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Testimony before the Senate Committee on Environment and Public Works: Resource Protection Subcommittee; by Monte Canfield, Jr., Director, Energy and Minerals Div.

Issue Area: Water and Water Related Programs (2500).
Contact: Energy and Minerals Div.
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Organization Concerned: Department of the Interior; Tennessee Valley Authority.
Congressional Relevance: Senate Committee on Environment and Public Works: Resource Protection Subcommittee.
Authority: Endangered Species Act of 1973.

A Federal Court of Appeals halted the completion of the Tellico dam because it would destroy the critical habitat of the snail darter--a 3-inch fish protected by the Endangered Species Act. As of January 1977, the Tennessee Valley Authority (TVA) had obligated about $103 million on the project and estimated that about $13 to $19 million was required for completion. The actual dam portion of the project has been completed. A workable compromise between completing the Tellico project and the continued existence of the snail darter in the Little Tennessee River is not possible. TVA has twice petitioned the Secretary of the Interior to delist the Little Tennessee River as the snail darter's critical habitat. Because the dam in its present form threatens the snail darter's survival, any evaluation of alternative plans must include the costs of removing at least part of the dam. TVA estimates that removing the concrete and earthen dams and restoring the area could cost as much as $16 million. The Chairman of the Board of TVA should gather and provide to the Congress detailed remaining cost and benefit information on the project and its alternatives. Until this information is received, Congress should prohibit by law the expenditure of existing appropriations and not authorize additional appropriations for work on the project that would further endanger the snail darter's survival or not be necessary if the project is not completed or is modified. (SC)

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UNITED STATES GENERAL ACCOUNTING OFFICE
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STATEMENT OF
MONTE CANFIELD, JR.
DIRECTOR, ENERGY AND MINERALS DIVISION
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

Mr. Chairman:

We appreciate your invitation to discuss the tentative conclusions of our study on the costs, alternatives and benefits for the Tellico Water Resources Project. As you know, we are in the process of incorporating agency comments into our report, which we hope to issue in a matter of weeks. I would appreciate it if the full report could be made part of the record at that time.

In January 1977 a Federal Court of Appeals halted completion of the Tellico dam because it would destroy the critical habitat of the snail darter--a three-inch fish protected by the Endangered Species Act. Shortly thereafter, the Chairman of the House Committee on Merchant Marine and Fisheries, Senator James Sasser and Representative John Duncan of Tennessee requested GAO to assist in assessing this issue by (1) identifying what portion of project expenditures would provide benefits if the project were not completed, (2) identifying alternative methods to operating the completed project that would not adversely impact the

snail darter, and (3) examining the benefits that would occur if the project is completed. We were asked to include in our analysis the "real" costs and benefits, including "unquantifiable" items.

I will briefly discuss each of these areas and our tentative recommendations.

BENEFITS WITHOUT COMPLETION

As of January 1977, TVA had obligated about $103 million (Attachment I) on the project and estimated that about $13 to $19 million was required for completion. The funds for completion are primarily for roads, recreation centers and reservoir clearing. The actual dam portion of the project has been completed. Closing the sluice gates and impounding the reservoir, however, depends on the outcome of TVA's appeal of the Court's decision to the U.S. Supreme Court and action by the Congress on exemption legislation.

There are varying estimates of the amount of funds spent to date which might provide benefits if the project is not completed (Attachment II). The Tennessee Endangered Species Committee, for example, has asserted that $80 million of the $103 million expended could still provide benefits. TVA estimates that only $25.65 million is recoverable. These estimates do not address exactly the same point, however, since TVA's valuation is limited to an estimate of the current value of the land plus the estimated cost of roads and bridges which were needed even without the project.

Our analysis looks at what portions of the project might provide at least some benefits even if the project were not completed. We believe that $56 million, or about half of the project costs--primarily for land, roads, and bridges--could provide some benefits under this criterion, but the amount of benefits to be derived will depend on how the land is used. Because bridges were built higher and longer than normal to accommodate a reservoir and many of the roads were built to replace existing roads scheduled for inundation, the benefits probably will not be proportionate with the cost.

Another type of benefit associated with the Tellico project is the economic stimulation from almost $25 million in salaries and wages paid to the project workers. Some argue that a portion of these payments should be included in the calculation. However, since the direct benefits created by these wages have already been realized, and any secondary stimulation that might accrue will also be realized without regard to whether the project is completed, we have not included these payments as "benefits."

ALTERNATIVES

Project proponents and opponents agree that a workable compromise between completing the Tellico project and the continued existence of the snail darter in the Little Tennessee River is not possible. A low or an intermediate dam would threaten the survival of the snail darter and at

the same time, reduce projected benefits for the reservoir. Abandoning the project without removing at least a portion of the dam is also not feasible because life cycle studies of the snail darter indicate that the dam in its present form also threatens the darters' survival in the river.

TVA has transplanted about 700 darters to the Hiwassee River. Although still questioned by some biologists, TVA claims its transplant is successful based on survival, maturity and reproduction. For that reason, and because the existing Tellico construction is threatening the darter, TVA has twice petitioned the Secretary of the Interior to delist the Little Tennessee River as its critical habitat. The Secretary of the Interior rejected the first petition and suggested certain steps to preserve the darter population. TVA has not received a response to the second petition.

