



Spatial Planning and Development of the Miftahul Ulum Islamic Boarding School Area in Rasau Jaya District, Kubu Raya Regency

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Abstract: The Miftahul Ulum Islamic Boarding School (Pondok Pesantren), located in Rasau Jaya District, Kubu Raya Regency, faced problems related to limited facilities and suboptimal spatial arrangement. This condition caused discomfort for students (santri) in their daily activities, including aspects of accommodation, learning, and worship. This research aimed to plan and arrange the pesantren area in an integrated manner by developing a site plan, planning supporting infrastructure, and calculating the estimated budget for the construction of the male dormitory. The research method included a literature review, field survey, and analysis of space requirements based on applicable technical standards. The collected data were analysed descriptively to illustrate the existing conditions, followed by zoning planning for the area using the reference standard SNI 03-1733-2004, and budget calculation based on unit price analysis appropriate to local conditions. The results of the study proposed the division of the area into three zones: public, semi-private, and private, supported by educational, worship, accommodation, and ancillary facilities. The Bill of Quantity (BOQ) calculation showed the estimated cost needed for the construction of the student dormitory, which can serve as a guide for implementation. In conclusion, this research suggests that integrated planning and arrangement of the pesantren area are capable of creating a more organized, comfortable, and sustainable learning environment.

Keywords: Planning & Spatial Arrangement, Islamic Boarding School, Cost Estimation, Site Plan, Sustainable Development.

1. Introduction

Islamic boarding schools (pesantren) are unique Indonesian educational institutions that play a strategic role in shaping the personality, strengthening spirituality, and developing the life skills of their students. They serve not only as centers for Islamic teachings, but also as platforms for moral development and social interaction for the surrounding community [1]. Pondok Pesantren Miftahul Ulum, situated in the Rasau Jaya Sub-district, Kubu Raya Regency, is

established on waqf (endowment) land covering an approximate area of six hectares. Its institutional evolution began as an orphanage before expanding its mandate to function as an educational institution that provides pro-bono services to orphans, as well as members of the local community. However, the existing condition of infrastructure remains constrained; the student dormitory facilities are currently inadequate, the learning space are still integrated

with the residential area, and supporting facilities for religious and social activities are not yet adequately organized.

The rationale of this study come from the critical need for integrated and structured spatial planning within the Islamic boarding school area. Although the foundation's chairman has had concepts for developing various facilities, these ideas have not yet been incorporated into comprehensive technical documentation or a master plan. This situation emphasizes the importance of research, as construction conducted without a technical standards-based risk, inefficiencies in resource allocation and potentially compromises crucial aspects of comfort, health, and environmental sustainability. The urgency of research is further heightened by the fact that Islamic boarding schools not only functions as a residence and educational facility for students, but also as centres for community empowerment that require representative, conducive to health, and capable of supporting long-term sustainability.

This research aims to design the comprehensive planning and spatial arrangement of the Miftahul Ulum Islamic Boarding School area. The objectives encompass three primary components: (1) preparing a site plan with clear functional zoning; (2) designing facilities and infrastructure that meet the needs of students and adhere to applicable regulatory standards, namely Law No. 18 of 2019, Minister of Religious Affairs Regulation No. 31 of 2020, and the Child-Friendly Islamic Boarding School concept; and (3) preparing the Bill of Quantities for the construction of a male dormitory. The research findings are expected to provide tangible benefits, including: (a) for the foundation, as a guideline in the construction and development of the Islamic boarding school area; (b) for the community, by providing more adequate access to education, worship facilities, health services, and social activity spaces; and (c) for academics, as a scientific reference in developing studies on Islamic boarding school area planning based on technical standards.

The theoretical basis of this research is based on the concept of area planning and spatial planning, which emphasizes functional integration in accordance with SNI 03-1733-2004, the standards for the provision of housing and educational facilities as stipulated in Minister of Public Works and Housing Regulation No. 22/PRT/M/2018, and the application of sustainability principles in spatial planning. Furthermore, a comparative study was conducted at several Islamic boarding schools, including the Darul Ulum Kubu Raya Islamic Boarding School and the Darussalam Gontor Modern Islamic Boarding School, which served as important references in enriching the analytical framework and providing inspiration for adapting more effective, contextual, and innovative spatial planning patterns. The uniqueness of this research lies in its approach that combines the concept of Islamic boarding school area planning based on national technical standards with the local characteristics of Islamic boarding schools that stand on waqf land, while simultaneously unifying the functions of education, worship, housing, and community empowerment in one integrated master plan design. The innovation presented is the formulation of the zoning of the Islamic boarding school area into three main parts (public, semi-private, and private zones)

which are not only designed to meet the internal needs of students and administrators, but also provide interaction space and access for the surrounding community. Thus, this research is expected to be able to provide a novel contribution in the form of a sustainable Islamic boarding school area planning model that is applicable and has the potential to be replicated in other Islamic boarding schools with similar conditions.

