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# Optimization Mangosteen Value Chain : Strengthening Strategy Institutions and Export Competitiveness in Banyuwangi Regency

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***ABSTRACT***
*The horticultural sub-sector, particularly the mangosteen commodity, plays a strategic role as Indonesia's leading export commodity which requires integrated supply chain management. and globally competitive. The results of quantitative analysis using the SAW method, with high weighting on the criteria of Effectiveness and Feasibility, determine the priority order of policy interventions. six category identified root problems, Institutional Root Problems (Vi Score = 4.15) are at ranked first. Furthermore, the Upstream-Downstream Institutional Partnership Development strategy based on Cooperatives/Village-Owned Enterprises/Farmer Groups (Gapoktan) in mangosteen commodities was designated as Priority I with the highest preference value (V=0.93), making it an essential prerequisite for successful investment in this sector. The main objective is to transform cooperatives/Village-Owned Enterprises/Farmer Groups in production centers into Perpetrator Main Tata Commerce (Single) Mangosteen Exports that implement One Gate Policy. Implementation policy explained through three dimensions action: Regulation & Mandate, which focuses on issuing Regional Head Regulations (Perkada) for legality; Governance, which includes facilitation Partnership Contract Long-term binding quality standards and minimum purchase prices; and synergy Program, which directs all funding support and technical programs of OPD through This policy emphasizes the centralization of authority and resources to create an integrated, competitive, and sustainable mangosteen export system.*

***Keywords:*** *Mangosteen, Banyuwangi, Partnership Upstream-Downstream*

## INTRODUCTION

The economic movement of Banyuwangi Regency over the past decade has placed the agriculture, forestry and fisheries sectors as the main drivers, contributing up to 26.42% (Central Statistics Agency of Banyuwangi Regency, 2025). In a way macro, growth economy Banyuwangi on year 2024 recorded as big as 4.68 percent. (BPS Regency Banyuwangi, 2024). Structure economy Banyuwangi Still dominated by sectors source-based Power natural. Data Product Domestic Regional Gross (GRDP) shows that the agriculture, forestry and fisheries sectors are still the largest contributors to GRDP with mark 26.42 % on year 2024. With the growth and contribution of the agricultural sector in Banyuwangi Regency surpassing that of East Java Province, the Banyuwangi Regency Government has designated the agricultural sector as a leading sector in Banyuwangi Regency to increase regional competitiveness and realize agricultural-based economic independence (Banyuwangi Regency Government, 2016).

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Banyuwangi Regency is one of the regencies in East Java Province. located in part east Island Java. Wide region Regency Banyuwangi around 5,782.50 $km^2$ Which is regency widest in Province Java East. In addition to having the potential of Human Resources (HR) which is one of the capitals of regional development, Banyuwangi Regency also has extraordinary Natural Resources (SDA) potential, especially in the horticulture sub-sector.

In line with the implementation of regional autonomy, each region has the responsibility to improve the standard of living of its people by utilizing its resources, both natural and human. trend For allocate resource natural in the form of commodities priority commodities, can be a driving force for regional development. Priority commodities or commodities featured is commodities agriculture in area Which potential For developed in something region with utilise source Power natural, source Power man, and technology as well as friendly environment so that created superiority compete Which Ready facing global competition as mandated in Banyuwangi Regency Regional Regulation Number 6 Year 2018 About Development Product Agriculture Featured Which Empowered Competitive and Environmentally Friendly. This Regional Regulation (Perda) outlines the efforts and policy direction of the Banyuwangi Regency Government (Pemkab) in supporting the development of superior agricultural products. The purpose of this Perda is to optimize agricultural product development to support the regional economy, particularly by increasing income and community welfare, given Banyuwangi Regency's highly diverse agro-climate. As a follow-up, the Banyuwangi Regency Agriculture and Food Service in 2021 conducted analysis superiority comparative And competitive on fruit annual featured local in Banyuwangi Regency. Comparative advantage analysis was conducted using the LQ method and competitive advantage analysis was conducted using the SSA method as shown in Table 1.

**Table 1. Results Analysis LQ And SSA Commodity Fruit Featured**

| Commodity Fruit | LQ | LQ > 1 | SSA | DS > 0 | Information |
|---|---|---|---|---|---|
| Durian | 0.13 | × | 0.64 | √ | Superior Competitive |
| Mangosteen | 1.40 | √ | 0.08 | √ | Superior Comparative & Competitive |
| Orange Siam / tangerine | 3.76 | √ | -0.30 | × | Superior Comparative |
| Banana | 0.55 | × | -0.63 | × | No Superior |
| Guava Water | 0.20 | × | -1.85 | × | No Superior |
| Guava | 0.45 | × | -0.56 | × | No Superior |
| Mango | 0.25 | × | -1.23 | × | No Superior |
| Avocado | 0.12 | × | -0.97 | × | No Superior |
| Orange big | 0.11 | × | 0.33 | √ | Superior Competitive |
| Pawpaw | 0.42 | × | -0.28 | × | No Superior |

