MINUTES
CHIEF OF ENGINEERS' ENVIRONMENTAL ADVISORY BOARD MEETING
West Palm Beach, FL
25 October 2002

1. The Chief of Engineers, **LTG Robert Flowers**, called the Environmental Advisory Board (EAB) meeting to order at 0930 hours, 25 October 2002. The following EAB members were present:
   - **Dr. Mohammed Dahab,** University of Nebraska
   - **Dr. Michael J. Donahue,** Great Lakes Commission and University of Michigan
   - **Dr. Theodore Hullar,** Cornell University
   - **Dr. Matthias Kondolf,** University of California
   - **Dr. Denise Reed,** University of New Orleans
   - **Dr. Fred Weinmann,** University of Washington

   Also present were **Mr. Fred Caver**, Deputy Director of Civil Works; and **Ms. Patricia Rivers**, Chief, Military Programs Environmental Division.

2. **WELCOMING REMARKS:**

   COL James May, Jacksonville District commander, welcomed the EAB to his District, noting that his District has the Nation's largest environmental restoration program, which the Board had toured for the preceding two days. The process to develop this Comprehensive Everglades Restoration Plan has been open and collaborative – in one year Jacksonville District participated in 180 public meetings. The District is now switching gears from development to execution of the Plan. In the process, it must consider two issues on the Board's agenda for this meeting: independent scientific review of the Everglades and South Florida Ecosystem Programs and performance measures and adaptive management.

3. Three new Board members, Drs. Dahab, Kondolf and Reed, were sworn in.

4. **CW STRATEGIC PLAN:**

   Mr. Caver gave a presentation on the plan, required of Federal agencies under the Government Performance and Results Act (GPRA) every five years. The hallmark of a successful organization, he said, is willingness to change, and the Corps of Engineers has changed often in its 200 years. The draft Plan represents a major change in the agency's philosophy to re-emphasize watershed planning and viewing projects in an overall context. The Corps did watershed planning decades ago in such basin-wide programs as the Mississippi River and Tributaries Project or the Pick-Sloan Plan for the Missouri River, and the Civil Works geographic organization of districts is still largely centered around watersheds rather than political boundaries. The past 20 years, however, have seen more emphasis on geographically discrete projects as a result of the Water Resources Development Act of 1986 and its requirements for local cost sharing – local sponsors will rarely pay for work elsewhere in a watershed.

   The draft Strategic Plan, he said, has five goals:

   1. Sustainable development and integrated management. Under this approach, in some cases the Corps would not implement a project, but would facilitate discussion on how another agency could. The product would not necessarily be a comprehensive plan in a report, but a collaborative process. Master plans, he warned, quickly become obsolete.

2. Repair of past degradation and prevention of future loss. In the Everglades, for example, the Corps accepts responsibility for the past while serving as an environmental steward for the future.
3. Ensuring projects meet authorized purposes and changing conditions. The Corps needs to be flexible and re-examine, from time to time, the assumptions under which old projects were formulated.
4. Reducing risk and vulnerability to emergencies – including terrorism. In so doing, the Corps must maintain the responsive culture that enabled it to respond quickly to the Sep. 11, 2001 attacks.
5. Being a world class public engineering organization. The nation, he said, benefits from the Corps' technical capability as well as its program management. In-house capability is needed to ensure quality performance by contractors.

The Strategic Plan is a draft at this point, and the Corps is receiving and considering comments from stakeholders. The goal is to finalize the Plan and submit it to Congress by March 2003. Mr. Caver asked the Board to review the Plan and comment on whether it meets the objective of direction change.

Dr. Hullar recalled his experience as a New York State official in 1975, when the Environmental Protection Agency was engaged in planning for PCB control in the Hudson River. He saw only one viable option to achieve this goal – dredging the river- but it was never done for a variety of reasons. Today, he suggested, there are similar barriers to the Corps in doing its work.

