

Stakeholder Analysis of Coconut Downstreaming in North Kolaka

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Abstrak. Coconut downstreaming represents a strategic pathway to enhance value addition, strengthen agroindustry systems, and increase smallholder incomes in coconut-producing regions of Indonesia. In North Kolaka Regency, downstream development remains constrained by weak institutional coordination, heterogeneous farmer capacities, and limited processing infrastructure. This study aims to identify and map the roles, interests, and influence of key stakeholders involved in coconut downstreaming to support agribusiness and regional development strategies. A mixed qualitative–quantitative approach was applied using stakeholder analysis based on a power–interest framework combined with the Analytic Hierarchy Process (AHP). The results show that the Agriculture and Plantation Office, cooperatives or farmer groups, and processing industries are key actors with high power and interest, driving regulation, extension services, quality upgrading, and agroindustrial investment. The AHP prioritizes shared processing facilities, followed by postharvest and traceability training and cooperative strengthening. These findings highlight the importance of coordinated stakeholder engagement to support inclusive and sustainable agribusiness development at the district level.

1 Introduction

Indonesia is one of the world’s major coconut-producing countries, with production largely managed by smallholder households. However, the coconut industry remains dominated by primary products such as copra and crude coconut oil, resulting in limited domestic value addition and downstream activities that are concentrated outside producing regions [1]. Previous studies indicate that productivity and market performance are influenced by agronomic factors, including aging plantations and pest incidence, as well as by economic and institutional conditions such as marketing arrangements, product diversification, and quality consistency [2,3].

Downstream development in the coconut sector is commonly associated with technological upgrading and institutional coordination along the value chain. Stakeholder

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interactions influence the adoption of postharvest practices, processing capacity, market access, particularly in smallholder-based systems, and stakeholder analysis is frequently used to describe the roles, interests, and influence of actors involved in agribusiness development [4-6].

Research conducted in North Kolaka and comparable regions highlights the relevance of stakeholder mapping for understanding downstream coconut development. Farmers, local government agencies, processors, cooperatives, and intermediaries participate in downstream activities with varying degrees of influence, shaping regulatory alignment, quality management, and investment patterns. Similar value chain studies in tropical agricultural systems further demonstrate that governance structures and stakeholder interactions determine upgrading opportunities, coordination efficiency, and the distribution of benefits along the downstream segment of coconut-based agroindustries [7-9]. Empirical applications also show that stakeholder-based approaches can support decision-making related to regional agroindustrial development and value addition [10-12].

Despite these contributions, existing studies mainly focus on technical or value-chain constraints, while systematic stakeholder analysis at the district level remains limited. This study addresses this gap by examining stakeholder roles and interactions in the development of the downstream coconut industry in North Kolaka Regency using a power–interest framework. By mapping key actors and relating their positions to downstream development priorities, the study provides localized empirical evidence to inform discussions on stakeholder coordination and value addition in regional coconut downstream development.

In this study, coconut downstreaming is conceptualized as a regional agribusiness and agroindustry development process, rather than a firm-level business management activity. The analysis emphasizes smallholder-based production systems, institutional coordination, and value chain integration to support rural and regional economic development. This positioning aligns the study with agribusiness, agricultural development, and applied socio-economic research perspectives.

2 Methods

2.1 Data sources and materials

The study was conducted in North Kolaka Regency, Southeast Sulawesi, Indonesia, a smallholder-based coconut-producing region characterized by limited downstream processing capacity.

Stakeholders were identified along the coconut value chain, including coconut farmers and farmer groups, intermediaries, processors, cooperatives, local government technical agencies, financial institutions, and knowledge actors (universities and extension services).

Data were collected using a mixed qualitative–quantitative approach. The main instruments consisted of a structured questionnaire to assess stakeholder power and interest, semi-structured interviews to capture roles and coordination patterns, and pairwise comparison forms for prioritizing downstream interventions using the Analytic Hierarchy Process (AHP). Instrument development was guided by prior studies on coconut agribusiness, stakeholder analysis, and salience theory [4].

