

PATRON–CLIENT RELATIONS AS LIVELIHOOD STRATEGIES AMONG SMALL-SCALE COASTAL SALT FARMERS IN INDONESIA

AS RELAÇÕES PATRONO-CLIENTE COMO ESTRATÉGIAS DE SUBSISTÊNCIA ENTRE OS PEQUENOS PRODUTORES DE SAL DA COSTA NA INDONÉSIA

Article received on: 12/9/2025

Article accepted on: 2/8/2026

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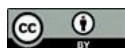
The authors declare that there is no conflict of interest

Abstract

Small-scale salt farming livelihoods in coastal areas are characterized by persistent production and market uncertainty driven by climatic variability and unstable pricing conditions. This study examines how patron–client relations operate as livelihood strategies among small-scale salt farmers in coastal Indonesia, with particular attention to how these relations shape the management of production and market risks over time. The analysis adopts a livelihood-oriented perspective that emphasizes adaptive capacity as a process expressed through everyday household decisions rather than as a fixed outcome. Data were collected through a household survey of salt farming households operating with and without patron attachment in coastal areas of Madura Island. The results show that exposure to climatic disruption and price volatility is widespread across households, indicating that uncertainty is a structural feature of salt farming livelihoods. Differences in livelihood outcomes emerge not from unequal risk exposure, but from how households organize access to capital, markets, and support through

Resumo

Os meios de subsistência da produção de sal em pequena escala nas áreas costeiras são caracterizados por uma incerteza persistente em relação à produção e ao mercado, impulsionada pela variabilidade climática e pelas condições instáveis de preços. Este estudo examina como as relações patrono-cliente funcionam como estratégias de subsistência entre os pequenos produtores de sal na costa da Indonésia, com especial atenção à forma como essas relações moldam a gestão dos riscos de produção e de mercado ao longo do tempo. A análise adota uma perspectiva orientada para a subsistência que enfatiza a capacidade de adaptação como um processo expresso por meio de decisões domésticas cotidianas, e não como um resultado fixo. Os dados foram coletados por meio de uma pesquisa com famílias produtoras de sal que operam com e sem vínculo a um patrono nas áreas costeiras da Ilha de Madura. Os resultados mostram que a exposição a perturbações climáticas e à volatilidade de preços é generalizada entre as famílias, indicando que a incerteza é uma característica estrutural dos



different livelihood arrangements. The findings indicate that patron–client relations function as informal mechanisms that allow households to buffer and delay the immediate impacts of production and market shocks by converting short-term losses into deferred obligations. While these arrangements support short-term livelihood continuity, they do not eliminate uncertainty and involve trade-offs related to market autonomy and long-term dependence. The study highlights the importance of understanding social relations as integral components of livelihood strategies and offers insights for coastal livelihood governance that recognize both the role and the limits of informal risk management practices.

Keywords: Livelihood Strategies. Coastal Communities. Market Uncertainty. Informal Arrangements. Salt Farming.

meios de subsistência da produção de sal. As diferenças nos resultados dos meios de subsistência não decorrem da exposição desigual ao risco, mas de como as famílias organizam o acesso ao capital, aos mercados e ao apoio por meio de diferentes arranjos de subsistência. Os resultados indicam que as relações patrono-cliente funcionam como mecanismos informais que permitem às famílias amortecer e adiar os impactos imediatos dos choques de produção e de mercado, convertendo perdas de curto prazo em obrigações diferidas. Embora esses arranjos apoiem a continuidade dos meios de subsistência no curto prazo, eles não eliminam a incerteza e envolvem compromissos relacionados à autonomia de mercado e à dependência de longo prazo. O estudo destaca a importância de compreender as relações sociais como componentes integrais das estratégias de subsistência e oferece insights para a governança da subsistência costeira que reconhecem tanto o papel quanto os limites das práticas informais de gestão de riscos.

Palavras-chave: Estratégias de Subsistência. Comunidades Costeiras. Incerteza de Mercado. Acordos Informais. Produção de Sal.

1 INTRODUCTION

Coastal livelihoods support a substantial proportion of the world’s small-scale producers and remain central to household survival in regions where economic opportunity is closely linked to natural resource systems, environmental variability, and informal markets (Cinner *et al.*, 2018, 2020). In many coastal settings, livelihoods are shaped less by predictability than by persistent uncertainty arising from climatic variability, ecological change, and shifting market relations (Folke *et al.*, 2016. Carr, 2020). This persistent uncertainty influences production outcomes and everyday decision-making, including how households allocate labor, access capital, and engage with markets across seasons and years (Kriegl *et al.*, 2022. Natarajan *et al.*, 2022).

Contemporary livelihood scholarship emphasizes that livelihoods are best understood not as static asset bundles but as dynamic processes through which households continually negotiate constraints, opportunities, and risks (Serrat, 2017. Natarajan *et al.*, 2022). Recent developments of the Sustainable Livelihoods Approach highlight how

livelihood strategies emerge from interactions among resources, social relations, and broader institutional and environmental contexts rather than from asset ownership alone (Serrat, 2017. Morse, 2025). From this process-oriented perspective, livelihoods are sustained through ongoing practices of adjustment, learning, and decision-making under uncertainty, especially in resource-dependent settings where volatility is routine rather than exceptional (Carr, 2020. Morse, 2025).

