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THE STRATEGY FOR DEVELOPING AN ARABICA COFFEE PLANTATION-BASED AREA IN BANYUMAS REGENCY

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ABSTRACT

Regional development is one of the efforts to improve socioeconomic development, reduce regional disparities and preserve the environment. The Gross Regional Domestic Product (GRDP) of Banyumas Regency has increased over the past 5 years, with the largest contributor to the Gross Value Added category being the Agriculture and Forestry sector. Arabica coffee varieties are one of the mainstay commodities in the region and a source of income for the people of Kabupaten Banyumas. Arabica coffee is a plantation commodity that has been determined to be developed in Kabupaten Banyumas in accordance with the plantation commodity development plan in the RTRW Kabupaten Banyumas 2012-2032. The main objective of this research is to develop a strategy in planning the development of arabica coffee plantation area in Kabupaten Banyumas. The research area covers all 29 sub-districts starting from January to April 2024. In looking at the actual distribution of arabica coffee plantations, overlay analysis techniques were used using data from land use maps, elevation maps. Land availability was analyzed through overlay and matching techniques with ArcGIS software and direct measurement. Arabica coffee agribusiness system was analyzed through R/C ratio descriptively. The development strategy of Arabica coffee plantation area in Banyumas Regency was conducted using AWOT analysis. The results showed that the actual distribution of arabica coffee plantations in the cultivation area in Banyumas Regency covers several sub-districts and the area reaches 1,214 ha. Available and suitable land for the development of arabica coffee plantation in the cultivation area is indicated to reach an area of 20,471 ha, of which the largest area is located in Lumbir Sub-district with an area of 3,726 ha or 18.09% of the total available land area.

KEYWORDS *A'WOT, Land Suitability, Land Availability, Agribusiness System*

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INTRODUCTION

One of the objectives of regional development is to increase socioeconomic development, reduce regional disparities, and preserve the environment. According to Riyadi (2004), regional development must be adjusted to the conditions, potential, and problems in the region. The development of the potential of regional leading sectors can be carried out in an integrated and sustainable manner in accordance with regional development plans and is expected to increase regional economic productivity. Optimal utilization of the potential of regional leading sectors is a requirement that needs to be considered so that the welfare and prosperity of the community can be achieved (Mubyarto, 2000). One of the regions that is currently conducting regional development through superior commodities, especially plantations, is Banyumas Regency.

It should be noted that the Gross Regional Domestic Product (GRDP) of Banyumas Regency has increased from 2016 to 2020, where the largest Gross Value Added contributor category is from the Agriculture, Forestry and Fisheries sector. In 2016 this sector contributed 48.34%, in 2017 it remained at 48.34%, but in 2018 it shifted slightly to 48.43%, and in 2019 it amounted to 48.53%, then in 2020 it amounted to 48.64% (BPS Banyumas, 2021). In this case, agricultural commodities are one of the sub-sectors that make the largest contribution to the GRDP of Kabupaten Banyumas. One of the major contributors to this sub-sector is plantations, especially arabica coffee plants. It is known that in 2021, the coffee plantation area in Banyumas Regency reached 48.97 thousand ha with a production level of 29,173 tons (BPS Banyumas, 2022). To be able to maintain and even advance GRDP, increasing production from all sectors, especially plantations such as coffee plants, is very necessary to continue to be developed because it has great potential in the future.

In this case, the arabica coffee variety is one of the mainstay commodities of this region and a source of income for the people in Kabupaten Banyumas. However, arabica coffee still requires a lot of consideration, especially from the geobiophysical aspect. This aspect is fundamental, so it needs special attention so that farmers can utilize land resources optimally, purposefully, efficiently, yet sustainably (Ritung et al., 2011). If coffee plantation development is not supported by suitability studies, it can cause land degradation with implications for decreased production. In Banyumas Regency, Arabica coffee is a plantation commodity that has been determined to be developed in accordance with the plantation commodity development plan in the Banyumas Regency RTRW 2012-2032. Coffee development in Banyumas Regency is one of the efforts to support the central government's program, namely the development of national agricultural areas for priority plantation commodities (Kementan, 2020).

