Chapter 10: Comprehensive Everglades Restoration Plan

Agnes R. McLean[1]

SUMMARY AND HIGHLIGHTS

The Central and Southern Florida Project Comprehensive Review Study *Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* was completed in April 1999 and submitted to Congress on July 1, 1999. The feasibility report recommended a comprehensive plan for the restoration and preservation of the South Florida ecosystem, while providing for the other water-related needs of the region. Since that time, there has been a great deal of activity on many fronts related to the Comprehensive Plan. The U.S. Congress and Florida Legislature have taken a keen interest in the Comprehensive Plan; numerous hearings and briefings have occurred during the past year. New legislation has passed, and still more is being drafted. The South Florida Water Management District (District) and the U.S. Army Corps of Engineers (Corps) have continued planning for implementation, continued related feasibility studies in the Water Preserve Areas and Indian River Lagoon, and initiated development of the scope for the Southwest Florida Feasibility Study.

The Florida Legislature passed the Restudy Bill (Senate Bill 1672) in April 1999, which was later codified in Sections 373.1501 and 373.026 of the Florida Statutes. The Restudy Bill authorizes the District to: (1) be local sponsor on projects included in the Comprehensive Everglades Restoration Plan; (2) continue monitoring, research, pre-construction engineering and design for projects included in the Comprehensive Plan; and (3) construct pilot projects that will assist in determining the feasibility of technologies included in the Comprehensive Plan[2]. The Restudy Bill also establishes a process and guidelines for the District to follow for projects that are not yet authorized.

The U.S. Congress passed the Water Resources Development Act of 1999 in October 1999. This act authorized construction of two pilot projects - the Lake Okeechobee Aquifer Storage and Recovery Pilot Project and the Hillsboro Site 1 Aquifer Storage and

[1] The author would like to acknowledge Paul Warner (District) and Russ Reed (Corps) for their substantial contributions to this chapter. Eric Bush (FDEP) also provided contributions to the chapter.

[2] Although the technologies recommended in the Comprehensive Plan are not untested, their application in South Florida must be evaluated to determine their viability.

Recovery Pilot Project. The act also authorized the Secretary of the Army to allow the non-federal sponsor to be credited for work completed at the request of the Secretary in furtherance of the design of projects included in the Comprehensive Plan.

The CERP was part of a broad Everglades restoration bill, which the U.S. Senate approved in September 2000. The House passed this bill in November 2000.

The Corps executed Project Cooperation Agreements for nine critical restoration projects with a total cost of $150 million (50 percent federal) authorized in the Water Resources Development Act of 1996. The District acts as local sponsor for seven of the projects. Several of these projects were included as part of the Comprehensive Plan, but the execution of these agreements will allow project implementation to be expedited to provide near-term benefits for the ecosystem.

The Florida Legislature passed House Bill 221 leading to the Everglades Restoration Investment Act in May 2000 (codified at section 373.470, F.S.). This act commits Florida to contributing over $2 billion, fulfilling the state's share of the first 10 years' cost for implementing the Comprehensive Plan. The act requires the District and the Corps to complete a Project Implementation Report addressing a project's economic and environmental benefits, engineering feasibility and other factors outlined in Section 373.1501, F.S., before executing a Project Cooperation Agreement for construction of a project.

The Florida Legislature passed the Lake Okeechobee Protection Program (House Bill 0991), amending Section 373.4595 of the Florida Statutes in May 2000 and appropriated $38.5 million to expedite the restoration of Lake Okeechobee. Approximately $8 million of this appropriation was earmarked to buy lands needed for implementation of projects included in the Comprehensive Plan.

The District and the Corps executed a programmatic Design Agreement on May 12, 2000 that covers approximately $712 million worth of design work on the Comprehensive Plan. The Design Agreement covers all aspects of design for the pilot projects and those components in the Comprehensive Plan for which the District will be local sponsor, as well as a set of program-level activities necessary to manage, coordinate and monitor the design program.

The District and the Corps, with input from the Florida Department of Environmental Protection, completed development of a Master Program Management Plan in August 2000. The Master Plan provides the framework, processes and protocols for managing, coordinating and monitoring the design activities under the Comprehensive Plan.