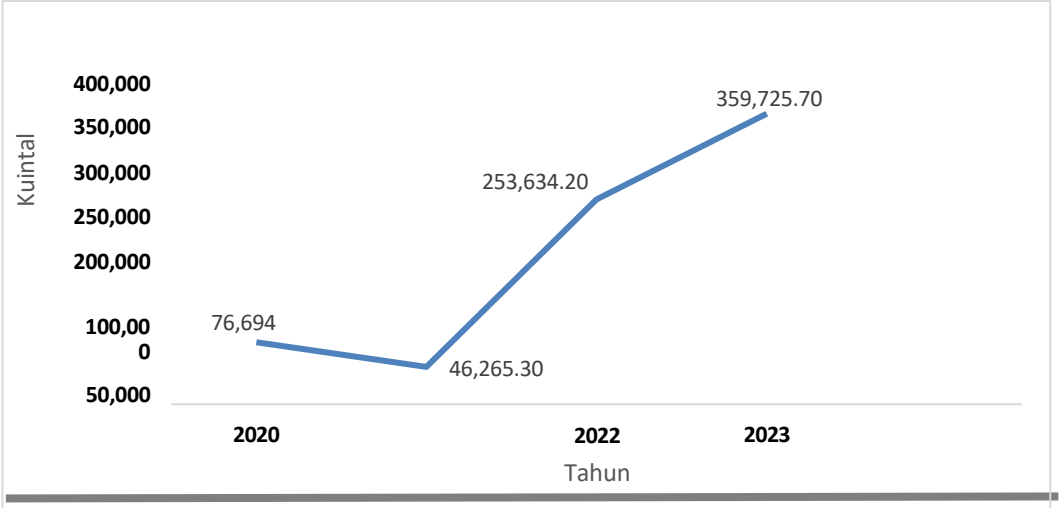
Source : Service Agriculture And Food Regency Banyuwangi, 2021

*Location Quotient (LQ)* is a method that is often used as an indication of the base sector. Which furthermore used as indication sector featured. The results of the analysis using the LQ method produced the following three criteria (Hendayana, 2003):

a) LQ > 1 means the commodity is a basic commodity or a source of growth. This commodity has a comparative advantage; its output can not only meet the needs of the region but can also be exported outside the region.
b) LQ = 1: The commodity is classified as non-basic, lacking a comparative advantage. Production is only sufficient to meet local demand and cannot be exported.
c) LQ<1, this commodity also includes non base And do not have superiority Comparative. Commodity production in a region cannot meet its own needs, requiring external supplies or imports.

*Shift–share* analysis is used to analyze and determine shifts and roles economy in area. Method it is used to observe structure economy and the shift with method emphasize growth sector in area, Which compared with sector Which The same on regional level which are more tall or national. Analysis This can be used to examine shifts in regional economic structure in relation to the growth of higher-level regional economies. Regional economies dominated by slow-growing sectors will grow below the economic growth rate of the regions above them (National Development Planning Agency, 2004).

Data Table 1 shows that mangosteen is the only commodity annual fruit in Banyuwangi Regency which has a comparative advantage (LQ>1) and superiority competitive (DS>0). Besides own potential production Which tall with agroclimatic support Which in accordance as well as skills farmer in cultivating mangosteen, Banyuwangi mangosteen Also own superiority compared to mangosteen from area other, namely the sap is a little and apparition the skin of the fruit is smooth. It feels like No too sweet with sensation the right acid, so it is in great demand market. Thus, mangosteen is worthy of being priorities in the direction of agricultural sector development policy in Banyuwangi Regency. Mangosteen production in Banyuwangi Regency shows an increasing trend as shown in Figure 1. Mangosteen in Banyuwangi Regency is a local commodity that has been cultivated by ancestors for hundreds of years and has been passed down to local residents to this day.



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**Picture 1. Production Mangosteen Banyuwangi**
Source : BPS Regency Banyuwangi, 2024

Based on comparative and competitive advantage (LQ and SSA) analysis, mangosteen has been confirmed as one of the leading regional fruit commodities in Banyuwangi Regency. The Banyuwangi Regency Government's policy direction firmly prioritizes mangosteen as a premium horticultural export commodity. This commitment is demonstrated by the official recognition of a superior local variety, Manggis Menak. Jinggo, who on year 2022 has get a Certificate of Sign List of Varieties from the Center for Plant Variety Protection and Agricultural Licensing, Ministry of Agriculture. This certification is not merely administrative recognition, but rather a strategic (non-physical) asset. give guarantee authenticity And quality genetics Mangosteen Banyuwangi in international market. Recognition This at a time confirm the need policy strategic advanced, specifically in supply chain and post-harvest sectors, to support the premium status that Banyuwangi Mangosteen has .

Since year 2022, potential mangosteen in Regency Banyuwangi has push a larger strategic plan, where Banyuwangi Regency was even offered by the Governor of West Java East For become a barn production ( *food estate* ) mangosteen in region The facts show that Banyuwangi Regency has repeatedly released mangosteen exports and continues to seek new export opportunities to various countries. This is a strong indication of the export competitiveness of this commodity. On the one hand, the recognition of the local mangosteen variety, Menak Jinggo, and its penetration into the export market are significant assets and a positive indication of the quality of Banyuwangi's horticultural products. However, height potential This Not yet fully converted to provide stable welfare for farmers. The reality on the ground shows that the mangosteen agribusiness system still faces several structural challenges that hinder increased added value and are vulnerable to market fluctuations. Although export activities have resumed, height request market global This ironically Not yet fully stabilize Prices at the farm level, particularly during the peak harvest season, indicate a dislocation between upstream potential and the strengthening of downstream infrastructure and institutions. This confirm that problem main No located on quality or lack of market, but rather the failure of the logistics and institutional systems to accommodate the volume and maintain the added value of these exports. Without appropriate policy intervention, the momentum growth driven by this superior quality will stopped at the upstream point. Therefore, it is important to identify and analyze in depth the development challenges in mangosteen commodity development.

Although mangosteen has premium status and proven export access, development commodities This in Regency Banyuwangi Still confronted on three challenge group structural main Which must overcome, namely:

1) Challenge Economy And Market, characterized by extreme price fluctuations due to oversupply *during* the main harvest and uncertainty in domestic demand.
2) Value Chain and Infrastructure Challenges, where limited post-harvest handling facilities (especially *cold storage* ) make farmers vulnerable to damage product And force sale fast with price low.
3) Challenge Institutional And Regulation, namely its weakness position bid farmer Because chain Long supply chains, and the suboptimal role of

cooperatives, village-owned enterprises (BUMDes), and farmer groups (Gapoktan) as official *off-takers* and downstream centers. These challenges cumulatively threaten the sustainability of mangosteen's export status and prevent farmers from achieving maximum added value.

