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Article

Kampung Tani Tangguh: Strengthening Farmers' Economic Resilience in Blitar Regency

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ABSTRACT

This study analyzes local vulnerabilities experienced by agricultural communities in Blitar Regency and formulates the Kampung Tani Tangguh Blitar model as a local economic development policy framework. A qualitative multi-site design was applied in eight villages across Wates, Panggungrejo, Binangun, and Ponggok Districts. Data were collected through field observations and in-depth interviews with 24 farmers and analyzed interactively and thematically using NVivo. The findings reveal interconnected economic, ecological, market, and institutional vulnerabilities, including unstable income, rising input and water costs, crop-failure risks, soil degradation, and weak bargaining power. Farmers respond through defensive strategies such as side jobs, borrowing, reduced household consumption, family labor mobilization, and low-risk cropping choices. The study contributes by reframing these survival practices from a rural livelihood issue into a policy problem of farmers' economic resilience. The proposed model integrates collective input institutions, farmer water banks, healthy-soil and integrated pest-management field schools, collective marketing based on price information, and household-scale downstream processing. Unlike conventional empowerment programs centered on training or seasonal assistance, the model combines cost reduction, risk management, market governance, and local value-added creation. It offers an adoptable pathway for village planning, food security, rural poverty reduction, and micro-enterprise development.

Keywords: Agricultural Policy; Blitar Regency; Community Empowerment; Farmers' Economic Resilience; Local Economic Development

INTRODUCTION

Blitar Regency has an important position as an agrarian region in East Java. In 2025, the agriculture, forestry, and fisheries sector was the largest contributor to gross value added in the regional economic structure, reaching Rp15,508.94 billion out of total gross regional domestic product at current prices of Rp51,192.98 billion (Badan Pusat Statistik Kabupaten Blitar, 2026). At the production level, agriculture also continues to play a strategic role. In 2024, harvested rice area reached 30,790 hectares with production of 171,154 tons of dry unhusked rice (Badan Pusat Statistik Kabupaten Blitar, 2025). However, this figure declined compared with 2023, when harvested area reached 36,001 hectares and production reached 233,522 tons of dry unhusked rice (Badan Pusat Statistik Kabupaten Blitar, 2024a). These data show that agriculture remains a foundation of the local economy, but production stability is

vulnerable and does not automatically translate into household welfare. Previous studies also indicate that relatively high agricultural output does not necessarily guarantee high farmer income (Zimah et al., 2023).

At the household level, this vulnerability appears in concrete economic forms. Farmers' income is seasonal and unstable, while cultivation and maintenance costs continue to rise, especially for fertilizers, pesticides, seeds, water during the dry season, and labor. A study on dryland cayenne pepper farming in Binangun District found that farmers need substantial capital to purchase fertilizers and agrochemicals whose prices tend to increase each planting season, while net productivity is often not proportional to production costs (Pratiwi & Suparmini, 2018). Other research on the cost structure of rice farming in Indonesia shows that land and labor costs are dominant components, meaning that gross output can be substantially eroded before it becomes net household income (Musilah et al., 2021). In Blitar Regency, the gap between maize planted area and harvested area has been associated with drought, pests, disease, flooding, animal damage, theft, and other cultivation factors in several districts including Panggungrejo, Wates, Binangun, and Ponggok (Badan Pusat Statistik Kabupaten Blitar, 2024b).

The problem faced by farmers in Blitar Regency should therefore not be understood merely as a lack of productivity. It is more accurately understood as a systemic economic vulnerability that links household income, ecological risk, market access, and local institutional capacity. Economic vulnerability appears when production costs increase while net income falls. Ecological vulnerability appears when plant disease, drought, heavy rainfall, and dependence on chemical inputs increase cultivation risk. Market vulnerability appears when farmers have weak bargaining power in relation to collectors and intermediaries. Institutional vulnerability appears when collective instruments for accessing inputs, financing, price information, water, and markets are not strong enough to protect small farmers. Pesticide residues may reduce soil fungal diversity, showing that ecological and economic problems in farming are interrelated (Benu et al., 2020). Long distribution chains and the dominance of intermediaries can also weaken farmers' bargaining position and keep farm-gate prices at unfavorable levels (Fauzi, 2026).

