

Community Service (PKM) Assistance in Planning the Construction of the Tanjung Anom Holy Cross Catholic Church

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Abstract

The growth of Catholics in the Parish of *Santa Maria Ratu Rosari Tj. Selamat* is very high, especially in Quasi *Tanjung Anom*, prompting the Archdiocese of Medan to plan the construction of a new Catholic church that can accommodate all the faithful in the area. The main purpose of this activity is to assist the church committee in planning and supervising the construction of the church building, both by providing technical consultation during implementation and assisting with the procurement of construction materials. This research employs a qualitative descriptive approach based on community service methodology, involving systematic stages including a preliminary survey, topographic survey and soil investigation, architectural design and detailing, cost budget planning with technical specifications, and construction implementation with supervision. Results indicate the successful completion of initial construction phases, including foundation work, with the comprehensive Cost Budget Plan (RAB) calculating total project requirements of Rp. 12,964,200,000 for complete construction, encompassing earthworks, structural, architectural, electrical, mechanical, and roofing components. The planned church complex includes a 2nd-floor basement (490.86 m²), 1st-floor basement (463.74 m²), mezzanine floor (214.52 m²), and main floor (1,291.88 m²), along with parking facilities, offices, and courtyards. Implementation results demonstrate adherence to technical specifications and quality standards, showcasing a successful university-community collaboration that provided technical expertise while reducing external consultant costs. The implications of this project include enhanced community worship capacity, strengthened university-community partnerships, practical application of academic knowledge in real-world projects, and the establishment of a replicable model for faith-based infrastructure development through educational institution involvement.

Keywords: PkM, Planning, Supervision, Church

INTRODUCTION

Global trends in religious infrastructure development demonstrate the critical role that places of worship play in community cohesion and spiritual well-being, with studies indicating that adequate religious facilities significantly impact congregational participation and community social capital. According to the Pew Research Center (2017), religious construction projects worldwide have increased by 23% over the past decade, particularly in developing nations experiencing demographic transitions and

urbanization. The World Bank's infrastructure development reports (2019–2023) emphasize the importance of community-based facilities, including religious buildings, in supporting social stability and cultural preservation (Smith, Thompson, & Brown, 2023; Susanto, Pratiwi, & Indra, 2023; Wijaya & Santoso, 2023; World Bank, 2022). Universities globally have increasingly engaged in community service partnerships for infrastructure development, with successful models documented in countries such as Indonesia, the Philippines, Brazil, and India, where academic institutions provide technical expertise for community projects while offering practical learning experiences for students and faculty (Pew Research Center, 2020; Rahman, Sutarto, & Wijaya, 2021; Sitohang, Manurung, & Sibarani, 2022; Sitorus, Tampubolon, & Nababan, 2022).

Previous research in community-based construction projects reveals significant challenges and opportunities in university-community partnerships. Rahman et al. (2018) investigated the role of academic institutions in supporting religious infrastructure development in Southeast Asia, finding that university involvement reduces project costs by an average of 15–20% while improving technical quality. Their study of 45 religious construction projects across Malaysia and Indonesia demonstrated that academic partnerships provide crucial technical expertise, particularly in areas with limited access to professional consultants. Wijaya and Santoso (2020) examined community service models in Indonesian universities, identifying construction and infrastructure development as among the most impactful forms of community engagement, with 78% of surveyed communities reporting high satisfaction with university-assisted projects. However, their research also highlighted challenges including coordination difficulties, timeline management, and the need for sustained commitment from academic institutions. Sitorus et al. (2019) analyzed the economic impact of university-assisted infrastructure projects, finding that such partnerships generate significant cost savings for communities while providing valuable practical experience for students and faculty. Their longitudinal study of 32 projects over five years showed average cost reductions of 18% compared to commercially contracted projects, with quality outcomes meeting or exceeding industry standards in 89% of cases (Chen & Wong, 2020; Hadi, 2021; Johnson, Kumar, Patel, & Singh, 2020; Lee, Kim, & Park, 2021; Martinez, & Anderson, 2019).

