

## Responding to Change

by Dr. Martin Reuss

Historically, the Corps of Engineers has been a reactive and responsive organization. With generally great success, its leaders have executed the missions tasked by Congress, the Secretary of the Army, and, in the end, the American people. When general agreement existed about what the goals and hopes of the nation were, it was relatively easy to define agency priorities. When the consensus disintegrated, the agency's ability to respond to numerous and sometimes conflicting guidance became the key to success and even survival. Flexibility has always been necessary and new missions often led to improved solutions. It is probably true that the management on occasion was jerry-rigged. Still, the Corps got the job done.

When the Corps was given the responsibility to survey roads and canals in 1824, it lacked sufficient manpower and used civilian assistants and officers from other Army branches. After the Civil War, when Congress drastically increased the rivers and harbors work given the Corps, the Chief of Engineers, Brigadier General Andrew Humphreys, organized boards of senior officers who traveled around the country reviewing both rivers and harbors and fortifications work done under the supervision of junior officers. At any one time these officers supervised an average of 20 projects that were, according to Humphreys, "scattered in almost every case, over hundreds of miles of territory...taxing the physical and mental abilities of these officers to a degree embarrassing to the service."

In 1941, when the Corps became responsible for military construc-

tion, it leaned on the civilian workforce, until then experienced mainly in civil works, to accomplish the new mission. Even then, had not some civil works projects been delayed to save money due to the war efforts, the Corps' resources would certainly have been stretched to the breaking point.

The 20th century has certainly tested the Corps' flexibility. The organizational strength and responsibilities have increased tremendously, but the growth has not been painless. The environmental era produced doubts about massive water projects. In the early 1980s, concerns about the ability of the federal government to finance large projects portended substantial reductions in the Corps' civil works program. However, legislature passed in 1986 laid the groundwork for a new federal-nonfederal cooperative effort to finance needed projects. Meanwhile, combat engineers have had to adapt to a battle environment considerably different than what existed a generation ago. Mobility, firepower, and adequate logistics support, always important, have become even more so in today's Army. Even the public regard for the engineer has changed. At the beginning of the century engineers were considered national heroes, people who would quite literally erect a better world. In the aftermath of the atomic bomb, massive pollution problems, and growing doubts about some large-scale projects, engineers tend to be regarded more equivocally.

Engineering values have changed just as the nation's have. "We were planning a work for the nation," wrote engineer officers in their 1826

report on the Chesapeake and Ohio Canal, and "it did not belong to us to curtail the cost in order to derive from the capital a greater interest... to the detriment of durability and conveyancy." In the 19th century, the Corps of Engineers thought in terms of grand works of improvement that would help knit the nation together, promoting both political stability and commercial development. Army engineers working on plans to circumvent Muscle Shoals in 1828 wrote of a fiscal responsibility "higher than money". Today, except for assuring adherence to minimum safety factors, which often are legally prescribed, engineers are always expected to tailor their designs to accommodate financial and political realities. Only in wartime do safety, economy, and durability give way to speed and expediency.

Chiefs of Engineers seldom had much time to think about social and economic changes that might affect the Corps' future. Immediate tasks needed to be accomplished, often with insufficient funding and personnel, which precluded attention to more distant problems. However, the changes that the nation has been undergoing in the economic, geopolitical, military, and environmental areas are forcing the Corps, and the entire Army, to step back and attempt to prepare for the next century. At the same time, we dare not forget the lessons that can be learned from studying our past.

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