Within coastal and marine research, livelihood dynamics are increasingly examined through social–ecological systems perspectives that foreground interactions between human activity, ecological processes, and governance arrangements (Biggs, Schluter and Schoon, 2015. Refulio-Coronado *et al.*, 2021). Resilience-oriented scholarship within these frameworks emphasizes that adaptive capacity is not a fixed attribute of households or communities but an emergent property shaped by access to resources, social relations, and institutions over time (Biggs, Schluter and Schoon, 2015. Cinner *et al.*, 2018). This framing shifts analytical attention away from isolated shocks toward the everyday management of risk, highlighting how households navigate trade-offs while remaining persistently exposed to environmental and economic uncertainty (Carr, 2020. Kriegl *et al.*, 2022).

At the global scale, coastal communities face increasing vulnerability as climate change accelerates sea-level rise, intensifies extreme weather, and exacerbates environmental degradation (Oppenheimer *et al.*, 2019. Islam, Shetu and Hakim, 2022). Rising sea levels and changing climatic patterns affect production systems, settlement conditions, and livelihood security in low-lying coastal regions, thereby amplifying existing socio-economic pressures and livelihood fragilities (Oppenheimer *et al.*, 2019. Saha, Biswas and Faisal, 2024). Empirical and spatial analyses further show that livelihood vulnerability is unevenly distributed and mediated by institutional and market arrangements that shape households' capacity to respond to environmental change (Islam, Shetu and Hakim, 2022. Ghosh and Mistri, 2024).

Within this broader landscape of coastal livelihoods, salt farming represents a production system that is economically important yet comparatively underexamined from a livelihood-oriented perspective (Nguyen, Renaud and Sebesvari, 2019. Carr, 2020). Small-scale salt production depends heavily on extended dry periods and high evaporation rates, which makes output highly sensitive to rainfall variability and seasonal

disruption, including abrupt weather changes that can reduce both quantity and quality (Bramawanto and Abida, 2017. Nguyen, Renaud and Sebesvari, 2019). Unlike many fisheries-based livelihoods that can partially buffer risk through mobility, flexible harvesting, or diversification, salt farming is spatially fixed and tightly coupled to local climatic regimes, rendering uncertainty a structural feature of livelihood practice (Salas, Barragán-Paladines and Chuenpagdee, 2019. Stacey *et al.*, 2019).

Comparative coastal livelihood research suggests that different production systems entail distinct forms of risk exposure and adaptation, shaped by ecological constraints and market organization (Salas, Barragán-Paladines and Chuenpagdee, 2019. Stacey *et al.*, 2019). Small-scale fisheries have been widely examined in relation to sustainability, governance, and livelihood diversification, but salt farming has received more limited attention despite its pronounced climatic sensitivity and constrained production cycles (Nguyen, Renaud and Sebesvari, 2019. Salas, Barragán-Paladines and Chuenpagdee, 2019). Insights from fisheries scholarship, including attention to social differentiation and intervention effects, provide useful conceptual reference points, yet they cannot be transferred directly to salt farming without careful consideration of the distinct environmental constraints and market structures that shape salt production and exchange (Stacey *et al.*, 2019. Carr, 2020).

In Indonesia, salt farming is predominantly conducted by small-scale producers embedded within household-based livelihood systems rather than industrial supply chains, and production is closely integrated with household labor and informal market relations (Azizi, Manadiyanto and Koeshendrajana, 2017. Wahyurini and Hamidah, 2020). Despite policy initiatives aimed at increasing domestic salt production and improving market performance, small-scale producers continue to face recurring challenges linked to climate variability, production failure, and unstable pricing mechanisms that often shift risk toward farmers (Nguyen, Renaud and Sebesvari, 2019. Wahyurini and Hamidah, 2020). These conditions illustrate the limits of technical and policy-centered approaches that focus narrowly on productivity while under-attending to how households manage uncertainty through everyday livelihood practices and social relations (Ferrol-Schulte *et al.*, 2015. Cinner *et al.*, 2020).

One prominent social arrangement shaping small-scale livelihoods in many coastal contexts is the patron–client relation, which structures access to capital, inputs,

and markets through repeated and personalized interactions (Bellemare and Novak, 2017. Basurto *et al.*, 2020). In contemporary production systems, patron–client relations persist as practical arrangements embedded within informal market exchanges rather than as vestiges of traditional economies, particularly where formal credit and insurance remain limited (Guérin, 2014. Mumtaz, 2025). These relations can provide advance payments, production loans, and assured sales channels that support short-term livelihood continuity under uncertainty, while also producing trade-offs involving price autonomy and bargaining power (Kinnan and Townsend, 2012. Fabinyi, Foale and Macintyre, 2015).