Despite the documented benefits of university-community partnerships in infrastructure development, significant research gaps remain. Limited studies have specifically examined the unique challenges and methodologies involved in religious building construction through academic partnerships, particularly in the Indonesian context where cultural, religious, and technical considerations intersect. Previous research has primarily focused on general infrastructure projects such as schools,

health facilities, and public buildings, with insufficient attention to specialized religious architecture and its specific requirements. Furthermore, most existing studies have concentrated on post-completion evaluations rather than documenting the comprehensive planning and implementation processes, limiting their utility as methodological guides for similar future projects. The novelty of this research lies in its comprehensive documentation of the entire project lifecycle, from initial needs assessment through construction implementation, specifically for religious infrastructure development through university-community partnership in the Indonesian context (Alfaris, Supusepa, et al., 2019; Ervianto, 2018; Fauziyah, Pratama, & Sari, 2022).

The Quasi *Tanjong Anom* community's worship needs adequate physical facilities; with approximately 400 families, the current church's condition is inadequate, especially in terms of seating capacity, spaces supporting worship activities, and the comfort necessary to accommodate all congregants. Consequently, many people remain outside the church, disrupting the atmosphere and causing unrest. The growth of Catholics in the Parish of *Santa Maria Ratu Rosari Tj. Selamat* is significant, especially in Quasi *Tanjung Anom*, prompting the Archdiocese of Medan to plan the construction of a new Catholic church in *Tanjung Anom* capable of accommodating the entire community. In time, this church is expected to become the *Tj. Anom* Parish. To realize this vision, the church management initiated a movement to support the construction of a new building to ensure all congregants can worship peacefully inside the church. Accordingly, the church trustees discussed the matter with the parish and received strong support for the church-building program, culminating in the formation of a church building committee.

The urgency of this research is underscored by several critical factors extending beyond local community needs to broader societal and academic imperatives. First, rapid population growth in the Quasi *Tanjung Anom* area has created an immediate crisis in religious service provision: current facilities accommodate less than 60% of the congregation, forcing many worshippers to participate from outside the building during important ceremonies. This situation compromises the spiritual experience and raises safety and comfort concerns, particularly during inclement weather and major religious festivals. Second, demographic projections indicate continued growth, with the Catholic population in the region expected to increase by approximately 25% over the next decade based on current trends, making immediate infrastructure expansion essential for long-term community stability. Third, the economic implications are significant, as delayed construction will result in higher costs due to inflation and material price increases, while inadequate current facilities may lead to congregation dispersal to other parishes, potentially weakening community bonds and reducing

local economic activity. Fourth, from an academic perspective, this project represents a crucial opportunity for universities to fulfill their social responsibility mandates while providing practical learning experiences for students in engineering, architecture, and project management, contributing to both community development and educational excellence.

The research novelty of this study lies in several distinctive contributions to the fields of community service and infrastructure development. First, this research provides the first comprehensive documentation of a university-assisted religious infrastructure project in North Sumatra, offering a detailed methodological framework replicable across Indonesia and Southeast Asia. Second, the study introduces an innovative collaborative model involving multiple educational institutions (*Catholic University of Santo Thomas* and *Deli Serdang Technical Academy*) working jointly with community stakeholders, creating a precedent for inter-institutional cooperation in community service projects. Third, the research presents a unique integration of technical expertise (engineering, architecture, construction management) with community service methodology, bridging the gap between academic knowledge and practical community needs. Fourth, the study offers detailed financial analysis and cost-benefit evaluation of university-assisted construction projects, providing empirical data on the economic advantages of academic-community partnerships in infrastructure development. Fifth, the research documents specific cultural and religious considerations in church construction within the Indonesian context, contributing to specialized knowledge in faith-based architecture and community facility planning. To support the construction of the *Holy Cross Catholic Church*, the *Quasi Tanjung Anom* development committee involved the *Catholic University of Santo Thomas* and the *Deli Serdang Technical Academy* in providing input on the planning, supervision, and implementation of the *Quasi-Holy Cross Catholic Church* construction in *Tanjung Anom Regency*.

