



## Analysis in Developing Handball Athletes in Central Java: Perspective SPLISS Models

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<i>Article History</i>	<i>Abstract</i>
<p>Received: 13 Sept 2023 Revised: 12 Oct 2023 Accepted: 2 Nov 2023</p>	<p>The aim of the study was to analyze the success factors for the development of elite handball athletes in Central Java using the Sports Policy Factors Leading to International Sporting Success (SPLISS 2.0) instrument. The SPLISS model instrument consists of 9 pillars of elite sports success approach.</p> <p>This research used a quantitative research approach based on the SPLISS 2.0 study. Research participants consisted of chairpersons, secretaries, treasurers and coaches as well as athletes from 26 urban districts that have handball organizations in Central Java. Data analysis techniques using quantitative analysis techniques using SPLISS 2.0 report. Quantitatively identify possible success factors using 114 CSFs allocated to a score of 1-4 based on 9 pillars which from the overall results will be added to the total percentage score for each pillar.</p> <p>The development of handball's elite athletes in central java is judged to be in the average category, from the overall data analysis of the of handball sport's development an average score of 19.7 or 54.65% on the SPLISS score. There are 2 pillars which are the strengths of athlete development, they are the financial support pillar with a score of 2.6 and the Training Facility pillar with a score of 2.7, while the weakness is in the scientific research pillar with a score of 1.6.</p> <p>From the analysis of this study, it is hoped that the outcome of each region will be Central Java pride and national pride in producing international-level national athletes in handball.</p> <p><b>Keyword:</b> SPLISS Models, Handball, Sport Policy</p>
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## Introduction

Sports policies are implemented to find ways and strategies to achieve success in sport. The Athlete's competitive advantage will be preserved by the right policy. A good policy will maintain the athlete's competitive advantage. Comprehensive and measurable evaluation is needed to produce a good policy [1]. comprehensive evaluation will determine the accuracy of the target and validity outcome of program implementation. While measurable evaluation is used to ensure the success of the program effectively [2]

In several studies it is stated that a comprehensive study in evaluating sports policies has implemented with effectiveness of sports policies.(eg: [3],[4],[5] Analysis and policies in sports need to consider evaluation in accordance with the characteristics and specificities of the sports organization or teams[6].

Evaluation of strategies that have been implemented is one of the crucial components that must be carried out in the concept of nurturing elite sports. Procedures and instruments aimed to handle the complexity of sports problems are required in order to acquire a thorough examination [7]. The evaluation carried out is needed to analyze the success factors of a policy in fostering young athletes, potential athletes and elite athletes. Therefore, a comparative empirical study is needed to complete the analysis of each success factor from several valid references.[8]. Thus, the need for an evaluation instrument for sports coaching policies is absolutely necessary as a tool to analyze sports success.

A growing number of people are beginning to like handball as an Olympic sport [9]. One of them is in Central Java, handball has been widely enjoyed and popular as a sport that is competed in various events. Until now, based on data from ABTI Central Java provincial management, they have organizations in 26 districts/cities and have produced many junior and senior athletes in each district/city. In terms of handball competition in Central Java, many events have been held which

are routinely held annually [10]. Handball has been competed in regional and national single events, as well as in regional multi-events (Porprov) and National multi-events (PON) [11]. Meanwhile, at the international level, handball is a mandatory sport for the Asian Games [12] and Olympic Games [13]

The handball achievements in Central Java over the past three years have demonstrated a good growth in performance. Many national athletes who come from Central Java who compete in national events [14]. In addition, it can be shown from Central Java's achievements in the National Championship, one of which was in the 2019 PON qualification round [11]. Lesmana stated that Central Java province occupies the 4th position as a province contributing national athletes with 13.5% in 2012 -2019 [15].

The coaching system through the competition system has been going well and has produced many outstanding athlete candidates. In an effort to develop elite athletes at the national and international levels, it is necessary to analyze a study based on benchmark parameters for the success of Central Java province in fostering elite athletes. Study of weaknesses and potential advantages that can be maximized in production of outstanding athletes at the international level.