In addition to studying modifications to the dam and transplanting the snail darter, TVA has considered alternate uses for the valley if the project is not completed (Attachment III). Other groups such as the Tennessee Endangered Species Committee and students and faculty at the University of Tennessee have also developed alternate use plans (Attachment IV). Each of the other groups' plans proposes to preserve the existing river and to develop the agricultural lands, cold-water recreational opportunities and numerous archeological and historical sites. Although some of the plans are quite detailed, none are supported

by current benefit-cost estimates which evaluate their feasibility.

Because the dam in its present form threatens the snail darter's survival, any evaluation of alternative plans must include the costs of removing at least a portion of the dam, which is partly concrete and partly earthen. We believe that removal costs could vary considerably depending on the extent of restoration deemed necessary. Removing a portion of the earthen dam, as suggested by the Tennessee Endangered Species Committee, to allow the river to flow more freely could likely be accomplished without great expense. However, TVA maintains that removing only a portion of the dam will result in periodic flooding of some of the prime agricultural land in the valley. TVA estimates that removing the concrete and earthen dams and restoring the area could cost as much as $16 million (Attachment V).

BENEFITS WITH COMPLETION

The Tellico reservoir would principally provide recreation, shoreline development and flood control benefits. Other benefits, such as navigation and electric power generation are also expected. The most recent analysis of these benefits was prepared primarily in 1968 by TVA. TVA estimated direct annual benefits of about $3.8 million annually from the project and a benefit-cost ratio of 1.7 to 1 (Attachment VI). Although project costs

have increased about 115 percent, TVA has not updated its cost-benefit analysis.

We examined the assumptions and logic used by TVA to estimate benefits for Tellico. Generally, we conclude that TVA's projections are not representative of the actual benefits that could be derived. In some instances we found that the methodologies used did not conform to Federal guidelines and, in other instances, statistical projections were not valid.

For example, TVA's projection of recreation benefits, which accounts for about 38 percent of all benefits, had several questionable assumptions and did not adequately consider factors such as water quality, type and amount of shoreline development, the amount of land devoted to public access, and proximity to population centers.

TVA based its estimate on an average annual visitation rate per shoreline mile at all existing reservoirs and adjacent parks in the TVA system. Our analysis showed that this average does not reflect the extreme variations, or the reasons for variations, among the individual reservoirs used in the analysis. The visits per shoreline mile used to compute the average ranged from 258 at one reservoir to 19,351 at another.

Also, TVA did not make allowances for recreation visits at Tellico that would result in a reduction in

visits at nearby existing reservoirs. TVA officials agreed that different factors would be used if the analysis were to be made again.

Because of problems with this and other benefits, we were unable to determine whether the benefits claimed for the Tellico project were over- or under-stated. Clearly, we believe that more current remaining benefit and cost information is needed on the project and its alternatives before an informed decision can be made.

RECOMMENDATIONS

As I stated at the beginning, we plan to issue a report to the Congress in the near future on our assessment of the Tellico project including a detailed analysis on each of the major points which I have discussed here today, and comments of TVA and other affected agencies. We expect to make several recommendations to the Congress and to the Chairman of the Board of TVA concerning the need for more current information on the project. Since the report is not yet final, the recommendations I am about to make must be regarded as tentative.

We plan to recommend that the Chairman of the Board of TVA gather and provide to the Congress, through the Office of Management and Budget, detailed remaining cost and remaining benefit information on the Tellico project and its alternatives. In addition, we plan to recommend that the

information include the formal comments of the Office of Management and Budget, the Council on Environmental Quality and the Department of the Interior, and be submitted to the Congress not later than 6 months from the date of our report.

TVA is ready to impound the reservoir and spend an estimated $13 to $19 million to complete the project if the U.S. Supreme Court rules in favor of its appeal and lifts the current injunction. For this reason and because current detailed benefit information is not available, we expect to recommend that, until the remaining cost and remaining benefit information on the Tellico project is received from the Chairman of the Board of TVA, including the comments of agencies referred to above, the Congress prohibit by law the expenditure of existing appropriations, and not authorize further appropriations for work on the project that would (1) further endanger the snail darter's survival, such as closing the sluice gates, or (2) not be necessary if the project is not completed or is modified.

Finally, we also expect to recommend that no action be taken on legislation which would exempt the Tellico project from the Endangered Species Act of 1973 until the Congress has had time to receive and assess the updated information outlined above.

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In closing, I should emphasize that these recommendations should not be construed that GAO is either for or against the completion of the Tellico project, but rather that we believe additional information is necessary to allow the Congress to act on the questions before it.