2. Literature Review

2.1. Islamic Boarding School or the Pondok Pesantren

The Pondok Pesantren is a traditional Islamic educational institution that inculcates religious, moral, and social values through a boarding school system (asrama) where students (santri) study and reside collectively [2, 3]. In addition to serving as a center for religious instruction, the pesantren now also functions as an institution for community socio-economic empowerment through entrepreneurial ventures and skills training [4, 5].

Based on the opinion among several experts, the functions of Islamic boarding schools (Pondok Pesantren) are as the following:

1. Educational and Moral Institution: Serving as an Islamic educational institution that instills moral values and religious knowledge [6].
2. Socio-Cultural System: Functioning as a social and cultural system that preserves local values [3].
3. Economic Empowerment Hub: Acting as a center for economic empowerment through cooperatives and productive enterprises [5].
4. Social Transformation Agent: Operating as an agent for da'wah (Islamic propagation) and social transformation [7].

The Islamic boarding school (Pondok Pesantren) is established not only as an institution for in-depth religious studies but also with the following goals:

1. To cultivate a generation of individuals with noble character and scholarly knowledge [8].
2. To preserve and sustain Nusantara Islam [7].
3. To enhance the overall quality of life (QoL) for the students (santri) and the surrounding community [5].
4. To realize an Islamic educational framework that is adaptive to technological advancements and developments [8].

In the construction of an Islamic boarding school (Pondok Pesantren), several requirements must be addressed. Pursuant to Law No. 18 of 2019 and Minister of Religious Affairs Regulation No. 31 of 2020, the facilities of a pesantren must satisfy the aspects of education, worship, and student welfare. The required physical facilities within an Islamic boarding school shall comprise: dormitories, a mosque/prayer room (musala), study halls/classrooms, a library, a communal kitchen, sanitary facilities (latrines/bathrooms), a health unit, and an administrative office. The Child-Friendly Pesantren Concept emphasizes the safety, hygiene, and comfort of the environment for the students' habitation.

2.2. Spatial Planning and Development

Based on Law No. 26 of 2007 concerning Spatial Planning, Spatial Planning is defined as a continuous systemic process comprising: spatial planning, spatial utilization, and spatial utilization control. In other words, spatial planning is the effort to manage the natural resource of space in an orderly, optimal, efficient, and productive manner, and it constitutes a process of seeking solutions among diverse stakeholder interests.

The conceptualization of spatial planning and development for a *pesantren* (Islamic boarding school) must prioritize how the physical arrangement supports its core functions and intrinsic values. Historically, the prevailing layout pattern of *pesantren* compounds has always positioned the Mosque or Musala (prayer room) as the central for all activities, particularly religious worship and instruction delivered by the kiai [9]. In alignment with this, the spatial configuration within a *pesantren* must encompass every aspect, ranging from building placement to infrastructure, which is significantly influenced by the occupants' characteristics and activities [10].

The spatial planning development within an Islamic boarding school (*Pesantren*) must encompass space allocation adjustments to fulfill the institution's functional requirements. A *Pesantren* serves not only as a center for religious study and worship but also functions as a residential facility. Furthermore, *Pesantren* construction and development necessitate integrating a Sustainable Architecture approach to establish a design methodology that seeks to balance human needs with environmental preservation and energy optimization. Its core tenets involve the utilization of ecologically sound materials, enhanced energy efficiency, prudent water resource management, and the promotion of a superior quality of life for building occupants. This approach is commonly realized through passive design strategies, such as maximizing natural ventilation, daylighting, and implementing integrated waste management systems [11]. In *Pesantren* (Islamic boarding schools), the spatial zoning and planning is typically categorized into three primary zones, they are public, semi-public or semi private, and private zones to support the regularity of occupant activities, as well as to establish an effective and sustainable circulation pattern [12]

2.3. Bill of Quantity

In the planning and construction of the Miftahul Ulum Islamic Boarding School (Pondok Pesantren), the researcher utilized [13] No. 68 as the fundamental basis. The Bill of Quantity (BOQ) / Budget Plan (RAB) was compiled based on the Unit Price Analysis of Work (AHSP). Its primary function is to determine the construction cost estimate, specifically for the male dormitory located within the Miftahul Ulum Pondok Pesantren complex.

