

VIEWS AND NEWS

Catastrophic disruptions

Perhaps in the annals of the history of the United States there has never been a time when people from different parts of our country have had to cope with so many major catastrophes. From the eruption of Mt. St. Helens to major earthquakes in California, the problems associated with heavy rains including landslides, mudslides, and flooding due to hurricanes like Hugo and the flooding on the Mississippi River in the Midwest, it seems that God has inflicted his wrath on the citizens of the United States.

Each major catastrophe represents billions of dollars in damage, extensive loss of life, and major disruptions in the lives of thousands of citizens. Our government is besieged with demands for financial relief, to some extent justifiably so. As citizens we pay taxes that might be used to mitigate the effects of natural catastrophes. In addition, it is truly amazing how the average American citizen has shown compassion and concern regarding the well-being of his fellows in troubled spots over the nation by contributing voluntarily to funds for this purpose and actually going and working in areas that are in need of help.

Based on this background, the authors, with a combined experience in hydrology, hydrogeology and public policy of more than 100 years, wish to comment briefly on major river-system studies and construction programs. These comments are summarized as follows:

1. The progressive constriction of a river by constructing levees on both sides of the river has made the future flood stage at any point, at the same river discharge essentially unpredictable. There is a voluminous record to this effect, as at the Market Street gate at St. Louis.

2. This places the people and organizations "protected" by the levee system at ever-increasing risk, since levee

heights are determined based on the historical record of flood and stage.

3. Often, in times of flood, the people living on one side of the river have interests opposed to those of people living on the other—each group wishes that the other's levee will be the first to fail. This leads to civil unrest—not a purpose of democratic government.

4. In times of flood, the government, itself, may destroy levees in one district to save the levees in another. This is a questionable function of government.

5. Many of the flood control reservoirs that are supposed to shave flood peaks are filling with sediment. Within the lifetime of people who are now (1994) children, the flood-peak shaving capacity of these reservoirs will be significantly reduced. This will increase the frequency of major floods and their impact on the maximum flow and stage of the streams. The purpose of democratic government should be to undertake long-term projects that will not have deleterious effects for many generations.

6. Levee construction on the lower Mississippi River has channeled sediment off the continental shelf off shore. Reservoir construction on the Missouri and Arkansas rivers has reduced by two thirds the sediment load formerly carried by the Mississippi river. Thus the annual replenishment of sediment to the low lying areas of the Gulf coast in Louisiana has been stopped, but the natural compaction of the 30,000–40,000 ft of sediment has continued and the natural build up of the surface by deposition from river floods has halted. Thus large areas of Louisiana's Gulf coast are subsiding and the wetlands are being permanently submerged. This portends disastrous reductions in seafood from the most productive region of the country during the next 10–20 years. There is no way to prevent the loss of these wetlands.

The cause of these disasters is the Congressional transfer of money from the general taxpayer to favored groups, in this instance the "protected" landowners. These people paid about ten percent of the cost of levees, mostly by donating land and rights-of-way and organizing to save the federal government harmless from any damage caused. On the other hand, taxpayers from Maine to California

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who did not live in the floodplain paid 90 percent of the cost. In this manner money was transferred from their pockets to the pockets of the people protected by the levees (they benefited from higher land values and increased crop production). To add insult to injury, some of these fortunate citizens have been paid for not producing crops that were in "surplus" at the existing market price.

A democratic government should represent the interests of its citizens and not be involved in transferring money, no matter how indirectly, from one set of citizens to another. When this fundamental postulate is ignored,

social and economic disasters can be expected. The only things we do not know are how soon they will happen and what forms these disasters will take.

The destruction of the utility of observational data is an important aspect of the disaster to those of us in the profession of dealing with the hydrologic and geohydrologic aspects of the environment and environment control, but our difficulties are insignificant as compared to those who have been, and will be, hurt by the current policies that we have described.