Response: the Strategic Plan will address these barriers by creating an environment for a broad consensus – if a broad array of interests want something done, it will get done. In the past, the Corps often had a position of "we know what's best." Today it is learning to hear others, and asking, for example, who has a better idea on what to do with dredged material. If listening were a "crawl-walk-run" continuum, the Corps would now be at the walking stage.

As an agency, the Corps has credibility issues. It used to consider water almost exclusively in economic terms. Now it is asking if it can have environmental benefits as well. Is there a national will to marshal resources for environmental restoration?

Dr. Weinmann suggested that, in government management of water, economics is still the first consideration, the environment second; although in some instances, like in Jacksonville District, it is the other way around.

Dr. Reed said there shouldn't be an "economy vs. environment" conflict – it is important to move away from this mindset in the Strategic Plan and more important in real life, but very difficult. The Corps needs to address the issues of how to do this.

Response: it is part of the Board's role to "grade the Corps paper" on how it accomplishes what Dr. Reed suggested. The Corps has had a number of successes, and is gathering "lessons learned" from both successes and failures. Open involvement leads to successes, e.g., The Nature Conservancy sought out the Corps for a partnership with the purpose of facilitating effective and efficient management of important biological resources within the context of the Corps' civil works and regulatory missions. Although some in both organizations questioned it, the partnership is working to achieve the goals of both. The success of this partnership is leading the Corps to look at others, even with organizations that have traditionally opposed it. Consensus, he said, has to evolve over

time. In the meantime, it may only produce agreements on a narrow band of outcomes. Still, it is important to try. In future meetings we will expose the Board to successes in achieving consensus – as it may key ideas for future work.

Dr. Donahue said that a major disconnect in government is the focus on political jurisdiction, and asked if the Corps could reorganize on a watershed basis.

Response: The Corps district boundaries, for the most part, already follow watershed lines, and such an organization facilitates both comprehensive solutions and allows the organization to look at sub-basins. On the Napa and American River projects in California, the Corps was able to bring in multiple jurisdictions to deal with problems similar to those found in the Chesapeake Bay and elsewhere.

On the Upper Mississippi River-Illinois Waterway Study, a Federal Principals Group is overseeing the consideration of navigation and ecosystem projects. There is also a regional grouping of Federal agencies, States and non-government organizations. This arrangement works far better than agencies operating alone and often in opposition to each other.

Dr. Dahab said an outstanding feature of the Plan was the sustainability concept – all environmental work must be done in such a holistic fashion. Such is the case in his home state of Nebraska, which sits on a large, vulnerable groundwater reservoir where surface and groundwater are so connected that problems in one seep into the other. He warned that March 2003 is a short deadline for getting input on the Strategic Plan from stakeholders.

Response: The input process has already been working for some time and the Plan that emerges in March 2003 will not be fixed – input and amendment will be a continuing process.

The importance is not so much in the plan as in the process. The law requires revision every five years, but the Corps plans a continuing process. It has a list of 400 stakeholder groups, and the Plan is available on the Corps website.

Dr. Kondolf said there was a risk in "planning by committee." A true watershed approach requires problem re-definition, and requires public education. Local mayors, for example, may need to step back from saying, "I want a floodwall" to looking at causes of flooding upstream. He recalled problems at Deer Creek, a tributary to the Sacramento River, caused by a 1949 flood control project. The CalFed program is now looking at controlled flows into the flood plain to alleviate the problem.

Response: In the old days, the Corps developed a plan, then sprang it on the public at meetings. Now the Corps has better science, estuary monitoring, etc., and cooperation from academia, but still needs to educate the public and find better ways to solicit true public input. An example of this is an intensive education program underway to gain public acceptance of a comprehensive solution to subsidence problems in Coastal Louisiana.

Dr. Hullar suggested that the call in the draft Strategic Plan for a "citizen-centered" process be fleshed out, to include citizen engagement and strategic partnerships. The Corps needs to scope its proposals extensively upfront – the thinking it, and others, do before a project is more important than that during the project and afterward. The Corps needs to get to the right questions.