INTRODUCTION

The Central and Southern Florida Project *Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* was transmitted to the United States Congress on July 1, 1999. The report recommends a comprehensive plan for the restoration, protection and preservation of the South Florida ecosystem, while providing for the other water-related needs of the region, including water supply and flood protection. The Comprehensive Plan contains over 60 components that involve either structural or operational changes to the existing Central and Southern Florida (C&SF) Project. More detailed background on the feasibility report (formerly called the "Restudy") and its development can be found in the 1999 Everglades Interim Report and the 2000 Everglades Consolidated Report.

The feasibility phase of this project concluded with the transmittal of the report to Congress. As the District and the Corps enter into implementation of the recommended comprehensive plan, emphasis has shifted from the study to the plan itself. With this shift in emphasis, a new nomenclature has been coined such that the Comprehensive Plan is now referred to as the Comprehensive Everglades Restoration Plan (CERP).

The next step in water resources development in the Corps process is the pre-construction engineering and design phase. The design phase allows for advanced plan formulation, further engineering of project components, and all other analyses necessary to lead to project construction. The District and the Corps entered into the design phase in April 1999, and signed a formal Design Agreement in May 2000. Through this agreement, the District has agreed to be the local (non-federal) sponsor for approximately 80 percent of the components contained within the Comprehensive Plan. The Corps will implement the remaining components with other appropriate local sponsors.

DESIGN AGREEMENT

The Design Agreement signed by the District and the Corps in May 2000 is a contractual agreement between the two agencies that covers the pre-construction engineering and design phase of project implementation. The term "design" refers to all activities directly related to planning, engineering and design of projects within the Comprehensive Plan.

In November 1999, a negotiating team was formed to work out the details of the design agreement, between the District and the Corps. Due to the complexity of CERP, and the unique abilities of the District as local sponsor, a "model" or boilerplate design agreement was not deemed appropriate. The Design Agreement, as negotiated, is truly an historic document, recognizing a full partnership between the District and the Corps.

This document is a "master" agreement and covers the design aspects of all the projects for which the District will be local sponsor, as well as activities related to Restoration Coordination and Verification (including but not limited to: adaptive assessment and monitoring, peer review, development and refinement of system level analytical tools, and continuing review and refinement of the CERP). It spans a period of 38 years, at an estimated cost of $712 million, to be cost-shared equally between the

District and the Corps. The agreement introduces the concept of the Comprehensive Everglades Restoration Plan as a "program," and not simply a series of separate projects. The development of a "Master Program Management Plan" is called for, to serve as a guide for managing, scheduling and monitoring the progress of CERP implementation. Further, the District and the Corps will be equal partners in the preparation and approval of design products and cost estimating. The period of design for each project as defined includes all engineering design through the period of project construction. The agreement establishes a design coordination team, which will provide program oversight and maintain communications among all areas of the design effort.

An extremely important provision in the agreement is the ability of the District to perform work related to design, at the request of the Secretary of the Army, and receive in-kind credit for this work. In June 2000, the authority to request the District to perform in-kind work was delegated to the Corps' Jacksonville District Commander. The District may perform in-kind services up to its total financial responsibility for design. The Design Agreement acknowledges the District's responsibilities under Section 373.1501, F.S. Additionally, the agreement acknowledges that any District-held contracts will be managed in accordance with state law, regulations and Executive Orders.

In addition to the provisions in the design agreement, the Deputy Assistant Secretary of the Army for Civil Works has agreed to two other important concepts. One defines the period of construction to include any operational testing and monitoring after construction to verify that a project performs as designed and operates in compliance with necessary permits. The second establishes a process for calculating the yearly cash contributions for construction so that the District will receive credit for real estate expenditures that have previously occurred. This will provide a means for balancing the 50/50 cost-share throughout construction of a project; the District will not be required to contribute funds toward construction until the Corps has "caught up" with the District's real estate expenditures.

In addition to the provisions mentioned above, the Design Agreement establishes several formal points of approval for the District and the Corps in the design process. These approvals are illustrated in **Figure 10-1**.