Banyuwangi Regency has recognized Menak Jinggo mangosteen as a strategic export commodity, as evidenced by the acquisition of a Variety Registration Certificate (PVT) from the Ministry of Agriculture in 2022. This recognition should serve as a foundation for strong and sustainable export competitiveness. However, field data demonstrates an extreme disparity between upstream quality potential and downstream inefficiencies. This paper identifies the primary problem as the suboptimal mangosteen value chain, characterized by high price volatility that harms farmers during the main harvest and post-harvest losses ( *food loss* ), estimated at 35–37% of total sectoral production (IPB University, 2021). This inefficiency directly erodes the added value that should be enjoyed from mangosteen's premium status and weakens farmers' bargaining position.

## RESEARCH METHODS

Framework think writing This built in on foundation logic deductive, which moving from identifying Performance Gap to formulating strategic solutions. It began with mapping the potential of the horticultural sector in Banyuwangi, specifically identifying mangosteen as a proven superior export commodity. Gaps emerged. when potential quality high in upstream ( on-farm ) failure converted into optimization chain value and increase the welfare of farmers downstream. This failure described through challenge development (economy, infrastructure, And institutional), Which then synthesized become problem main : "Not yet optimally chain mark Mangosteen Which hamper export competitiveness". Thus, the writing This paper sets its objectives, as stated in the title, to formulate strategies for institutional strengthening and effective supply chain interventions. This logic ensures that every analysis conducted is oriented toward problem solving and achieving regional policy objectives.

For ensure accountability And objectivity, writing This follow channel structured analysis. After the main problem is formulated, the analysis continues by breaking the problem into six categories of root causes (Institutional, Infrastructure, Method, Market, Regulation, and Human Resources) using a Fishbone Diagram . The qualitative Fishbone analysis is then refined into quantitative justification using the Simple Additive Weighting (SAW) Method. The use of SAW aims to determine the Main Root Causes that are most urgent and relevant for intervention, based on six measurable policy evaluation criteria (Effectiveness, Feasibility, Efficiency, Adequacy, Equity, and Responsiveness). The results of the SAW analysis become logical basis for formulating policy alternatives. Thus, this methodology ensures that the proposed solutions is not just idea intuitive, but choice Which has pass stage robust criteria-based priority screening.

Writing This will then formulate several policy alternatives specifically aimed at strengthening institutions. These policy alternatives will then be re-evaluated using the SAW criteria (with equal weighting) to produce the best policy recommendations. The final output of this paper This is a roadmap for a strategy to strengthen mangosteen institutions and value chains that is measurable, implementable, and directly supports regional development

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programs in an effort to increase the added value of superior commodities, while increasing the competitiveness of Banyuwangi Regency mangosteens in the export market.

Simple Additive Weighting (SAW) method, or often known as the weighted summation method, is one of the classic techniques in Decision Making analysis. Multicriteria ( Multi-Criteria Decision Making - MCDM). Method SAW used to determine the best alternative from a number of alternatives based on established criteria set with weight certain. Superiority main SAW located on The principle is simple and easy to understand, namely finding a weighted score for each alternative. Conceptually, the SAW process involves four key steps (Kusumadewi et al., 2006):

1) Normalization Decision Matrix: Matrix beginning normalized to change all criteria values into a uniform scale, so that they can be compared, even if the units of measurement are different. Mark normalized use formula Which customized for benefit or cost criteria.
2) Determination Criteria Weight: Each criteria (in this article, criteria like Effectiveness, Efficiency, Adequacy, Equity, Responsiveness, and Appropriateness) are given weights that reflect level of importance in taking decision. Weight total the criteria must be one (ΣWj = 1).
3) Calculation Score Weighted: Score performance from every alternative on every criteria multiplied by the weight of the relevant criteria.
4) Determination Rating: Value end ($V_i$) from every alternative (root of the problem) counted by adding up all the weighted multiplication results.

$$V_i = \sum_{j=1}^{n} W_j \cdot X_{ij}$$

The alternative with the highest Vi value is the best choice or the main root problem that is most prioritized to be addressed.

## RESULTS AND DISCUSSION

The problem of mangosteen commodity development in Banyuwangi is essentially rooted in the failure of the agribusiness system to create solid upstream-downstream integration supported by adequate infrastructure. Therefore, this paper must answer the key policy question that is the main focus of the document: "What is the most effective strategy for strengthening farmer institutions and supply chain interventions to optimize added value and increase the competitiveness of mangosteen exports in Banyuwangi Regency?". This question strategically demands the formulation of alternative policies oriented towards the development of non-physical assets ( Institutions ) and physical assets ( Postharvest Infrastructure ) to achieve value chain efficiency and price stability. With Thus , the problem mainly is Not yet optimally chain mark mangosteen that inhibits Power competition exports . The root of the problem that hinders optimization chain mark mangosteen divided become four category main as following :

1) **Category Institutional ( Management )**This category focuses on organizational weaknesses, partnership structures, and the function of

farmer institutions in production centers. The absence of strong institutions leaves farmers with no bargaining power and vulnerable to the dominance of intermediaries.

a) Direct Cause: Farmers sell mangosteen individually to collectors; Cooperatives/Village-Owned Enterprises/Farmer Group Associations (Gapoktan) are only passive in transactions.
b) Root of the Problem :
   - Weaknesses of Farmers' Economic Institutions: Cooperatives or BUMDes or Gapoktan in Manggis centers have not yet functioned as the main off-takers or initiators of downstream businesses.
   - Value Chain Fragmentation: The absence of a formal, binding partnership model between farmers and exporters/industry is consistent with the issue of value chain fragmentation in the study (Wardhani & Faturohman, 2022).
   - Weak Policy Integration: Inter-OPD work programs are not integrated and tend to be more dominant on on-farm aspects, ignoring downstream institutional strengthening.