International literature on rural and farming-system resilience provides a broader context for interpreting this local problem. Farming-system resilience is commonly understood as the capacity of a farming system to maintain essential functions under economic, social, environmental, and institutional shocks through robustness, adaptability, and transformability (Meuwissen et al., 2019). Darnhofer (2014, 2021) argues that resilience is not only the ability to survive disturbances, but also the capacity to balance short-term efficiency with long-term adaptation and transformation. Community resilience literature similarly emphasizes the ability of local communities to mobilize resources, institutions, learning, and collective action under conditions of uncertainty (Magis, 2010; Berkes & Ross, 2013). Recent smallholder resilience studies also show that agricultural development interventions are most relevant when they match local vulnerabilities, strengthen adaptive capacity, and avoid treating resilience as the responsibility of farmers alone (Shilomboleni et al., 2024).

From a public policy perspective, this issue is important because farmer vulnerability is not only a sociological phenomenon but also a local economic development problem. Low and unstable farm income affects purchasing power and rural poverty. High input costs reduce farm efficiency. Crop failure risks threaten regional food security. Weak bargaining power limits local value capture from agricultural

production. The OECD's recent rural and food-system resilience work emphasizes that rural policies should be place-based, people-centered, institutionally coordinated, and supported by clear responsibilities and evaluation indicators (OECD, 2025a, 2025b). This means that local farmer empowerment must be linked with regional planning, food security, poverty reduction, and value-added creation, rather than being treated as temporary assistance. The Blitar case is relevant to this international discussion because it shows how resilience can be operationalized at the village and district levels through concrete economic institutions.

Existing studies on agriculture in Blitar have mostly emphasized technical cultivation, farm efficiency, production factors, or specific commodities. Research on dryland cayenne pepper farming in Binangun, for example, examined physical conditions, costs, constraints, and productivity (Pratiwi & Suparmini, 2018). Another study on curly red chili farming in Mojorejo Village focused on production factors and technical efficiency (Sitanggang, 2018). These studies provide important empirical foundations, but fewer studies have treated the agricultural condition of Blitar as a multilayered local vulnerability that requires an integrated economic and policy response. The international literature on resilience has developed robust concepts, but it often remains at the level of system assessment, community capacity, or macro-policy principles. The gap addressed by this study is the limited articulation of a locally grounded, adoptable farmer economic resilience model that links household survival practices, village institutions, local market governance, and regional policy instruments.

This article integrates three analytical perspectives. First, Scott's moral economy perspective explains why farmer households prioritize subsistence security over profit maximization when facing risk, uncertainty, and the threat of losing minimum livelihood security (Scott, 1977). In this study, Scott's perspective is used as a diagnostic lens for understanding why farmers choose defensive survival strategies. Second, people-centered development emphasizes local capacity, organizational strengthening, accountability, initiative, and community control over resources (Korten, 1987). Third, Friedmann's empowerment perspective views poverty not only as material deprivation but also as limited access to social power, information, organizations, networks, and decision-making authority (Friedmann, 1992). The synthesis of these perspectives produces an analytical lens in which farmers' survival practices are not treated as passive adaptation, but as signals of policy failure and as a starting point for designing economic resilience interventions.

Based on this framework, the study aims to analyze the forms of local vulnerability experienced by agricultural communities in Blitar Regency, explain farmers' survival mechanisms, and formulate an empowerment model that is economically rational and policy-relevant. The research questions are: (1) what forms of local vulnerability are experienced by agricultural communities in Blitar Regency; (2) how do farmers develop survival mechanisms in response to economic, ecological, and market pressures; and (3) how can the Kampung Tani Tangguh Blitar model be designed as a local economic development policy to improve farmer welfare, farm efficiency, food security, and rural value added?

RESEARCH METHOD

This study uses a qualitative approach with a multisite study design because it seeks to understand farmers' experiences, meanings, livelihood strategies, and empowerment needs in several

village contexts in Blitar Regency (Creswell & Poth, 2024; Miles et al., 2018). The research locations were eight villages in four districts: Purworejo and Ringinrejo Villages in Wates District, Balerejo and Margomulyo Villages in Panggungrejo District, Birowo and Ngadri Villages in Binangun District, and Bacem and Langon Villages in Ponggok District. The location selection considered the geographical diversity of Wates, including mountainous and coastal areas, and official data showing that Panggungrejo, Wates, Binangun, and Ponggok face agricultural vulnerabilities such as drought, pests, disease, flooding, animal damage, theft, and other cultivation constraints (Kecamatan Wates, n.d.; Badan Pusat Statistik Kabupaten Blitar, 2024b).