Response: The Corps is now doing this on the Upper Mississippi Study, working with nationwide and regional principals groups to achieve consensus. By doing the hard work upfront, the Corps can avoid having to go to court or re-do the project.

Dr. Weinmann said that the *Principles & Guidelines (P&G)* often preclude environmental solutions.

Response: There may be a need to review the *P&G*, which are now 20 years old. A wide range of people should be involved in that process. Meanwhile, there is much the Corps can do on its own. As part of the effort to create a Learning Organization, the Environmental Operating Principles, announced last March, were chain-taught to all Corps members. It is expected that this effort will produce a major payback, since the environment is now the fastest-growing part of the Corps program.

Although changing the *P&G* may be useful, the problem is often not with them but with how the Corps chooses to apply them. They offer far more latitude than the Corps has taken in environmental matters.

Dr. Reed asked if there was any format for receiving comments from the Board.

Mr. Caver replied that the Board can offer comments any way it wants. It can send them to him via e-mail, or send to Dr. Donna Ayres at the Institute for Water Resources, who is collecting and compiling them.

5. **PUBLIC COMMENT:** (To accommodate individuals unable to stay for the afternoon, this item was moved forward on the agenda.)

Patti Webster, Broward County, FL, Board of Commissioners, expressed that body's support for Everglades restoration as important to the county's water supply as well as its environment. It is hard to love a swamp, she said, but it is a resource of tremendous value. She thanked the Environmental Advisory Board for coming and focusing on the Everglades.

John Marshall, Arthur Marshall Foundation and Florida Environmental Institute, noted that LTG Flowers' comments on economics and the environment paralleled those of his uncle, a pioneer in Everglades restoration for whom the foundation is named. He said, however, that the Comprehensive Everglades Restoration Program (CERP) falls short of the watershed approach called for in the draft Civil Works Strategy, in that 1 million acres in the North Everglades are not included. He also has a problem with the Strategy's emphasis on process – an end product is needed as well. The Kissimmee River restoration project is now more results-oriented, and works well, he said, asking how much restoration will be done between Lake Okeechobee and Florida Bay. Florida's ancient cypress forest used to stand there, and filtered water going into the aquifer. Those trees need to be re-planted. This need also offers an opportunity for public involvement – schoolchildren can pick cypress pods and take them to nurseries, where they can be grown until large enough to be planted.

Beth Carlson, representing the Seminole Tribe of Florida, said the Tribe has committed resources to the Everglades and is partnering with the Corps on Big Cypress restoration. She commended the Corps for its consultation process and its outreach on the CERP Programmatic Regulations, but said the sheer volume of opportunities for stakeholder involvement could become a problem. Currently

there are 80 meetings scheduled on aspects of Everglades restoration, where stakeholders need to be at the table, but groups with limited resources can't attend them all. She suggested the Corps and the South Florida Water Management District consider a single, 2-3 day watershed forum as opposed to meetings all over South Florida.

Fred Radach, Palm Beach County, FL, Water Utilities Department, noted that South Florida is a rapidly growing area with an elevation that rarely exceeds 20 feet above sea level. It does not have the luxury of separating growth from environmental restoration – there is already development right up to the edge of Everglades National Park. Restorers, he said, must take a holistic view to achieve long term solutions to the area's environmental problems. He suggested that the Corps consider expediting some of its restoration projects in the area, and said a peer review of Corps activities would be worthwhile to keep the process open and ensure good communication.

LTG Flowers noted that the Environmental Advisory Board visits significant projects, then uses what it sees to address broader issues.