Existing research offers divergent assessments of patron–client relations, with some emphasizing their stabilizing functions in buffering income shocks and smoothing consumption, and others highlighting risks of dependence and constrained economic choice (Guérin, 2014. Bellemare and Novak, 2017). These divergent interpretations suggest that patron–client relations cannot be evaluated independently of livelihood contexts, especially the ways risks are experienced, timed, and redistributed across production cycles in uncertain environments (Carr, 2020. Kriegl *et al.*, 2022). From a livelihood-oriented perspective, patron–client relations are therefore best approached as strategies households mobilize to manage persistent uncertainty under constrained environmental and market conditions, rather than as universally beneficial or harmful arrangements (Natarajan *et al.*, 2022. Morse, 2025).

Despite growing attention to coastal livelihoods, climate vulnerability, and informal economic arrangements, research on salt farming in Indonesia has largely emphasized productivity improvement and market efficiency, with limited focus on how social relations operate as livelihood strategies at the household level (Azizi, Manadiyanto and Koeshendrajana, 2017. Wahyurini and Hamidah, 2020). Studies of patron–client relations rarely examine salt farming as a livelihood characterized by extreme climatic sensitivity and constrained market structures, leaving a gap in understanding how social relations mediate production and market risks in this specific context (Nguyen, Renaud and Sebesvari, 2019. Carr, 2020). Against this background, this study examines how patron–client relations operate as livelihood strategies among small-scale salt farmers in coastal Indonesia under persistent production and market uncertainty, comparing patron-attached and non-patron households to clarify how social relations shape access to capital, market engagement, and coping practices over time (Douxchamps

et al., 2016. Cinner *et al.*, 2020). Rather than assessing welfare outcomes or economic performance, the study focuses on how livelihoods function through everyday strategies and social relations under conditions of uncertainty.

2 MATERIALS AND METHODS

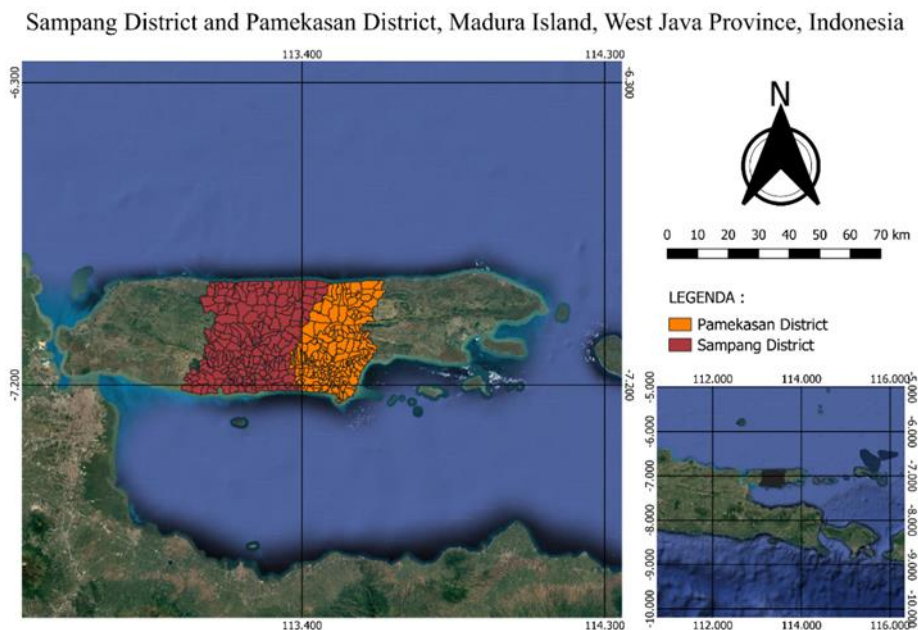
2.1 Study área

The study was conducted in Pamekasan Regency and Sampang Regency on Madura Island, East Java Province, Indonesia, which are recognized as major centers of small-scale community salt production in the region (Kementerian Kelautan dan Perikanan Republik Indonesia, 2024). In both regencies, salt production is predominantly organized through household-based operations rather than large-scale corporate systems, making livelihoods highly dependent on local environmental conditions and informal market arrangements (Pusdatin Kementerian Kelautan dan Perikanan, 2024). This production structure provides a suitable context for examining how small-scale salt farmers organize livelihood strategies under conditions of production and market uncertainty, as emphasized within the Sustainable Livelihoods Framework (Serrat, 2017).

The selection of Pamekasan Regency and Sampang Regency was purposive and guided by their consistently high and relatively stable levels of community salt production compared to other regencies on Madura Island during the period 2019–2024 (Kementerian Kelautan dan Perikanan Republik Indonesia, 2024). High production intensity combined with strong reliance on household labor ensures that observed livelihood outcomes are closely tied to farmers' own strategies rather than to industrial inputs or formal institutional support (Lanfranchi *et al.*, 2019). This setting allows the analysis to focus on how households mobilize social relations, particularly patron–client ties, as informal mechanisms to manage production risks and income variability (Quandt, Neufeldt and McCabe, 2017).

Figure 1

Research sites in Madura Island, Indonesia



An additional consideration in site selection was the structure of salt pond land tenure. In both Pamekasan Regency and Sampang Regency, a substantial proportion of salt ponds is managed directly by small-scale farmers, while the involvement of non-community or corporate entities remains limited (Zainuri *et al.*, 2020). This land tenure pattern reinforces farmers' dependence on local collectors and informal credit arrangements, creating conditions in which patron–client relations play a central role in access to capital, markets, and risk sharing (Fafchamps, 2004). Such conditions are particularly relevant for examining livelihood coping strategies and informal risk-sharing mechanisms within small-scale coastal systems.