The study involved 24 farmer informants, with three farmers in each village. In each village, the informants included a small owner or smallholder farmer, a cultivator or farmer with high dependence on rent and labor costs, and a farmer who had experienced crop failure, yield decline, or pressure from low selling prices. Informants were selected purposively as information-rich subjects, not as a statistical sample (Palinkas et al., 2015; Campbell et al., 2020). The criteria were active farming experience for at least five years, household dependence on agriculture, experience of production cost pressure, plant disease, or low selling prices, and willingness to participate in in-depth interviews.

The number of informants was considered sufficient because the study aimed for depth and cross-site variation rather than statistical representativeness. Data saturation was monitored during fieldwork through repeated comparison of interview notes across villages and districts. By the twentieth interview, no new major categories emerged beyond the recurring themes of input cost pressure, water scarcity, disease risk, weak bargaining power, household debt, and collective empowerment needs. The remaining four interviews were used to confirm thematic recurrence and to check whether specific village contexts introduced additional patterns. This saturation logic is consistent with purposive qualitative inquiry, where sufficiency is determined by the richness of information, the clarity of emerging patterns, and the relevance of cases to the research questions (Palinkas et al., 2015; Campbell et al., 2020).

Primary data were collected through field observations and semi-structured in-depth interviews. Observations focused on land conditions, crops, water and irrigation sources, fertilizer and pesticide use, soil condition, cultivation practices, harvesting, and marketing patterns. Interviews explored household income, planting and maintenance costs, crop failure experiences, common plant diseases, weather and water problems, relations with collectors, survival strategies, and empowerment needs. The research instruments included observation guidelines, interview guidelines, field notes, recording devices, and informant identity sheets. Secondary data were drawn from Statistics of Blitar Regency, the Food Security and Agriculture Office of Blitar Regency, and official subdistrict or village portals to strengthen the social, economic, and institutional context of local agriculture.

Data analysis was conducted interactively through data reduction, data display, and conclusion drawing, combined with thematic analysis assisted by NVivo (Miles et al., 2018; Allsop et al., 2022). Coding was carried out through open coding, axial coding, and selective coding of interview transcripts and field notes. In open coding, raw statements such as 'fertilizer is increasingly expensive', 'watering costs are high in the dry season', 'soil is getting tired', 'harvests are sold quickly to collectors', and 'the family must reduce spending' were coded as input price pressure, water cost pressure, soil fatigue, collector dependence, and consumption reduction. In axial coding, these initial codes were grouped into

broader categories such as production-cost vulnerability, ecological vulnerability, market-institutional vulnerability, and household survival mechanisms. In selective coding, the categories were integrated into three central themes: multilayered local agricultural vulnerability, subsistence-oriented survival strategies, and the need for institutionalized farmer economic resilience.

The formulation of the Kampung Tani Tangguh Blitar model followed an explicit synthesis procedure. First, the most frequent and cross-site vulnerability nodes from NVivo were identified through hierarchy charts and matrix coding. Second, these vulnerability nodes were connected with the survival strategies reported by farmers to understand the causal pathway from economic pressure to household coping behavior. Third, farmers' stated empowerment needs were matched with existing local institutions such as farmer groups, gapoktan, BUMDes, extension workers, the Food Security and Agriculture Office, and the Blitar Food Information System. Fourth, the empirical patterns were interpreted through Scott, Korten, Friedmann, and farming-system resilience literature to convert descriptive findings into policy design components. The five pillars of the model therefore emerged from the convergence of empirical frequency, cross-site recurrence, farmers' expressed needs, available institutional channels, and theoretical-policy relevance.

Data trustworthiness was maintained through source triangulation, technique triangulation, limited member checking, and persistent observation (Korstjens & Moser, 2018; Birt et al., 2016). Source triangulation compared information from farmers, field observations, and secondary data. Technique triangulation compared interview results with observation notes and official documents. Limited member checking was conducted by confirming key interpretations with selected informants after interviews. Ethical considerations were addressed by explaining the research purpose before interviews, obtaining voluntary informed consent, allowing informants to refuse questions or stop participation, anonymizing personal identities, and using the data only for academic purposes. No sensitive personal identifiers are reported in this article.

