Preface

Over a half-century ago, Gilbert F. White introduced the concept of flood plain management through his landmark 1942 PhD dissertation, ‘Human Adjustment to Floods’. Prior to that time, water resources management strategies were nearly all engineering-based, for example, design and construction of dams and levees. In spite of, or perhaps more accurately because of, our engineering marvels, the actual and potential damages associated with floods continued to rise in the USA, as industrial, commercial and residential development moved in behind the ‘safety’ of the flood control structures. Professor White argued that the federal government, particularly the US Army Corps of Engineers, needed to broaden its range of flood hazard management alternatives to include social and behavioral adjustments that would address the problem of increasing density and value of flood plain occupancy.

This broader emphasis on the flood plain itself slowly began to capture the attention of planners, economists, political scientists, sociologists and eventually ecologists and biologists. The need for interdisciplinary collaboration came increasingly to be recognized, particularly during the period from the late 1950s through the 1960s. Nevertheless, it was and still is a daunting challenge for engineers, sociologists and biologists to agree on approaches to water resource planning, decision making and management. Through his continuing natural hazard work, and the work of his students, Professor White nurtured the process. His thoughts and actions have taken root in countless ways, perhaps most notably through the work of the University of Colorado’s Natural Hazards Center, which he established with support from the National Science Foundation in 1974.

During this period, in response to many social, technical and political stimuli, federal and state water resources planning processes were modified and enhanced. Definitions of benefits were tightened, for example, to rule out counting local economic spillovers resulting from project construction and operation. At the same time, non-market benefits were recognized as legitimate, though reliable methods for their estimation did not yet exist. Tentative efforts to reflect the views of multiple ‘stakeholders’ outside the bureaucracy began. And more sophisticated ways of exploring the impact of hydrologic and economic uncertainty were developed. During this period Professor White continued to push for change by arguing for a
more formalized approach to monitoring the effects of these newly implemented methods in the context of actual projects, to see if the claimed benefits were produced under operating conditions. While there was and continues to be agency resistance to formally auditing programs, numerous studies have been performed along these lines, primarily within the academic field. If one were to try to sum up Gilbert White’s principles, the result might be: consider the full range of alternatives in planning; involve all relevant intellectual disciplines; and continually monitor the effects of all initiated projects and programs.

Measuring actual progress in the water resources development and management field against the Whitean principles, it is striking how slowly change has been realized; how tenacious a grip tradition has had in spite of massive changes in knowledge, analytical techniques and computing power, to say nothing of the changes in incomes, tastes, leisure time and travel possibilities the USA has experienced during that period. The new water resource challenges the USA faces today and will face in the future require planners and related professionals to be better informed and more open to innovation than ever before. Informed decision making requires that they not only be skilled in their own specialty areas but also equipped with a broader understanding of related disciplines. As a case in point, one could argue that had the responsible decision makers embraced a more integrated approach in the wake of Hurricane Betsy, which devastated southern Louisiana in 1965, much of the recent damage associated with Hurricanes Katrina and Rita could have been avoided.

In an attempt to address this need, in 2002 the Corps’ Chief of Planning, James Johnson, and Mark Dunning, research analyst at the Institute for Water Resources (IWR), proposed and launched a program to train existing and new employees in multi-objective planning and to encourage better collaboration among disciplines in dealing with new environmental problems and approaches. Cooperating with the Universities Council on Water Resources, IWR developed a multidisciplinary curriculum with a practical focus on integrated water resources planning and management. Universities participating in what evolved into the Corps’ Advanced Degree Program agreed to develop their own interdisciplinary curricula that balance coursework in economics, engineering, hydrology, ecology, political science, sociology and statistics.

With the launch of the Advanced Degree Program the need was felt for a publication that would summarize and critically appraise the evolution of federal water resource planning over the last half-century. Such a book would, it was thought, benefit not only students enrolled in the program, but water professionals and practitioners more broadly. This volume is the product of that felt need. Great care was exercised in assembling a
team of professionals willing to meet this objective. They include eminent scholars with decades of experience, representing the fields of economics, political science, engineering, law, biology/ecology, environmental philosophy and sociology. Their charge in the broadest terms was to describe changes over roughly the last 50 years and to suggest challenges for the future from their points of view. In the initial development of this publication, Professor White was asked for his input and in typical fashion his reaction was immediate and terse, stating: ‘I am elated that your efforts are going forward and am fully supportive of the entire program, it is 30 years overdue. Please keep me informed of your progress’. Professor White passed away in 2006 before the final manuscript for this book was completed. Based upon his lifetime achievements, steadfast persistence and clear guidance in water resources planning, we dedicate this book to the late Professor Gilbert F. White.

Duane Baumann and Paul Bourget

NOTE

1. G.F. White (1945), ‘Human adjustment to floods’, University of Chicago Department of Geography, research paper no. 29, Chicago, IL, completed in 1942 and published in 1945.