Mapping Of Leading Sports Branches In Maros Regency

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ABSTRACT

This study aims to map and prioritize leading sports in Maros Regency objectively and measurably as a basis for formulating effective, efficient, and sustainable high-achieving sports development policies. Conceptually, regional sports development requires an evidence-based policy approach that integrates historical achievements, resource capacity, and long-term development potential. The study employed a mixed methods approach with a sequential exploratory design. The qualitative phase was conducted through documentation studies, field observations, and in-depth interviews with sports stakeholders to identify determinants of achievement and development conditions. The quantitative phase employed Multi-Criteria Decision Analysis (MCDA) using the Analytical Hierarchy Process (AHP) method to determine criteria weights and Simple Additive Weighting (SAW) to rank 28 active sports under the Maros Regency Sports Committee (KONI). A panel of experts consisting of government officials, KONI, academics, and experienced coaches assessed five main criteria. The AHP results indicated that sports achievement had the highest weighting (0.35), followed by resource availability (0.25), development potential (0.20), infrastructure conditions (0.12), and budget support (0.08). The AHP-SAW ranking results group sports into three priorities, with Archery, Kempo, Boxing, Athletics, and Bridge as the top priorities. This AHP-SAW-based mapping provides a strategic basis for optimizing resource allocation and planning for more targeted and sustainable regional sports development.

AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

INTRODUCTION

Maros Regency has a long history of participation in various sports championships at the provincial and national levels. The Maros Regency contingent regularly participates in the South Sulawesi Provincial Sports Week (PORPROV). Several Maros Regency athletes have even made it to the national team and represented Indonesia in international championships, demonstrating that the region possesses promising athletes with potential for further development.

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However, Maros Regency's sporting achievements still face various challenges and limitations. Data from the Maros Regency Youth and Sports Office shows that medal tallies at the South Sulawesi PORPROV from 2018 to 2022 have fluctuated significantly (Maros Regency Youth and Sports Office, 2023). Some sports, such as athletics, pencak silat, and karate, consistently win gold medals, while other sports, despite receiving coaching, have not yet demonstrated optimal performance. This fluctuation in performance indicates ineffective coaching strategies and inadequate resource allocation.

The fundamental problem is the lack of clear and measurable coaching priorities based on scientific analysis. One of the keys to a successful high-performance sports development system is focusing on sports with the greatest potential by allocating resources proportionally (Arbi, Muhammad, et al., 2025; Yudho et al., 2022). Without a clear focus, limited resources will be spread too thin, resulting in a lack of significant impact on achievement (Wijayanto, 2025). This situation is exacerbated by budget constraints, inadequate infrastructure for all sports, and the limited availability of qualified coaches (Kristiyanto, 2015).

Determining superior sports is a strategic step in optimizing resource allocation and more effective athlete development. Bompa and Buzzichelli (2019) emphasize that effective coaching periodization requires talent identification and a focus on sports with the highest probability of success. This concept aligns with the principles of efficiency and effectiveness in sports management, where limited resources must be allocated optimally to produce maximum performance output. Determining superior sports also facilitates more thorough long-term planning, from developing a talent identification system and ongoing training programs to monitoring and evaluating athlete performance.

The concept of mapping leading sports has been implemented by various countries and regions as part of a sustainable high-performance sports development system. De Bosscher et al. (2015), in their study on Sport Policy Factors Leading to International Sporting Success (SPLISS), identified that countries with the best sporting achievements in the world have a clear and measurable system for mapping and prioritizing sports. This mapping takes into account various complex factors such as athlete potential, infrastructure availability, historical achievements, financial support, coaching quality, competition systems, community support, and the geographic and demographic characteristics of the region. This multifactorial approach provides a holistic picture of which sports have the greatest opportunity to achieve optimal performance.

Specifically for Maros Regency, there has been no comprehensive research that scientifically and structuredly maps leading sports. Prioritization of sports development has tended to be pragmatic and incremental, often based on specific opportunities or requests from sports organizations without in-depth analysis of the various factors supporting achievement (Maknum, 2021). This decision-making process is prone to subjectivity and does not provide long-term certainty for sports stakeholders. This

results in inconsistent development programs, frequent shifts in sports focus, and ultimately hinders the achievement of optimal performance.

