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Strategic Planning for Municipal Household and Similar Waste Management: A Master Plan for the Commune of Dellys, Algeria.
Ahmed Abdallah Faouzi ATTIA, Prof. Ir. Suryo Purwono, MASc, PhD.Muhammad Sulaiman, S.T., M.T., D.Eng
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ABSTRACT

Municipal household and similar waste management represents a critical environmental and institutional challenge for medium-sized municipalities in developing countries. In Algeria, rapid urban growth, limited financial resources, and fragmented institutional arrangements have significantly constrained the effectiveness of municipal waste management systems. This research aims to conduct a comprehensive diagnostic assessment of municipal household and similar waste management in the Commune of Dellys and to develop a strategic planning framework tailored to local conditions.

The study adopts a mixed-methods approach, combining field observations, waste characterization surveys, institutional analysis, and spatial mapping. Primary data were collected through on-site measurements, municipal records, and stakeholder consultations, while secondary data were derived from national regulations and international best practices. The analytical framework is grounded in the principles of Integrated Solid Waste Management, emphasizing technical, environmental, institutional, and financial dimensions.

The results reveal significant deficiencies in pre-collection and collection systems, limited waste segregation practices, inadequate equipment capacity, and weak coordination among institutional actors. Spatial analysis highlights service coverage gaps and operational inefficiencies across urban neighborhoods. Despite these challenges, the study identifies opportunities for system improvement through

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phased infrastructure upgrading, institutional strengthening, and the gradual introduction of waste reduction and recovery strategies.

The research concludes by proposing a strategic municipal waste management master plan, including short-, medium-, and long-term interventions. These recommendations aim to enhance service efficiency, environmental protection, and governance capacity, contributing to more sustainable urban waste management in Dellys and offering transferable insights for similar municipalities in Algeria.

Keywords: Municipal solid waste, Integrated solid waste management, Strategic planning, Urban environment, Dellys Municipality

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ABSTRAK

Pengelolaan sampah rumah tangga dan sejenisnya merupakan tantangan lingkungan dan kelembagaan yang penting bagi kota-kota berukuran menengah di negara berkembang. Di Aljazair, pertumbuhan perkotaan yang pesat, keterbatasan sumber daya keuangan, serta kelemahan dalam pengaturan kelembagaan telah menghambat kinerja sistem pengelolaan sampah perkotaan. Penelitian ini bertujuan untuk melakukan diagnosis menyeluruh terhadap pengelolaan sampah rumah tangga dan sejenisnya di Komune Dellys serta menyusun kerangka perencanaan strategis yang sesuai dengan kondisi lokal.

Penelitian ini menggunakan pendekatan metode campuran yang mengombinasikan observasi lapangan, survei karakterisasi sampah, analisis kelembagaan, dan pemetaan spasial. Data primer dikumpulkan melalui pengukuran langsung di lapangan, dokumen resmi pemerintah daerah, dan konsultasi dengan pemangku kepentingan. Data sekunder diperoleh dari peraturan nasional dan praktik terbaik internasional. Kerangka analisis didasarkan pada konsep Integrated Solid Waste Management yang mencakup aspek teknis, lingkungan, kelembagaan, dan pembiayaan.

Hasil penelitian menunjukkan adanya kelemahan pada sistem pra-pengumpulan dan pengumpulan sampah, rendahnya praktik pemilahan sampah, keterbatasan kapasitas peralatan, serta kurangnya koordinasi antar lembaga terkait. Analisis spasial mengungkap ketimpangan cakupan layanan dan inefisiensi operasional di berbagai kawasan perkotaan. Meskipun demikian, terdapat peluang peningkatan

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sistem melalui pengembangan infrastruktur secara bertahap, penguatan kelembagaan, serta penerapan strategi pengurangan dan pemanfaatan sampah.

Penelitian ini merekomendasikan rencana induk pengelolaan sampah perkotaan yang mencakup intervensi jangka pendek, menengah, dan panjang guna meningkatkan efisiensi layanan, perlindungan lingkungan, dan kapasitas tata kelola di Komune Dellys.

Kata kunci: Sampah rumah tangga, Pengelolaan sampah terpadu, Perencanaan strategis, Lingkungan perkotaan, Komune Dellys