Fieldwork was conducted over a single salt production cycle to ensure comparability of production conditions across households and to minimize the influence of seasonal variation on livelihood performance (FAO, 2021). Given the high sensitivity of salt farming to climatic fluctuations and short-term market dynamics, a single-cycle approach provides a coherent snapshot of how households adapt to uncertainty through everyday decisions and social arrangements (Béné *et al.*, 2016). Taken together, the dominance of community-based salt farming, the prevalence of informal market relations, and the exposure to persistent uncertainty make Pamekasan Regency and Sampang

Regency highly appropriate locations for analyzing how patron–client relations function as livelihood strategies among small-scale salt farmers in coastal Indonesia.

2.2 Data collection

Data were collected through a household survey administered during the post-harvest period, when respondents were able to reflect on recent production outcomes, market interactions, and coping practices (Jackson, Rogers and Zenou, 2017). Face-to-face interviews were conducted to ensure clarity, consistency, and completeness of responses across households with varying levels of formal education (Jackson, Rogers and Zenou, 2017). The survey targeted households for whom salt farming constituted the main source of livelihood income, ensuring analytical focus on strategies central to household survival (Azizi, Manadiyanto and Koeshendrajana, 2017).

A total of 188 salt farming households participated in the study, including households operating under long-term patron attachment and households operating without such arrangements (Aldi, Nurhayati and Putri, 2021a, 2021b). Households were selected using purposive sampling to capture variation in livelihood arrangements rather than to generate statistically representative estimates at the regional scale (Jackson, Rogers and Zenou, 2017). This sampling strategy supports comparative analysis of how different social relations shape access to resources and coping practices under similar environmental and market conditions (Quandt, 2018).

The survey instrument collected information on household characteristics, salt production practices, market relations, and experiences of production and price-related risks (Serrat, 2017). Questions addressed access to production capital, obligations to sell output, price determination mechanisms, and the presence or absence of patron–client relations (Kinnan and Townsend, 2012). Additional questions examined coping practices employed during production disruption or price instability, including borrowing, delayed repayment, and adjustments to sales timing, which allowed analysis of how households manage uncertainty through everyday livelihood strategies (Quandt, 2018).

2.3 Variables and analytical approach

The analytical approach conceptualizes adaptive capacity as a process through which households manage uncertainty by mobilizing resources, social relations, and economic arrangements over time rather than as a fixed or measurable attribute (Quandt, 2018). Patron–client relations are analyzed as components of household livelihood strategies that mediate access to capital and markets and influence how risks are timed and distributed across production cycles (Kinnan and Townsend, 2012). This approach enables examination of how households facing similar exposure to climatic and market risks experience different livelihood outcomes depending on their social arrangements (Jackson, Rogers and Zenou, 2017).

Data analysis relied on descriptive statistics to summarize household characteristics, livelihood arrangements, and coping practices across patron-attached and non-patron households (Serrat, 2017). Comparative analysis was used to identify differences in access to production capital, market engagement, and risk management practices between livelihood groups operating under comparable environmental conditions (Quandt, 2018). Tables were structured to facilitate clear comparison of livelihood strategies without attributing observed differences to ecological variation or technological change (Jackson, Rogers and Zenou, 2017).

2.4 Ethical considerations

Ethical considerations were integrated throughout the research process to ensure respect for participants and integrity of the data. All respondents were informed about the purpose of the study, the voluntary nature of participation, and their right to decline or withdraw at any time without consequence. Informed consent was obtained prior to data collection, and all identifying information was removed from the dataset to protect confidentiality and minimize potential social or economic risks to participants (Mumtaz, 2025).

3 RESULTS

3.1 Socio-economic characteristics of salt farming households

The surveyed households represent small-scale coastal salt farmers whose livelihoods depend primarily on seasonal salt production and related market activities. Table 1 presents the socio-economic characteristics of salt farming households by patron attachment and study location, expressed in percentages. Across both Sampang Regency and Pamekasan Regency, household heads fall within productive age ranges and report long experience in salt farming, indicating a livelihood group characterized by sustained engagement in coastal salt production under conditions of environmental uncertainty.

Table 1

Socio-Economic Characteristics of Small-Scale Salt Farming Households by Patron Attachment and Location in Sampang Regency and Pamekasan Regency (%).

Variable	Category	Sampang Regency Patron	Sampang Regency – Non-patron	Pamekasan Regency Patron	Pamekasan Regency – Non-patron
Share of households	(%)	60%	40%	10%	90%
Age of household head	30–69 years	100%	100%	100%	100%
Education level	Primary or below	72%	68%	70%	66%
	Secondary or higher	28%	32%	30%	34%
Experience in salt farming	>10 years	75%	70%	73%	68%
Land tenure	Owner	45%	50%	48%	52%
	Renter	55%	50%	52%	48%

Note: Percentages are calculated based on the total number of households in each category.