**2) Category Infrastructure Physical (Machine)**

This category identifies gaps in critical physical infrastructure required for post-harvest handling and logistics, hindering price stability.

a) Direct Cause: Mangosteen cannot be stored for long; quality is difficult to maintain during long-distance shipping.
b) Root of the Problem:
   - Cold Chain Facility Gaps: The lack or absence of certified cold storage and packinghouses at the central level hinders price stabilization during times of oversupply.
   - Limited Access to Logistics Transportation: Last-mile infrastructure to collection centers is inadequate for export volumes.
   - Limitations of Post-Harvest Technology Adoption: The implementation of handling, sorting, and grading technology is still manual and does not meet strict export logistics standards.

**3) Methods and Processes**

The category focuses on the absence of standardized work processes (SOPs) and strict quality control procedures along the value chain.

a) Direct Cause: Mangosteens are often rejected due to physical damage; handling of the yellow latex is not uniform.
b) Root of the Problem
   - Cold Chain Facility Gaps: The lack or absence of certified cold storage and packinghouses at the central level hinders price stabilization during times of oversupply.
   - High Post-Harvest Loss Value: Mangosteen food loss reaches 35–37% (IPB University, 2021) due to non-standard handling and storage facilities.
   - Limitations of Post-Harvest Technology Adoption: The implementation of handling, sorting, and grading technology is still manual and does not meet strict export logistics standards.
   - Absence of Standardized Quality SOPs: Zero tolerance handling standards (yellow sap prevention) have not been implemented collectively.

**4) Market Category and Price (Material)**

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This category focuses on economic vulnerabilities caused by market structures and limited product choices. These issues are a direct cause of falling prices and wasted potential added value.

a) Direct Cause: Prices plummet during the main harvest; Non-export/defective products have no economic value.
b) Root of the Problem:

- Extreme Price Volatility and Fresh Market Dependence: The dominance of fresh fruit sales makes prices highly vulnerable to oversupply.
- Buffer Stock Facilities: The absence of buffer stock managed by institutions means that farmers are forced to sell quickly to collectors (without bargaining power).
- Lack of Downstream Product Diversification: Minimal downstreaming (processing) eliminates the opportunity to absorb Mangosteen that does not pass the fresh grade, wasting potential added value.

**5) Category Regulation and Policy (Measurement)**

This category highlights limited regulatory support, fiscal incentives, and coordination between local government agencies.

a) Direct Cause: Regional budget support does not focus on downstreaming; overlapping permits.
b) Root of the Problem:

- Weak Policy Integration: Inter-OPD work programs (for example, Agriculture and Industry) are not integrated and have separate focuses.
- Absence of Fiscal Incentives: There are no regional incentive policies (taxes/levies) that encourage private investment in cold storage or the processing industry.
- Complicated Licensing Regulations: The complex licensing process for establishing packinghouses or UPH (Product Processing Units) hinders private sector expansion.

**6) Category Human Resources ( Man)**

This category focuses on the gaps in knowledge and skills capacity held by farmers and institutional managers, which are prerequisites for entering the export market

a) Direct Causes: Mangosteen is often rejected for export due to its yellow sap; BUMDes/Cooperative /Farmer Group managers do not dare to take the risk of export business.
b) Root Cause:

- Export Quality Capacity Gap: Farmers lack skills in zero tolerance handling standards (e.g. preventing yellow sap) and harvesting that ensures shelf life.
- Institutional Managerial Weaknesses: Institutional managers have limited expertise in modern business aspects, export negotiations, and supply chain management (Susanti et al., 2021).
- Limited Access to Market Information: Farmers and supporting institutions have minimal information regarding demand trends, the latest export quality standards, and prevailing selling prices in the destination market.

The identification of problems that have been detailed through the Fishbone Diagram (Figure 2) shows that the suboptimal mangosteen value chain is the result of complex interactions. between Institutional factors, Physical Infrastructure, Methods, Markets, Regulation, and Human Resources. To formulate effective and efficient policies, a method is needed that is capable of providing priority quantitative to root problem the.

