

Commentary

Risk Reduction When Society Uses the Environment

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“Floods are ‘acts of God,’ but flood losses are largely acts of man.” Gilbert White (1945)

The importance of a society, conceived at all levels – individual, family, neighborhood, organizational (bureaucracy, business), and community – knowledgeable about natural hazard risk, motivated to incorporate actions and (self) informed about important actions to take, and working together to reduce such risk, is an ideal towards which we all must strive. These papers make an important contribution to these goals. However, the papers vary in their recognition of the importance of community dynamics as a key factor in achieving these risk reduction goals.

The most important actions that humans can take to achieve risk reduction from natural hazards are:

1. to undertake a serious, systematic assessment of the risk from natural hazards that development of a locale will have *on what is placed there*, and
2. to assess each decision that society makes to impact the environment – such as taking a wetland to develop a residential subdivision – to determine *what present and future enhanced risk* that action will have on the human activities of the *ecological region*, for example, not just to the homes in the subdivision but the impact on human settlement in the surrounding area that is no longer protected by the storm-absorptive capacity of the wetlands.

Mark Davis’s article forcefully supports the words of President Lyndon Johnson “The key...lies in ...

regulation of use of lands exposed to flood hazard” (House Document Number 465, 89th Congress, 2nd Session 1966).

In simpler phrasing, society places itself in harm’s way from natural hazards and we harm the environment so that it cannot continue to protect us from natural hazards. When we fail to appreciate these two “laws” of risk – which we do daily, repeatedly, and without pause, in fact with hubris – the only follow-on steps remaining are to mitigate our actions by piecemeal efforts. Mitigative actions, such as levees and flood insurance act to put more people at risk rather than to reduce risk in the most robust manner. When human populations are already in a risky place and the environment has been compromised, because the two cautionary actions specified above were not followed, then the *full* palate of risk reduction efforts, which we call “mitigation” or “non-structural” actions (not just one or two) must be implemented. And this must be done in a *systematic, comprehensive fashion* with structural measures to form an integrated system of risk reduction.¹ This is the third law of risk. Earthea Nance iterates these efforts: “Urban planning decisions, enforcement of building standards (such as elevating structures above flooding and constructing them with wind resistance), floodplain management and emergency management.” These are the “multiple lines of defense” (Lopez 2008) that must be joined.

To achieve this effort we need respect by government officials and physical science and engineering professionals that high quality social science research conducted on societal risk in its most comprehensive form is necessary in order to

accomplish a *cultural shift*, a new culture of risk reduction and management, as has been achieved in support of the energy conservation movement. For example, Denise Reed, in her article, recognizes well the importance of a leadership group that includes not only government officials but also engineers and natural scientists. Social scientists are not mentioned. Managing risk is a human problem; without respecting the need to study human, behavior with regard to risk response in conjunction with the structural (engineering) and environmental (physical science), progress will continue to be slow.

I'm always amazed that these "laws" of risk and risk response requirements are not obvious to most who address water-related natural hazards and the reduction of risk from them. Realizing the importance of the social scientist at the table of natural hazard risk reduction may be one **key** to their **successful** promulgation.

Notes

1. *Mitigation* is used by FEMA and *non structural* by the Corps, the "structure-building" arm of the federal government.

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References

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