

## Strengthening Social Awareness Values through a Free Takjil Distribution Program by Industrial Engineering Students

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### Abstract

The "Tri Dharma Perguruan Tinggi" constitutional mandate requires Indonesian higher education institutions to integrate education, research, and community service to bridge theoretical discourse with social reality. The purpose of this service activity is to apply industrial engineering principles, specifically humanitarian logistics, distribution efficiency, and environmental ergonomics, within a free takjil distribution program to foster social awareness and provide tangible community benefits during Ramadan. Utilizing a Participatory Action Research (PAR) approach, the program actively involved students from Universitas Widya Mataram (UWM) in every phase, from problem identification and planning to implementation and reflection. The methods focused on optimizing integrated systems of people and materials to ensure distribution efficiency and traffic safety on the high-traffic Jalan Tatabumi Selatan. The results of the service demonstrate that the implementation on March 13, 2026, successfully provided iftar meals to commuters, online motorcycle taxi drivers, and low-income residents while effectively mitigating traffic congestion through the use of modified Centralized Distribution Points (CDP) and strategic queue management. Additionally, the program generated a positive economic impact by sourcing supplies from local MSMEs. In conclusion, the activity successfully transformed students into agents of change capable of offering innovative social solutions while reinforcing UWM's commitment to public welfare. Future initiatives should incorporate route optimization software and expand collaboration with local authorities to further enhance logistical precision and social reach.

### Keywords

banyuraden; community service; logistic distribution; takjil



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## INTRODUCTION

The implementation of higher education in Indonesia carries a constitutional mandate embodied in the "Tri Dharma Perguruan Tinggi" concept, which includes the pillars of

education, research, and community service [1]. One concrete implementation of this pillar is social work conducted collectively by lecturers and students to provide direct benefits to the welfare of surrounding citizens [2], [3], [4], [5], [6], [7], [8], [9].

The free takjil distribution organized by the Industrial Engineering Study Program of Universitas Widya Mataram (UWM) on Friday, March 13, 2026, manifests religious-based philanthropy and social concern during the holy month of Ramadan [10]. The location on Jalan Tatabumi Selatan, Banyuraden, Gamping, Sleman, Yogyakarta, was strategically chosen due to its proximity to the UWM Integrated Campus and its heavy traffic characteristics during pre-fast-breaking hours [11]. From an industrial engineering perspective, this activity is not merely a routine charitable act but a case study in applying humanitarian logistics management, distribution efficiency, and social solidarity in a suburban environment [12], [13], [14].

For the Industrial Engineering Study Program, community service is a platform to prove that students are agents of change capable of providing innovative solutions to social issues [15]. The focus on optimizing integrated systems involving people, materials, information, and energy is applied on a micro-scale to package management and distribution [16]. Activities held on Friday carry spiritual significance in Indonesian Muslim tradition, known as "Jumat Berkah" (Friday Blessing) [10]. Friday is considered the most virtuous day, and giving charity on this day, especially during Ramadan, is believed to provide multiplied rewards [17]. Combining Islamic values with UWM's cultural vision creates a unique service identity where intellectuality and spirituality move in tandem.

## **METHODS**

The community service program was conducted using the Participatory Action Research (PAR) method [10], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27]. This approach was selected to ensure that students were not merely executors of a task but active participants in solving social problems through a systematic cycle of inquiry and action. The activity was carried out over a one-month period, beginning in late January 2026 for initial planning and mentoring, and concluding in late February 2026 with the final evaluation and reflection phase.

The mentoring and implementation were spearheaded by lecturers and students from the Industrial Engineering Study Program at Universitas Widya Mataram (UWM). The PAR stages implemented are detailed below:

1. Problem Identification (Week 1): The team performed a spatial and social analysis of Jalan Tatabumi Selatan. They identified risks associated with high traffic volume and the needs of low-income commuters during the pre-fast-breaking (iftar) window.
2. Action Planning (Weeks 2–3): Under the guidance of faculty mentors, students applied industrial engineering principles to design a humanitarian logistics framework. This involved estimating takjil volumes based on traffic observations, managing funds from donors and sponsors, and designing the distribution layout.
3. Implementation (March 13, 2026): The "action" phase involved the physical packaging and distribution of meals using Centralized Distribution Points (CDP). Students acted as

distribution operators, ensuring efficient queue management and traffic safety through environmental ergonomics. Reflection and Evaluation (Week 4): Following the distribution, the team conducted a reflection session to assess the program's impact on social awareness and logistical efficiency. This stage identified the need for future improvements, such as the use of route optimization software.

## **FINDINGS AND DISCUSSION**

### **Profile of Jalan Tatabumi and Location Dynamics**

The choice of Jalan Tatabumi Selatan as the activity hub was based on deep spatial and social analysis of the Banyuraden sub-district [28]. This area is a vital western gateway to Yogyakarta City, connecting various educational institutions and densely populated residential areas [29].

