

Mapping of basketball courts in Kulon Progo Regency

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Abstract

This study aims to map basketball court facilities in Kulon Progo Regency, covering availability, physical condition, and compliance with FIBA, PERBASI, and Permenpora standards. This quantitative descriptive study employed a survey method using total sampling on 35 courts that met the inclusion criteria. Data were collected through observation using a checklist covering 26 components across three aspects: court infrastructure, game equipment, and supporting facilities. Data analysis was descriptive, involving the calculation of scores, percentages, and categorization of suitability. The results showed: (1) The 35 courts are spread across 12 subdistricts with an uneven distribution; Wates Subdistrict accounts for 37.14%, while each of the five northern subdistricts has only one court; (2) Physical conditions are generally good (77.14% in the Good–Very Good category, 22.86% in the Fair category), but there are significant safety deficiencies: 91.43% of goalposts lack padding, 40% have substandard free space, and 42.86% lack lighting; (3) Ring height compliance is 100%, court dimensions 68.57%, free space 60%, and indoor lighting 5.71%. Conclusion: The availability and physical condition of the courts are generally good, but there are still disparities in distribution as well as deficiencies in safety and compliance with technical standards. Priority improvements are recommended for safety components and the equitable development of facilities to support the 2027 PORDA performance targets.

Keywords: Mapping, Court Facilities, Basketball, Kulon Progo Regency, FIBA Standards

INTRODUCTION

Sports facilities and infrastructure serve as the material foundation for sports development, both in educational settings and within the community. Sports equipment refers to anything that can be used and moved during sports activities, such as balls, hoops, and backboards. Meanwhile, sports infrastructure refers to elements that support the organization of sports and are relatively permanent in nature, such as fields, sports buildings, and lighting systems (Arya & Satyawati, 2023). Regulation of the Minister of Youth and Sports (Permenpora) No. 15 of 2022 concerning Standards for Sports Infrastructure and Sports Equipment at Student Sports Education and Training Centers in Indonesia has established specific technical standards for sports equipment and infrastructure.

The urgency of having adequate facilities is non-negotiable. Several studies confirm that the availability of sports facilities and infrastructure is positively correlated with students' motivation to learn and their athletic performance (Kufuwan & Suherman, 2025). Conversely, poor facility conditions directly impact the quality of training, hinder technical development, and potentially pose safety risks such as injuries (Liskustyawati & Sulaiman, 2023). In a school setting, facilities serve a dual purpose: as a medium for intracurricular learning and as a platform for fostering extracurricular athletic achievement. Research by Irfan & Widodo (2025) demonstrates that the quality of sports facilities and infrastructure is positively correlated with improvements in student-athletes' performance.

Kulon Progo Regency, Special Region of Yogyakarta, has shown positive progress in sports infrastructure development. Margosari Village, for example, is positioning itself as a Sports Tourism Village by building various sports facilities, including a basketball court (Margosari Village, 2025). In addition, there are also basketball courts in various locations, such as the UNY Wates Sports Hall, Wates Town Square, Cangkring Sports Hall, and at dozens of secondary schools. This diversity of locations indicates that basketball is one of the sports that has grown significantly in Kulon Progo Regency.

However, the mere presence of facilities in these various locations does not automatically guarantee the availability of adequate facilities that meet standards. A study by Aji (2023) in junior high schools across Lendah Subdistrict, Kulon Progo, indicates the need for further evaluation regarding the condition of Physical Education, Health, and Sports (PJOK) facilities and infrastructure. The Kulon Progo Regency Education, Youth, and Sports Office (2025) noted that, despite the current infrastructure challenges, sports development in Kulon Progo Regency continues to progress. This is reflected in the achievements at the POPDA and PORDA events. The Kulon Progo Regency Men's Basketball Team won a silver medal at the 2025 DIY POPDA, and the Kulon Progo Perbasi Branch (DPC) for the 2026–2030 term has set a target of winning a gold medal at the 2027 DIY PORDA.