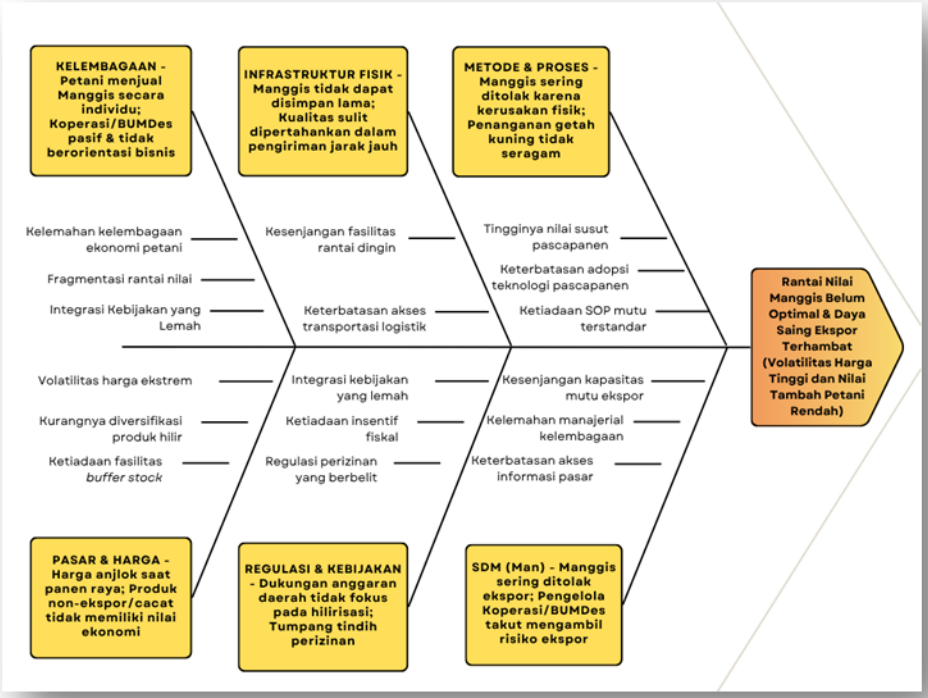



**Figure 2. Fishbone Diagram**

Furthermore, SAW used For give justification quantitative on Qualitative *Fishbone Diagram* analysis , so that the determination of the Main Root Problem which will then become the focus of the formulation of alternative policies is based on an objective and measurable assessment of the policy criteria that are considered crucial. The first step is to determine criteria And weight (assumption weight). The criteria used are Effectiveness, Efficiency, Adequacy, Equity, Responsiveness, and Feasibility. For the purpose of determining this priority, temporary weights (W) were established where Effectiveness and Feasibility were given the highest weight as the key to the success of the policy intervention. The data are presented in Table 2.

**Table 2. Determination Criteria and Weight**

| No. | Criteria (Cj) | Weight (Wj) | Priority Criteria |
|---|---|---|---|
| C1 | Effectiveness (Impact the biggest on problem) | 0.25 | Very high |
| C2 | Efficiency (Utilization HR/Budget) | 0.15 | Currently |
| C3 | Adequacy (Adequacy, Completeness) | 0.15 | Currently |
| C4 | Equality (Equity, Impact Justice) | 0.10 | Low |

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| | | | |
|---|---|---|---|
| C5 | Responsiveness (Speed respond problem) | 0.15 | Currently |
| C6 | Eligibility (Feasibility, Convenience Implementation) | 0.20 | Tall |
| | **TOTAL** | **1.00** | |

Each root cause category (alternative) is assessed against the six criteria above (Scale 1: Very Low; 5: Very High), based on the level of urgency. and impact on mangosteen problems. The results of the criteria determination are presented in Table 3.

**Table 3. Results Determination Criteria**

| Category Root of the Problem (Ai) | Effectiveness (C1) | Efficiency (C2) | Adequacy (C3) | Equality(C4) | Responsiveness (C5) | Eligibility (C6) |
|---|---|---|---|---|---|---|
| A1. Institutional | 5 | 4 | 4 | 5 | 4 | 3 |
| A2. Infrastructure Physique | 4 | 3 | 5 | 3 | 5 | 4 |
| A3. Method & Process | 3 | 4 | 3 | 3 | 4 | 5 |
| A4. Market & Price | 5 | 5 | 3 | 4 | 3 | 2 |
| A5. Regulation & Policy | 4 | 4 | 4 | 4 | 3 | 3 |
| A6. HR | 4 | 3 | 4 | 3 | 4 | 4 |

The final value (Vi) is calculated by adding the results of multiplyingthe performance score (Xij) by the criteria weight (Wj). The calculation results are presented in Table 4.

**Table 4. Calculation SAW And Determination Ranking**

| No | Root Cause Category | SAW Calculation (Score x Weight) | Final Value ( $V_i$ ) | Ranking |
|---|---|---|---|---|
| A1 | Institutional | (5 • 0.25) + (4 • 0.15) + (4 • 0.15) + (5 • 0.10) + (4 • 0.15) + (3 • 0.20) | 4.15 | 1 |
| A2 | Physical Infrastructure | (4 • 0.25) + (3 • 0.15) + (5 • 0.15) + (3 • 0.10) + (5 • 0.15) + (4 • 0.20) | 4.05 | 2 |
| A3 | Methods & Processes | (3 • 0.25) + (4 • 0.15) + (3 • 0.15) + (3 • 0.10) + (4 • 0.15) + (5 • 0.20) | 3.70 | 4 |
| A4 | Market & Price | (5 • 0.25) + (5 • 0.15) + (3 • 0.15) + (4 • 0.10) + (3 • 0.15) + (2 • 0.20) | 3.70 | 4 |
| A5 | Regulations & Policies | (4 • 0.25) + (4 • 0.15) + (4 • 0.15) + (4 •0.10) + (3 • 0.15) + (3 • 0.20 ) | 3.65 | 6 |

| | | | | |
|---|---|---|---|---|
| A6 | HR | (4 • 0.25) + (3 • 0.15) + (4 • 0.15) + (3 •0.10) + (4 • 0.15) + (4 • 0.20 ) | 3.75 | 3 |

The results of the quantitative analysis using the SAW method, with high weighting on the Effectiveness and Feasibility criteria, clearly establish the priority order of policy interventions. six category identified root problems, Institutional Root Problems (Vi Score = 4.15) are at first rank, followed by by Physical Infrastructure (Vi Score=4.05) in second place. The results of the analysis consistently show that interventions that focus on on dimensions institutional is Which most superior. Matter This confirm that the most crucial root of the problem and fundamentally lies in the institutional aspect. Institutional weaknesses here it is which become root cause from all over problem derivative (inefficiency logistics, quality diversity, and low farmer's share ). Furthermore, a rapid analysis was conducted which concluded that the most effective interventions were those that focused on transforming farmer institutions from production groups to export-oriented business entities. Other policy interventions (such as integration of OPD programs or physical subsidies) should be directed to support this institutional strengthening. Therefore, this paper This establishes one main root problem, namely the Weakness of Farmers' Economic Institutions.