3. Methodology

This study employed a descriptive qualitative method to describe the actual conditions of the Miftahul Ulum Islamic Boarding School area while designing a facility reorganization in accordance with applicable technical standards. This approach was deemed appropriate because it aligns with the context of area planning, which is based on social, cultural, and religious needs. It also provided researchers with the

opportunity to understand field phenomena in greater depth through direct observation and intensive interviews [14]

There were two kinds of data in this research, they are: 1) Primary data which were obtained through direct observation of building conditions and spatial planning, visual documentation, and interviews with the foundation, administrators, and students; and 2) secondary data which was collected from literature studies in the form of journals, books, government regulations [15, 16, 17, 18] SNI 03-1733-2004, as well as comparisons with other Islamic boarding schools such as Darul Ulum and Darussalam Gontor Modern Islamic Boarding School.

In analyzing the data, reserachers implemented three stages. First, descriptive analysis was used to describe the condition of the Islamic boarding school facilities based on observations and interviews. Second, the space requirements analysis calculates the number and area of rooms according to national standards and the number of students, thus creating an ideal space program, such as dormitories, classrooms, mosques, kitchens, and sports facilities. And the last, planning analysis includes the preparation of a site plan with reference to SNI 03-1733-2004, the formulation of zoning (public, semi-private, private), the design of the main building, and the calculation of the RAB for the construction of the men's dormitory using the AHSP based on local prices.

4. Result and Discussion

4.1. Result

The research resulted in a design for the Miftahul Ulum Islamic Boarding School's integrated planning and layout, addressing educational needs, student housing, and supporting facilities. The main research findings include:

4.1.1. Space Requirements Analysis

Based on the number of students and space standards (SNI 03-1734-2004 and PUPR Regulation NO.22/2018), the space requirements are as shown in Table 1.

Table 1. Results of Space Requirements Analysis

Building	Capacity	Room Area (m ²)
Security Post	2	9.6
Administration Office	8	32.2
Warehouse	4	14.4
Public Restrooms	6	21.6
Cooperative and Health Unit	8	43.2
Administrator's House	4	71.5
Hall	250	360
Mosque	250	268.8
Dining Room & Kitchen	38	61.2
Junior High School	472	1262.4
Elementary School	235	573.6
Boys' Dormitory	25	450

4.1.2. Site Plan and Block Plan Region

The selected planning location is on Secondary Road C, Rasau Jaya Umum Village, Rasau Jaya District, Kubu Raya Regency. The location is in the middle of a residential area. The planning site has an area of approximately 60,000 m² or equivalent to 6 hectares. The Islamic boarding school area occupies a land area of 100 m x 400 m, while the access road to the Islamic boarding school area is 200 m x 100 m.

men's dormitory shows that the financial requirements are substantial but realistic to achieve with the support of donors and waqf management. The availability of transparent cost calculations is an advantage of this study, as it provides a concrete reference for the foundation in planning phased development.

In terms of innovation, this study is unique because it combines planning based on national technical standards with the local needs of waqf-based Islamic boarding schools. These results enrich the literature on Islamic educational area planning, which has previously focused more on educational or social aspects, rather than comprehensive physical spatial planning. However, this study has limitations. First, the budget analysis focused only on the construction of the boys' dormitory, while other facilities were not considered in detail. Second, the study did not include environmental analysis such as drainage or sustainable energy systems, which could be topics for further research. Nevertheless, the results still provide an important contribution in the form of an initial model for Islamic boarding school area planning that is applicable and replicable elsewhere.

5. Conclusion

This study concludes that the planning and arrangement of the Miftahul Ulum Islamic Boarding School area in Rasau Jaya District has successfully produced an integrated area design that complies with national technical standards. The main results of the study include: (1) an analysis of space requirements based on the number of students and regulatory requirements (SNI, PUPR Ministerial Regulation, and Ministerial Regulation), (2) a site plan design with a public, semi-private, and private zoning concept that supports educational, religious, and residential functions, and (3) a calculation of the Budget Plan (RAB) for the construction of a male dormitory amounting to Rp1.29 billion. This design demonstrates that the arrangement of the Islamic boarding school based on standards not only improves the comfort and health of students but also strengthens the role of the Islamic boarding school as a center for community social development. Conceptually, this study confirms that the integration of technical standards with the local needs of waqf-based Islamic boarding schools is an innovative and applicable approach, thus enriching the study of Islamic boarding school area planning in Indonesia.

The recommendations from this research are the need for further development, particularly in supporting infrastructure such as laboratory space, drainage systems, and the application of renewable energy, to create a modern, healthy, and environmentally friendly learning environment. Furthermore, broader community and stakeholder involvement is essential to support financing and the gradual implementation of development. Going forward, the results of this research have the potential to be applied not only to the Miftahul Ulum Islamic Boarding School but also to be replicated in other Islamic boarding schools with similar conditions. By adapting to the local context, this area planning model can serve as an innovative reference for the development of Islamic boarding schools that are functional, sustainable, and oriented towards

community empowerment.

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