Future Perspectives on Agricultural Drainage

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I. INTRODUCTION

Irrigation has been an important force in agricultural development. Expansion of irrigation during the mid-1960s to the mid-1980s accounted for more than 50% of the increase in global food production, and in some countries like India, the contribution of irrigation to food production approaches 100%. Without this access to water, the full benefits of high-yielding seeds and fertilizer could not have been achieved. In all too many countries, however, adequate drainage facilities were not installed or maintained, and the promise of benefits from irrigation and associated inputs are not fully being realized.

Within the next 30 yr, about 80% of the world’s population will be living in developing nations. Most of the expected increase of 3 billion people during this time will occur in these poor countries, and food production will virtually have to double to keep pace. The capacity to meet demands for food, fodder, and fiber is not in place, and significant stresses will be placed not only on the natural resources of the developing world but also on developed countries which export agricultural products.

Already, many parts of the world are facing water scarcity, serious environmental problems resulting from agricultural practices, and agricultural production systems that are clearly not sustainable. Waterlogging and salinity plague many irrigation projects and reduce crop yields. Intense competition is taking place for scarce water, particularly in arid and semiarid regions. Urban and industrial needs promise to take precedence over agricultural uses, and new demands for augmentation of water flow to restore damaged aquatic systems will compete with existing diversions for irrigation. Even in humid areas, controversies exist over drainage of wetlands for conversion to agriculture and alternative strategies for implementing best management practices to control agricultural pollution from...