In implementing the program, better planning is needed that considers all aspects both in terms of ecology and the carrying capacity of the region. For this reason, planning must be effective and sustainable. Land use planning based on superior commodities like this has not been conducted in Kabupaten Banyumas, so this kind of study is needed in order to overcome the problem of land use effectiveness. Such land use planning can also result in the allocation of land in accordance with its designation, so that agricultural land conversion can be optimally controlled and

land productivity maximized to improve the community's economy. Based on these land use issues, research on regional development strategies based on Arabica coffee plantations in Banyumas Regency needs to be conducted.

RESEARCH METHOD

This research was conducted in Banyumas Regency. The materials used in this research consisted of slope maps, soil unit maps, RTRW maps, existing land use maps, and supporting data from BPS Banyumas Regency. In addition, literature and journal literature studies were also used to support the analysis in the research. The tools used consisted of a Global Positioning System (GPS), camera, stationery and a computer equipped with ArcGIS 10.3 software, and Microsoft Office.

The Arabica Coffee Plantation-Based Regional Development Plan strategy uses two analyses, namely Hierarchical Process Analysis (AHP) and SWOT Analysis. AHP-SWOT (AWOT) is a combination of two decision-making methods, namely AHP and SWOT. AWOT is known as a complex problem solving method, which is based on determining the weight coefficient in a hierarchical structure whose elements are objectives, criteria and alternatives (Buzadjija et al., 2017). In its application, combining these two analytical methods can provide optimal advantages, SWOT forms the general framework and AHP is applied within the framework to incorporate quantitative analysis into the decision-making process.

RESULT AND DISCUSSION

Banyumas Regency is located in the western part of Central Java Province, with an area of 132,759.56 hectares. Geographically, the area of Banyumas Regency is located between 1080 39'17"-1090 27'15" and between 70 15'05"- 70 37'10" (BPS Kabupaten Banyumas). The administrative area of Banyumas Regency consists of 27 sub-districts with 301 villages and 30 sub-districts, each of which is bordered by: North is bordered by Tegal Regency and Pemalang Regency. South is bordered by Cilacap Regency. The West is bordered by Cilacap Regency and Brebes Regency. East is bordered by Purbalingga Regency, Banjaregara Regency, and Kebumen Regency.

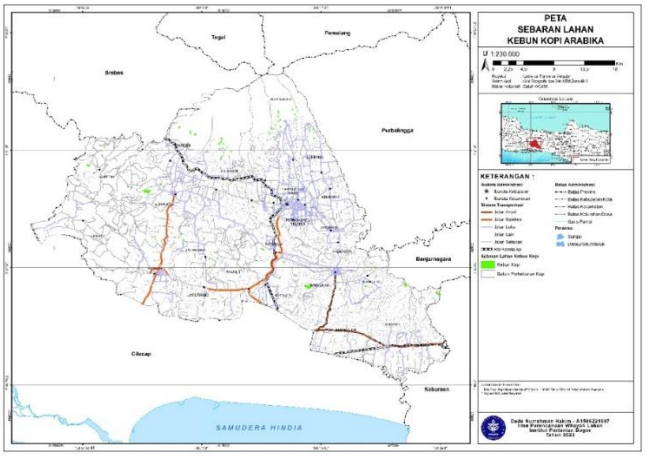

Figure 1. Map of Arabica Coffee Distribution in Banyumas Regency

The results of identifying the distribution of arabica coffee plantations in Banyumas Regency through secondary data searches show that in 2022 Banyumas Regency had 1,768.13ha of arabica coffee plantations. The data on the size of Arabica coffee plantations was sourced from the Agriculture and Food Service Office of Banyumas Regency (BPS 2022). This area is not much different from the results of the identification of coffee plantations conducted in this study, namely through the land use and altitude approach (overlay between land use map and altitude map). In the land use map, the attributes used are plantation, agriculture, and mixed land agriculture where Arabica coffee plants are identified, then the altitude map is used as a delimiter of the distribution of coffee plants because Arabica coffee plants can grow and produce at an altitude of ≥ 700 masl. To confirm the distribution of Arabica coffee in Banyumas Regency, field surveys and direct mapping or measurements were conducted to validate that the distribution of Arabica coffee in Banyumas Regency is as presented in Figure 10. According to Najayati and Danarti (2007), Arabica coffee can grow very productively and optimally at an altitude of 700-1700 masl. The mapped area is also limited to cultivated areas based on the forest area map and does not include coffee farms located in protected areas. From the results of this latest identification, it was found that the area of arabica coffee plantations spread across several sub-districts has an area of 1,768.13 ha. A map of the distribution of Arabica coffee plantations in Kabupaten Banyumas from the identification results is presented in Figure 10.