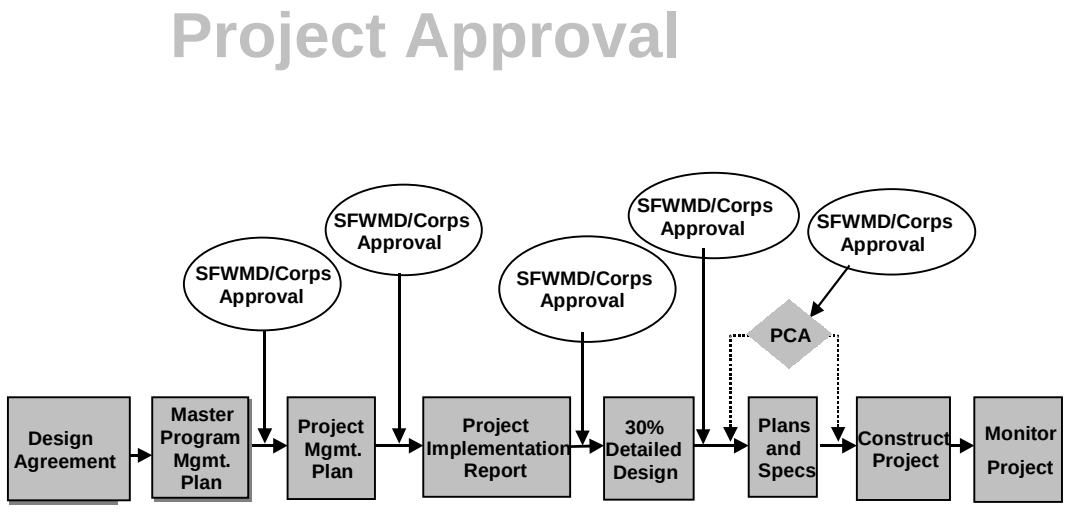

Figure 10-1. Project Approval Process for the Comprehensive Everglades Restoration Plan

MASTER PROGRAM MANAGEMENT PLAN

The purpose of the Master Program Management Plan (Master Plan) is to describe the framework and process to be used by the District and the Corps in the design phase of the CERP. The Master Plan was the first work product called for in the Design Agreement, and was completed 90 days after the signing of the agreement. The document provides the agencies with a common understanding of the business practices to be applied during the implementation of the CERP. The Master Plan also provides a framework for refining the CERP as new information becomes available.

The CERP can be divided into program-level activities and project- level activities. Program-level activities are defined as any work efforts that span multiple projects and system-wide issues. At the project level, the Master Plan describes the process for developing project management plans for each project, pilot project design reports, project implementation reports, design documentation reports, plans and specifications, and project cooperation agreements. The Master Plan also addresses real estate acquisition procedures, preparation and processing of application for permits, and construction guidelines including preparation of interim and preliminary water control plans.

The CERP was developed to accomplish a set of system-wide goals and objectives. Due to the size and complexity of the program, it was divided into smaller implementable packages that are referred to as projects. As these projects are further planned and designed, analyses and evaluations (that measure each package's overall contribution to system-wide goals) will be conducted to determine and ensure that the system-wide goals and benefits of the Comprehensive Plan are being realized. This process will allow the CERP to be refined and revised, as necessary, as part of an adaptive assessment process.

The District's Governing Board and the Corps approved the Master Program Management Plan in August 2000. Approval of the Master Plan has triggered the development of individual project management plans, as well as program-level management plans. Project management plans will be prepared for each CERP project, and will detail all analyses needed to bring the projects to construction.

Program Level Activities

There are a number of program-level activities that will be conducted under the Design Agreement over the entire design period. Program-level activities are cross-cutting efforts that are not linked to a specific project, but involve or affect more than one project or the entire restoration program. These activities include such things as Restoration Coordination and Verification (RECOVER), public outreach, socioeconomic and environmental justice activities and program controls. Management plans will be developed for these activities to coordinate and manage the program level tasks. The management plans will outline what tasks are to be accomplished, when they will be accomplished, and which agency will be responsible for them.

