

TINJAUAN PENERAPAN PENGELOLAAN AIR UNTUK MENDUKUNG IMPLEMENTASI *GREEN BUILDING*

Gania Fathiatulhuda¹, Empung², Pengki Irawan³

Jurusan Teknik Sipil, Fakultas Teknik, Universitas Siliwangi

Jalan Siliwangi No. 24 Tasikmalaya, Jawa Barat, Indonesia

Email : ganiahuda029@gmail.com

ABSTRAK

Peningkatan kebutuhan air bersih pada bangunan gedung seiring perkembangan infrastruktur menuntut penerapan sistem pengelolaan air yang efisien dan berkelanjutan. Penelitian ini bertujuan menganalisis penerapan pengelolaan air untuk mendukung implementasi green building pada Gedung Pendidikan RSPON Prof. Dr. dr. Mahar Mardjono Jakarta. Metode penelitian menggunakan pendekatan deskriptif kuantitatif dengan memanfaatkan data sekunder berupa dokumen perencanaan teknis (Detail Engineering Design/DED). Hasil analisis menunjukkan bahwa gedung dengan jumlah pengguna 6.375 orang memerlukan 123,5 m³/hari air bersih yang bersumber dari PDAM, pemanenan air hujan, serta pemanfaatan air daur ulang dari sistem pengolahan air limbah. Penerapan 78% peralatan saniter hemat air mampu mengurangi konsumsi air sebesar 33,95% dibandingkan peralatan konvensional. Sistem Instalasi Pengolahan Air Limbah (IPAL) berkapasitas 361 m³/hari mampu mengolah sekitar 98,8 m³/hari air limbah untuk digunakan kembali pada kebutuhan non-potable seperti flushing dan irigasi. Kajian teknis pembanding menggunakan sistem tangki septik dan bidang resapan menunjukkan bahwa sistem tersebut hanya mampu mengolah black *water* sebesar 10,5 m³/hari dan tidak memiliki kemampuan daur ulang air sehingga kurang mendukung efisiensi penggunaan air. Evaluasi berdasarkan Permen PUPR No. 21 Tahun 2021 menunjukkan capaian 86% pada parameter efisiensi penggunaan air dan 83% pada pengelolaan air limbah. Hasil penelitian menunjukkan bahwa penerapan sistem pengelolaan air terintegrasi pada tahap perencanaan mampu mendukung implementasi green building, khususnya pada aspek pengelolaan air.

Kata kunci: Air Daur Ulang, Efisiensi Air, *Green building*, IPAL, Pengelolaan Air, Permen PUPR 21/2021.

REVIEW OF WATER MANAGEMENT APPLICATION TO SUPPORT GREEN BUILDING IMPLEMENTATION

Gania Fathiatulhuda¹, Empung², Pengki Irawan³

Department of Civil Engineering, Faculty of Engineering, Siliwangi

Jalan Siliwangi No. 24 Tasikmalaya, West Java, Indonesia

Email : ganiahuda029@gmail.com

ABSTRACT

The increasing demand for clean water in buildings along with infrastructure development requires the implementation of an efficient and sustainable water management system. This study aims to analyze the application of water management to support the implementation of green buildings at the RSPON Prof. Dr. dr. Mahar Mardjono Education Building in Jakarta. The research method uses a quantitative descriptive approach by utilizing secondary data in the form of technical planning documents (Detail Engineering Design/DED). The analysis results show that a building with 6,375 users requires 123.5 m³/day of clean water sourced from PDAM, rainwater harvesting, and the use of recycled water from a wastewater treatment system. The implementation of 78% water-saving sanitary equipment can reduce water consumption by 33.95% compared to conventional equipment. The Wastewater Treatment Plant (WWTP) with a capacity of 361 m³/day can treat approximately 98.8 m³/day of wastewater for reuse in non-potable applications such as flushing and irrigation. A comparative technical study using septic tank and infiltration field systems showed that these systems are only capable of treating 10.5 m³/day of black water and do not have water recycling capabilities, thus not supporting water use efficiency. An evaluation based on PUPR Regulation No. 21 of 2021 shows an achievement of 86% in the water use efficiency parameter and 83% in wastewater management. The results of the study indicate that the application of an integrated water management system at the planning stage can support the implementation of green buildings, particularly in terms of water management.

Keywords: Green building, Water Management, Water Efficiency, WWTP, Water Recycling, Permen PUPR 21/2021.