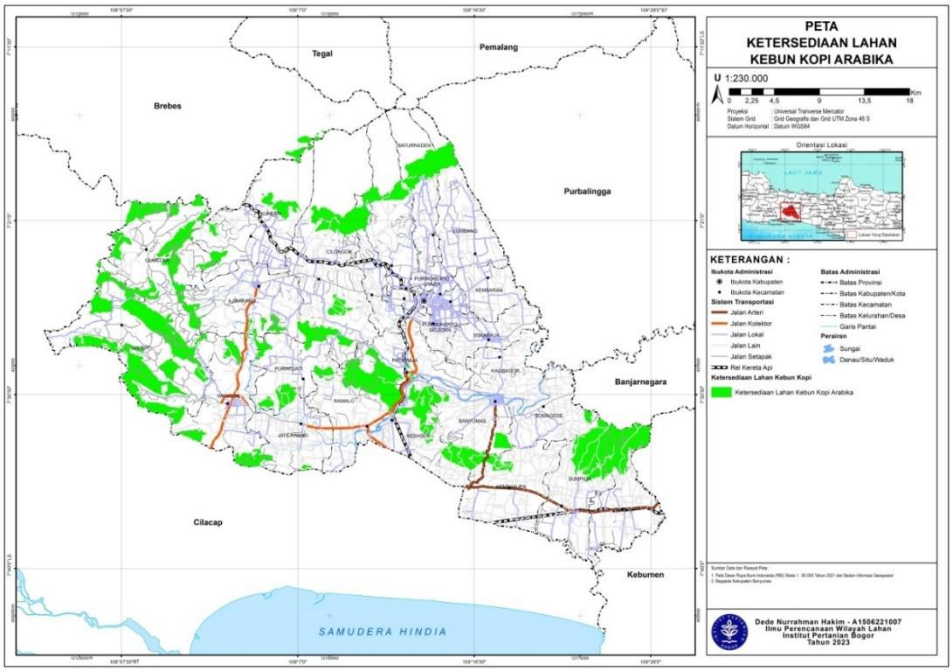

Figure 2. Map of Land Availability for Development of Arabica Coffee Plantation Area in Banyumas Regency

The available land for the development of arabica coffee plantation area was obtained through the overlay process of several thematic maps, namely the spatial pattern map of the 2012-2032 Banyumas Regency RTRW, the 2022 forest area status map, and the 2022 Banyumas Regency land use map. To confirm the

availability of the arabica coffee area, field surveys and direct measurements were conducted at the location of the arabica coffee distribution area. The Arabica coffee availability area has an area of 20,471.10 ha. Land or areas categorized as "unavailable land" for the development of arabica coffee plantation areas are areas with status as protected areas, areas that have been encumbered by permits, and built-up areas, while "available land" for the development of arabica coffee plantation areas is land with status as cultivated areas or other use areas with land use types in the form of fields/forests, mixed gardens, vacant/open land, pastures/grasslands, and shrubs. The results of the overlay analysis and survey with direct measurement in the field show that the available land for the development of Arabica coffee plantation area in Banyumas Regency reaches an area of 20,471.10 ha, while the unavailable land is 118,539.09 ha\

The regional development strategy based on arabica coffee plantation in this study is based on the results of AWOT analysis based on internal factors and external factors obtained. This strategy is divided into four aspects consisting of strategies to utilize strengths to get opportunities (SO), strategies to utilize strengths to face threats (ST), strategies to reduce weaknesses by utilizing opportunities (WO), and strategies to reduce weaknesses in facing threats (WT). Based on the results of this analysis, the prioritization of strategy selection for the development of arabica coffee plantation-based areas in Kabupaten Banyumas is done by ranking the number of elements related to the strategy. In this case, the strategy selected follows the highest weighted number, so that this number reflects the top priority for development.