6. INDEPENDENT SCIENTIFIC REVIEW, PERFORMANCE MEASURES AND ADAPTIVE MANAGEMENT:

Dr. Hullar likened peer review to the story of the six blind men who "see" an elephant from different angles, and disagree on what the animal is like. Everglades restoration, work, he said, has three parts: input, execution, and results. Each can be peer reviewed, but the process is cumbersome. One way to simplify the process would be to turn it over to the National Academy of Sciences' National Research Council, but that organization may not have the expertise or interest. Another would be to use universities, especially the land grant institutions that have a mission to consider issues of importance to their States.

Response: The Corps wants good scientific input but does not want to add time and expense to its processes.

Dr. Donahue said that independence, for scientific review, is a matter of personal judgment, not agency affiliation. Peer review should also separate fact from opinion. Disagreement should not just be tolerated, but used to keep stakeholders at the table.

Dr. Reed said the Corps needs credibility in its processes, and needs review of its products as well as its processes. Congress enacted a requirement for peer review to see how well the Corps is doing to meet their objectives. This review should be done by an array of groups. Review is usually anonymous, but she doesn't think the Corps is ready for that yet. Scientists are all familiar with peer review, and recognize that it should be guided by the use to which it will be put – reviewers should know what will happen to the review as they prepare their report.

Dr. Dahab noticed that most Environmental Advisory Board members are from universities, and would never publish anything without peer review. The process for the Corps, he said, needs to be open-ended and multi-disciplinary – bringing scientists and engineers into synchronization. With that in mind, perhaps the National Academy of Engineering as well as the National Academy of Sciences should be involved. As for who should administer the peer review process, he sees no problem with the Corps doing so.

Dr. Weinmann said reviews should ask, "How well are we doing?" as well as "What have we done?" What the Corps does not need is a report that says, "You could have done better if…" The Corps should remember that reviewers don't see everything in the files or what happens in the field – only reports and products.

LTG Flowers said he heard the Board discussion as a call for independent review of ongoing work as well as an overall review of completed products, and asked for suggestions on how to achieve this goal. In military operations, he said, commanders often take along independent observers who watch the planning, then make suggestions on how to improve the process. The military method is to lay out objectives and plan, then make midcourse corrections as necessary to achieve the objective. Can something similar be done for Everglades restoration and similar projects. He said it seems worthwhile to have a team of independent experts come out at set intervals to give recommendations, but said there should be people on this team familiar with the project – possibly a joint Corps-outside team. The report produced by this team will be open, part of the public record, free for examination. If accepted, that would constitute a peer review. If not, Congress can direct a different review.

Dr. Hullar asked what major items the Corps considers key to its processes, and asked, in view of the cost and time constraints the Corps works under, whether an open or an anonymous review process would be more appropriate. He acknowledged that expert reviewers can come from in-house if they do not work on the project under review. He warned against giving the review function to "the friendly contractor who's always done good work for us."

Mr. Caver noted that there are two kinds of independent review: the scientific and technical one that asks, "are you meeting your project objective?" and the public policy one that asks, "how did you go about formulating this project? Did you follow the rules? Was the process honest and transparent? Was public input actually considered, and was the best science used?"

Dr. Reed addressed her comments to scientific and technical review, saying it is still early in the process of deciding what products would be produced by the review. The Corps, reviewers and EAB can look at whether science is measuring the right things to feed into the process.

Dr. Hullar suggested a third type of review that looks at whether Corps processes themselves are functioning properly – does the Corps have the right tools to formulate projects?

LTG Flowers asked about performance measures for adaptive management.

Dr. Weinmann said the Board didn't know what those measures should be, but they shouldn't be the only data available to the Corps. The Corps should not rely on a single measure, such as "number of birds per hectare," to evaluate success of an adaptive management program. As to the matter of review, he said cost and time constraints would preclude the Corps opening the process to everyone, but the Corps could consider sponsoring symposia on major projects where anyone interested could come and offer comments.

Dr. Kondolf said he interprets the Water Resources Development Act of 2000 as assuming that, by measuring the right performance measures, the Corps will be able to say how well an ecosystem is recovering.