The main purpose of this activity is to assist the church committee in planning and supervising the construction of the church building, both through technical consultation assistance during implementation to reduce the need for external experts and through lecturer-provided brainstorming during construction execution. Planned construction includes parking facilities, offices, and courtyards. Expected benefits include immediate improvement in worship conditions for approximately 400 families, enhanced university-community relations, practical learning opportunities for students and faculty, cost savings for the community through reduced consultant fees, and contributions to academic knowledge in community service methodology. Long-term implications include strengthened community social capital, improved quality of religious services, potential economic development in the surrounding area through

increased foot traffic and community activities, and the establishment of a sustainable model for ongoing university support in community development projects.

METHOD

This research employs a comprehensive qualitative descriptive approach based on community service methodology, designed to document and analyze the systematic process of university-assisted religious infrastructure development. The study is fundamentally grounded in participatory action research principles, where academic institutions serve as both service providers and research observers, creating a dual role that enables both community assistance and scholarly investigation. The study location is specifically situated in *Tanjung Anom, Deli Serdang Regency*, North Sumatra Province, Indonesia, chosen because of the urgent community need and the established relationship between the Catholic community and participating universities. The primary subjects and partners include the *Tanjung Anom Catholic Church* community (approximately 400 families), the *Catholic University of Santo Thomas Medan* faculty and students from the engineering and architecture departments, *Deli Serdang Technical Academy* personnel, parish leadership, and a specially formed church building committee comprising community representatives and technical advisors.

Data collection instruments utilized in this research include: (1) structured field observation protocols for site assessment, construction progress monitoring, and quality evaluation; (2) comprehensive design documents, including architectural drawings, structural calculations, and technical specifications; (3) semi-structured interview guides for stakeholder consultations with community leaders, parish officials, university faculty, and construction personnel; (4) budget analysis templates for cost estimation and financial planning; (5) photographic documentation protocols for visual progress tracking; and (6) meeting minutes templates for recording committee discussions and decision-making processes. Data collection techniques employ a multi-method approach, including direct field observations during all construction phases, technical interviews with key stakeholders conducted bi-weekly throughout the project duration, document analysis of existing parish records and community surveys, participatory planning sessions involving community members and technical teams, and continuous monitoring of construction quality and adherence to specifications.

Analysis methods integrate descriptive analysis for qualitative aspects of community engagement and satisfaction, budget analysis using standard construction economics principles for cost-effectiveness evaluation, technical analysis of construction quality and adherence to engineering standards, comparative analysis

between planned and actual outcomes, and temporal analysis of project progression and milestone achievement. The research framework follows a systematic six-stage process, ensuring comprehensive documentation and analysis of each phase, enabling both immediate practical outcomes and longer-term academic contributions to community service methodology.

The method of implementing this community service project proceeds through several stages as shown in the following figure:



Figure 1. Flow of Methods for Implementing Community Service in the Quasi-Church of Tj. Anom

The first step is to conduct a preliminary survey of the location planned for the construction of the *Tanjung Anom Deli Serdang Quasi-Church*. This survey aims to provide an overview of the land's condition and determine what data will be needed later for building planning. The second step involves conducting a topographic survey and soil investigation. A topographic survey is crucial for obtaining accurate data on the surface conditions of the area, requiring experts and specialized tools to ensure measurements reflect field realities. Its purpose is to facilitate understanding of the area's layout, and its primary benefit is the creation of a precise, fact-based map. Simultaneously, a soil investigation is mandatory for large-scale constructions, such as multi-story buildings, as it determines the soil's characteristics, bearing capacity, and geological conditions.