Weaknesses in sports coaching in Central Java require policy analysis in several aspects including organization, coaching systems, human resources, supporting facilities and infrastructure and the athlete development system that is related. Analysis is needed to find out the direction of the (Asosiasi Bola Tangan Indonesia (ABTI) Central Java provincial management policy in fostering elite sports including sports development strategies or services that contribute to the development of outstanding athletes. The policy is including development programs, sports facilities, coaches, promotions, competitions or tournaments, talent identification, talent development, and support athlete. Where a comprehensive analysis in

Central Java and in Indonesia is still very weak. [16]

In this study the aim was to conduct a study structured to analyze the success factors of coaching using the Sports Policy Factors Leading To International Sporting Success (SPLISS 2.0) instrument with the 9 pillars of elite sports success approach [17]. This analysis is used to obtain the key factors that determine the failure and success of the coaching system that has been comprehensively carried out by ABTI Central Java Management.

**Material and Methods**

This research uses a quantitative research approach based on the SPLISS 2.0 study. Research participants consisted of directors/chairpersons, secretaries, treasurers and coaches as well as athletes from 20 districts that have handball organizations in Central Java. Supporting information comes from KONI Central Java Province, Dinpora Central Java Province and ABTI Central Java Management. The demography of participant in this research showed at table 1.

Table 1. Demography Participant/Respondent

No	Element/District	Elite Athlete	Elite Coach	Performance Directors	Total
1	Banyumas	10	3	4	17
2	Batang	6	2	3	11
3	Blora	6	2	2	10
4	Demak	12	3	2	17
5	Grobogan	5	3	3	11
6	Jepara	10	4	2	16
7	Kebumen	10	3	4	17
8	Kendal	10	2	2	14
9	Kudus	6	3	3	12
10	Kab. Magelang	6	3	2	11
11	Pati	10	4	3	17
12	Kota Pekalongan	8	2	2	12
13	Pemalang	4	2	2	8
14	Purworejo	9	3	3	15
15	Kab.Semarang	5	2	2	9
16	Kota Semarang	10	4	4	18
17	Kota Salatiga	8	2	2	12
18	Kota Surakarta	6	3	3	12
19	Kota Tegal	3	3	3	9
20	Kab. Tegal	7	3	2	12
	Total	151	56	53	260

N sample= 151 + 56 + 53 = 260 respondent

Data collection techniques used Questionnaires & Interviews SPLISS 2.0 to respondents using the 9 Pillars indicator consisting of a maximum of 96 Critical Success Factors (CSF) consisting of sub-factors (product-process inputs). The instrument uses SPLISS Instruments 2.0 [3] using the 9 pillars as

indicators as follows: Data analysis techniques using quantitative analysis techniques using SPLISS 2.0 report [18]. Quantitatively identify possible success factors using 114 CSFs allocated to a score of 1-4 based on 9 pillars which from the overall results will be added to the total percentage score for each pillar. The 9

pillars as factors for the success of sports development can be seen in Figure 1 below.

Figure 1. Theoretical model of 9 pillars of sports policy factors influencing international success



(Source: De Bosscher, V. (2018). A mixed methods approach to compare elite sport policies of nations. A critical reflection on the use of composite indicators in the SPLISS study. *Sport in Society*, 21(2), 331–355. <https://doi.org/10.1080/17430437.2016.1179729>)

### Result

Based on the results of research gained by interviews and questionnaires that have been conducted, scores obtained from quantitative data using the SPLISS 2.0 instrument are analyzed using the SPLISS models 2.0 reporting model using a multidimensional model approach to assess the effectiveness of sports policy success. The analysis was carried out by analyzing the management strategy based on input, throughput and output reviews.

The output components can be examined from the perspective of the medals each participant has won. The following is the medal results based on the implementation of the official championship organized by ABTI Central Java. In the last 7 years the medal tally in the handball championship in Central Java can be seen in Figure 2 below:

