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Water resources in Malaysia: Issues and challenges

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Abstract

Water is a critical ingredient in all social and economic endeavours. Though Malaysia is endowed with abundant water resources, the country is experiencing increased demand for water in recent years. This paper aims to focus on the current status of water resources in Malaysia. The paper also highlights the issues and challenges of water resources in Malaysia. The study reviews currently available information on scenario of water resources in Malaysia. It was found that the demand for water in Malaysia has increased steadily from 8.9 billion m^3 in 1980 to 15.5 billion m^3 in 2000 for agricultural, industrial and domestic purposes. Agriculture sector uses approximately 76% of all available water of which 90% is used for rice production. It was also found that demand for water is high in the states, which are supporting heavy industrialization and large-scale agriculture for rice production. Moreover, growth in population and urbanization as well as improved living standard is imposing additional pressure on the water resources in the country. As a result, the per capita availability of water is decreasing. On the other hand, national coverage of water supply has increased from 80% of the total population in 1990 to 95% in 2000. It was also revealed that rural population of the country have less access to fresh and clean water supply as compared to urban people. Therefore, access to uncontaminated water is becoming an important issue for the water sector in the county, and the key challenge is to meet per capita consumption target for water. Hence, further research is urgently needed to set more effective policies and strategies for well management and governance of water resources in the country.

Key words: Water resources, issues, challenges, Malaysia.

Introduction

Water is essential for all socio-economic development and for maintaining healthy ecosystems [1]. However, in recent years, water security has become a global issue. As the world's population increases, the pressure on water resources intensifies. Moreover, socio-economic development requires increased allocations of groundwater and surface water for domestic, agriculture and industrial sectors, which impose excessive pressure on water resources. The increasing stress on freshwater resources is currently a matter of great concern. It was estimated that roughly 166 million people in 18 countries are affected by water scarcity and another 270 million people in 11 countries are water-stressed [2]. It was also reported that almost 900 million people worldwide lack access to an improved water supply and 2.6 billion to basic sanitation [3]. Demand for water is rising every year as the result of the booming world population [4]. In a report on environment and water issues, it has been anticipated that more than 2.8 billion people in 48 countries will lack access to adequate water supplies by 2025 [5].

In Asia, the need for water is on the rise across sectors, further increasing the disparity between demand and supply of water. Two thirds of the world's populations, who lack access to improved water supply, reside in Asia [6]. The study also reported that about 670 million people in Asia lack access to improved water supply, representing 18% of the total population in the region. According to the Food and Agriculture Organization [7], nearly 80% of the total water supply across East Asia and Southeast Asia is still used for agriculture purposes, particularly for irrigation and livestock to feed growing populations. It was also found that South Asia and the Pacific have the lowest coverage in piped water supply and improved sanitation. The study reported that inequity in access to safe water supply and sanitation is greatest in South Asia.

In Malaysia, more than 98% of the current water use originates from surface water resources such as rivers and reservoirs [8]. On the other hand, groundwater only accounts for less than 2% of the current water use. The majority of water supplies in the country are used in irrigation, industrial and domestic purposes [9]. In contrast, generation of hydropower, navigation and recreational activities account for the main non-consumptive uses of water. However, the demand for water is rising with increase in population, expansion in urbanization, industrialization as well as irrigation. Water demand was expected to reach 14.8 billion m^3 by the year 2000 [10]. The highest demand for water comes from the agriculture sector. In Peninsular Malaysia, projected demand for irrigation water was 54% of total demand for water in 2010 [11]. However, some parts in Malaysia are facing water scarcity despite of abundance of water in the other parts of the country. In 1998, an El Nino related drought caused severe water stress in Kedah and Penang, and water rationing in Kuala Lumpur and Petaling Jaya for many months. In recent years, there are increasingly frequent occurrences of dry spells and water crises in Peninsular Malaysia, particularly Malacca and Selangor, and some parts of East Malaysia [12]. For example, the drought occurred in 2002 destroyed thousands of hectares of paddy in Perlis and caused