Restoration Coordination and Verification

The role of Restoration Coordination and Verification (RECOVER) is to organize and apply scientific and technical information in ways that are most effective in supporting the objectives of the CERP. To establish and maintain an effective link between science and the CERP, a process known as the "Applied Science Strategy" was created. RECOVER is responsible for the coordination and application of the components of the Applied Science Strategy during the implementation of the CERP. The major components of the science strategy are conceptual ecological models, performance measures and restoration targets, a system-wide monitoring and research program that includes both ecological and physical parameters, and an adaptive assessment protocol.

The overall objectives of RECOVER are to: (1) evaluate and assess CERP performance; (2) recommend refinements and improvements in the design and operational criteria of the plan during the implementation period; (3) review the affects that other restoration projects may have on the performance of the Plan; and (4) ensure that a system-wide perspective is maintained throughout the restoration process. All RECOVER activities in support of these objectives will be documented in written reports.

To meet these objectives, RECOVER has been organized into five interagency, interdisciplinary task teams and an overall coordinating or leadership group. These teams were organized between January and July 2000. **Figure 10-2** depicts the RECOVER teams and their major responsibilities. Lead responsibility for the overall management of the RECOVER process will be performed by two co-chairs, one each from the District and the Corps. A management plan for RECOVER activities will be developed by the second quarter of FY2001. Figure A10-1 in Appendix 10 depicts the relationship between the RECOVER teams.

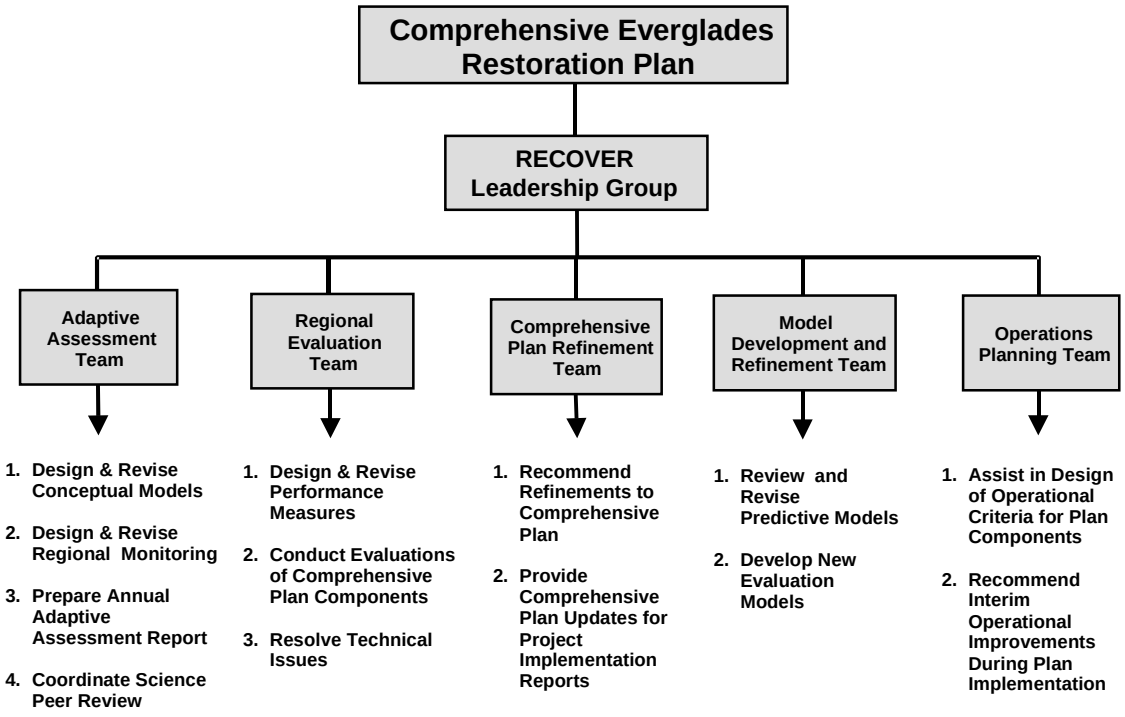

Figure 10-2. Comprehensive Everglades Restoration Plan RECOVER teams and their major responsibilities.