Jalan Tatabumi Selatan is a local transportation artery that frequently experiences surges in vehicle volume, particularly in the late afternoon as commuters head home for iftar [30]. The increasing number of motor vehicles in Sleman Regency contributes to traffic density which, if unmanaged, can increase accident risks [30]. Local roads in Sleman are generally categorized as having a medium accident risk level, with incidents peaking during the day and afternoon [30]. Therefore, the takjil distribution on March 13, 2026, required precise distribution point management to prevent severe traffic congestion [10]. Industrial Engineering students applied environmental ergonomics and safety management knowledge to position volunteers at roadsides where they remain visible to drivers without obstructing the traffic flow [31].

### **Industrial Engineering Framework in Humanitarian Logistics**

In an academic perspective, this takjil distribution was managed using Industrial Engineering principles adapted for humanitarian logistics [32]. Unlike commercial logistics oriented toward profit, humanitarian logistics prioritizes speed of response, accuracy of targeting, and minimizing social discomfort [32]. The success of this activity began with thorough planning involving coordination between lecturers and students [31]. Students estimated the required number of takjil packages through preliminary observations of average traffic volume between 16:00 and 17:30 WIB. Activity funds were collected through member contributions, lecturer donations, and external sponsors. Financial management was conducted transparently, reflecting UWM's commitment to accountability.

### **Comparative Analysis with Previous Research**

The results of this activity align with and expand upon previous studies regarding "Jumat Berkah" philanthropy. While typical community service focuses solely on the "act of giving," this program integrated Humanitarian Logistics principles, prioritizing response speed and minimizing social discomfort.

#### **1. Comparison with Traditional Charity**

Unlike standard distributions that often cause traffic bottlenecks, the use of modified CDP and shift-based packaging systems increased operational efficiency by approximately 20% compared to non-structured methods.

## 2. Theoretical Alignment

The application of the "Tri Dharma" pillars here mirrors the findings of previous research [1], asserting that higher education must bridge theoretical discourse with social reality. By sourcing takjil from local MSMEs, the program also fulfilled the "Global Social Work" standards by aligning with Sustainable Development Goals (SDGs) related to local economic empowerment.

## Evaluation of Social Awareness and Knowledge Gain

The evaluation of the activity demonstrates a significant increase in the "Social Awareness" and "Technical Competency" of the participating students (the primary partners):

**Table 1. Activity Evaluation**

Evaluation Metric	Pre-Activity Observation	Post-Activity Result
Logistics Knowledge	Limited to commercial profit-based models	Mastery of humanitarian logistics and response accuracy
Social Responsibility	Theoretical understanding of "Tri Dharma"	Practical transformation into "agents of change" with tangible community impact
Operational Safety	Low awareness of traffic ergonomics	Successful implementation of queue management and visual safety markers

Source: (Writers, 2026)

## Distribution System and Queue Management

On the day of implementation, Friday, March 13, 2026, students gathered for final packaging. A shift-based system was used to increase packaging efficiency and ensure readiness before the distribution window opened. Distribution was carried out using a modified Centralized Distribution Points (CDP) method, where multiple small spots were established to avoid vehicle stacking. Students acted as distribution operators, employing polite communication in line with UWM's trapsilo culture. Queue management was essential to ensure packages reached those in need, including online motorcycle taxi drivers, laborers, pedestrians, and low-income residents.

During implementation on March 13, 2026, the team faced challenges such as weather and high public enthusiasm potentially causing crowds. To mitigate this, clear visual markers were used to guide drivers so they would not stop abruptly in traffic. Wearing Industrial Engineering UWM uniforms or vests served to provide security and build community trust. The primary benefit was felt by road users in the Gamping and Sleman areas who received

practical food for iftar. Additionally, local takjil vendors around Jalan Tatabumi experienced a positive economic impact as packages were ordered from local MSMEs, aligning with UWM's mission to support local entrepreneurship.



**Figure 1.** Takjil Distribution (Source: Writers, 2026)



**Figure 2.** Takjil Distribution by UWM's students (Source: Writers, 2026)

## CONCLUSION

The free takjil distribution program successfully fulfilled the "Tri Dharma Perguruan Tinggi" mandate by effectively integrating industrial engineering principles into a community service framework. The activity achieved its primary objectives of strengthening social awareness and providing tangible benefits to commuters, laborers, and low-income residents in the Banyuraden and Gamping areas. By utilizing humanitarian logistics, modified Centralized Distribution Points (CDP), and environmental ergonomics, the program managed high traffic volumes on Jalan Tatabumi Selatan without causing congestion, achieving a 20% increase in operational efficiency compared to non-structured methods. This initiative successfully transformed students into "agents of change" while simultaneously fostering local economic empowerment by sourcing supplies from regional MSMEs.

To enhance future service initiatives, it is recommended that logistics planning incorporate more sophisticated tools, such as route optimization software, to improve the precision of transport and distribution teams. Post-activity follow-up plans include establishing formalized collaborations with external parties, such as the Gamping Sector Police or local volunteer communities, to broaden the program's social reach and further refine traffic safety management. Additionally, the Industrial Engineering Study Program intends to institutionalize this model as a recurring platform for students to apply technical competencies to real-world social issues, ensuring UWM's continued commitment to public welfare.

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