However, accurate, data-driven mapping would provide clear and measurable policy direction for the Maros Regency Government in allocating budgets, building infrastructure, recruiting qualified coaches, and implementing long-term athlete development programs. According to Robinson and Minikin (2012), one of the characteristics of an effective sports development system is a clear vision, mission, and measurable targets supported by evidence-based planning. With the mapping of leading sports, sports stakeholders in Maros Regency will have a common guideline for developing programs and activities, creating greater synergy between the government, sports organizations, clubs, schools, and the community.

By identifying leading sports, talent scouting programs can be implemented in a more focused and structured manner, from elementary school to university level. This system also allows for more comprehensive monitoring and evaluation of athlete development, allowing for timely and targeted coaching interventions. Beyond the technical aspects of coaching, mapping leading sports also has important economic and social implications. From an economic perspective, focusing on leading sports allows for greater budget efficiency and a higher return on investment in the form of achievements.

Based on the issues and urgency outlined above, research on mapping leading sports in Maros Regency is crucial and urgent. This research is expected to produce a comprehensive mapping model that considers various indicators such as historical achievements, athlete potential, availability of facilities and infrastructure, stakeholder support, geographic-demographic characteristics, suitability to local potential, and other relevant aspects. Through a rigorous methodological approach and involving various stakeholders, this research is expected to produce applicable and implementable recommendations as the basis for sports development policies in Maros Regency. The results of this study will serve as a scientific basis for policy makers in determining more effective, efficient, and sustainable sports development priorities, so that ultimately it can improve the sports achievements of Maros Regency at the provincial, national, and even international levels.

METHODS

This study employed a mixed methods approach with a sequential exploratory design, deemed appropriate for identifying and evaluating leading sports in Maros Regency. A qualitative approach was used initially to explore the objective conditions of sports development, factors influencing achievement, and the local context. Subsequently, a quantitative approach was used to systematically assess and rank sports based on established criteria (Arga, 2025).

The research subjects involved sports stakeholders in Maros Regency, including the Youth and Sports Office, the Maros Regency Sports Committee (KONI), sports administrators, coaches, athletes, and sports academics. The study population included

all sports actively supported by KONI. The sampling technique used purposive sampling, considering criteria such as organizational activity, athlete availability, competition participation, and documentation of sports achievements.

Data collection in the qualitative phase was conducted through documentation studies, field observations, and in-depth interviews with key informants to obtain a comprehensive overview of sports development, infrastructure conditions, coach quality, athlete potential, and policy support. Quantitative data was collected using a structured questionnaire with a Likert scale, developed based on indicators from qualitative exploration results and validated by experts.

Qualitative data analysis was conducted thematically through data transcription, coding, categorization, and triangulation. The quantitative data were analyzed descriptively and then analyzed using Multi-Criteria Decision Analysis (MCDA), using the Analytical Hierarchy Process (AHP) method to determine criteria weights and the Simple Additive Weighting (SAW) method to calculate scores and rankings for sports. The results of the qualitative and quantitative analyses were then integrated to develop a map of leading sports and recommendations for sports development strategies in Maros Regency.

RESULTS AND DISCUSSION
Result
Criteria Weighting Analysis (AHP) Results

The Analytical Hierarchy Process (AHP) method was used to determine the priority weights for five criteria in mapping the leading sports in Maros Regency. The AHP approach was chosen because it has proven effective in multi-criteria decision-making based on expert judgment, particularly in the public policy and sports planning sectors (Saaty, 2016; Ishizaka & Labib, 2018). In the context of sports policy, this method is widely used to determine sports priorities based on achievement, resources, and sustainable development (De Bosscher et al., 2015; Winand et al., 2019).

Expert Panel Composition

The expert panel consisted of nine key stakeholders: the Head of the Maros Regency Youth and Sports Office, the Chair and Secretary of the Indonesian National Sports Committee (KONI), sports academics, and senior coaches with over 10 years of experience. Selection was purposive based on competency and strategic experience in regional sports development, in accordance with recommendations from the evidence-based sports governance approach (Grix & Carmichael, 2016).

