IMPLEMENTASI METODE *ANALITYCAL HIERARCHY PROCESS* DAN *WEIGHTED PRODUCT* DALAM PENENTUAN KELAYAKAN PENERIMA BANTUAN PANGAN NON-TUNAI DI DESA PELAPUAN

Oleh

I Desak Nyoman Triana Agustini, 2113101023

Program Studi Matematika

ABSTRAK

Penyaluran Bantuan Pangan Non-Tunai (BPNT) di Desa Pelapuan masih menghadapi tantangan berupa ketidaktepatan sasaran penerima akibat proses seleksi yang masih dilakukan secara manual dan subjektif. Penelitian ini bertujuan mengembangkan sistem pendukung keputusan dengan metode Analytical Hierarchy Process (AHP) dan Weighted Product (WP) guna meningkatkan objektivitas dan akurasi dalam menentukan kelayakan penerima BPNT. Metode AHP digunakan untuk menentukan bobot kriteria melalui perbandingan berpasangan, sedangkan metode WP digunakan untuk merangking alternatif berdasarkan bobot tersebut. Kriteria yang digunakan meliputi pendapatan keluarga, jumlah anggota keluarga, tingkat pendidikan, status pekerjaan, kepemilikan rumah, dan kepemilikan aset. Data diperoleh dari dokumen administratif desa tahun 2025 serta kuesioner kepada pegawai Dinas Sosial. Hasil penelitian menunjukkan bahwa kriteria pendapatan memiliki bobot tertinggi (0,447), diikuti oleh kriteria lain dengan tingkat kepentingan berbeda. Hasil perankingan menunjukkan alternatif A149 sebagai penerima paling layak. Sistem AHP-WP yang dikembangkan telah diuji melalui black-box testing dan menunjukkan performa baik dengan antarmuka ramah pengguna. Sistem ini mampu meningkatkan objektivitas, transparansi, dan efisiensi dalam penyaluran bantuan sosial, serta dapat menjadi acuan pengambilan keputusan yang berbasis data di tingkat desa.

Kata kunci: Bantuan Pangan Non-Tunai (BPNT), Sistem Pendukung Keputusan, *Analytical Hierarchy Process* (AHP), *Weighted Product* (WP), Perangkingan, Kelayakan Penerima.

IMPLEMENTATION OF ANALYTICAL HIERARCHY PROCESS AND WEIGHTED PRODUCT METHODS IN DETERMINING THE ELIGIBILITY OF NON-CASH FOOD ASSISTANCE RECIPIENTS IN PELAPUAN VILLAGE

By

I Desak Nyoman Triana Agustini, 2113101023

Department of Mathematics

ABSTRACT

The distribution of Non-Cash Food Assistance (BPNT) in Pelapuan Village still faces several challenges, particularly regarding the inaccuracy of aid recipients. The current manual and subjective selection process poses risks of social injustice and inefficiency in aid distribution. This study aims to develop a decision support system by applying the Analytical Hierarchy Process (AHP) and Weighted Product (WP) methods to improve objectivity and accuracy in determining the eligibility of BPNT recipients. The AHP method is used to determine the weight of each criterion based on pairwise comparisons, while the WP method is used to rank alternatives based on the obtained criterion weights. The criteria considered in this study include family income, number of family members, education level, employment status, homeownership status, and asset ownership. Data were obtained from both secondary sources (administrative village documents, 2025) and primary sources (questionnaires distributed to Social Services officers). The results showed that income was the most influential criterion (0.447), followed by other criteria with varying degrees of importance. The ranking results identified Alternative A149 as the most eligible recipient. The AHP-WP-based system was tested using a black-box approach and demonstrated good performance with a user-friendly interface. This system improves objectivity, transparency, and efficiency in social assistance distribution and can serve as a data-driven decision-making reference for local governments.

Keywords: Non-Cash Food Assistance (BPNT), Decision Support System, Analytical Hierarchy Process (AHP), Weighted Product (WP), Ranking, Eligibility Assessment.