

## PERANCANGAN ULANG TATA LETAK FASILITAS PRODUKSI GUDEG KALENG DI PT. RISQUNA DEWAKSARA DENGAN ALGORITMA BLOCPLAN

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### ABSTRAK

PT. Risquna Dewaksana merupakan industri yang memproduksi gudeg kemasan kaleng. Jadwal produksi gudeg kaleng dilakukan ketika ada permintaan dengan jumlah produksi 500-1500 kaleng produk. Berdasarkan studi pendahuluan, diketahui bahwa salah satu permasalahan yang dihadapi industri yaitu tata letak fasilitas yang belum terencana dengan baik. Penggunaan luas ruang di area produksi belum memperhatikan kelonggaran. Pola aliran bahan sudah terencana, namun masih terdapat *backtracking* dan jarak perpindahan bahan tidak minimum. Serta penempatan beberapa stasiun kerja belum mempertimbangkan hubungan keterkaitan antar kegiatan.

Tujuan dari penelitian ini untuk menganalisis dan mengevaluasi tata letak fasilitas awal di PT. Risquna Dewaksana serta merancang ulang tata letak fasilitas produksi dengan algoritma BLOCPLAN. Penggunaan algoritma BLOCPLAN melalui *software* BLOCPLAN90 dipilih karena menggunakan data masukan yang sederhana berupa luas area dan derajat hubungan kedekatan. Sedangkan hasil yang diperoleh antara lain nilai hubungan kedekatan, jarak perpindahan, serta dapat memberikan lebih dari satu alternatif tata letak.

Tata letak fasilitas awal dinilai menggunakan lembar periksa dengan hasil 51,43% kondisi aktual sudah sesuai kriteria tata letak yang baik dan sisanya 48,57% belum memenuhi. Hasil perancangan ulang tata letak fasilitas menggunakan algoritma BLOCPLAN antara lain: 1) Nilai rancangan terbaik untuk area preparasi yaitu *Adj.score* 0,75; *R-score* 0,83; dan *Rel-Dist score* 394, 2) Nilai rancangan terbaik untuk area pengemasan yaitu *Adj.score* 0,90; *R-score* 0,84; dan *Rel-Dist score* 280, serta 3) Nilai rancangan terbaik untuk area industri yaitu *Adj.score* 0,77; *R-score* sebesar 0,72; dan *Rel-Dist score* -145. Tata letak usulan dapat mengurangi jarak perpindahan yang disebabkan *backtracking* sebesar 103,02 meter (efisiensi 28,74%), mengurangi jarak perpindahan total sebesar 373,219 meter (efisiensi 14,94%), serta memaksimalkan penggunaan area industri yang tidak terpakai seluas 40,09 m<sup>2</sup> (efisiensi 87,94%).

Kata kunci: algoritma BLOCPLAN, perancangan ulang, tata letak fasilitas

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## REDESIGN FACILITY LAYOUT OF CANNED GUDEG PRODUCTION IN PT. RISQUNA DEWAKSARA USING BLOCPAN ALGORITHM

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### ABSTRACT

PT. Risquna Dewaksara is an industry that produces canned gudeg. Production plan are being carried out whenever there's certain demand with a total product of 500 – 1500 canned products. According to preliminary research, it is known that one of many problems faced by the industry is that its facility layout had not properly planned yet. Usage of space in production area had not been considering allowance. Material flow pattern is already planned but still caused backtracking and materials movement distance is not minimal. Also, the placement of several workstations had not been considering relationship among activities.

The goals of this research are to analyze and evaluate early facility layout on PT. Risquna Dewaksara as well as redesign production facility layout using BLOCPAN algorithm. BLOCPAN algorithm application through software BLOCPAN 90, was chosen because it uses simple input data such as area sizes and activities relationship degree of closeness. Meanwhile, the output acquired are closeness relationship, movement distance, as well as giving more than one alternatives layout plan.

Early facility layout is evaluated using exam sheet with result of 51,43% and already met the criteria of good layout, whereas another 48,57% is not good yet. Results of facility layout redesigning using BLOCPAN algorithm are: 1) The best redesign scores for preparation area are Adj.score 0,75; R-score 0,83; and Rel-Dist score 394, 2) The best redesign scores for packaging area Adj.score 0,90; R-score 0,84; and Rel-Dist score 280, also 3) The best redesign scores for industry area Adj.score 0,77; R-score sebesar 0,72; and Rel-Dist score -145. On suggested layout, the layout do not cause backtracking and movement distance caused by backtracking reduced by 103,02 meters (efficiency 28,74%), total movement distance reduced by 373,219 meters (efficiency 14,94%), and maximizing the use of unused floor area of 40,06 m<sup>2</sup> (efficiency 87,94%).

Keywords: BLOCPAN algorithm, facility layout, redesign

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