The gap between the goal of winning gold at the 2027 PORDA and the available infrastructure raises a fundamental question. A review of previous studies reveals several limitations. First, most studies are general in nature, examining physical education facilities and infrastructure as a whole without a specific focus on a particular sport (Arya & Satyawan, 2023; Isyani & Satyawan, 2023). Second, research specifically addressing basketball facilities remains very limited (Liskustyawati & Sulaiman, 2023). Third, no study has been conducted in Kulon Progo Regency that comprehensively examines basketball court facilities.

This study offers a novel approach by focusing on mapping the condition of basketball court facilities at 35 locations in Kulon Progo Regency. This specific focus on a single sport allows for a more in-depth analysis. The selection of these locations is strategic, given that the region is currently developing its sports infrastructure but has not yet been systematically mapped. The urgency of this study rests on five arguments: (1) the gap between sports development targets and infrastructure readiness; (2) comprehensive data on facility conditions is not yet available; (3) the effectiveness of infrastructure investments needs to be evaluated; (4) basketball requires technical specifications in accordance with FIBA standards; and (5) Kulon Progo has great potential that needs to be supported by accurate data.

Based on the above discussion, the research questions for this study are: (1) What is the availability of basketball court facilities in Kulon Progo Regency? (2) What is the physical condition of basketball court facilities in Kulon Progo Regency? (3) To what extent do basketball court facilities in Kulon Progo Regency comply with applicable technical standards (FIBA, PERBASI, and Permenpora)?

METHOD

This study employs a quantitative descriptive approach using a survey method. This approach was chosen to systematically, factually, and accurately describe the condition of basketball court facilities in Kulon Progo Regency (Sugiyono, 2019; Creswell & Creswell, 2018).

The research was conducted from September to November 2025 across the entire administrative area of Kulon Progo Regency, Special Region of Yogyakarta. This regency is located in the western part of the Special Region of Yogyakarta, covers an area of 586.28 km², and consists of 12 subdistricts: Wates, Pengasih, Sentolo, Lendah, Temon, Panjatan, Nanggulan, Galur, Kokap, Kalibawang, Girimulyo, and Samigaluh (Kulon Progo Regency Government, 2025).

The population consists of all basketball courts in Kulon Progo Regency that meet the inclusion criteria: (1) located within the administrative area of Kulon Progo; (2) still standing and accessible; (3) equipped with at least one basketball hoop; (4) located in a public facility or school. The sampling technique used was total sampling, so all 35 courts that met the criteria were included in the study sample (Sugiyono, 2019; Arikunto, 2013).

The primary instrument was an observation checklist covering 26 assessment components across three aspects: (1) primary court infrastructure (8 components): court dimensions, floor surface, court lines, and clear space; (2) game-supporting equipment (12 components): basketball hoop, backboard, support poles, net; and (3) supporting facilities (6 components): lighting, drainage, cleanliness, perimeter fencing, seating. The instrument refers to the standards set by FIBA (2024), PERBASI (2024), and Ministry of Youth and Sports Regulation No. 15 of 2022.

The validity of the instrument was tested through expert judgment by faculty members specializing in sports facilities and infrastructure at the Faculty of Sports Science and Physical Education, Universitas Negeri Yogyakarta (FIKK UNY). Reliability was ensured through standardized observation procedures, photographic documentation, and calibration of measuring instruments.

The data were analyzed descriptively through: (1) tabulation of data by facility type and

subdistrict; (2) scoring: Good (3), Minor Damage (2), Severe Damage (1); (3) percentage calculation: $P =$

$(F/N) \times 100\%$; (4) categorization of suitability: 81–100% (Very Good), 61–80% (Good), 41–60% (Fair), 21–40% (Poor), 0–20% (Very Poor); and (5) assessment of compliance with FIBA, PERBASI, and Permenpora standards.

RESULTS AND DISCUSSION

Based on the inventory results, 35 basketball courts were identified, spread across 12 subdistricts with an uneven distribution. Wates Subdistrict had the highest number (13 courts, 37.14%), while the five northern subdistricts (Galur, Kokap, Kalibawang, Girimulyo, Samigaluh) each had only one court. By facility type, courts at high schools (SMA/SMK/MA) dominate (45.71%), followed by junior high schools (SMP) (42.86%), and public facilities (11.43%). This proportion indicates that the formal education system places significant emphasis on the development of basketball.