2.2 Sampling and Data Collection

Stakeholders were selected using purposive sampling to ensure representation across categories and subdistricts. Participants were required to have at least three years of experience in the coconut sector or a formal role related to coconut development. Data

collection followed standard ethical procedures, including informed consent and respondent anonymity.

2.3 Stakeholder Analysis

Stakeholders were mapped using a power–interest framework, in which each actor was scored on a five-point Likert scale for power (ability to influence resources and decisions) and interest (stake in coconut downstreaming). Based on the average scores, stakeholders were classified into key players, context setters, subjects, and crowd groups, following established stakeholder mapping practices [4,5,10,11].

2.4 Priority Setting Using AHP

To support agribusiness and regional development decision-making, selected downstream development alternatives replanting, shared processing facilities, cooperative strengthening, postharvest and traceability training, and offtake contracting were evaluated using AHP. Pairwise comparisons followed Saaty’s scale, and consistency ratios below 0.10 were applied as an acceptance criterion. Individual judgments were aggregated using the geometric mean, and alternative priorities were determined based on global weights.

3 Results and Discussion

3.1 Stakeholder scoring and quadrant classification

The results reflect the structural characteristics of a smallholder-based agribusiness system, in which coconut downstreaming is constrained by limited processing capacity and weak institutional coordination at the regional level. This section presents stakeholder mapping for coconut downstreaming using a power–interest framework complemented by stakeholder salience attributes, including power, legitimacy, and urgency. Each stakeholder was assessed using a five-point Likert scale to evaluate power (ability to influence resources and regulatory processes), interest (degree of involvement in downstream development outcomes), legitimacy (social and legal standing), and urgency (time sensitivity of stakeholder claims). Stakeholders were subsequently classified into quadrants based on their average power and interest scores using median cut-off values (Power = 4; Interest = 4), where scores above the median indicate high influence or interest. This analytical approach is consistent with established stakeholder analysis practices and salience theory commonly applied in agribusiness and rural development studies to support priority setting under resource constraints. [4].

The mapping reflects structural conditions in Indonesia’s coconut sector, where dependence on primary products, heterogeneous quality, and limited market connectivity remain prevalent. As shown in Table 1, district technical agencies, cooperatives, and processors are positioned as key players, while financial and regulatory actors function as context setters, and farmer groups as subjects. This configuration provides an operational basis for differentiated engagement strategies and aligns with previous evidence on coconut value chain upgrading and multi-actor coordination in developing-country contexts [13,6].

Table 1. Stakeholder scoring and quadrant classification for coconut downstreaming

Code	Key Actor	Role	P	I	L	U	Avg. P-I	Quadrant
S1	Coconut Farmers	Production; adoption of quality/postharvest	2	5	5	5	3.5	Subjects

Code	Key Actor	Role	P	I	L	U	Avg. P-I	Quadrant
S2	Industry Processors	Processing investment; QA; market specification	4	4	3	3	4.0	Key Players
S3	Cooperatives/Farmer Groups	Volume aggregation; SPF management; contracting	4	5	4	4	4.5	Key Players
S4	Collectors/Distributors	Aggregation; logistics; preliminary sorting	3	3	3	3	3.0	Crowd
S5	Cooperative Office (District)	Cooperative governance; licensing; facilitation	4	4	4	3	4.0	Context Setters
S6	Agriculture/Plantation Office	Standards; extension; replanting programs	5	5	5	4	5.0	Key Players
S7	Local Academics/Researchers	Evidence, M&E, methodological support	3	4	4	3	3.5	Subjects

Quadrant cut-points: median *Power* = 4; median *Interest* = 4. Above median=high. Power (P), Interest (I), Legitimacy (L), Urgency (U) (1-5)

The stakeholder configuration in Table 1 indicates an asymmetric but manageable value chain. The Agriculture/Plantation Office (S6), cooperatives/farmer groups (S3), and processors (S2) occupy the key-player quadrant ($Avg. P-I \geq 4.0$), positioning them as primary levers for regulatory alignment, quality upgrading, and processing investment. The Cooperative Office (S5) acts as a context setter with sufficient influence but moderate interest, indicating its role as a facilitator rather than a direct driver.