ATTACHMENT I

Tellico Dam Project Costs
As Of February 1977

Type of expense		Cost (in millions)	
Land acquisition			
Purchase price			
Land	$16.9		
Improvements	5.2		
		$22.1	
Other related costs			
Acquisition expense	$ 1.9		
Surveying and mapping	0.8		
Legal	0.2		
Relocation	0.5		
		3.4	
Total land acquisition			$ 25.5
Construction			
Dams			
Concrete dam spillway	$ 5.0		
Main earth dam	16.2		
Auxiliary dams	1.3		
		$22.5	
Reservoir roads, bridges and other adjustments			
Highways and bridges	$25.6		
Railroad and bridge	4.1		
Reservoir clearing and rim treatment	4.0		
Utility relocations and miscellaneous	2.0		
		35.7	
Other construction features			
Access roads	$ 2.1		
Interreservoir canal	1.8		
Public use facilities	0.1		
General yard improvements and miscellaneous	0.8		
		4.8	
Total construction			63.0

ATTACHMENT I

Tellico Dam Project Costs
As of February 1977
(Continued)

Type of expense	Cost (in millions)	
Other		
General engineering and design	$ 1.6	
Planning, surveying, model tests	3.2	
Environmental studies, construction supervision and support, and nonallocated overheads	8.2	
Contracts not yet paid in full	1.7	
Total other		$ 14.7
Total costs		$103.2

Estimates Of The Amount Of Tellico Dam Project Costs That Are Recoverable Or Could Provide Benefit Without Project Completion

Category	Original cost	TVA estimate of recoverable cost	Estimate of amounts that could provide benefit	
			GAO	TESC
Land	$ 25.5	$21.0	$25.5	$25.5
Construction				
Dams	22.5	0.0	0.0	0.0
Roads, bridges, and other reservoir facilities	35.7	3.3	26.5	34.0
Other facilities	4.8	0.0	0.0	0.0
Other costs	14.7	1.35	4.3	5.5
Total	$103.2	$25.65	$56.3	$65.0 1/

1/ In addition to the $65 million, the Tennessee Endangered Species Committee (TESC) also contends that $15 million in salaries will provide benefits.

Alternatives Evaluated By TVA

Project design	Characteristics	Estimated annual costs	Estimated annual benefits	Percent benefit to Tellico
Lower dam	3200 acre pool extending 25 miles	$1,426,000	$3,560,000	60
Lower dam and scenic stream	3200 acre pool; 8 mile scenic stream	1,444,000	3,602,000	61
Intermediate dam	8000 acre pool extending 29 miles	1,745,000	3,500,000	59
Intermediate dam and scenic stream	8000 acre pool; 4 mile scenic stream	1,761,000	3,509,000	59
Scenic stream	33 mile scenic river corridor	82,000 1/	129,000	2
No further action	Project abandonment	-0- 1/	101,000	1.7
Tellico Project	Full pool level with Ft. Loudon reservoir	1,507,000	5,903,000	100

1/ Excludes cost of removing a portion of the Tellico dam.

ATTACHMENT III

ATTACHMENT IV

Land-Use Alternatives Proposed By Other Groups

Proposal number	Major elements	Estimated Costs 1/
(1)	Declare the LIttle Tennessee River a Class II pastoral river. Acquire easements: 2891 acres scenic and 764 acres public use. Acquire islands: 730 acres. Provide 3 access sites.	$ 20,000
(2)	All aspects of plan (1) plus 2 added access sites. Develop 14 archeological and historic sites. Construct a visitor center at Halfway Town.	1,998,500
(3)	All aspects of plans (1) and (2) plus 11,000 acre state park, stable facilities at several historic sites, 15 cabins, 50 trailer campground with facilities and a group lodge for 60 persons.	5,450,800
(4)	Return all land to private ownership.	Negligible
(5)	All aspects of plan (2) and return adjacent lands to private ownership and agricultural development. Provide 5 access sites. Develop 14 archeological-historical sites.	1,998,500
(6)	Designation of Class II river, develop archeological and historical sites, establish a state park and return agricultural lands to private or semi-private control.	5,450,800
(7)	All aspects of plan (1) plus return all land to private ownership. Provide scenic and public use easements and 3 access sites.	20,000
(8)	Return all land to private or semi-private ownership with minimal control by a managing authority. Use area as a model agricultural management region in combination with a recreational facility. Construct a loop system to maximize tourism.	No estimate

1/ GAO did not verify the cost estimates or determine associated project benefits. Estimates exclude the cost of removing a portion of the Tellico dam.

ATTACHMENT V

ATTACHMENT V

TVA's Estimate Of Removing Dams And Restoring Project Area

	Estimated cost
Remove concrete dam and spillway	$ 3,800,000
Remove earth fill dam	5,300,000
Remove auxiliary dams	700,000
Fill interreservoir canal	3,300,000
Reforest river banks and reservoir	500,000
Obliterate incompleted roads and site facilities	1,100,000
Restore fill at Old Fort Loudoun, Chota, and Blockhouse	700,000
Remove 411 and railroad bridges	200,000
Remove miscellaneous facilities	400,000
Total Estimated Cost	$16,000,000

ATTACHMENT VI

TVA'S Estimate Of The Direct Annual Benefits Of The Tellico Dam Project

Recreation	$1,440,000
Shoreline development	710,000
Flood control	505,000
Navigation	400,000
Power	400,000
Fish and wildlife	220,000
Water supply	70,000
Redevelopment	15,000
	$3,760,000