Educational attainment among household heads is relatively low in both locations, with the majority reporting primary education or below, while a smaller proportion attained secondary or higher education. This pattern is consistent across patron-attached and non-patron households, suggesting that formal education does not systematically differentiate households by livelihood arrangement. Similarly, most households report more than ten years of experience in salt farming, reflecting long-term livelihood specialization regardless of patron attachment.

Land tenure arrangements show comparable distributions between patron-attached and non-patron households, with both ownership and rental-based arrangements present across groups. While minor differences appear between locations, these variations do not correspond systematically with patron attachment status. Household size and reliance on family labor also display similar patterns across groups, reinforcing the overall comparability of basic household characteristics. Taken together, these findings indicate that households operate under broadly similar demographic and productive conditions, providing a basis for attributing observed differences in subsequent sections to livelihood arrangements rather than to underlying socio-economic disparities.

3.2 Patron–client relations and livelihood dependence

Patron–client relations play a central role in structuring access to production capital, markets, and short-term support among salt farming households. Table 2 summarizes differences in access to credit, marketing arrangements, and forms of livelihood support between patron-attached and non-patron households in both study locations. Patron-attached households commonly report receiving advance payments or production loans from patrons prior to the production season, enabling them to finance pond preparation, labor, and basic production inputs.

In exchange for financial support, patron-attached households are generally required to sell their salt output to the same patron or intermediary. This arrangement provides a guaranteed buyer and reduces uncertainty related to market access, particularly during periods of oversupply or weak demand. At the same time, respondents indicate that output prices are typically determined by patrons at the time of sale, limiting farmers' ability to negotiate prices or seek alternative buyers. As a result, market participation among patron-attached households is characterized by greater certainty of sales alongside reduced price autonomy.

Table 2

Patron–Client Relations and Forms of Livelihood Support Among Small-Scale Salt Farming Households in Sampang Regency and Pamekasan Regency (%).

Indicator	Sampang Regency – Patron	Sampang Regency – Non- patron	Pamekasan Regency – Patron	Pamekasan Regency – Non- patron
Access to production credit	85%	20%	80%	15%
Credit source: trader/patron	80%	10%	75%	5%
Obligation to sell output	90%	0%	85%	0%
Guaranteed market access	88%	25%	82%	20%
Input support (e.g. geomembrane)	40%	10%	35%	8%
Support for household needs	55%	15%	50%	12%

Note: Percentages are calculated based on the total number of households in each category.

Beyond capital and marketing, patron–client relations also involve broader forms of livelihood support. Many patron-attached households report receiving assistance during periods of delayed harvests or production disruption, including access to food, household goods, or additional credit. These forms of support extend beyond single transactions and operate across production cycles, reinforcing patron–client relations as ongoing livelihood arrangements rather than temporary responses to isolated shocks.

Non-patron households rely on alternative arrangements, including personal savings, borrowing from relatives, or short-term loans from informal lenders. These households typically sell output through spot market transactions and retain greater autonomy in choosing buyers. However, they also face higher uncertainty regarding sales timing, payment security, and price realization, particularly when market access is limited. Together, these patterns indicate that patron–client relations primarily structure how households access capital, engage with markets, and secure support within small-scale salt farming livelihoods.

3.3 Production and market risks

Salt farming households across both study locations report widespread exposure to production and market risks. Table 3 summarizes households' experiences of climate-related disruption, production failure, and price volatility. Nearly all respondents identify

rainfall during the production season as the most significant source of production risk, as it directly affects evaporation processes and salt quality.

Exposure to climate-related production risk is reported by both patron-attached and non-patron households, indicating that environmental uncertainty is broadly shared across livelihood arrangements. Production failure resulting from prolonged rainfall or unexpected weather changes is experienced by households regardless of patron attachment. However, while exposure to risk is similar, the consequences of these risks differ across livelihood arrangements.

Table 3

Exposure to Production and Market Risks Among Small-Scale Salt Farming Households in Sampang Regency and Pamekasan Regency (%).

Type of risk	Sampang Regency Patron	Sampang Regency – Non-patron	Pamekasan Regency – Patron	Pamekasan Regency – Non-patron
Climate risk experienced	100%	100%	100%	100%
Climate risk directly reduces income	65%	90%	60%	88%
Production failure / downgrading	56%	58%	54%	57%
Production loss directly borne	60%	85%	62%	82%
Price risk experienced	100%	100%	100%	100%
Unable to negotiate price	70%	55%	68%	50%
Price deduction (Rp5k–10k/kg)	80%	20%	75%	25%

Note: Percentages are calculated based on the total number of households in each category.

Patron-attached households more frequently report the ability to continue production activities despite losses by postponing income shortfalls through debt arrangements with patrons. In contrast, non-patron households more often report immediate income reductions or consumption adjustments following production disruption. These differences highlight variation in how production risk is absorbed and managed over time rather than differences in exposure itself.

Price risk is also widely reported across both groups. Patron-attached households typically accept lower net prices due to predetermined pricing arrangements and deductions related to debt repayment, while non-patron households face uncertainty related to finding buyers and securing timely payment. As one respondent noted, higher prices without patron attachment are not guaranteed if buyers are unavailable. These

accounts illustrate that market risk outcomes vary across livelihood arrangements even when overall exposure to price volatility is shared.