The root cause of the weakness of farmers' economic institutions was chosen as the main focus because it is a structural cause that hinders increasing the added value of mangosteen. This weakness is fundamental because it directly causes fragmentation. chain value, low bargaining power and obstacles to infrastructure investment. The main root of the problem of developing mangosteen potential in Banyuwangi Regency is structural in nature. And managerial, not solely physique. The implication is that intervention The most effective policy is not to start from the physical construction of cold storage or packinghouses, but rather from strengthening farmer economic institutions such as cooperatives or BUMDes or Gapoktan as foundation Which will managing investments infrastructure, ensuring position farmer bargaining, and is the key to success in achieving value chain efficiency and price stability.

The Banyuwangi Regency Government has designated the agricultural sector as a leading sector. Area, as poured out in Regional Regulation Regency Banyuwangi Number 2018 concerning the Development of Competitive and Sustainable Superior Agricultural Products. This regulation provides the foundation law for Government Regions are required to allocate resources to improve the competitiveness of priority commodities, including mangosteen, by increasing production, quality, and competitiveness. Despite the existence of a legal framework, the implementation of this Regional Regulation has not been optimal in addressing institutional fragmentation in the region. level farmer, Which is barrier main for mangosteen For achieve adequate quality standards and export volumes. Although intervention program has done, writing This find existence Three critical gaps that hinder Banyuwangi Mangosteen from becoming a dominant exporter are shown in Table 5.

The main root of the problem that is the focus of intervention in writing This is the Weakness of Farmers' Economic Institutions. This weakness results in the inability of farmers to integrate value chains, manage shared assets, and collectively meet export standards. Four policy alternatives have been formulated to be evaluated to determine the investment priorities of the Banyuwangi Regency Government. These four alternatives cover the Institutional, Physical,

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Technical, and Financial dimensions. These four policy alternatives are formulated to create vertical integration. in overcoming existing institutional weaknesses as shown in Table 6.

**Table 5. Alternative Policy**

| Alternative | Dimensions Solution | Impact To Root Problem Main |
|---|---|---|
| A1 (Institutional) | Structural | Create actor strong Which capable control value chain . |
| A4 (Financial) | Supporters Actor | Ensure actor (A1) own capital Work For carry out control or management functions. |
| A2 (Physical) | Means Control | Provide asset For management quality post-harvest (logistics). |
| A3 (Technical) | Capacity Market | Providing standards and *skills* For ensure access to export market. |

**Table 6. Analysis The Gap Policy Downstream**

| No | Gap | Description Problem Implementation | Impact on Power Export Competitiveness |
|---|---|---|---|
| 1 | Institutional & Governance | Absence of institutional assignment (Farmer Group, The Farmers' Cooperative (Gapoktan Koperasi/BUMDes/Gapoktan) acts as the primary export aggregator with authority over *quality control* and negotiation. *Packing House facilities* often cease operations due to the lack of sustainable collective business management . | Farmers' bargaining power is low; Product quality is not standardized for export; Value plus absorbed exporters outside the region. |
| 2 | Chain Infrastructure Cold | Investment Local government on post-harvest infrastructure has not yet reached export *cold chain standards* (e.g., *Vapor Heat Treatment* for the Chinese market or *cold storage* is adequate). | level of fruit damage ( *losses* ); *Shelf life* (storage period) short; Limited access to premium export markets requires strict quarantine protocols. |
| 3 | System Business & Marketing | The marketing program is only facilitating *business matching* ( *buyer-seller* ), but has not yet created a binding contract system between farmer institutions and export *offtakers* . | High price volatility at harvest time highway; Dependence on *brokers* and middlemen. |

The main root causes (institutional weaknesses) and the impacts of fragmentation require interventions in four main dimensions: Institutional Structure (A1), Physical Infrastructure (A2), Technical Capacity (A3), and Financial Support (A4) as shown in Table 7.

**Table 7. Formulation Alternative Policy**

| Code | Alternative Policy | Focus Intervention |
|---|---|---|
| A1 | Development Partnership Institutional Upstream-Downstream Based on Cooperatives/Village-Owned Enterprises /Farmers Groups | Structure Tata Manage (Solution Directly against Institutional Weaknesses) |
| A2 | Improvement Scale And Facility Chain Cold ( *Cold Chain* ) | Support Infrastructure Physique (Solution against Post-harvest Inefficiency) |
| A3 | Incentive And Subsidy Certification Quality Export and Human Resources Training | Support Capacity Technical (Solution on Low Compliance with Quality Standards) |
| A4 | Facilitation Access Source Funding *Off- Farm* And Scheme Guarantee Price | Financial Support (Solution to Weaknesses) Capital Work Institutional) |

In frame choose alternative policy Which most appropriate use addressing the root of the problem of the weaknesses of farmers' economic institutions in mangosteen development in the Regency Banyuwangi, used six criteria evaluation Which developed by William N. Dunn in *Public Policy Analysis* (2018). Criteria This nature normative at a time Applicable, allowing for comprehensive policy analysis of various aspects of intervention success. SAW analysis was conducted to rank the four alternatives compiled based on six criteria reflecting regional policy objectives, as shown in Table 8. The evaluation process was conducted in two main stages: Weighting and Assessment. The weighting of each criterion was determined through pairwise comparisons , with an intensity scale of 1–5.