Table 1. Regional Development Strategy Based on Arabica Coffee Plantations

	Opportunity **O1** **O2** **O3** **O4**	***Threats*** **T1** **T2** **T3** **T4**
Strenghts **S1** **S2** **S3** **S4**	SO1(S2,S3,S4,O3,O4) Processing agricultural products by utilizing the role of government and cooperative institutions in marketing Total weight 0.330	ST1 (S1, S4, T1, T3) Sharpening potential areas of technical and crop feasibility in an effort to increase crop and land productivity Total weight 0.271

	SO2 (S1, O1, O2) Provide assistance and counseling to farmers so that the utilization of land potential can be carried out optimally and can increase production. Total weight 0.194	ST2 (S3, S4, S1, T2, T4) The role of the government and cooperatives in balancing the selling price of coffee so that coffee stability is maintained. Total weight 0.273
Weakness **W1** **W2** **W3** **W4**	WO1 (W1, W2, W3, O1, O2, O3) Optimizing land availability and infrastructure utilization to support crop and product quality improvement Total weight 0.401	WT1 (W1, W2, W4, T1, T2, T4) Improve human resources related to management (cultivation techniques, marketing, and environment) through the provision of training and comparative studies. Total weight 0.398
	WO2 (W4, O3, O4) Developing institutional functions and partnerships by utilizing the role of cooperatives in marketing coffee Total weight 0.204	WT2 (W3, T3) Improving coffee competitiveness by building infrastructure and conducting integrated spatial planning Total weight 0.118

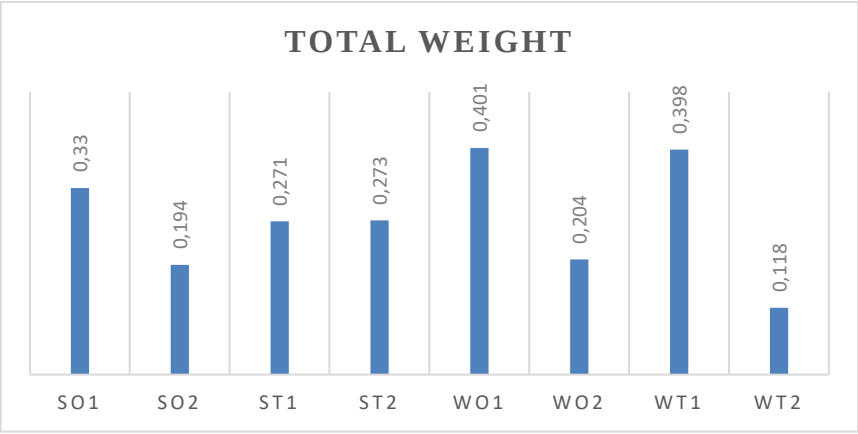

Figure 3. Sequence of Regional Development Strategies Based on Arabica Coffee Plantations in Banyumas Regency

Description

SO_1 : Processing agricultural products by utilizing the role of government and cooperative institutions in marketing

SO_2 : Conducting extension assistance to farmers so that the utilization of land potential can be done optimally and can increase production.

ST_1 : Sharpening potential areas of technical and crop feasibility in an effort to increase crop and land productivity

ST_2 : The role of the government and cooperatives in balancing the selling price of coffee so that coffee stability is maintained.

WO_1 : Optimizing land availability and infrastructure utilization to support the improvement of crop and product quality

WO_2 : Developing institutional functions and partnerships by utilizing the role of cooperatives in marketing coffee

WT_1 : Improve human resources related to management (cultivation techniques, marketing, and environment) through training and comparative studies

WT_2 : Improving coffee competitiveness by building infrastructure and conducting integrated spatial planning

Regional development in Banyumas Regency through a superior commodity development approach, namely arabica coffee, was carried out based on considerations of various analysis results on each of the predetermined research objectives. Influential factors in determining various alternative directions for Arabica coffee plantation development were analyzed in a structured and comprehensive manner. Land use planning must pay attention to all aspects of both agricultural and non-agricultural land, with the preparation of a land use plan for commodity development, land damage can be minimized and a sustainable land use system can be pursued. Arabica coffee plantation-based regional development does not only pay attention to physical land factors, but also requires a social approach by paying attention to the conditions of the local community and other supporting factors. In marketing Arabica coffee and processed products, adequate infrastructure support is needed with the participation of supporting institutions from both the private sector and the government.

