

**Session II – Envisioning New Approaches to Managing Great Deltas, Great Rivers,  
and Great Lakes**  
**11:20 AM**

**Comparing Undeveloped and Heavily Developed Delta Floodplain Systems of  
Northern Australia: Lessons for Future Development**

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**Abstract**

Development levels of catchments in northern Australia are highly regionalized. Catchments along the higher rainfall, but narrow, north-east coast are intensively and almost fully developed, but the larger catchments across the rest of northern Australia have, due to remoteness and low population levels, very limited development, mostly being used for free-range cattle grazing. Although relatively undeveloped, these river systems carry 24% of Australia's total runoff and the considerable pressure to more fully exploit their water resources for economic development is now one of the larger social and political debates in Australia.

The Burdekin is the most heavily developed large catchment (136,000km<sup>2</sup>) in northern Australia and illustrates the types of water resource and wetland management issues to be faced in other catchments as their exploitation increases. The Burdekin River delta, the largest on the east coast, is dominated by irrigated agriculture, principally sugar cane. Although irrigation has occurred there for >100 years, this greatly increased after the construction, in 1987, of a 1,800,000ML dam. The conversion of what was formerly grazing land to irrigated agriculture, and the loss of the strong seasonality which once drove the floodplain ecology, has had profound consequences upon the environment, most of which were unpredicted. Over 80% of the wetlands have been lost and >200km of river channel and numerous wetlands have increased turbidity. The hydrology has been greatly altered by distribution of irrigation water and by bund wall construction along the coastal margins, leading to altered water quality and widespread dominance by aquatic weeds, which thrive in the now more stable water regime.

The delta floodplains of the Gulf of Carpentaria are larger, but currently undeveloped, except for cattle grazing. This paper contrasts the ecology and management issues of the heavily developed, and largely undeveloped, deltas and floodplain ecosystems of northern Australia.