**Table 8. Criteria And Weight Evaluation SAW**

| Criteria (C) | Weight (W) | Definition Short |
|---|---|---|
| C1. Effectiveness | 0.25 | Ability finish root problem structural (Fragmentation). |
| C2. Efficiency | 0.20 | Ratio benefit to cost (Cost Regional Budget). |
| C3. Eligibility | 0.15 | Convenience implementation technical And regulations. |
| C4. Adequacy (*Adequacy*) | 0.15 | Range benefit policy to all over center farmer. |
| C5. Responsiveness | 0.15 | Speed policy respond need farmer (price and bargaining position). |
| C6. Equality ( *Equity* ) | 0.10 | Level justice in distribution benefit ( *Farmer's Share* ). |
| Total | 1.00 | |

Next, an assessment process is carried out. Each policy alternative is evaluated against all criteria using a direct assessment scale (1–5) through expert judgment . The Decision Matrix (X) uses a scale of 1 (Very Poor) to 5

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(Very Good) to assess every alternative to Benefit criteria (↑). Matrix Normalization (R) counted with Rij=Xij/Maxj. This score is not formed from pairwise comparisons between alternatives, but rather from an assessment of the performance of each alternative against each criterion. The final score is obtained by multiplying the performance score by the criterion weight, in accordance with the SAW principle as shown in Table 9.

**Table 9. Matrix Decision And Normalization**

| Alternative | C1 (0.25) | C2 (0.20) | C3 (0.15) | C4 (0.15) | C5 (0.15) | C6 (0.10) |
|---|---|---|---|---|---|---|
| **A1** (Institutional) | 5 | 4 | 4 | 5 | 5 | 5 |
| **A2** (Chain Cold) | 3 | 5 | 3 | 4 | 3 | 2 |
| **A3** (Certification) | 4 | 3 | 5 | 3 | 4 | 3 |
| **A4** (Financial) | 4 | 4 | 3 | 3 | 5 | 4 |
| **Max Score** | 5 | 5 | 5 | 5 | 5 | 5 |
| **Normalization (R)** | | | | | | |
| **R1** | 1.00 | 0.80 | 0.80 | 1.00 | 1.00 | 1.00 |
| **R2** | 0.60 | 1.00 | 0.60 | 0.80 | 0.60 | 0.40 |
| **R3** | 0.80 | 0.60 | 1.00 | 0.60 | 0.80 | 0.60 |
| **R4** | 0.80 | 0.80 | 0.60 | 0.60 | 1.00 | 0.80 |

Mark preference (V) counted with add up results multiplication between score normalization (R) with criteria weight (W): $Vi=\sum j=16(Wj\times Rij)$ as shown in Table 10. The results end of policy ranking based on the method SAW displayed on Table 11.

**Table 10. Results multiplication between score normalization (R) with weight criteria (W)**

| Policy Alternatives | Calculation | Preference Value (V) |
|---|---|---|
| **VA1** | (0.25×1.00)+(0.20×0.80)+(0.15×0.80)+(0.15×1.00)+(0.15×1.00)+(0.10×1.00) | **0.93** |
| **VA2** | (0.25×0.60)+(0.20×1.00)+(0.15×0.60)+(0.15×0.80)+(0.15×0.60)+(0.10×0.40) | **0.69** |
| **VA3** | (0.25×0.80)+(0.20×0.60)+(0.15×1.00)+(0.15×0.60)+(0.15×0.80)+(0.10×0.60) | **0.74** |
| **VA4** | (0.25×0.80)+(0.20×0.80)+(0.15×0.60)+(0.15×0.60)+(0.15×1.00)+(0.10×0.80) | **0.77** |

**Table 11. Results end ranking alternative policy**

| Ranking | Alternative Policy | Mark Preference (V) |
|---|---|---|
| **1** | **A1. Development Partnership Institutional Upstream- Downstream** | **0.93** |

| | | |
|---|---|---|
| 2 | A4. Facilitation Access Source Funding *Off- Farm* | 0.77 |
| 3 | A3. Incentive And Subsidy Certification Export Quality | 0.74 |
| 4 | A2. Improvement Scale And Facility Chain Cold | 0.69 |

The results of the SAW analysis consistently confirm that Alternative A1 (Development of Upstream-Downstream Institutional Partnerships) is the best policy option. This validates that intervention must focus on strengthening structure actor (Institutional) to address the root causes of the problem. Alternative A4 (Financial) ranked second, indicating that support capital Work is prerequisite vital so that Institutional Which strong (A1) can carry out its function as the Main Actor in the Business System effectively. Therefore, the recommendation the best policy is a combination Synergy A1 supported by A4, A3, and A2.

The results of the quantitative evaluation using the Simple Additive Weighting (SAW) method indicate that Alternative 1 (Development of Upstream-Downstream Institutional Partnerships Based on Cooperatives/Village-Owned Enterprises/Farmer Groups) is the best policy option with the highest preference value, namely V = 0.93. This high ranking strongly validates the causal hypothesis stated at the beginning of the paper that interventions should focus on strengthening institutional structures. to overcome root of the problem Main Weaknesses Institutional Economy Farmers. Alternative A1 is supported by the highest scores on key criteria that serve as regional policy objectives for improving farmer welfare:

1) Effectiveness (C1) and Adequacy (C4) : A1 scored a perfect score (5/5) on both of these criteria. A1 is considered the most effective because it immediately eliminates the root of the structural problem. (Weakness Institutional) Which cause fragmentation. Action This Also is considered most adequate because it can reach all central farmers through a collective membership mechanism under the Cooperative/BUMDes/Gapoktan.
2) Responsiveness (C5) and Equality (C6): By mandating farmer institutions as Perpetrator Main Tata Commerce, A1 in a way instant increase position bid ( bargaining power ) farmer (Responsiveness) And ensure improvement Farmer's Share from mark export (Equity).
3) Prerequisites: A1: Creating the managers (powerful actors) needed to manage physical investments (A2) and implement technical standards (A3). Without strong institutions, regional budget investments in cold storage or certification subsidies are at high risk of failing to be managed sustainably.

To realize the Development of Upstream-Downstream Institutional Partnerships Based on Cooperatives/BUMDes/Gapoktan, it is necessary to integrate firm policies and regulations to transform Cooperatives/BUMDes/Gapoktan from just Farmer Groups or Farmer Group Associations. collector become entity business Which integrated full, as displayed in Table 12.