Figure 2. Medals tally in handball championships in Central Java in 2015-2022

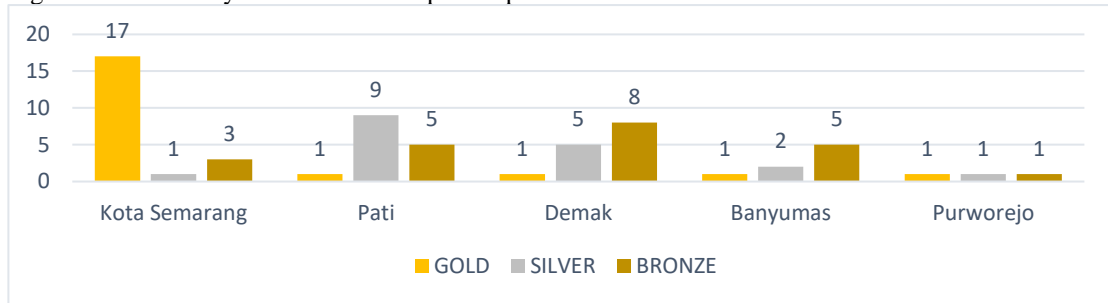
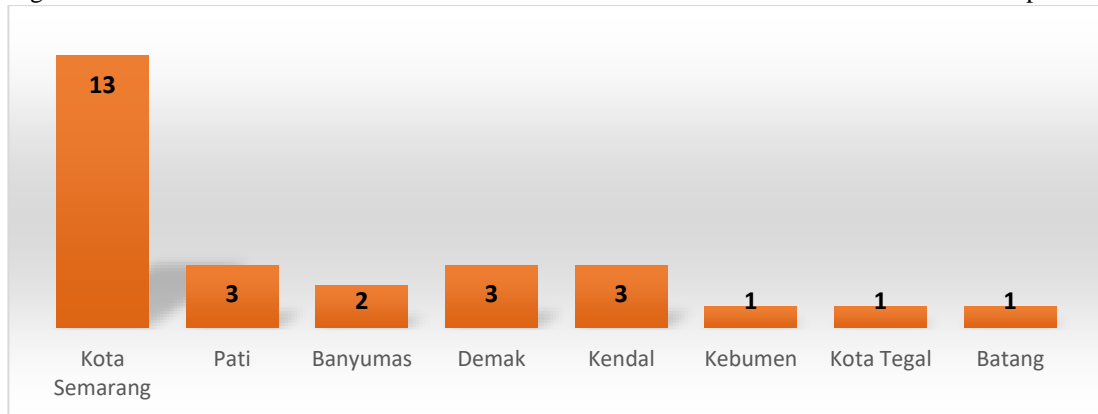


Figure 2 Showed that the dominance of achievements is still achieved by the City of Semarang. Based on these data it can be seen that in the male and female categories during 2015-2022 the City of Semarang is far above other districts which only won the Gold Medal once each. In terms of output, the other 5 districts compete strictly under the city of Semarang to

win silver and bronze medals. based on the other components, the output is shown by the city of Semarang based on Central Java athletes who became national athletes in international championships.

In the last 10 years the list of Central Java athletes who have become national athletes from the district can be seen in figure 3 below.

Figure 3: The number of national athletes came from districts in Central Java in the 2014-2022 period



During 2014-2022 period, the city of Semarang in handball is very dominating compared to other districts. It has the chance to initially develop handball outside of the city of Semarang. The city of Semarang is also consistent in conducting high level performance development in a sustainable manner.

As can be seen in the 9 performance pillars per district based on the top 5 rankings in each pillar and correlated with the output achievements that have been obtained. The following are the results of the 9 pillar SPLISS

2.0 questionnaire data for coaching handball in Central Java.

In general, Central Java has the strength of a good coaching system at the national level. From 2014 to 2022, Central Java has sent its athletes to the national team. This shows that Central Java has a good coaching system

Based on the figure 2, it shows that from the position of the top 5 medal-winning districts, it can be seen at table 2 that the strength maps of the 9 pillars vary greatly. Semarang City with medal dominance has an average score of 83%

with strengths in the aspects of financial support, training facilities and coaching development. The rest get a medium score on the other pillars. Other district under Semarang City have strengths and weaknesses that are evenly distributed with an average score of 69 -78% with various strengths and weaknesses.

In general, there are 2 districts that have high scores based on the 9-pillar analysis. And both of them have good achievements, namely the city of Semarang 83% and the district of Banyumas 78%. This means that the data can still be said to have a correlation between the 9 pillar scores and the achievement output.

