

MAPPING THE DISTRIBUTION NETWORK OF A GOVERNMENT NON-CASH FOOD ASSISTANCE USING GEOSPATIAL INFORMATION SYSTEM IN KULON PROGO REGENCY, INDONESIA

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Abstract: In Indonesia, poor people received non-cash food assistance from the government. Every household gets rice and egg in the equivalent of IDR 110,000 per month. Although the funding is from the central government, the implementation is the responsibility of local governments. In Kulon Progo Regency, the number of recipients amounted to around 53,000 households. The Regency has a total area of 580 km². To make optimum use of the funding received from the central government, the Regency innovates in the method of distribution. Rice and eggs to be distributed should come from local farmers and breeders. The delivery is conducted by e-Warong, a community-owned small kiosk. However, not all parts of the Regency have the rice field essential in this program. The situation creates inequality in the distribution spans. Moreover, the location of rice supplier and e-Warong have not been known. This paper aims to describe the mapping of these parties and analyze their spatial implication.

This research used the following geospatial data: administrative boundary up to village level, road network, and digital elevation model (DEM) as the primary data. List of recipients, e-Warong and was provided by the Social Agency of Kulon Progo Regency. The official data contain detailed address up to the neighborhood level, which is two levels below the village administrative unit. Unfortunately, there is no administrative boundary map at such a detailed level. A field survey was conducted to map the location of 13 rice suppliers and 111 e-Warongs using Mobile Topographer apps on an Android smartphone. The location of parts of household recipients was also recorded. After all data were collected, they were processed using analysis operation in a GIS environment.

The result of this investigation are maps of the distribution network, which consists of rice supplier, e-Warongs, and recipients of non-cash food assistance. Further, service area maps based on travel distance and travel time were also created — both for the connection between rice supplier and e-Warong, and between e-Warong and the recipients. Spatially and visually, the inequality of the distribution network is evident. The rice supplier is concentrated in the southern part of the Regency, the center of agricultural field. Nonetheless, they have to serve e-Warong in the northernmost area. This inequality is caused by distance and topography, factors that were not visible in the textual data currently used. GIS has been used to create maps

of distribution network between rice supplier, e-Warong, and recipients of government assistance in visually attractive and spatially descriptive modes.

Keywords: map, network analysis, distribution network, OD Coast Matrix.