

**PENILAIAN PRASARANA FISIK IRIGASI BERBASIS IKSI
PASCABENCANA HIDROMETEOROLOGI PADA D.I JAMBO
AYE UNTUK REKOMENDASI REHABILITASI DI ACEH UTARA,
PROVINSI ACEH**

Nama : 1. Raden Andika Rizky Fauzia (231007)
2. Farell Reno Maulana Herlambang (231062)
Pembimbing : 1. Tia Hetwisari, S.T.,M.T.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis kondisi fisik, mengukur penurunan kinerja fungsional, dan merumuskan rekomendasi teknis pemulihan jaringan irigasi Sub D.I Arakundo pada Daerah Irigasi (D.I) Jambo Aye pascabencana hidrometeorologi banjir besar November 2025 di Kabupaten Aceh Utara. Evaluasi dilakukan menggunakan metode deskriptif kuantitatif berbasis Indeks Kinerja Sistem Irigasi (IKSI) sesuai Permen PUPR No. 12/PRT/M/2015 berdasarkan data inventarisasi hingga April 2026. Hasil inventarisasi menunjukkan adanya kerusakan fisik signifikan berupa tanggul jebol di beberapa saluran sekunder (Arakundo 686 m, Bandar Baru 85 m, Simpang Ulim 22 m, Ulim Timur 22 m, dan Madat 10 m), sedimentasi masif, penumpukan debris, vegetasi liar, serta kerusakan komponen pintu air. Dampak bencana ini menurunkan efektivitas distribusi air secara drastis, di mana dari potensi layanan ± 4.300 ha, jaringan saat ini hanya mampu mengalir lahan seluas ± 2.375 ha (55,23%). Meskipun kalkulasi nilai Indeks Kondisi Fisik prasarana berada pada rentang 81,4% hingga 99,4% (kategori Baik hingga Sangat Baik), fungsi pelayanan air terganggu signifikan akibat hambatan hidrolis dan kerusakan struktur. Rekomendasi teknis prioritas difokuskan pada perbaikan dan rekonstruksi tanggul jebol, pengerukan sedimen serta pembersihan debris/vegetasi, dan penggantian/perbaikan pintu air beserta stang pengatur pada bangunan sadap guna memulihkan fungsi irigasi secara optimal, andal, dan berkelanjutan.

Kata kunci : Evaluasi Kinerja, Jaringan Irigasi, IKSI, Bencana Hidrometeorologi, Bendung Jambo Aye.

**PHYSICAL IRRIGATION INFRASTRUCTURE ASSESSMENT
BASED ON HYDROMETEOROLOGICAL POST-DISASTERS IN THE
JAMBO AYE REGION FOR REHABILITATION
RECOMMENDATIONS IN NORTH ACEH, ACEH PROVINCE**

Name : 1. Raden Andika Rizky Fauzia (231007)
2. Farell Reno Maulana Herlambang (231062)
Mentor : 1. Tia Hetwisari, S.T.,M.T.

ABSTRACT

This study aims to analyze the physical condition, measure the decline in functional performance, and formulate technical recommendations for the restoration of the Arakundo Sub-District irrigation network in the Jambo Aye Irrigation Area (DI) after the major flood hydrometeorological disaster of November 2025 in North Aceh Regency. The evaluation was conducted using a quantitative descriptive method based on the Irrigation System Performance Index (IKSI) according to PUPR Ministerial Regulation No. 12/PRT/M/2015 based on inventory data until April 2026. The inventory results showed significant physical damage in the form of broken embankments in several secondary channels (Arakundo 686 m, Bandar Baru 85 m, Simpang Ulim 22 m, Ulim Timur 22 m, and Madat 10 m), massive sedimentation, debris accumulation, wild vegetation, and damage to sluice gate components. The impact of this disaster drastically reduced the effectiveness of water distribution, where from a potential service of $\pm 4,300$ ha, the current network is only able to irrigate an area of $\pm 2,375$ ha (55.23%). Although the Physical Condition Index (PCI) of the infrastructure is calculated to be in the range of 81.4% to 99.4% (category: Good to Very Good), water service functions are significantly disrupted due to hydraulic constraints and structural damage. Priority technical recommendations are focused on repairing and reconstructing breached embankments, dredging sediment and clearing debris/vegetation, and replacing/repairing sluice gates and control bars on the tapping structures at each site to restore optimal, reliable, and sustainable irrigation functions.

Keywords : Performance Evaluation, Irrigation Network, IKSI, Hydrometeorological Disaster, Jambo Aye Dam.