The 10 urban districts with an average score of mediums are districts with achievement data in the middle rank, including Demak 75%,

Purworejo 72%, Kebumen 69%, Pati 69%, Jepara 64%, distric of Magelang 61%, Tegal distric 61%, Kendal 58%, Pekalongan city 56% and Salatiga city 53%. The district's accomplishments are competitive and in the middle of the pack in terms of output.

Districts with low categories for scores have low average scores in the 9 pillars of SPLISS with a range of 28 – 47%. This correlates with the number of medals won in the last 7 years. The data showed that regions with strengths on several pillars have the opportunity to gain achievements in the championship. This becomes the basis for improving the existing policy system in each region in the future. Pillar Performance and traffic score on SPLISS Models can be seen in Figure 4 below.

Table 2. Pillar Performance and traffic Score on SPLISS Models

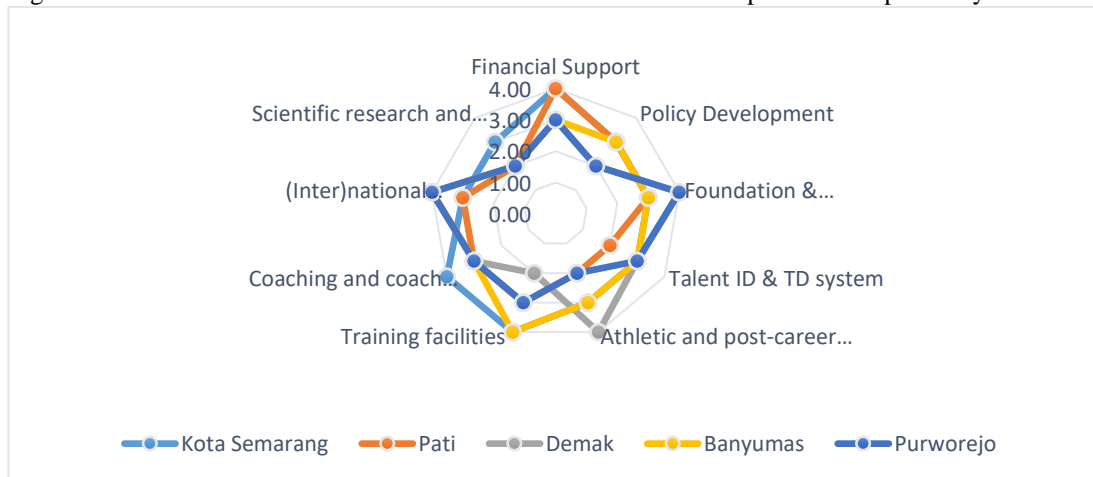
No	Element/District	Financial Support	Policy Development	Foundation & Participation	Talent Development System	Athlete & Post Career Support	Training Facility	Coaching & Coach Development	(inter) national Competition	Scientific Research	Score	Average
		P1	P2	P3	P4	P5	P6	P7	P8	P9		
1	Kota Semarang	●	●	●	●	●	●	●	●	●	30	83%
2	Banyumas	●	●	●	●	●	●	●	●	●	28	78%
3	Demak	●	●	●	●	●	●	●	●	●	27	75%
4	Purworejo	●	●	●	●	●	●	●	●	●	26	72%
5	Kebumen	●	●	●	●	●	●	●	●	●	25	69%
6	Pati	●	●	●	●	●	●	●	●	●	25	69%
7	Jepara	●	●	●	●	●	●	●	●	●	23	64%
8	Kab. Magelang	●	●	●	●	●	●	●	●	●	22	61%
9	Kab. Tegal	●	●	●	●	●	●	●	●	●	22	61%
10	Kendal	●	●	●	●	●	●	●	●	●	21	58%
11	Kota Pekalongan	●	●	●	●	●	●	●	●	●	20	56%
12	Kota Salatiga	●	●	●	●	●	●	●	●	●	19	53%
13	Kota Surakarta	●	●	●	●	●	●	●	●	●	17	47%
14	Batang	●	●	●	●	●	●	●	●	●	16	44%
15	Kudus	●	●	●	●	●	●	●	●	●	14	39%
16	Kota Tegal	●	●	●	●	●	●	●	●	●	14	39%
17	Grobogan	●	●	●	●	●	●	●	●	●	13	36%
18	Kab. Semarang	●	●	●	●	●	●	●	●	●	12	33%
19	Blora	●	●	●	●	●	●	●	●	●	10	28%
20	Pemalang	●	●	●	●	●	●	●	●	●	10	28%
Score Average		2.6	2.0	2.2	2.0	2.2	2.7	2.4	2.3	1.6	19.7	