Based on Figure 3, it can be seen that the strategy of "optimizing land availability and infrastructure utilization to support the improvement of crop and product quality" (WO1) is the first priority with a weight of 0.401 that can be used for the development of arabica coffee plantation areas. This first priority has a relationship with ST1 (Sharpening potential areas of technical and crop feasibility in an effort to increase crop and land productivity) with a weight of 0.271 and WT2 (Improving coffee competitiveness by building infrastructure and conducting integrated spatial planning) with a weight of 0.204. Management of available land by increasing the cropping index and production must be improved with the support of other elements such as technological innovation, facilities and other supporting infrastructure (Mulyani & Agus 2017). The results of the analysis of land availability and suitability show that the available land area for coffee plants only

reaches 20,471 ha. However, the land planted with arabica coffee plantation development is currently only 1,214 ha. Lumbir sub-district is the sub-district that has the highest available land for coffee development, but climatic conditions and altitude do not allow for coffee development. Kecamatan Lumbir has good support for the development of agricultural infrastructure. This location is possible not only for the development of arabica coffee plantations but also for robusta coffee because the climate and altitude factors are quite suitable.

The increase in the area of arabica coffee plantations is expected to improve the welfare of farmers and the regional economy in Kabupaten Banyumas. However, considering the small amount of land available and suitable for arabica coffee plantations, special attention needs to be paid to the aspects of coffee cultivation and marketing so that the existing land can be maximized optimally. Looking at the condition of Arabica coffee farming in the field at the time of the research, it is possible that the development of the area will face various problems. Problems that often arise are the price of coffee, which is still fluctuating, causing farmers to be unable to fully depend on just one commodity. Erratic climatic conditions such as prolonged rain can affect coffee productivity. Optimizing the availability of land is expected to improve the regional economy, planting arabica coffee on available land is intended to increase productivity or improve community welfare and increase the income of coffee farmers. Utilizing land by planting horticultural crop commodities in the intercropping method with coffee plants can also increase income, so farmers have a side job in meeting their needs (Amir et al. 2017).

The strategy of "improving human resources related to management (cultivation techniques, marketing, and environment) through training and comparative studies" (WT1) is the second priority with a weight of 0.398. This second priority has a relationship with SO2 (providing extension assistance to farmers so that the utilization of land potential can be carried out optimally and can increase production) with a weight of 0.194. In this case, the role of agricultural extension workers in providing agricultural facilities and infrastructure is the most important thing in the process of developing smallholder plantations (Widiatmaka et al. 2014). Training or counseling is needed by farmers so that land utilization becomes optimal so that coffee plants become productive and their production can increase in every harvest and have a positive impact on farmers' economic growth. Field observations show that until now farmers in Banyumas Regency have not focused on the management of protective coffee plants, whereas if these protective plants can be managed properly, such as planting fruit plants, then these plants can not only provide protection and maintain coffee productivity, but also provide additional income or income for farmers.

The increase in Arabica coffee plantation area needs to be balanced with efforts to increase agricultural yields with existing land such as the strategy of "improving human resources related to management (cultivation techniques, marketing, and environment) through training and comparative studies (WT1)". Increasing farm profits can be done through rehabilitation activities of arabica coffee plantations, activities carried out in the form of providing production facilities, rejuvenation activities and intercropping with annual crops such as chili

plants, potatoes, shallots and other crops that are suitable for intercropping with arabica coffee plants. These activities aim to increase the productivity of coffee plants and optimize existing land so that it can provide more benefits for farmers. The results of the farming analysis show that 76% of coffee farmers conduct farming efficiently. If improvements in cultivation techniques and farmer management are carried out by the government or the private sector, productivity can be increased. Based on the analysis conducted, the yield obtained by farmers from an average land area of 0.92 ha is Rp. 12,990,983 per 1 harvest season. This figure is obtained if the price of red bamboo fruit is in accordance with the results of the farming analysis, namely Rp. 6,000 per bamboo.