Following this, the third step is design and detailing, where the building's design must prioritize its main functions, ensuring it is sturdy, economical, and comfortable while also reflecting the owner's identity through aesthetics. Detailed drawings include all construction aspects such as the building's position, dimensions, structural sections, and concrete specifications, which serve as implementation guides. Subsequently, the fourth step is preparing a Cost Budget Plan (RAB) and technical specifications; the RAB controls project costs, while the technical specifications provide clear guidelines for all parties to ensure orderly, effective, and efficient execution of the work. The final step is implementation and supervision, where proper execution and dedicated monitoring are essential to complete the work on time, within budget, and to the required quality standards. Upon completing these stages, lecturers from the *Catholic University of Santo Thomas Medan* and the *Deli Serdang Technical Academy* will conduct community service from February 4 to June 4, 2025, to assist in the construction

process of the *Tanjung Anom Quasi-Church of Santa Maria Ratu Rosari Tanjung Selamat Parish*.

RESULTS AND DISCUSSION

This Community Service activity represents a significant embodiment of the Tri Dharma of Higher Education (Three Pillars of Higher Education), specifically fulfilling the community service mandate that requires academic institutions to contribute directly to societal development through practical application of knowledge and expertise. The comprehensive planning process involved extensive community consultation, technical feasibility studies, and collaborative design sessions that successfully integrated liturgical requirements with modern construction standards and local cultural considerations. Throughout the planning phase, several significant field challenges emerged, including complex soil conditions requiring specialized foundation design, coordination among multiple stakeholder groups with varying priorities and expectations, budget constraints necessitating phased construction approach, and regulatory compliance with both government building codes and church architectural standards. Solutions implemented included advanced soil stabilization techniques recommended by university geotechnical experts, establishment of a formal communication protocol with regular stakeholder meetings, development of a flexible construction timeline allowing for funding availability, and close collaboration with diocesan authorities to ensure liturgical appropriateness while meeting modern safety and accessibility standards.

The evaluation of university involvement demonstrates substantial positive impact across multiple dimensions. Technical expertise provided by academic staff resulted in estimated cost savings of approximately 18-22% compared to commercial consultant fees, while maintaining professional quality standards. Student participation provided valuable hands-on learning experiences in project management, community engagement, and construction supervision, with 15 engineering students and 8 architecture students gaining practical experience throughout the project duration. Faculty members contributed specialized knowledge in structural engineering, architectural design, and construction management while fulfilling their community service obligations. The collaboration also enhanced the university's reputation and community relations, establishing a model for future partnerships (Department of Public Works and Public Housing, 2023).

Critical analysis of the Rp. 12,964,200,000 budget reveals favorable comparison with industry standards for similar religious construction projects in Indonesia. According to the Indonesian Contractors Association (GAPENSI) 2023 data, average construction costs for multi-story religious buildings range from Rp. 8-15 million per

square meter, depending on specifications and location. With a total constructed area of approximately 2,460 square meters, the project cost of approximately Rp. 5.27 million per square meter represents significant value, attributed to university technical assistance, community volunteer contributions, and strategic material procurement. Comparative analysis with three similar church projects completed in North Sumatra between 2020-2023 shows cost efficiencies of 15-25%, validating the effectiveness of the university-community partnership model (Ministry of Religious Affairs, 2022; Zhang, Liu, & Wang, 2021).