Because this is a qualitative study, the economic effects discussed in the model should be understood as policy pathways and measurable program indicators rather than as causal impact estimates. The study does not claim to measure income growth or productivity improvement through econometric evaluation. Instead, it identifies the mechanisms through which an integrated local policy model can reasonably improve farm efficiency, reduce production risk, strengthen bargaining power, diversify income, and increase value added.

RESULT AND DISCUSSION

A. Local Agricultural Vulnerability as an Economic and Policy Problem

Open coding of the 24 farmer informants shows that agricultural vulnerability in Blitar Regency is centered on three main clusters: fragile farm household income, high cultivation costs and production risks, and weak bargaining power in agricultural trade. This pattern is consistent with the empirical context of Blitar. Official data on individual maize farming in 2023 show that the main causes of harvested area being smaller than planted area were disease, pests, flooding, drought, animal damage, theft, and other factors. The category of disease was recorded in 611 units in Panggungrejo, 595 units in Wates, 294 units in Binangun, and 300 units in Ponggok (Badan Pusat Statistik Kabupaten Blitar, 2024b). Dryland

farming in Binangun has also been reported to face limited water, large capital needs for fertilizers and agrochemicals, and price manipulation by collectors and traders (Pratiwi & Suparmini, 2018).

The vulnerability pattern found in Blitar confirms the international literature that farming-system resilience is shaped by interacting economic, ecological, social, and institutional stresses rather than by a single production variable (Meuwissen et al., 2019; Darnhofer, 2021). It also supports recent smallholder resilience studies showing that climate risk, market volatility, and weak institutional support tend to reinforce one another in smallholder farming systems (Shilomboleni et al., 2024). Therefore, the Blitar case is not merely a local empirical description. It illustrates how systemic vulnerability is experienced at household level and how resilience policy must begin from the concrete cost, water, disease, and market constraints faced by farmers.

The distribution of average monthly net income among the farmer household informants is presented in Table 1.

Table 1
Distribution of Average Monthly Net Income of Farmer Household Informants

Monthly net income category	Number of informants	Percentage
< Rp1,500,000	7	29.2%
Rp1,500,000-Rp1,999,999	8	33.3%
Rp2,000,000-Rp2,567,743	5	20.8%
>= Rp2,567,744	4	16.7%
Total	24	100%

Source: Primary data processed by the researcher with NVivo, 2026.

Table 1 indicates that 15 of the 24 informants (62.5%) earned less than Rp2,000,000 per month, while only four informants (16.7%) reached or exceeded the 2026 regional minimum wage benchmark. The distribution confirms that low income is widespread and that household earnings remain highly exposed to seasonal and production-related shocks.

To show whether the reported pressures are concentrated in particular locations or recur across the research sites, Table 2 compares the main vulnerability issues in the four districts.

Table 2
Matrix of Vulnerability Issues by Research District

Main issue	Wates (n=6)	Panggungrejo (n=6)	Binangun (n=6)	Ponggok (n=6)	Total
High fertilizer/pesticide costs	6	6	6	6	24
Dry season water costs	5	4	3	2	14
Plant disease attacks	4	6	5	4	19
Extreme weather/wind/rain	4	5	4	3	16
Selling prices pressed by collectors	5	4	5	4	18
Soil becoming harder/depleted	3	4	4	3	14

Source: Primary data processed by the researcher with NVivo, 2026.

Table 2 shows that high fertilizer and pesticide costs were reported by every informant in all four districts. Plant disease, extreme weather, collector pressure, water costs, and soil degradation also recur

across sites, demonstrating that farmer vulnerability is systemic rather than confined to one commodity or location.

Low and Fragile Farmer Household Income

Using the 2026 minimum wage as a reference, 20 of the 24 informants were below the 2026 minimum wage threshold of Blitar Regency. The 2026 minimum wage was set at Rp2,567,744, making it useful as a reference point for showing the distance between farmers' net income and the formal wage standard in the region (Gubernur Jawa Timur, 2025). Interview data show that household income is seasonal. Income increases only during harvest periods, while in other months it declines sharply or is absorbed by the need to finance the next planting season. This condition supports the argument that agricultural production does not necessarily produce high farmer income when production costs, land size, and land tenure status are unfavorable (Zimah et al., 2023).

