



**Henrique M.L. Chaves**  
*School of Technology, Univ. of Brasilia, Brazil*

**Integrating Basin Hydrology,  
 Environment, Life, and Policy:  
 The Watershed Sustainability Index**



Friday 18<sup>th</sup> August 2006 - Registration at 8.15am for 8.30am start  
 CSIRO auditorium, Underwood Ave, Floreat

*CSIRO Land and Water (Northern Australia Irrigation Futures project), CRC for Irrigation Futures, RiverSymposium, the Department of Water and the WA Branch of the Australian Water Association are proud to present Dr Henrique Chaves from the University of Brasilia. Dr Chaves is Brazilian Coordinator for the UNESCO-IHP Hydrology, Environment, Life & Policy (HELP) Program and the International Sedimentation Initiative, and a member of the Brazilian Committee of International Hydrologic Programs. Formerly from the National Water Agency, Dr Chaves has extensive experience in water resource management in Brazil and internationally and is author & co-author of more than 50 papers & book chapters in the areas of watershed hydrology, water management & conservation.*

**Abstract:**

Several issues impact the water sustainability of a river basin. Among them are the social, economic, and environmental aspects. However, they are often treated separately, and not as an integrated, dynamic process. In order to integrate the hydrologic, environmental, life & policy issues, as well as the existing pressures and policy responses in one quantitative, dynamic, and aggregated indicator, a watershed sustainability index (WSI), which uses a pressure-state-response function, was developed. Off the shelf information about basin water *per capita* availability and quality (Hydrology), remaining natural vegetation cover (Environment), basin Human Development Index (Life), and effectiveness of water and environmental management (Policy) are therefore used to access the basin sustainability with regards to water resources management. Varying from 0 to 1, WSI follows the same principle of the HDI, namely, basin sustainability is high for values of  $WSI > 0.8$ , intermediate for  $0.6 > WSI > 0.8$ , and low for  $WIS < 0.6$ . Applied to a 2,200 km<sup>2</sup> Unesco-HELP demonstration basin in Southern Brazil (S.F. Verdadeiro), the value obtained for WSI during the period between 1996 and 2000 was 0.65, which represents an intermediate level of basin sustainability. WSI results of other Latin American basins will also be presented, as a means of comparison of their sustainabilities. The advantage of the WSI is that, being basin-specific and dynamic, it can estimate the climate variability impacts to the basin (pressure), as well as the policy responses by water managers and stakeholders.

When: Friday 18<sup>th</sup> August at 8.30am  
 followed by Coffee at 10am



Where: CSIRO auditorium, Floreat



RSVP: by Wednesday 16<sup>th</sup> August



COST: **FREE OF CHARGE**

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EMAIL: \_\_\_\_\_ CONTACT NUMBERS: \_\_\_\_\_

Cath Miller Ph: 0416 289 075 fax: 08 6210 1675 / 08 9443 9465 email: [cmiller@awa.asn.au](mailto:cmiller@awa.asn.au)

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