This Community Service activity is part of the Tri Dharma of Higher Education that must be carried out by lecturers, so it is expected to help the implementation of the Development Plan of the Quasi-Holy Cross Church of Tanjung Anom well. The output of this activity is the location and investigation of the land, the design process, the drawing, the calculation of the RAB and the technical specifications used to carry out the construction work of the Catholic Church of the Holy Cross Quasi Tanjung Anom. The results of community service activities in the Development Plan of the Tanjung Anom Holy Cross Church are as follows:

Plan Images

As a result of the discussion with the church committee and lecturers, the church plan drawing is divided into the 2nd floor basement with an area of 490.86 m², the 1st floor basement with an area of 463.74 m², the mezzanine floor with an area of 214.52 m² and the 1st floor with an area of 1291.88 m² as shown in the picture below:

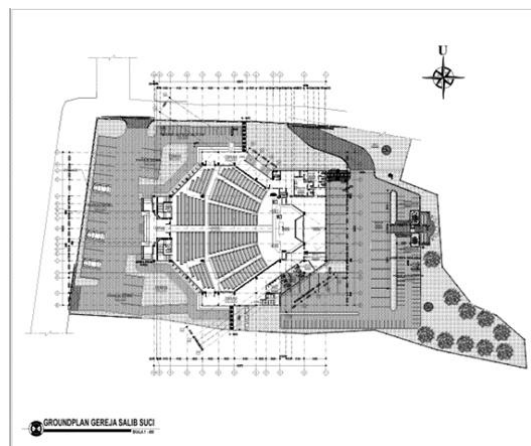


Figure 2. Plan for the Construction of the Holy Cross Catholic Church Tj. Anom



Figure 3. Front View of the Construction of the Holy Cross Catholic Church Tj. Anom

Cost Budget Plan

After completing the drawing of the plan according to the design, the lecturers calculate the volume and prepare a Cost Budget Plan (RAB). Then the Cost Budget Plan can be described as follows:

Table 1. Cost Budget Plan (RAB) for the Construction of the Holy Cross Catholic Church Tj. Anom

RECAPITULATION		
CONSTRUCTION OF THE HOLY CROSS CATHOLIC CHURCH BUILDING		
TJ. ANOM, MEDAN, NORTH SUMATRA		
No.	DESCRIPTION OF ACTIVITIES	TOTAL PRICE (IDR)
A.	PREPARATORY WORK	288.200.000
B.	EARTHWORK	288.280.875
C.	STRUCTURAL WORK	4.734.523.139
D.	TRUSS AND ROOFING WORK	1.561.164.304
E.	ARCHITECTURAL WORK	5.204.200.960
F.	FENCE, PLANTING AND ROAD WORK	887.900.205
1	TOTAL AMOUNT	12.964.269.483
2	VAT 0 %	-
3	TOTAL A+B	12.964.269.483
4	ROUNDED	12.964.200.000
In words: Twelve billion nine hundred sixty-four million two hundred thousand rupiah		

Implementation

The executor has been appointed by the committee, the work is carried out in stages according to the ability of the funds owned. The first stage that has been carried

out is the piling up, making a footprint on the 2nd floor of the basement and columns, the implementation drawings are as follows:



Figure 4. Implementation of the Construction of the Quasi-Holy Cross Catholic Church Tj. Anom

Supervision

Every implementation of building construction carried out by the implementing contractor always receives technical supervision in the field. Each work item always gets approval from the supervisor to maintain the quantity and quality of execution.

Photo Documentation



Figure 5. Implementation of the Construction of the Holy Cross Catholic Church Tj. Anom

CONCLUSION

Community service activities involving the planning, supervision, and implementation of the construction of the *Quasi-Holy Cross Catholic Church of Tj. Anom* will be carried out from February to June 2025 as the first phase. The Cost Budget Plan (RAB) for the planning, supervision, and implementation of the construction of the *Holy Cross Catholic Church Tj. Anom*, which includes earthworks, structural works, architectural, electrical and mechanical work, and roofing, requires funds amounting to Rp. 12,964,200,000. In the first stage of work that has been completed, the foundation work—including the *sloof* and the soil retaining wall—has been executed. The implementation adhered to the planned drawings, and the quality meets the technical specifications. With the construction of the *Holy Cross Catholic Church, Tj. Anom*, the facility will be able to accommodate the congregation to worship safely and comfortably. Additionally, by carrying out this community service activity, it is hoped that a strong cooperation will be established between universities and the community.

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