Table 1. Distribution of Basketball Courts by Subdistrict

No.	Subdistrict	Number	Percentage
1.	Wates	13	37.14%
2.	Pengasih	7	20.00%
3.	Sentolo	5	14.29%
4.	Lendah	3	8.57%
5.	Temon	2	5.71%
6.	Panjatan	2	5.71%
7.	Nanggulan	2	5.71%
8.	Varieties	1	2.86%
9.	Kokap	1	2.86%
10.	Kalibawang	1	2.86%
11.	Girimulyo	1	2.86%
12.	Samigaluh	1	2.86%

This distribution disparity indicates an access gap that has the potential to create an unequal athlete development ecosystem. From the perspective of the athlete development ecosystem theory (De Bosscher et al., 2015), this disparity hinders the process of identifying and developing talent evenly across the entire regency. Athletes from subdistricts with limited facilities (Kalibawang, Girimulyo, Samigaluh) may not have the same opportunities to train optimally as athletes from Wates Subdistrict.

The dominance of school-based settings (88.57%) indicates that basketball development is heavily reliant on educational institutions. This aligns with the findings of Isyani & Satyawan (2023), who reported that schools serve as the primary providers of sports facilities in various regions. However, this reliance on schools also presents challenges, as school facilities are often used primarily for instructional and extracurricular activities and are not yet optimized for advanced performance development, which requires more flexible access to practice.

Based on the results of the inventory, 35 basketball courts were found spread across 12 subdistricts.

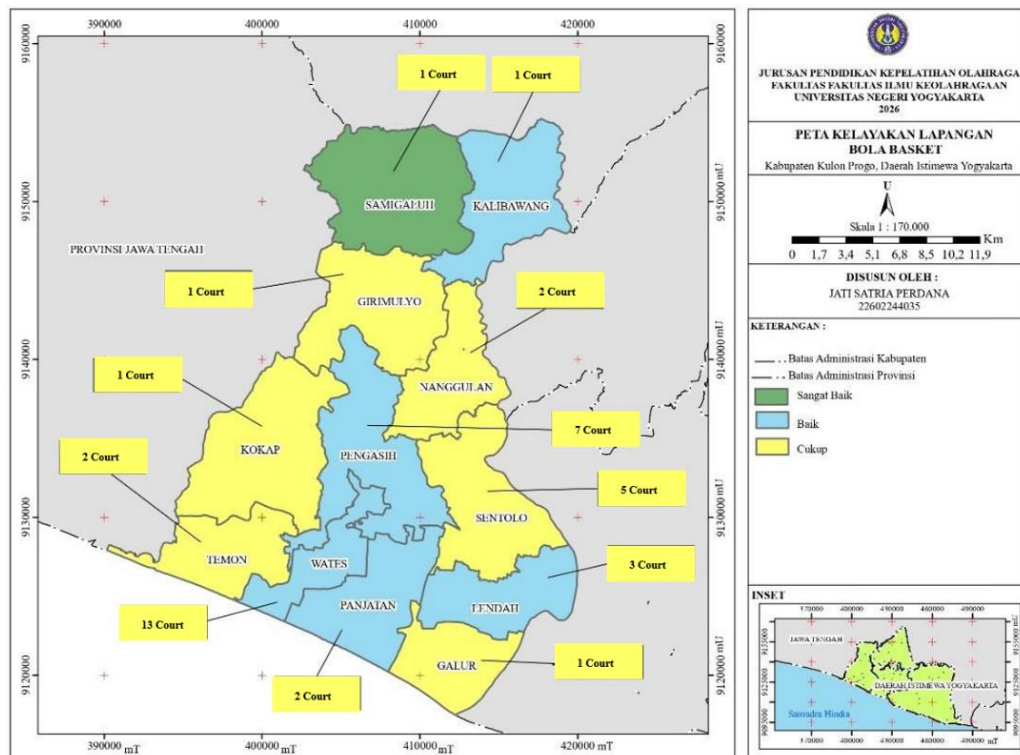


Figure 1. Map and Distribution of Research Location Categories in Kulon Progo Regency