Coconut farmers (S1) exhibit high interest, legitimacy, and urgency but limited power, highlighting the need for institutional mechanisms—such as cooperative consolidation and formalized market arrangements to translate their stakes into effective influence. Collectors/distributors (S4) remain peripheral to standard-setting, while academics/researchers (S7) contribute analytical and monitoring support with limited decision-making authority.

From an operational perspective, salience attributes refine engagement priorities. Actors combining high power, legitimacy, and urgency (S6 and S3) are well positioned to anchor standard operating procedures, certification, and traceability initiatives. Processors (S2) reinforce these efforts through quality control and market specification, while farmer groups (S1) require targeted capacity building to internalize quality incentives through collective action.

3.2 Alternative intervention ranking from AHP synthesis

This table reports the Analytic Hierarchy Process (AHP) results at the alternative level, presenting each option’s global weight (W) and resulting rank after integrating the criterion weights value-added potential, market access, institutional/financial feasibility, inclusiveness, risk–climate resilience, and time-to-impact. All pairwise-comparison matrices satisfied the consistency threshold ($CR < 0.10$), ensuring the reliability of the ordering. The sequence offers an implementation-oriented roadmap for coconut downstreaming: shared processing facilities as the initial lever, followed by postharvest & traceability training and

cooperative strengthening; replanting and offtake contracting are positioned as subsequent phases once baseline quality and volume are secured [1-3,13].

Table 2. Ranking of alternative interventions based on AHP synthesis

Alternative	Global Weight (W)	Rank	Alternative
A2	Shared Processing Facility (SPF)	0.323	1
A4	Postharvest & Traceability Training	0.249	2
A3	Cooperative Strengthening	0.242	3
A1	Replanting	0.101	4
A5	Offtake Contracting	0.086	5

The ranking shows that shared processing facilities (A2) have the highest priority ($W = 0.323$), followed by postharvest and traceability training (A4) and cooperative strengthening (A3). These three alternatives form a coherent first-phase intervention package, addressing scale inefficiencies, quality heterogeneity, and weak coordination, key constraints in Indonesia’s coconut value chain [2,3].

Postharvest and traceability training (A4) ranks second, reflecting its short time-to-impact and its role in improving lot consistency and market credibility. Cooperative strengthening (A3) follows closely, indicating its importance for inclusiveness and feasibility through improved governance, aggregation, and access to supply-chain finance [4].

Replanting (A1) ranks lower due to its longer biological lag, despite its contribution to long-term resilience. Offtake contracting (A5) ranks last, as its effectiveness depends on prior improvements in quality consistency and collective intermediation. Once upstream conditions are strengthened, A5 can function as a stabilizing instrument for volume and price risk [14].

Overall, the results suggest a sequenced intervention pathway: initial investment in shared processing facilities and capacity building, followed by institutional consolidation and longer-term production renewal. This sequencing aligns stakeholder capacities with prioritized actions and provides a practical roadmap for coconut downstreaming at the district level.

4 Conclusion

The results indicate that coconut downstreaming in North Kolaka Regency requires an integrated agribusiness-oriented stakeholder-based approach. The combination of stakeholder mapping and the *Analytic Hierarchy Process* (AHP) provides a practical framework for guiding coconut downstreaming development. Key actors include the Agriculture/Plantation Office, cooperatives or farmer groups, and processing industries, while institutional strengthening through cooperatives remains essential to address power imbalances. AHP results prioritize Shared Processing Facilities, followed by postharvest training, cooperative strengthening, replanting, and offtake contracting, highlighting the importance of early quality improvement and capacity building. Overall, aligning stakeholder roles with prioritized interventions supports coordinated and feasible coconut downstream development at the district level.

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