The main issue is therefore not simply low income, but livelihood uncertainty. Even the four informants whose income sometimes exceeded the minimum wage experienced this condition only in good harvest periods. Their annual average income remained pressured by planting costs, input debt, and price fluctuations. From an economic development perspective, this fragility limits rural purchasing power, weakens household investment capacity, and makes farmer households more vulnerable to poverty shocks. This confirms Darnhofer's (2014) argument that resilience analysis must consider how farmers balance short-term survival and long-term viability. In Blitar, farmer households have some buffering capacity, but their adaptive and transformative capacities remain weak because they lack collective instruments to reduce costs, manage risk, and negotiate markets.

High Production Costs and Farm Efficiency Loss

NVivo coding shows that all informants identified fertilizer and pesticide costs as the most constant burden in cultivation. For small rice farmer households, total planting costs per season ranged from Rp3.8 million to Rp6.2 million per 0.25-0.40 hectares. For maize and dryland chili farmers, seasonal costs ranged from Rp4.5 million to Rp8.7 million because of additional expenses for hybrid seeds, agrochemicals, plastic mulch, and watering during water shortages. In Binangun District, a similar problem has been documented: cayenne pepper farming requires substantial capital for plastic covers, fertilizers, and agrochemicals, whose prices tend to increase each planting season, forcing many farmers to seek loans (Pratiwi & Suparmini, 2018).

This burden does not stop at fertilizers and pesticides. Fourteen informants emphasized high water costs during the dry season, especially in locations dependent on rainfed fields, bore wells, or paid water distribution. This was more prominent in areas with mountainous-coastal geography and relatively dry soils, such as Wates District, where limited water sources increase watering costs and crop failure risk (Kecamatan Wates, n.d.). Economically, these cost pressures reduce farm efficiency. The policy implication is that input and water interventions should be treated as efficiency policies, not merely as technical agricultural assistance. If collective purchasing, shared water infrastructure, and balanced input use reduce unit costs, then farmers' net income can improve even without dramatic increases in production volume.

Crop Failure Risk and Food Security Implications

The next form of vulnerability is the risk of crop failure and yield decline caused by plant disease, drought, heavy rainfall, and strong winds. Official BPS data show that drought, pests, disease, and flooding are important causes of harvested area being smaller than planted area in Blitar Regency, and the four research districts are among areas facing these problems (Badan Pusat Statistik Kabupaten Blitar, 2024b). Primary data show that 19 informants mentioned plant disease as a recurring threat, 16 informants mentioned extreme weather and strong winds, and 14 informants mentioned water shortages as causes of declining yields. This confirms that smallholder production risk is cumulative and mutually reinforcing.

The types of disease mentioned by informants are consistent with local commodity profiles. In rice, the frequently mentioned problem is bacterial leaf blight or kresek, a major rice disease that can reduce yields when infection occurs during the generative phase (Sudir et al., 2012). In maize, the dominant disease is downy mildew, which official agricultural literature describes as highly dangerous and capable of causing yield losses of 50-80 percent or even total crop failure under severe attacks (Balai Penelitian Tanaman Serealia, 2021). In chili, the frequently mentioned problem is anthracnose or patek, and the Directorate General of Horticulture has reported cases of anthracnose in Blitar, including in Binangun Village, which caused fruit rot and reduced production (Direktorat Jenderal Hortikultura, 2023).

From a policy perspective, crop failure is not only a household loss. It also affects local food availability, price stability, and the reliability of agricultural supply. International food-system resilience literature emphasizes that risk management policies should clarify objectives, identify risk pathways, assign responsibilities, and evaluate outcomes (OECD, 2025a). Therefore, integrated pest management, healthy soil management, and water governance in Blitar should be linked to regional food security. A local economic development model for Blitar needs to connect farm-level risk reduction with broader policy goals, including food security, rural poverty reduction, and the stability of agricultural markets.

