

MUCHAMMAD IQBAL GANI. NIM 220331100113 PERANCANGAN TATA LETAK PRODUKSI PENGOLAHAN LIMBAH ORGANIK MENJADI PELLET IKAN MENGGUNAKAN METODE (ARC) (STUDI KASUS TPS 3R TAMBAK WEDI, SURABAYA). Di bawah bimbingan **R. Arief Firmansyah., S.TP., M.Si dan Nurmalisa Lisdayana, S.TP., M.Si.**

ABSTRAK

Permasalahan pengelolaan sampah organik di Indonesia masih menjadi tantangan yang perlu ditangani secara efektif. Salah satu upaya yang dapat dilakukan adalah memanfaatkan limbah organik sebagai bahan baku pembuatan pelet ikan. TPS 3R Tambak Wedi Surabaya memiliki potensi dalam mengolah limbah organik menjadi produk bernilai ekonomi, namun tata letak fasilitas produksi yang belum terstruktur menyebabkan aliran material kurang efisien, terjadinya backtracking, serta potensi penumpukan material pada beberapa tahapan proses. Penelitian ini bertujuan untuk merancang tata letak fasilitas produksi pelet ikan berbahan limbah organik menggunakan metode *Activity Relationship Chart (ARC)*. Penelitian dilakukan dengan pendekatan deskriptif kuantitatif melalui observasi lapangan, wawancara, dokumentasi, dan studi literatur. Tahapan penelitian meliputi identifikasi aktivitas produksi, penyusunan *Activity Relationship Chart (ARC)*, pembuatan *Activity Relationship Diagram (ARD)*, perancangan tata letak usulan, serta evaluasi tata letak. Aktivitas yang dianalisis meliputi penerimaan bahan baku, pemilahan, pencucian, pencacahan, pengeringan, pencampuran, pencetakan pelet, pengemasan, dan penyimpanan produk. Hasil penelitian menunjukkan bahwa metode ARC mampu mengidentifikasi tingkat hubungan kedekatan antar aktivitas produksi sehingga menjadi dasar dalam penyusunan tata letak fasilitas yang lebih efektif. Tata letak usulan dirancang berdasarkan konsep *one-way flow* sehingga aliran material bergerak secara berurutan tanpa persilangan jalur proses. Tata letak usulan mampu menciptakan pemisahan yang lebih jelas antara area penerimaan bahan, area proses produksi, dan area penyimpanan produk jadi. Penerapan metode ARC dinilai efektif dalam meningkatkan efisiensi aliran material, mengurangi potensi hambatan proses produksi, mempermudah pengawasan, serta mendukung pengelolaan limbah organik yang lebih produktif dan bernilai ekonomi.

Kata Kunci : *Activity Relationship Chart (ARC)*, tata letak fasilitas, limbah organik, pelet ikan, TPS 3R.

MUCHAMMAD IQBAL GANI. Student Identification Number: 220331100113. *PRODUCTION LAYOUT DESIGN FOR PROCESSING ORGANIC WASTE INTO FISH PELLETS USING THE (ARC) METHOD (CASE STUDY OF TPS 3R TAMBAK WEDI, SURABAYA).* This study was conducted under the supervision of **R. Arief Firmansyah., S.TP., M.Si dan Nurmalisa Lisdayana, S.TP., M.Si.**

ABSTRACT

Organic waste management remains a significant challenge in Indonesia and requires effective solutions. One potential approach is the utilization of organic waste as a raw material for fish pellet production. TPS 3R Tambak Wedi in Surabaya has the potential to convert organic waste into value-added products; however, the existing facility layout is not well organized, resulting in inefficient material flow, backtracking, and material accumulation at several production stages. This study aimed to design an improved facility layout for fish pellet production from organic waste using the Activity Relationship Chart (ARC) method. This research employed a quantitative descriptive approach through field observations, interviews, documentation, and literature review. The research stages included production activity identification, Activity Relationship Chart (ARC) analysis, Activity Relationship Diagram (ARD) development, proposed layout design, and layout evaluation. The analyzed activities consisted of raw material receiving, sorting, washing, shredding, drying, mixing, pelletizing, packaging, and product storage. The results showed that the ARC method successfully identified the closeness relationships among production activities and served as a basis for designing a more effective facility layout. The proposed layout was arranged according to the one-way flow concept, enabling materials to move sequentially through the production process without route intersections. Furthermore, the proposed layout provided a clearer separation between raw material receiving areas, production areas, and finished product storage areas. The implementation of the ARC method was effective in improving material flow efficiency, reducing production bottlenecks, facilitating supervision, and supporting more productive and economically valuable organic waste management.

Keywords: Activity Relationship Chart (ARC), facility layout, organic waste, fish pellets, TPS 3R.