Based on the map, it can be seen that Kulon Progo Regency is located in the western part of the Special Region of Yogyakarta, with a total area of 58,627.54 km² comprising 12 subdistricts. Geographically, Kulon Progo Regency is located between 07° 38' 42" and 07° 59' 03" South Latitude and 110° 01' 37" – 110° 16' 26" East Longitude. This geographic position indicates that Kulon Progo Regency is strategically located, as it lies along the border between the Special Region of Yogyakarta (DIY) and Central Java. Based on the results of a survey conducted, a total of 35 basketball courts were identified, spread across the 12 subdistricts of Kulon Progo Regency. Wates Subdistrict, as the regency capital, has the highest number of courts, namely 13 (37.14% of the total), followed by Pengasih Subdistrict with 7 courts (20%), Sentolo Subdistrict with 5 courts (14.29%), Lendah Subdistrict with 3 courts (8.57%), and Temon, Panjatan, and Nanggulan subdistricts, each with 2 courts (5.71%). Meanwhile, Galur, Kokap, Kalibawang, Girimulyo, and Samigaluh subdistricts each have only 1 court (2.86%).

Based on the map in Figure 19, it can be seen that the subdistricts located in the southern and eastern parts of Kulon Progo Regency (Wates, Pengasih, Sentolo) have better access to the administrative center and economic activities, and thus tend to have a greater number of basketball courts compared to subdistricts in the northern and western parts (Galur, Kokap, Kalibawang, Girimulyo, Samigaluh). The hilly terrain in the northern region also acts as a barrier to the development of sports infrastructure, including basketball courts, due to the limited availability of flat land. This distribution pattern indicates a geographic disparity in the availability of basketball court facilities.

The southern region, which serves as the urban and administrative center, not only has more courts but also courts of higher quality. In contrast, the northern region—which is more remote and has a hilly topography has a very limited number of courts (only one court per subdistrict). This issue requires collective attention, particularly from the Kulon Progo Regency Youth and Sports Agency and the Education Agency, in planning the future development and equitable distribution of sports facilities.

Geographically, Kulon Progo Regency's location which directly borders Central Java Province (Purworejo Regency) also opens opportunities for inter-regional cooperation in the use of sports facilities, particularly for border subdistricts such as Temon, Galur, and Kokap. Athletes from border

areas can utilize facilities available in neighboring regencies when possible, or conversely, the development of facilities in border areas can serve communities from both provinces.

Overall, the physical condition of basketball court facilities in Kulon Progo Regency is classified as good. A total of 27 locations (77.14%) fall into the Good to Very Good categories, and 8 locations (22.86%) fall into the Fair category. No courts were found in the Poor or Very Poor categories.

Table 2. Summary of Physical Condition Categories for 35 Courts

Category	Number	Percentage
Very Good (81–100%)	11	31.43%
Good (61–80%)	16	45.71%
Fair (41–60%)	8	22.86%
Inadequate (21–40%)	0	0%
Very Low (0–20%)	0	0%
Total	35	100%

By facility type, public facilities showed the best performance with an average percentage of 94.23% (Very Good), followed by high schools (SMA/SMK/MA) at 75.78% (Good), and junior high schools (SMP) at 66.18% (Good). The UNY Wates Sports Hall was the location with the highest score (100%).

An analysis by component revealed several key findings. The ring height achieved 100% compliance (all 35 courts had a height of 3.05 meters). However, significant shortcomings were found in: (1) support pole safety: only 3 courts (8.57%) had protective padding; (2) clearance area: 14 courts (40%) had a clearance area of less than 2 meters; (3) lighting: 15 courts (42.86%) lacked lighting; and (4) backboards: 9 courts (25.71%) had cracked or broken backboards.

The generally good physical condition reflects the local government's commitment through sports infrastructure development policies, as evidenced by the development of the Sports Tourism Village in Margosari Village (Margosari Village, 2025). These findings align with the theory of sports facilities and infrastructure management (Arya & Satyawan, 2023), which states that the availability and maintenance of adequate facilities are the material foundation of the sports development process.