The strategy of "processing agricultural products by utilizing the role of government and cooperative institutions in marketing" (SO1) is the third priority with a weight of 0.330. This third priority is related to strategy ST2 (The role of the government and cooperatives in balancing the selling price of coffee so that coffee stability is maintained) with a weight of 0.273 and WO2 (Developing institutional functions and partnerships by utilizing the role of cooperatives in marketing coffee) with a weight of 0.204. Banyumas Regency is a regency where the average population works as farmers. The GRDP of Banyumas Regency also states that the largest contributor is the agricultural sector. In general, the most supportive agricultural products are arabica coffee plants sold in the form of cherries (red fruit) without carrying out post-harvest processes in increasing the added value of the coffee. In this case, post-harvest management can increase added value and increase competitiveness in the arabica coffee marketing process, both at the national and international levels. Cooperatives in this case will play a very important role not only in the arabica coffee marketing process, but also actively in providing counseling in the field so that the quality of coffee remains consistent. Indraningsih et al. (2013) stated that the role of extension workers to farmers is very high, especially in technical assistance, training and information. For this reason, in order for Arabica coffee to compete well, the right technology is needed and there needs to be support from related agencies, be it capital, inputs, market information, and policies on coffee prices that tend to fluctuate.

In addition to increasing farm profits, the local government is expected to build a processing facility in the form of a coffee drying factory. The existence of a coffee drying factory managed by farmer groups is expected to increase profits through the sale of coffee in the form of green beans. The development of a final processing industry such as the coffee bean roasting industry is expected to improve the regional economy, especially for coffee farmers themselves and generally for the economy of the Banyumas Regency. Coffee that has reached the green bean stage can be categorized as an intermediate product. The green coffee beans produced can still be processed into various products such as packaged coffee powder, coffee fragrance and other derivative products. The selling price of the product is also higher than selling only green coffee beans. The drying factory managed by farmer groups is expected to absorb labor and improve community welfare. Cilongok sub-district is a priority in the development of arabica coffee farming and marketing due to the readiness of infrastructure facilities and infrastructure that are quite complete compared to other sub-districts, this sub-

district also has 808.44 ha of available land that can be managed according to its designation.

The role of coffee cooperatives as a supporting institution for farmer groups is needed in the development of coffee plantation areas. Farmers are the main actors who play a role in the development of the area, the role of farmers will be more significant if they are members of certain groups such as coffee cooperative membership. The relationship between the parties in the cooperative institutional system is a co-ownership relationship, where farmers, collectors, and cooperative administrators are parties with a common interest in ensuring quality and mutually beneficial prices. The existence of coffee cooperatives provides convenience for the government and the private sector in channeling assistance. In addition, coffee cooperatives can also be used as partners in marketing coffee produced by farmers. The system of supporting institutions such as coffee cooperatives provides justice for the parties involved in the cooperative, so that each actor in the hierarchical structure of the cooperative institution provides equally distributed benefits. One of the important results in this study found that the role of stakeholders, government, and coffee cooperatives is very strategic to encourage the development of human resources, especially coffee farmers. Recommendations made in changing farming patterns with old habits that have been passed down from generation to generation have seemed comfortable, but change must indeed be interpreted as one way to become something better than the previous situation which is still less than optimal, so it is hoped that in the future coffee farmers can maximize existing land with optimal production.

CONCLUSION

Based on the results of the research entitled Arabica coffee plantation-based regional development strategy in Banyumas Regency, the following conclusions can be drawn: The actual distribution of arabica coffee plantations in cultivation areas in Banyumas Regency covers several sub-districts and reaches an area of 1,214 ha. The sub-district with the highest percentage of area is Baturaden sub-district with an area of 190.94 ha. Suitable and available land for Arabica coffee plantation development in the cultivation area is indicated to reach an area of 20,471 ha, where the highest percentage is in Lumbir sub-district with an area of 3,726 ha or 18.09% of the total available land area.

Coffee farming by farmers in Banyumas Regency is efficient because it has an R/C ratio value = 2, and for marketing efficiency with an R/C value = 1.4. The average income obtained from the results of 40 respondent collectors in Banyumas Regency was Rp. 41,275,867.

The main Arabica coffee plantation-based regional development strategy is to optimize land availability and infrastructure utilization, especially in sub-districts as marketing centers, as well as the need to improve human resources on cultivation techniques, marketing and environmental management by processing agricultural products to improve farming and utilizing the role of government and cooperative institutions in marketing.

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