising from Ambient Value of Forests in the Period 1997-2001*. Institute of Tourism. Zagreb, Croatia. March, 2002.
2. *The Aesthetic and Recreational Value of Croatian Coastal Forests to the Local Population*. Institute of Tourism. Zagreb, Croatia. June, 2001.
3. *Estimation of the Ambient Value of Croatian Coastal Forests for Tourism in 2001*. Institute of Tourism. Zagreb, Croatia. January, 2002.
4. *Monitoring and Evaluating Economic Effects of Project Implementation on Tourism in 1999*. Institute of Tourism. Zagreb, Croatia. May, 2000.
5. *Forest Related Carbon Offset Investment Opportunities in Croatia with Special Reference to the World Bank's Prototype Carbon Fund*. University of Paderborn, GFA-Terra Systems. February, 2002.
6. *Study on Incentive Mechanisms for Improved Fire Prevention on Private Land*. Prepared for the Ministry of Agriculture and Forestry. Coillte. November, 2003.
7. *Forest Policy and Strategy*.
8. *National Forests Standards*.
9. *Hrvatske Sume Restructuring Study*. Coillte.
10. *Review of the Project from the Borrower's Perspective*. Ministry of Agriculture and Forestry. Zagreb, Croatia. November, 2003.
11. *Summary Economic Analysis: Net Present Value and Economic Rate of Return Calculations*. World Bank. November, 2003.