3.4 Coping strategies under production and market uncertainty

While the preceding sections describe the structure of patron–client arrangements and patterns of risk exposure, this subsection focuses on how households respond when production and market risks materialize. Table 4 presents differences in coping strategies between patron-attached and non-patron households. Borrowing from patrons emerges as the dominant coping strategy among patron-attached households, allowing them to maintain production activities and household consumption during periods of loss.

Table 4

Coping Strategies Under Production and Market Uncertainty Among Small-Scale Salt Farming Households in Sampang Regency and Pamekasan Regency (%)

Coping strategy	Sampang Regency – Patron	Sampang Regency – Non-patron	Pamekasan Regency – Patron	Pamekasan Regency – Non-patron
Borrowing during shock	78%	22%	72%	18%
Debt repayment delay	65%	0%	60%	0%
Immediate sale of salt	52%	55%	50%	58%
Holding salt stock	28%	35%	30%	38%
Informal risk buffering	70%	25%	65%	22%
Livelihood stability reported	68%	40%	62%	38%

Note: Percentages are calculated based on the total number of households in each category.

Coping through borrowing does not eliminate risk but enables households to delay its immediate effects by converting production losses into future repayment obligations. In this sense, coping strategies function as mechanisms for redistributing risk across time rather than for avoiding uncertainty altogether. Patron-attached households frequently report debt repayment delays as part of this process, reflecting negotiated arrangements that support short-term livelihood continuity.

Non-patron households report different coping strategies, including reducing household expenditure, selling output immediately after harvest, or temporarily holding salt stocks in anticipation of better prices. These strategies expose households to sharper

short-term adjustments, as income losses are absorbed directly rather than deferred. While non-patron households retain greater autonomy in decision-making, this autonomy is accompanied by higher short-term exposure to income volatility and market uncertainty.

Figure 2

Role of patron–client relations in managing production and market risks among small-scale salt farming households in coastal Indonesia

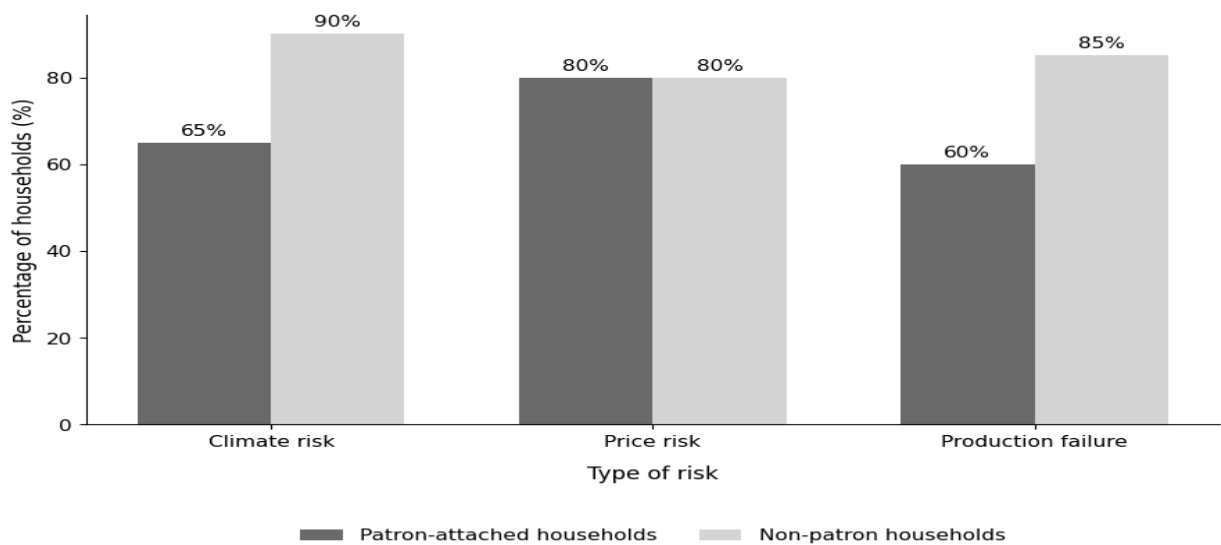


Figure 2 synthesizes these patterns by illustrating how similar production and market risks generate different coping trajectories across livelihood arrangements. Patron-attached households prioritize assured sales and continued production through established social relations, whereas non-patron households engage more actively in price search and timing decisions. Overall, the results indicate that coping strategies do not enable households to escape production and market risks. Instead, coping functions by delaying and redistributing risk, shaping how losses are experienced and managed over time within different livelihood arrangements. Taken together, these findings indicate that while exposure to production and market risks is broadly shared, households differ in how such risks are experienced and managed over time depending on their livelihood arrangements.

4 DISCUSSION

4.1 Informal risk management in small-scale salt farming

The findings indicate that salt farming households operate within conditions of persistent production and market uncertainty, where risk exposure is widespread and structurally embedded in everyday livelihood practice (Quandt, Neufeldt and McCabe, 2017). Both patron-attached and non-patron households face similar climatic disturbances and price volatility, which suggests that differences in livelihood outcomes are not driven by unequal exposure to risk but by how such risks are managed over time (Kabir *et al.*, 2020). This distinction between risk exposure and risk experience is consistent with livelihood research emphasizing that coping practices shape the consequences of uncertainty rather than its occurrence (Quandt, Neufeldt and McCabe, 2017).