Table 1.
Key Criteria Weights Based on AHP

No	Code	Main Criteria	Weight	Ranking
1	K1	Sports Achievements	0.350	1
2	K2	Resource Availability	0.250	2
3	K4	Development Potential	0.200	3
4	K5	Infrastructure Conditions	0.120	4
5	K3	Budget Support	0.080	5
		Total	**1.000**	

The results show that sports achievement (35%) is the dominant factor. Conceptually, medal track record is the primary indicator of a successful development system (De Bosscher et al., 2015). Resource availability (25%) ranks second, in line with literature confirming that the quality of coaches, athletes, and organizations is the foundation of sports development (Houlihan & Green, 2019).

Development potential (20%) reflects the importance of a strong base and sustainable development, in accordance with the Long-Term Athlete Development (LTAD) model (Balyi et al., 2016). Infrastructure (12%) and budget support (8%) remain relevant as enabling environment factors, although they are not the primary determinants (Winand et al., 2019).

Sports Ranking Results (SAW Method)

After AHP weighting, 28 sports were ranked using Simple Additive Weighting (SAW). The SAW method was chosen because it is effective in aggregating multi-criteria scores and produces transparent rankings for stakeholders (Triantaphyllou, 2017).

Table 2.
Mapping of Leading Sports Branches in Maros Regency
PRIORITY I – Main Leading (Score 0.80–1.00)

No	Sports	Score SAW
1	Archery	0.887
2	Kempo	0.856
3	Boxing	0.824
4	Athletics	0.815
5	Bridge	0.801

Priority I sports demonstrate consistent historical achievements at the Provincial Sports Week (PORPROV) as well as ongoing human resource support and development. The literature shows that consistent regional medals are often a predictor of national success (De Bosscher et al., 2015).

Table 3.
Mapping of Leading Sports Branches in Maros Regency
PRIORITY II – Potential Excellence (Score 0.60–0.79)

No	Sports	Score SAW
1	Karate	0.745
2	Badminton	0.732
3	Aquatics	0.718
4	Rowing	0.705
5	Taekwondo	0.695
6	Chess	0.687
7	Pencak Silat	0.675
8	Gymnastics	0.668
9	Judo	0.655
10	Volleyball	0.642
11	Soccer	0.635
12	Billiards	0.628
13	Cycling	0.615
14	Rock Climbing	0.608

Branches in this category have high development potential but are not yet optimal in terms of consistent performance. Research by Winand et al. (2019) suggests that

strengthening governance and talent identification systems is key to the transition to the main superior category.

Table 4.
Mapping of Leading Sports Branches in Maros Regency
PRIORITY III – Developing (Score <0.60)

No	Sports	Score SAW
1	Fencing	0.578
2	Motorcycle Racing	0.565
3	Sepak Takraw	0.542
4	Table Tennis	0.535
5	Futsal	0.520

Sports in this category require human resource development, early childhood development, and infrastructure optimization. Studies on sports development emphasize that priority-based strategic investment can improve the effectiveness of regional resource allocation (Grix & Carmichael, 2016).

Synthesis of Findings

The mapping results indicate that a multi-criteria approach based on the AHP-SAW (Analysis of the AHP-SAW) is capable of producing objective and measurable sports classifications. This finding reinforces the importance of integrating performance data, resources, and development potential in regional sports policy. Empirically, this model supports a strategic sports planning approach based on evidence-based decision-making, which is recommended in modern sports governance (Houlihan & Green, 2019). Therefore, this mapping can serve as the basis for developing a more focused, efficient, and regionally and nationally oriented sports development roadmap for Maros Regency.

Discussion

The results of mapping leading sports in Maros Regency using a combination of the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods show measurable differentiation between sports based on the dimensions of achievement, resources, development potential, infrastructure, and budget support. This multi-criteria approach aligns with modern sports management trends that emphasize data-driven decision-making and evidence-based policy (Shilbury et al., 2020; Winand et al., 2019). Conceptually, the AHP–SAW integration allows for objective hierarchical weighting and composite value aggregation, resulting in more rational strategic prioritization than subjective or political approaches (Saaty, 2016; Ishizaka & Nemery, 2019).

