



Hydrology education and practice: need for social context and a generic framework

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Hydrology has seen an enormous growth during the last few decades. Population explosion and its associated effects (e.g. increase in water demands, degradation in water quality, increase in human and economic impacts of floods and droughts) have necessitated better education and practice in hydrology, and technological developments and methodological advances have not only facilitated this but also aroused a certain level of curiosity in studying hydrology. Despite this growth, however, there remain numerous challenges in performing good hydrologic teaching, research, and practice. In fact, there are increasing concerns on whether the same technologies and methodologies that facilitate the growth through our 'specialization' in certain aspects of hydrology also contribute, either directly or indirectly, to our potential failure to look at the 'big picture' of water resources and their planning and management. Among others, two important deficiencies in hydrology education and practice need to be seriously looked into: (1) hydrology education continues to largely ignore some topics of water that are so vital to the security and well-being of our society, such as water crisis, conflicts, and policies; and (2) there is not yet a well-established framework for hydrologic modeling and forecasting, such as a 'classification system' that is so fundamental in many other fields. In view of these, the present study discusses the need for addressing the social context in hydrology education and for developing a generic framework for hydrologic system modeling. Through some recent examples, potential directions to advance these ideas are also highlighted.