Public Outreach

Due to the high level of public, political and media interest in the restoration of the South Florida ecosystem, public outreach is a critical component of the design effort. Public outreach and its two primary components, involvement and information, will continue to play a key role in CERP implementation. The involvement of the public in further planning and design activities remains a high priority of the implementation program.

While each project will have its own public involvement and outreach requirements and activities, there is a continuing need for program-level outreach efforts. The primary objectives of the program-level public outreach activities are to: (1) keep the public informed of the status of the overall program and the key issues associated with its implementation; and (2) provide effective mechanisms for public participation in further plan development.

A management plan is being developed by the District and the Corps to guide the overall public outreach program. The plan will describe the tasks to be completed, how the tasks will be completed and agency responsibilities for completing the tasks. The plan also will include a schedule with milestones and cost estimates for various tasks.

Development of this plan began in FY2000 and will be completed in the first quarter of FY2001. Implementation of the public outreach plan will begin in the second quarter of FY2001.

Socioeconomic and Environmental Justice Activities

Implementation of CERP will affect the entire region economically and socially. Although the feasibility report found that the Plan would have an overall positive economic effect on the region, there is the potential for some local areas to be negatively impacted. In particular, the conversion of land from agriculture to water storage in the rural areas surrounding Lake Okeechobee could eliminate the jobs of individuals employed in the affected area and have adverse effects on local communities and economies. Environmental justice involves identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of activities on minority and low-income populations. In addition, opportunities for economically and socially disadvantaged individuals and communities in urban areas of South Florida to participate in project implementation will be a goal of the implementation program.

A management plan for the program-level socioeconomic and environmental justice activities will be developed by the second quarter of FY2001. The plan will provide a framework to link all the elements of socioeconomic and environmental justice studies into a coordinated set of activities that are fully integrated with the planning and implementation of CERP projects. The plan will describe the activities and tasks to be completed and agency responsibilities for completing the work. In addition, the plan will provide a schedule and milestones as well as cost estimates for completing the work. Implementation of the management plan will begin in the second quarter of FY2001. Activities to be completed include: studies of agriculture, demographics and communities; analyses to determine the economic affects of natural system restoration; and planning, environmental justice and outreach efforts to engage small businesses, minority and women-owned businesses and disadvantaged businesses.

Program Controls

A set of program controls will be established to provide program managers and project managers with processes and tools to manage and control costs, schedules and resources resulting in high quality products delivered on time and within budget. Effective information management is a critical component of program controls for a program the scope and magnitude of the Plan.

The District and the Corps will jointly develop detailed management plans for the program control activities. These management plans will describe the tasks necessary to implement the processes and tools as well as schedules, milestones, agency responsibilities and cost estimates for completing the tasks. District and Corps project managers will be appointed to ensure that each team responsible for developing and implementing the management plans understands the interrelationships between the program control activities and addresses those interrelationships in their management plans. Management plans will be developed for program control activities in the first quarter of FY2001.

Project-Level Activities

Project-level activities include planning, engineering, design and project management activities that are specific to an individual project. Project-level activities will be described, scheduled and cost-estimated in an individual project management plan for each project. For each project, there will be project managers assigned from the District and the Corps; activities at the project level will be directed by the project managers. Project management plans and other work products will be developed by interagency, interdisciplinary project delivery teams, and will provide opportunities for public and stakeholder involvement.

Project Management Plans

A project management plan will be prepared for each project prior to initiating design work. Project management plans will define the scope for the project and will provide a detailed work breakdown structure for designing the project. The plans also will describe District and Corps responsibilities for various activities and tasks during the design phase, and will provide a detailed schedule and milestones for the project. Depending on the scope and complexity of the projects, project management plans will require two to six months to complete. Table A10-1 in Appendix 10 shows those projects for which project management plans are expected to be initiated within the next two years, along with estimated start dates.