Explanation: ● Very Good ● Average ● Poor ● Very Poor

The research results show that the 20 urban districts samples have weaknesses in the sports development system found in 5 pillars: 1) Policy structure 2) Foundation and participation 3) Talent identification system 4) Competition system and 5) Scientific research support

Based on the research, only the city of Semarang and Banyumas District that have an average sports development pillar. There are 10 urban districts that have a sports development system with an average score, and as many as 8 urban districts have a sports development score that is still below the average.

In general, it can be concluded that the 9 pillars of sports development based on the Figure 5. The Performance of 9 Pillars from 5 district with the Best Sports Development System



The input component in the SPLISS pillar consists of pillar 1, they are financial support obtained from data on funding assistance from the government and the private sector. Judging from the research data, it shows that financial support by the government is still low to all districts/cities in the last 6 years obtaining funds only 100 million rupiah for all activities for 1 year. Among the five regions, it shows that Pati district and Semarang City have strength in financial support.

In the policy development component, the five regions have relatively the same strength in the medium category. Comparatively, the city of Semarang has three advantages compared to 1621

SPLISS model connected to each district's performance in terms of medals. based on the overall 9-pillars, in general the strength of handball sports development in Central Java are in financial support, (63%) training facilities (55%), coaching and coach development (58%) and competition system (57%). However, based on the results of the interviews, it was stated that on average the district revealed that the weakness in the development of handball was in the financial support aspect. This can be used as a reference in further research that examines financial support in more detail. The performance of 9 pillars from the best of five district can be seen in the figure 9 below:

other regions, namely coaching development, financial support and training facilities. Competition in the aspects of trainer development and participation as well as competition in 4 regions, namely Pati district, Purworejo Distric, Banyumas Distric and Demak Distric have the opportunity to be able to compete in winning medals in the future

**Discussion**

**Pillar 1. Financial Support**

There was a significant linear relationship between money spent and total medals won. [19]. Financial support for coaching handball in Central Java is still very limited. The

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development system for athlete development centers has not been able to reach optimum conditions and there wasn't enough financial support to address long-term athlete development needs. Government budget restrictions cannot be resolved by managing budget effectiveness and efficiency. Finances are a crucial component of the sports industry. [20]

#### **Pillar 2. Governance, Organization and Structure of Policy: An Integrated Approach**

Governance and policy structures are the fundamental components in sports management that regulate, manage and organize all existing resources in the success and success of sports policies [4]. Governance and policy structures require preferences, consensus and strong interventions so that existing resources can be optimally and optimally managed. In managing the development of handball, the policy structure has not really supported the creation of a good coaching climate.

#### **Pillar 3. Initiation, Foundation and Participation**

The weakness in the handball sports coaching system is at the initiation level and the foundation is still very fragile. Low participation at the marketing and grassroots level is the result of the development pattern of development centers that have not been well organized. Based on the study, the success of elite athletes is strongly influenced by mass participation. Mass participation in the foundation and initiation stages has a correlation with the creation of high performance athletes [21]. The increase in the foundation and participation in the sport of handball is still low and is still limited to certain areas. A breakthrough is needed in the province and other region to be able to increase participation because handball is still not popular.

Foundation and participation are important elements as an early part of sports development. Sports participation is claimed as a benefit of elite sporting events and significant sport development [22]

#### **Pillar 4. Talent Identification & Talent Development System**

Policies and systems in the development of sports talent require comprehensive management of an identification system which includes talent detection, talent orientation, talent scouting, talent transfer, talent selection, to obtain athletes with real potential to be nurtured into high performance athletes through a talent development system. [23]. The understanding of talent identification and talent development is still low among coaches and administrators in handball in Central Java.

