

ASSESSING VALUE OF WATER PURIFICATION SERVICES BY ULU MUDA FOREST RESERVES

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Abstract - Forest acts as natural water purification agent that is very effective in providing clean water resources to consumer, especially for domestic use. Clean water from natural purification processes would lead to reduction in water treatment costs at treatment plants. This service is important for safety, assurance of resource availability and health. Ulu Muda catchments plays an important role as it serves the demand of water for the state of Kedah, Penang and Perlis intended for domestic, agricultural and industrial used. Hence, the aim of this paper is to assess the value of purification services by Ulu Muda Forest Reserves (FR) for domestic uses. The assessment is based on economic benefit using benefit transfer approach of cost functions model with an input for environmental values. There are 12 Water Treatment Plants (WTPs) were identified were sourced by Ulu Muda FR. Data of these WTPs consist of the coordinates of water intakes and treatment cost were collected from local water agency. The catchment boundaries for each WTPs were delineated using Geographical Information System (GIS). The assessment of economic benefit of Ulu Muda FR was using benefit transfer approach of economic for water purification model. This model intended to calculate the annual fee that the WTPs must pay for water purification services by forest. Results show that the marginal value of Ulu Muda FR was RM17.33/ha/year with total marginal value estimated RM25,719,329.84/year. The conservation of forest reserves as water catchments areas is important to ensure the availability of the clean water especially for domestic uses.

Keywords: Purification, ecosystem services, water treatment plants