IMPLEMENTING THE COMPREHENSIVE EVERGLADES RESTORATION PLAN

The CERP includes over 60 components and six pilot projects. The Master Program Management Plan (above) provides the general scope and guidance for the pilot projects and components for which the District has agreed to be local sponsor. The remaining components will be implemented through other programs, such as the Critical Projects authority, or will be implemented with an appropriate local sponsor under separate design agreements and project management plans.

During the latter portion of the feasibility phase, a conceptual-level program implementation schedule was developed and included in Section 10 and Appendix M of the April 1999 Final Feasibility Report. This program implementation schedule represented the best professional judgment and available knowledge regarding technologies to be used and availability of lands at the time of completing the CERP. The sequencing and scheduling of components were based on several key assumptions. For example, it was assumed that future congressional authorizations would occur on a schedule that would not impact project sequencing and scheduling. Included in this assumption was the expectation that the Water Resources Development Act of 2000 would include the initial authorization package recommended in the feasibility report. The report recommended that the authorization package authorize the Corps to construct the remaining four pilot projects (two pilot projects were authorized in the Water Resources Development Act of 1999) and 10 initial projects. The report also recommended that the Water Resources Development Act of 2000 authorize the Corps to implement 27 projects valued at less than $70 million under a streamlined programmatic authority similar to the Critical Restoration Projects authority provided in the Water

Resources Development Act of 1996. If the Water Resources Development Act of 2000 authorization varies from this assumption or if it includes additional requirements and processes that were not anticipated in the feasibility report, it could significantly impact the proposed program implementation schedule.

The District and the Corps will begin design of the CERP projects generally in accordance with the original implementation schedule and cost estimates. However, it is recognized, as it was from the onset, that the schedule and cost estimates will have to be updated regularly, based on new developments, knowledge gained from field studies and pilot projects, land acquisition opportunities, actual appropriation levels, staffing availability, and new state and federal legislation. The District and the Corps will be updating the implementation schedule and annual cost estimates during the next several months. Refinements to the schedule and annual cost allocations will consider factors such as: (1) recent developments that may accelerate or delay start dates for some projects – such as the time required to develop, negotiate and approve the Design Agreement and the Master Plan; (2) the coordination and approval requirements mandated by the 1999 Florida Restudy Bill (Section 373.1501 F.S.); (3) funding by state and federal appropriations; (4) authorizations and requirements included in the Water Resources Development Act of 2000; (5) a thorough review of the logic and interdependencies among the projects and components; (6) consideration of opportunities to accelerate projects that will have significant near-term benefits to the Everglades; and (7) adjustments resulting from a more thorough project planning analysis made during development of project management plans for each project.

Completion of the updated program implementation schedule is targeted for January 2001. This timeframe will allow the new schedule to consider the results of the Water Resources Development Act of 2000, the President's FY2002 budget, the District's FY2001 budget appropriations for implementation of the CERP, and project management plans completed before January. There will be opportunities provided for agency, stakeholder and public input during this period.

The projects to be implemented by the District and the Corps have been regrouped in a more geographically consistent manner from the feasibility report and are described in Appendix 10 and listed in Table A10-2. The component designation that was used throughout the planning and modeling of the CERP is included in parentheses, e.g., (A). Other Project Elements are identified as (OPE).

There are several operational components that will be implemented as integral features of the CERP projects. While these components do not require additional congressional action to implement, they will be included in the studies necessary to further the projects to completion. These components are listed in Table A10-3 of Appendix 10.

ONGOING ACTIVITIES

WATER PRESERVE AREAS FEASIBILITY STUDY

The Water Preserve Areas Feasibility Study began with the effort on the CERP Restudy and is being continued as a project under CERP. The Water Preserve Areas are intended to provide additional regional storage to assist in meeting the future needs of the environment, agricultural, and urban users. Nine of the components in the study will receive feasibility-level evaluation; the remaining six components are dependent on the results of pilot projects before finalizing detailed design for the projects. To date, the study team has evaluated three alternative plans for the Water Preserve Areas. A recommended plan was pre-selected in August 2000 and is undergoing further evaluation. A draft feasibility report will be released in April 2001, with the final feasibility report being released in September 2001. Construction authorization at the federal level for four of the Water Preserve Areas components (Site 1 Impoundment, Water Conservation Areas 3A/3B Levee Seepage Management, C-11 Impoundment and Stormwater Treatment Area, and C-9 Impoundment and Stormwater Treatment Area) is proposed in the Water Resources Development Act of 2000.