However, safety deficiencies (91.43% of posts without pads, 40% with narrow free zones) require serious attention. Based on the theory of adaptation and skill transfer (Schmidt & Lee, 2011), athletes who train on non-standard fields will develop different movement patterns and distance estimations, thus requiring an adaptation period when competing on standard fields. This can hinder performance in crucial competitions such as the 2027 PORDA. A study by Nugroho et al. (2021) also emphasizes the importance of safety aspects in sports facilities to prevent musculoskeletal injuries that can hinder athletes' development.

The level of compliance with FIBA, PERBASI, and Permenpora standards varies across components.

Table 3. Level of Compliance of Components with Standards

Component	Standard	Number Compliant	Percentage
Ring height	3.05 m	35	100%
Court dimensions	28 × 15 m	24	68.57%
Free area	Min. 2 m	21	60.00%
Field line width	5 cm	22	62.86%
Three-point line distance	6.75 m	20	57.14%
Backboard dimensions	1.8 × 1.05 m	22	62.86%
Lighting (indoor)	300–500 lux	2	5.71%

A total of 11 courts (31.43%) had lengths and/or widths that did not meet standards, generally

due to limited space in urban school environments. Narrow free space (40%) is a serious concern from the perspective of player safety. The low compliance rate for indoor lighting (5.71%) indicates that most indoor courts do not yet meet the standards for official matches.

These varying levels of compliance confirm the findings of previous studies. Dartija (2015) reported that basketball facilities in South Aceh were categorized as incomplete, while Hajar (2024) at SMP Negeri 1 Sirenja reported that basketball equipment availability was only 16.67%. This study reveals significantly better conditions, with an average compliance rate for components reaching 60–70%. This difference can be attributed to variations in local government policies and political commitment toward sports infrastructure development.

The 100% compliance rate for rim height is a positive finding, as rim height is a fundamental component that influences shooting and rebounding techniques (Wissel, 1996). However, the court size compliance rate of only 68.57% indicates that many courts were built with modified dimensions due to land constraints. This is consistent with the findings of Liskustyawati & Sulaiman (2023), who recommended adjusting basketball facilities based on athletes' anthropometric measurements to optimize technical development.

This study is more comprehensive than the studies by Isyani & Satyawan (2023) and Purba & Lubis (2024), which only conducted a general assessment without technical measurements in accordance with sport-specific standards. The technical measurements conducted in this study allow for the identification of specific gaps that can be used to plan more targeted improvements.

CONCLUSION

Based on the results of data analysis, description, validation of research findings, and discussion, the following conclusions can be drawn:

1. Facility availability: There are 35 basketball courts in Kulon Progo Regency spread across 12 subdistricts with an uneven distribution. Wates Subdistrict has the highest concentration (37.14%), while the northern subdistricts each have only one court. By facility type, high schools (SMA/SMK/MA) dominate (45.71%), followed by junior high schools (SMP) (42.86%), and public facilities (11.43%).
2. Physical condition: Overall, the condition is considered good (77.14% in the Good–Very Good category, 22.86% in the Fair category). The main shortcomings lie in safety aspects: poles without padding (91.43%), narrow clear areas (40%), and inadequate lighting (42.86%). Public facilities showed the highest quality (94.23%), while junior high school facilities had the lowest average (66.18%).
3. Compliance with standards: 100% of the rim heights met standards; court dimensions 68.57%; clear space 60%; line width 62.86%; three-point line distance 57.14%; indoor lighting 5.71%; and pole safety 8.57%.

This study recommends: (1) that the Kulon Progo Youth and Sports Agency and the Kulon Progo Education Agency prioritize improvements to safety components (protective padding, expansion of clear zones), design a program for the construction of new courts in the northern subdistricts, establish minimum standards for the construction of new courts, and enhance oversight of routine maintenance; (2) that the Kulon Progo Perbasi District Committee (DPC) use the mapping results as an advocacy tool, design data-driven capacity-building programs, and strengthen cooperation with relevant stakeholders; (3) School facility managers should schedule routine maintenance, prioritize safety improvements, and enhance supporting facilities; (4) Future researchers should conduct studies on management aspects, user perceptions, the relationship between facilities and performance, and employ more advanced GIS approaches.

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