The results show that patron–client relations function as informal mechanisms of risk management by enabling households to buffer and delay the immediate impacts of production losses through borrowing and assured market access (Kumar, Sengupta and Gogoi, 2023). These arrangements allow households to maintain production continuity and basic consumption during periods of disruption, which reflects a form of temporal risk redistribution rather than risk avoidance (Quandt, Neufeldt and McCabe, 2017). However, this buffering effect does not eliminate uncertainty, as debt obligations and price deductions transfer risk into future production cycles, which aligns with observations from other resource-dependent livelihoods operating under informal financial systems (Kabir *et al.*, 2020).

Non-patron households employ alternative coping strategies, including immediate sales, reduced consumption, and reliance on personal networks, which expose them to sharper short-term adjustments when production or price shocks occur (Kumar, Sengupta and Gogoi, 2023). While these households retain greater autonomy in market engagement, they also face higher short-term income volatility and uncertainty regarding buyer availability and payment security (Quandt, Neufeldt and McCabe, 2017). These findings illustrate that informal risk management strategies involve trade-offs between continuity and flexibility, rather than clear advantages or disadvantages across livelihood arrangements (Kabir *et al.*, 2020).

4.2 Adaptation and resilience as process

The observed coping practices support a process-oriented understanding of adaptation, in which households continuously adjust livelihood strategies in response to ongoing uncertainty rather than responding to isolated shocks (Quandt, Neufeldt and McCabe, 2017). Adaptive capacity in this context is expressed through everyday decisions related to borrowing, repayment timing, and market engagement, which shape how risks are absorbed and distributed over time (Kumar, Sengupta and Gogoi, 2023). This interpretation aligns with studies that conceptualize resilience not as a fixed outcome but as an emergent property of livelihood systems shaped by repeated interactions with environmental and economic stressors (Kabir *et al.*, 2020).

The findings suggest that patron–client relations contribute to adaptive capacity by enabling households to maintain production activities despite recurrent losses, which supports interpretations of patronage as a pragmatic livelihood strategy under constrained conditions (Quandt, Neufeldt and McCabe, 2017). At the same time, the reliance on debt-based coping highlights the limits of adaptation within existing livelihood structures, as households remain exposed to cumulative obligations that can constrain future decision-making (Kumar, Sengupta and Gogoi, 2023). This tension reflects broader debates in adaptation research regarding the distinction between coping and longer-term transformation, where strategies that sustain livelihoods in the short term may also reproduce vulnerability over time (Kabir *et al.*, 2020).

Importantly, the results do not suggest that patron–client relations uniformly enhance resilience, as households continue to face persistent uncertainty and limited options for structural change (Quandt, Neufeldt and McCabe, 2017). Instead, these relations shape how uncertainty is experienced and managed within existing livelihood systems, which reinforces the need to evaluate adaptation strategies in relation to their temporal and relational dimensions (Kumar, Sengupta and Gogoi, 2023). Such findings caution against simplistic interpretations of informal arrangements as either adaptive solutions or sources of vulnerability, and instead emphasize their context-dependent role in shaping livelihood trajectories (Kabir *et al.*, 2020).

4.3 Social relations, power, and livelihood strategies

The role of patron–client relations in shaping livelihood outcomes must be understood in relation to power and social differentiation within informal market systems. While these relations provide access to capital and markets, they also structure asymmetries in bargaining power that influence price formation and repayment terms (Fabinyi, Foale and Macintyre, 2015). The findings indicate that households accept these asymmetries as part of negotiated livelihood strategies rather than as imposed constraints, which reflects the coexistence of agency and dependence within informal economic relations (Quandt, Neufeldt and McCabe, 2017).

This negotiated nature of patron–client relations complicates narratives that frame patronage solely as exploitative or coercive (Fabinyi, Foale and Macintyre, 2015). Instead, households actively assess the trade-offs between market security and autonomy, making strategic choices that reflect their priorities under uncertainty (Kumar, Sengupta and Gogoi, 2023). Such dynamics are consistent with research highlighting that power relations in small-scale livelihoods are relational and situational, rather than fixed or unidirectional (Fabinyi, Foale and Macintyre, 2015).

At the same time, the persistence of patron–client relations points to structural constraints within coastal livelihood systems, including limited access to formal credit, insurance, and stable markets (Quandt, Neufeldt and McCabe, 2017). These constraints shape the range of viable livelihood strategies available to households and reinforce reliance on informal arrangements even when they involve long-term trade-offs (Kabir *et al.*, 2020). Recognizing these power dynamics is essential for interpreting household behavior without attributing outcomes solely to individual choice or cultural preference (Fabinyi, Foale and Macintyre, 2015).