INDIAN RIVER LAGOON FEASIBILITY STUDY

The Indian River Lagoon Feasibility Study began in July 1996. The study team has been formulating and evaluating single-purpose and multi-purpose plans; some recombination of these plans will constitute the recommended plan, which is scheduled for selection in December 2000. The study team anticipates releasing a draft feasibility report in June 2001, with a final being released in November 2001. Construction authorization at the federal level for the C-44 Basin Storage Reservoir is proposed in the Water Resources Development Act of 2000. Authorization for remaining components is proposed for a Water Resources Development Act of 2002.

SOUTHWEST FLORIDA FEASIBILITY STUDY

The Southwest Florida Feasibility Study was recommended in the CERP to address the water resources needs in Southwest Florida. Scoping for the study was initiated in August 1999. The study area includes six counties covering approximately 4,300 square miles. It is anticipated by the study team that a project study plan and feasibility cost share agreement will be taken to the District's governing board for approval in December 2000 or January 2001.

SOUTH FLORIDA WATER QUALITY PROTECTION PROGRAM

The CERP included a recommendation for a feasibility study to produce a comprehensive integrated water quality plan for South Florida. This water quality plan would integrate existing water quality monitoring and pollutant source reduction programs throughout South Florida with design recommendations for optimizing the design and operation of CERP components to achieve water quality protection targets. The water quality plan may also include, as appropriate, recommendations for additional

projects and project features where CERP components do not fully address water quality problems and restoration objectives. When completed, the water quality plan will demonstrate the federal interest, if any, in those additional projects necessary to achieve the overall objectives of the water quality plan.

It is expected that the non-federal sponsor for the comprehensive integrated water quality plan will be the Florida Department of Environmental Protection (Department). In furtherance of the water quality plan, the Department, under the auspices of the U.S. Environmental Protection Agency, has begun a three-phase Water Quality Protection Program for South Florida. Phase 1 (problem identification) of this program consists of: (1) a comprehensive review of all South Florida's water quality monitoring programs; (2) the status of South Florida's surface waters, including projected trends; and (3) ongoing regulatory and other pollution source reduction and control programs to address water quality problems. Phase 1 will also include a consideration of the location and function of CERP project components. Phase 2 (potential solutions) of the program will identify monitoring and pollution source reduction gaps and will lead to recommendations for solutions to those problems, including structural and operational changes to CERP components, where appropriate. Phase 3 of the program will be the implementation of identified solutions.

The completion of Phase 1 of the Water Quality Protection Program is in progress, Phases 1 and 2, together, comprise the reconnaissance work necessary to develop a comprehensive integrated water quality plan. Upon completion of Phase 2 of the program, the federal interest in achieving water quality restoration and protection objectives for South Florida will be identified. At this point, a feasibility cost-sharing agreement will be executed by the Corps and the non-federal sponsor, culminating in additional detailed planning, design, and cost estimating work for the elements of the water quality plan.

COMMITTEE ON THE RESTORATION OF THE GREATER EVERGLADES ECOSYSTEM (CROGEE)

Independent scientific peer review was recognized in the CERP as an integral part of the restoration effort. A cooperative agreement between the National Academy of Sciences and the Department of Interior in 1999 established the Committee on the Restoration of the Greater Everglades Ecosystem (CROGEE) to provide scientific and technical guidance to the agencies charged with the restoration and preservation of the South Florida ecosystem. The two items of the committee's work plan have been approved: (1) understanding and analyzing the aquifer storage and recovery pilot projects and (2) understanding the scientific basis for the ecological indicators used to measure the success of the restoration effort. It is anticipated that CROGEE will meet quarterly in South Florida to review restoration efforts.