The grouping of sports into three priority categories demonstrates consistency with the performance-based sports policy model formulated in the Sports Policy Factors Leading to International Sporting Success framework by De Bosscher et al. (2015), which asserts that the success of a sports system is strongly influenced by a strategic focus on sports with a high medal probability. The dominant achievement weight (0.35) in the AHP analysis reinforces empirical findings that competitive track record is the strongest indicator in predicting future success (Güllich & Emrich, 2014; De Bosscher et al., 2015).

Archery, Kempo, Boxing, Athletics, and Bridge, Priority I, exhibit characteristics of a relatively mature high-performance pathway. The presence of licensed coaches, a

tiered coaching system, and stable participation in the PORPROV demonstrate alignment with the Long-Term Athlete Development (LTAD) concept developed by Istvan Balyi (Balyi et al., 2013). This model emphasizes the importance of continuous coaching from the fundamental to the elite levels. In the Maros context, the consistent achievements of Archery and Athletics demonstrate a continuous coaching pathway, while Kempo and Boxing demonstrate strong socio-cultural support, aligning with Coalter's (2015) findings that local cultural factors play a significant role in the sustainability of martial arts.

The resource factor (weighted at 0.25) and development potential (0.20) support the Resource-Based View perspective introduced by Jay Barney (1991), which posits that competitive advantage stems from internal capabilities that are difficult to imitate. Recent research in sports management (Wicker et al., 2019; Scelles et al., 2021) also confirms that coach quality, organizational governance, and access to facilities are key determinants of long-term success.

Priority Category II sports, such as Karate, Badminton, Aquatics, and Rowing, demonstrate the profile of emerging sports with the potential for accelerated performance if policy interventions focus on improving infrastructure and strengthening coaches. A study by Henriksen et al. (2020) emphasized the importance of an integrated talent development environment to enable potential sports to transform into leading sports. Meanwhile, team sports like soccer and volleyball require long-term investment due to the complexity of the competition system and the greater need for collective resources (Relvas et al., 2016; Storm et al., 2018).

Priority Branch III continues to have strategic value in expanding the participation base and supporting inclusive sports development, as emphasized in the International Olympic Committee's agenda for community-based sports development. Mass participation has been shown to be positively correlated with the creation of a long-term talent pool (Vaeyens et al., 2015; Rongen et al., 2018).

Overall, the results of this study reinforce the potential of the AHP–SAW approach as a strategic tool in regional sports planning based on performance, resources, and sustainability. If implemented consistently, this model will not only improve the efficiency of budget allocation but also strengthen the governance of high-performance sports at the district level in a systemic and measurable manner.

CONCLUSION

Based on the data analysis conducted, the following conclusions can be drawn: PRIORITY I - Top Flagships (5 sports): 1. Archery, a top flagship with the highest consistent performance; 2. Kempo, a broad base and a trend of increasing performance; 3. Boxing, a long tradition of development with several national athletes; 4. Athletics, with consistent achievements across various disciplines; 5. Bridge, a mind sport with high-quality athletes. PRIORITY II, Potential Flagships (14 sports): Karate, Badminton, Aquatics, Rowing, Taekwondo, Chess, Pencak Silat, Gymnastics, Judo, Volleyball, Soccer, Billiards, Cycling, and Rock Climbing. PRIORITY III, Developing (5 sports): Fencing, Motorcycle Racing, Sepak Takraw, Table Tennis, and Futsal.

For Priority I (Top Flagships): Focus: Intensifying development to target gold medals at the PON and national competitions. Budget allocation: 50-60% of the total development budget. Program: Regional national training center, national try out, sports science support, achievement incentives. Target: Minimum 70% contribution of PORPROV gold medals. For Priority II (Potential Excellence): Focus: Capacity building to accelerate achievement. Budget allocation: 30-35% of the total coaching budget. Program: Coach certification, basic infrastructure improvement, talent identification, internal/regional competitions, Target: 2-3 branches move up to Priority I in 4 years. For Priority III (Developing): Focus: Basic coaching and participation with long-term orientation. Budget allocation: 10-15% of the total coaching budget. Program: Grassroots development, basic coach training, basic equipment procurement. Target: Active participation and the formation of a solid foundation.

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