

Assessment of basin-scale water stress using geographic information system in Southeast Asian Countries with megacities

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Abstrak

Southeast Asian countries are facing unstable water resource situations, experiencing high water stress as a result in their river basins, particularly around large population cities. This research has assessed basin-scale water stress by estimating the amount of water resources and water use for all river basins in Indonesia, Thailand, the Philippines, Vietnam, and Malaysia. A simple water stress assessment methodology using a Geographic Information System revealed the basins vulnerable to high water stress around the capital areas in all five countries. The population ratio was under high-moderate and high water stress at 29.3% in Indonesia, 41.8% in Thailand, 31.9% in the Philippines, 43.3% in Vietnam, and 19.9% in Malaysia. The results imply that large populations depend on limited water resources. The basin-scale assessment conducted in this research could be used in support of the water resources management planning at an inter-basin scale aiming to neutralize water stress.