Dr. Hullar said, however, that the Corps and Congress should expect the unexpected in ecosystem restoration projects. These projects may produce results even if these were not the original goal. In some cases they could exceed expectations.

Dr. Donahue noted that, in this discussion, the term "performance measures" received a great deal of use, while "ecological indicators" was used only once or twice. He asked if the terms are interchangeable.

Mr. Stu Applebaum, Jacksonville District, said they were in the paper on this topic sent to the Board.

Dr. Donahue pointed out that the Great Lakes Commission has a process of looking at environmental indicators there – perhaps the Corps could adopt some of these ideas. Likewise, he said, ideas on performance measurement generated in the Everglades could be applied elsewhere.

Mr. Applebaum said that WRDA 2000, in authorizing Everglades restoration, requires interim goals to measure success. The Corps and Congress do not want to wait 30 years to decide whether the project succeeded. If the project does not meet interim goals, it can be re-assessed and adjusted. Performance measures are one way to check achievement of those interim goals.

LTG Flowers said he liked the idea of conferences where all interested parties to a project could have their say. He also liked the idea of "expecting to be surprised." Once the Corps measures the things the law says it should, it should be prepared to adopt additional measures as science improves.

Dr. Reed said that if a project doesn't meet numerical goals, it's not necessarily a bad thing. Performance measures are a way to ensure we get things right, or tell us how to modify and update our models. In ecosystems, people fix the process, then let the ecosystem do its thing and live with the result. Meanwhile, scientists refine their models to measure how the ecosystem designs itself. If used too rigidly, she warned, performance measures can be troublemakers.

Dr. Donahue said that, in addition to expecting the unexpected, the Corps should recognize the element of uncertainty that is now an accepted part of decision science. "Fuzzy logic" is now rooted in mathematics as a way to make decisions in the face of incomplete data.

Dr. Kondolf said the Corps needs to convey to the public the idea that things might not go exactly as planned on an ecosystem restoration project, and educate the public about the adaptive management concept. Some examples from the Everglades – "we expected this, but we got that so we adjusted our goal" – would be useful.

Mr. Applebaum agreed. The current models used to plan Everglades restoration are second generation, and will surely be revised as work progresses.

7. NEXT BOARD MEETING – LOCATION AND TOPICS:

LTG Flowers proposed a trip to the Pacific Northwest in May 2003. There the Board could look at the Columbia-Snake River system and discuss the controversy over the four dams on the Lower Snake River. The Board could also look at side channels for salmon to bypass dams, or issues in the Seattle area.

Dr. Weinmann suggested the Board add consideration of Lower Columbia River issues (e.g channel deepening, estuary restoration) to the agenda.

Mr. Caver pointed out that the Board had asked for ways to engage in continuing strategic dialogue with the Corps.

LTG Flowers said that Board members often talk to him outside of the meetings. He said he will send a wrap-up of this meeting to the Board for further ideas, then get their input on items to consider at the next meeting.

Dr. Hullar asked if there would be benefit in the Board sitting in on policy review meetings.

LTG Flowers said it would be easy to arrange.

Mr. Caver said he would support this and provide facilitation.

Dr. Hullar asked if the Chief would be receptive to the Board presenting bigger topics.

LTG Flowers said "absolutely," and asked the Board to consider on which Corps policies it would like to offer advice.

Dr. Reed suggested the Board consider these topics between now and the next meeting, and asked Corps staff to respond to comments from today's meeting.

LTG Flowers agreed.

8. CLOSING COMMENTS:

Dr. Donahue said he was pleased that the Corps is adding structure to EAB meetings, and thanked Jacksonville District for its professionalism in putting today's meeting together.

LTG Flowers also thanked Jacksonville District for the professionalism that was put into every aspect of the Board's trip to Florida.

9. There being no further public comment, the meeting was adjourned at 1350 hours.

Certified 17 April 2003
Norman Edwards
Executive Secretary