4.4 Implications for governance and coastal livelihoods

The findings have important implications for governance approaches aimed at enhancing the sustainability of small-scale coastal livelihoods (Bennett, 2016). Policies that focus narrowly on productivity enhancement or market efficiency may fail to address the underlying conditions of uncertainty that shape household decision-making and

reliance on informal arrangements (Ferrol-Schulte *et al.*, 2015). Effective governance therefore requires attention to how households manage risk through social relations and informal institutions rather than assuming that formalization alone will improve livelihood outcomes (Bennett *et al.*, 2019).

Governance interventions that overlook existing livelihood strategies risk undermining the coping mechanisms that households rely on to sustain production and consumption under uncertainty (Andrews *et al.*, 2021). The results suggest that policies aimed at improving access to credit, stabilizing prices, or enhancing market transparency should be designed in ways that complement rather than displace informal arrangements that currently support livelihood continuity (Bennett *et al.*, 2019). Such approaches align with governance research emphasizing the importance of institutional diversity and context-sensitive interventions in small-scale coastal systems (Ferrol-Schulte *et al.*, 2015).

At the same time, reliance on patron–client relations highlights the need for longer-term strategies that address structural sources of uncertainty, including climate variability and market instability (Bennett, 2016). Governance efforts that strengthen adaptive capacity should therefore consider both short-term livelihood support and pathways for reducing cumulative vulnerability over time (Andrews *et al.*, 2021). Integrating livelihood perspectives into coastal governance can help ensure that policy interventions are grounded in the realities of household decision-making and risk management (Bennett *et al.*, 2019).

Overall, the discussion demonstrates that patron–client relations in small-scale salt farming function as livelihood strategies that mediate risk under conditions of persistent uncertainty rather than as fixed determinants of vulnerability or resilience (Quandt, Neufeldt and McCabe, 2017). These relations shape how households experience, manage, and redistribute production and market risks over time, which underscores their central role in coastal livelihood systems (Kumar, Sengupta and Gogoi, 2023). By situating empirical findings within broader debates on risk, adaptation, power, and governance, this study contributes to a more nuanced understanding of how small-scale coastal livelihoods are sustained under volatile environmental and economic conditions (Fabinyi, Foale and Macintyre, 2015. Bennett, 2016).

5 CONCLUSION

This study examined how patron–client relations function as livelihood strategies among small-scale coastal salt farmers in Indonesia under conditions of persistent production and market uncertainty. The findings indicate that salt farming households are broadly exposed to climatic variability and price instability, which confirms that uncertainty is a structural characteristic of this livelihood system rather than an occasional disruption. As a result, differences in livelihood outcomes are shaped less by unequal exposure to risk and more by how households organize social relations and economic arrangements to manage uncertainty over time.

The results show that patron–client relations operate as informal mechanisms through which households buffer and delay the immediate effects of production and market shocks. Patron-attached households are able to sustain production activities and basic consumption by accessing advance payments, credit, and assured market channels, even when harvests are disrupted or prices decline. In contrast, non-patron households rely on coping strategies that require more immediate adjustments, such as reducing consumption or selling output quickly, which exposes them to sharper short-term income volatility.

These findings highlight that patron–client relations do not remove risk from salt farming livelihoods, but rather reshape how risk is experienced and distributed across production cycles. By converting immediate losses into future repayment obligations, patron-attached households redistribute risk over time while remaining exposed to ongoing uncertainty. This pattern underscores the importance of understanding adaptive capacity as a process expressed through everyday livelihood decisions, rather than as a fixed condition or a measurable outcome.

The study also contributes to broader discussions on adaptation and resilience in small-scale coastal livelihoods. The reliance on informal arrangements illustrates both the strengths and the limits of coping strategies under constrained conditions. While patron–client relations support short-term livelihood continuity, they may also reinforce longer-term dependence and limit opportunities for structural change. This tension highlights the need to distinguish between coping practices that sustain livelihoods in the short term and adaptive strategies that reduce vulnerability over time.

The findings have important implications for coastal livelihood governance and policy. Interventions that focus solely on increasing productivity or improving market efficiency may overlook the underlying uncertainty that shapes household decision-making and reliance on informal social relations. Policies aimed at supporting small-scale salt farmers should recognize the practical role of existing livelihood strategies while also addressing structural drivers of uncertainty, including climate variability and unstable market conditions. Integrating livelihood-oriented perspectives into coastal governance can help ensure that interventions are aligned with household realities and contribute to more sustainable and equitable livelihood outcomes.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the financial support provided by the Directorate General of Higher Education, Research, and Technology, Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, under Contract No. 027/E5/PG.02.00.PL/2024. The funding body had no role in the study design, data collection, analysis, interpretation, or manuscript preparation. The authors also thank all participating salt farmers for their time and cooperation.

ETHICAL CONSIDERATIONS

Informed consent was obtained from all participants prior to data collection.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

How to cite this article (APA)

Kurniawan, T., Kinseng, R. A., Taryono, Purnomo, A. H., & Sapanli, K. (2026). PATRON-CLIENT RELATIONS AS LIVELIHOOD STRATEGIES AMONG SMALL-SCALE COASTAL SALT FARMERS IN INDONESIA. *Veredas Do Direito*, 23(6), e234656. <https://doi.org/10.18623/rvd.v23.4656>