#### **Pillar 5. Athletic and post-career support**

Career support for athletes and post-athletes is needed to guarantee and ensure the life of the athletes themselves[24]. The rights of athletes should include welfare, health, and educational protections. Gould & Whitley says that high potential for athletes to quit (burnout) before reaching their peak performance needs to be balanced with the proper provision of skills and education for them [25].

So that they will not experience great difficulties in their lives after they stop being athletes. In order to provide athletes and post-athletes with the care they require, guarantees are required. These guarantees should include health insurance, welfare insurance, adequate education guarantees, and old age insurance. Unfortunately. Career and post-career support for handball athletes has not been implemented in every region.

#### **Pillar 6. Training Facility**

Fulfillment of the quality of facilities and infrastructure in the training process for athletes is an important factor in achieving achievement. [26]. Infrastructure and facilities must be able to generate a relevant and high-quality environment in addition to facilitating participation. To fulfill this, it is necessary to properly map the needs for facilities and infrastructure at training centers both at the central and regional levels. by doing that, it will facilitate the fulfillment of quality through a system of standardization of sports facilities and infrastructure.

The limited facilities and infrastructure owned by the regions greatly affect the training



system and competition system that is carried out. Of the 20 research samples, only 30% had sufficient facilities and infrastructure for handball training and competition.

#### **Pillar 7. Coaching Provision and Coach Development**

The quality and quantity of human resources, especially trainers, is very important at every stage and level of sports development. Both stages and levels need to be fostered and managed by people who have adequate capacity and quality. The quality and quantity of the training provision & coach Development will determine the training environment in improving the quality of the training[27]

For the sport of handball to develop a system of certification and standardization of coaches and sports personnel, including conducting affiliations of sports colleges with major sports branches in order to improve the quality standards of sports coaching education graduates and other sports personnel, it is necessary to be able to fulfill the provisions of coaching and development of coaches through ongoing training. The implementation of the standardization, accreditation, and certification system procedures will have a significant impact on coaching provision and coach development. [28]

#### **Pillar 8. (Inter) National Competition**

Competitions held at the national and regional levels are not only needed to be a benchmark for athlete training, but must be seen as an indicator and a positive effect on the sustainability of sports development and development at a macro level[29]. Athletes must train and compete in an appropriate ratio in order to develop their abilities, their minds, and to sustain their performance at the best level. [30]

Synchronization and analysis of competition networks needs to be reviewed from the aspects of development stages, development centers, competition ratios and capitalization.[31] It is intended that the competition network system implemented will support high performance through high level competition.

#### **Pillar 9. Scientific Research**

Research and innovation in the field of sports as a pillar will support a scientific approach in every aspect of sports development through research, development and innovation activities. The variety of research in sports research allows generating statistically significant results to help fit the results into a predetermined theory [32] . This is related to the extent to which research data, knowledge, and technological innovation can be applied in the implementation of talent development. The essence of the scientific research pillar is how the system/mechanism is built in collecting and disseminating scientific information systematically in various fields such as talent identification and development, training methods, medicine, nutrition, psychology, physiology, biomechanics, and sports coaching for the benefit of athlete development.

#### **Conclusions**

The research data showed that the overall score of handball sports coaching analysis shows an average score of 19.7 or 54.65% of the SPLISS score. This shows that the system for developing elite handball athletes in Central Java province shows an average category

In general, it can be concluded that the strength components of the 9 pillars in Central Java are the components of Financial Support with score 2,6 and Facilities with Score 2,7. Based on those pillars the district which have strengths in several areas are Banyumas, Semarang City, Pati distric and Demak district. Kebumen district, Banyumas regency, Semarang city, and Purworejo have strengths in the areas of participation, talent, and talent development.

Based on the results of the research, it can be concluded there is one area with the dominant strength in the achievement of handball sports in Central Java, namely the City of Semarang. And there are 5 regions that progressively have evenly distributed strength as shown from the 9 pillars of SPLISS 2.0, all of which have the potential to be able to develop and compete with other regions.

From the analysis of this study, it is hoped that the outcome of each region will be Central Java pride and national pride in producing international-level national athletes in handball. It is believed that the results of this study's analysis would give each region pride in producing handball players of the highest caliber on the national and Central Javan levels.

#### Conflict of Interest

- If the authors have any conflicts of interest to declare

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