

INTISARI

Penelitian ini membahas rekonstruksi sistem hidrolika kuno di Kotagede pada masa awal Kesultanan Mataram Islam (1582–1601 M) dengan menelusuri jejak drainase dan pasokan air berdasarkan data arkeologis. Fokus kajian diarahkan pada bagaimana sistem pengelolaan air dibangun dan dioptimalkan dalam konteks geografis, teknologis, dan teologis masyarakat Mataram Islam. Penelitian ini menggunakan metode historis-kualitatif dengan pendekatan arkeologis dan geospasial. Analisis dilakukan melalui interpretasi hubungan antarfisik tinggalan arkeologis serta pengolahan data spasial menggunakan parameter slope, flow direction, flow accumulation, dan overlay untuk menelusuri pola aliran air.

Hasil penelitian menunjukkan bahwa sistem hidrolika di Kotagede memanfaatkan gradien kemiringan lahan sebagai “mesin” utama penggerak aliran air. Ditemukan dua sirkuit jagang dengan fungsi berbeda: jagang jaba berperan sebagai sistem pertahanan dan drainase kota, sedangkan jagang dalam berfungsi untuk kebutuhan spiritual dan pasokan air di lingkungan Ndalem. Temuan ini memperlihatkan keterpaduan antara teknologi, teologi, dan pemahaman ekologis masyarakat Mataram Islam dalam menata air secara harmonis dengan alam dan tatanan spiritualnya.

Kata kunci: Kotagede, hidrolika, Mataram Islam, arkeologi, geospasial

ABSTRACT

This research discusses the reconstruction of the ancient hydraulic system in Kotagede during the early period of the Mataram Islam Sultanate (1582–1601 AD) by tracing the drainage and water supply networks based on archaeological evidence. The study focuses on how water management systems were developed and optimized within the geographical, technological, and theological contexts of Mataram society. A historical–qualitative method was employed, combining archaeological interpretation and geospatial analysis. The analysis involved examining the physical interrelations among archaeological remains and processing spatial data using slope, flow direction, flow accumulation, and overlay parameters to identify water flow patterns.

The findings reveal that the hydraulic system of Kotagede utilized land slope gradients as the main “engine” driving water movement. Two distinct circuits of jagang were identified: the outer circuit functioned as a defensive and urban drainage system, while the inner circuit served spiritual purposes and supplied water to the Ndalem area. These results demonstrate the integration of technological, theological, and ecological understandings in Mataram Islam’s water management practices, reflecting a harmonious relationship between humans, nature, and spirituality.

Keywords: Kotagede, hydraulics, Mataram Islam, archaeology, geospatial