

Abstract

Anthropogenic factors associated with damming and water abstraction, and the resultant environmental pressures, are reviewed in six African river catchments using records and forecasts of climatic, demographic, and land-use change. Changes in the states of the flow regime through catchment drainage systems to the coastal sea are considered in conjunction with climate change and other human induced pressures. The impacts of these changes on downstream and coastal environments and their communities are described in past, present, and future perspectives. Linkages between the issues and the pressures of damming and water abstraction are appraised and scientific, policy, and management responses proposed aimed at remedying existing and perceived future negative impacts. The study proposes that there is a need to integrate catchment and coastal management to account for the whole water flow regime together with its human dimensions. Management priorities relating to the operation of existing damming and abstraction schemes and planning of future schemes include the following: consideration of ways in which water discharges could be adjusted to provide improvements in downstream and coastal environmental and socioeconomic conditions; addressing the problem of sediment trapping impacting on the sustainability of dam reservoirs; and assessment of downstream and coastal impacts of future schemes in the light of climate change forecasts.