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By strengthening institutions as the Main Actor in the Trade System, the Banyuwangi Regency Government can effectively transform its production-boosting strategy into a strategy for strengthening downstream agribusiness, creating a multiplier effect on the local economy. The SAW evaluation results indicate that Alternative 1 (Institutional Partnership Development) Upstream-Downstream Based Cooperatives/BUMDes) have mark preference highest (V = 0.93) and is designated as a Key Recommendation. This recommendation is a prerequisite for the success of investments and other programs.

The main objective is to transform cooperatives/BUMDes /gapoktan in center mangosteen becomes perpetrator main order commerce exports that carry out the function of consolidating and controlling supply ( One Gate Policy ). Its implementation is outlined in Table 13.

**Table 12. Step Concrete Policy Selected**

| Dimensions | Step Concrete (Action Priority) | Objective And Impact Direct |
|---|---|---|
| **Regulation** | Issuance of Regional Head Regulations (Perkada) which explicitly appoint and mandate Cooperatives or BUMDes or Gapoktan in center mangosteen as perpetrator main trade (single). | Give mandate legal Which strong support to local institutions to implement *the One Gate Policy* and control export trade systems. |
| **Tata Manage Business** | Facilitation compilation Contract Long-term partnership between key trade actors and all member farmers. | Reducing the risk of *moral hazard* and ensuring continuity of mangosteen supply with quality uniform according to contract standards. |
| **Supply Consolidation Function** | Determination of authority for the Main Actors of Governance Commerce For do unification and supply control (starting from *grading* And *packing* until export). | Eliminating the role of intermediaries/middlemen, reduce fragmentation, and ensure quality standards centralized in hand farmer. |

**Table 13. Recommendation Implementation Policy Selected**

| Dimensions Action | Recommendation Implementation | guarantor Answer |
|---|---|---|
| Regulation & Mandate | Issuance of Regional Head Regulations (Perkada). appoint and mandate Cooperatives/Village-Owned Enterprises/Farmer Groups in center production as Main Actor in the (Single) Mangosteen Export Trade System. | Regent, Legal Section, Cooperatives Service UM and Trade |

| | | |
|---|---|---|
| Tata Manage | Facilitation compilation Contract Partnership Term Long which binds member farmers with the Main Actors of the Trade System, including quality standards and minimum purchase prices. | Service Agriculture and Food, Cooperatives, UM and Trade Service |
| Program Synergy | Directing all allocation of funds and technical programs (training, assistance) tool post-harvest) from OPD related so that only distributed through the Main Actor of the Business System (A1). | RegionalDevelopment Planning Agency, All Technical OPDs |

The main challenge that needs to be anticipated in implementing this policy is resistance to change from parties that have been operating for a long time outside the system institutions, including middlemen who are not bound by contracts. By therefore, the Department Cooperative, UM and Trade along with the Department of Agriculture And Food must work closely to ensure binding process long-term partnership with walking farmer persuasive And fair. A contract that guarantees the purchase price minimum (HBM) and certainty the market must be incentive The main thing that overcomes the lure of short-term prices from middlemen. Farmers' trust in this new system is key For ensure volume supply Which stable And quality can collected by the Main Actor.

Success of policy implementation This is not only measured by the issuance of regulations or the acquisition of funds, but also by the extent to which program synergy between OPDs can be realized. Unification Stage The program, which was initiated in year first through socialization Regional Regulation, must be ensured sustainable. Regional Development Planning Agency own role central in ensure all over Allocation of funds and technical programs ranging from seed assistance, GAP (Good Agricultural Practices) training, to the provision of post-harvest tools are distributed exclusively through Key Actors Tata Commerce. Flow control This budget will prevent fragmentation support and significantly accelerate the strengthening of the operational capacity of a single institution. It is hoped that, in three years, the system The mangosteen trade system will move from a fragmented state to an integrated export market under the control of strong cooperatives or village-owned enterprises. Legal certainty, capital, and quality are integrated. systematically this will lock in the competitiveness of mangosteen area in global market, making this policy a model of successful bottom-up development based on strengthening farmer institutions.

## CONCLUSION

Banyuwangi Regency has enormous horticultural potential, particularly for mangosteen, which has been recognized as having comparative and competitive advantages through LQ and SSA analyses. However, this significant potential has not fully improved farmer welfare due to structural challenges such as extreme price fluctuations during the main harvest, dependence on fresh fruit markets, and an excessively long supply chain that leaves farmers with a weak bargaining position. The root of the main problem hampering the competitiveness of mangosteen exports in Banyuwangi lies in the weakness of farmers' economic institutions. Upstream fragmentation tends to lead farmers to operate independently, resulting in added value being primarily enjoyed by intermediaries or exporters from outside the region. Furthermore, limited post-harvest

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infrastructure, such as cold storage and packinghouse facilities that do not meet global standards, leads to persistently high levels of product damage and limits access to premium markets that require strict quarantine protocols. As a strategic solution, policies should focus on developing upstream downstream institutional partnerships based on cooperatives, village-owned enterprises (BUMDes), or farmer groups (Gapoktan) to implement a one-gate policy . This transformation aims to make local institutions the primary actors in the trade system, controlling quality, integrating supply, and gaining negotiating power with exporters.

The success of this strategy ultimately depends on the ongoing commitment of all stakeholders to overseeing technology integration and quality standardization at the farmer level. With market certainty and fairer prices through the role of Village-Owned Enterprises (BUMDes) or Farmer Groups (Gapoktan), it is hoped that the mangosteen farming sector will increase its appeal to the younger generation, while strengthening Banyuwangi Regency's position as a major, competitive mangosteen exporter in the global market. The synergy between strong government policies and farmer economic independence is key to creating a resilient, sustainable agricultural ecosystem capable of making a significant contribution to regional economic growth.

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