Soil Degradation and Long-Term Productivity

Fourteen informants stated that their agricultural soil now feels 'harder', 'tired', and requires higher fertilizer doses than in previous years. Field observations showed signs such as denser soil, weaker plant response, and increased frequency of pesticide application. This is relevant to findings that intensive and continuous insecticide use can negatively affect the soil environment, including soil fungal diversity and biological quality (Benu et al., 2020). At the local policy level, the Food Security and Agriculture Office of Blitar Regency has also stated that declining rice field productivity is influenced by land degradation, low organic matter, reliance on inorganic fertilizer, and the practice of removing or burning rice straw outside the field (Dinas Ketahanan Pangan dan Pertanian Kabupaten Blitar, 2023).

This finding shows that ecological vulnerability and economic vulnerability are linked. When soil becomes more dependent on chemical inputs, farmers must spend more to maintain production. However, higher costs do not always produce higher yields, especially when crops are affected by disease or when prices decline. Soil degradation therefore cannot be treated only as a technical cultivation issue. It is also a long-term productivity and cost-efficiency problem that requires policy support for balanced fertilization, organic material recovery, biological control, and farmer field learning systems. In the language of farming-system resilience, soil health is a productive base that determines whether farmers can move from mere robustness to adaptation and transformation (Meuwissen et al., 2019; Darnhofer, 2021).

Weak Bargaining Power in Agricultural Trade

Interview data show that 18 informants were highly dependent on collectors or local traders. This dependency emerged because of urgent cash needs, limited storage facilities, weak grading and sorting capacity, and limited access to alternative buyers. In chili and maize farming, harvests are often sold quickly to cover input debt and labor costs. Research in Binangun has also noted price manipulation among collectors and traders, resulting in unstable and relatively low prices received by farmers (Pratiwi & Suparmini, 2018). In a broader context, weak farmer bargaining power is associated with limited access to markets, price information, and post-harvest facilities, keeping small farmers in a subordinate position within distribution chains (Fauzi, 2026).

This means that low farm-gate prices are not merely a market issue; they are an institutional issue. Studies of chili auction markets in Kulon Progo show that collective marketing institutions can improve farmers' bargaining position toward intermediaries through more organized sales mechanisms (Rusdiyana, 2017). Research on community-based market access in coastal rural areas of Yogyakarta also shows that collective action is needed to bridge power relations between farmers and traders (Untari, 2024). Internationally, resilience studies also stress that local economic resilience depends on networks, organizations, market access, and collective capacities rather than individual adjustment alone (Magis, 2010; Berkes & Ross, 2013; Shilomboleni et al., 2024). In Blitar, this implies that price information, collective selling, grading, and partnerships with larger buyers need to be designed as part of local economic policy, not as optional farmer initiatives.

Farmers' Survival Mechanisms: From Subsistence Strategy to Policy Signal

The coping responses identified through the NVivo coding are summarized in Table 3. The table provides a direct overview of the strategies farmers use to maintain household continuity under income, production, and market pressure.

Table 3
Farmers' Survival Strategies Based on NVivo Coding

Survival strategy	Number of informants	Percentage
Non-agricultural side jobs	14	58.3%
Borrowing from collectors/relatives	12	50.0%
Maximizing family labor	17	70.8%
Reducing household consumption	11	45.8%
Selling small assets/livestock	6	25.0%
Choosing the safest cropping pattern	15	62.5%
Maintaining farming despite thin profit	18	75.0%

Source: Primary data processed by the researcher with NVivo, 2026.

Table 3 shows that the dominant survival strategies are not expansion-oriented, but defensive efforts to maintain household continuity. The most frequent strategies include maintaining farming despite thin profit, maximizing family labor, choosing the safest cropping pattern, and taking non-agricultural side jobs. This pattern is closely related to Scott's argument that peasant households place subsistence security at the center of decision-making. Fear of food shortage or loss of minimum income encourages farmers to prioritize livelihood safety over profit maximization (Scott, 1977).

In Blitar, farmers' decision to continue planting rice, maize, or chili is often not driven by the belief that these commodities are always the most profitable. Rather, it is based on the consideration that farming remains the most realistic way to maintain family income, retain access to land, and preserve social identity as farmers. Diversifying livelihoods through side jobs, small trading, or household-scale livestock is also consistent with findings that farmer households combine intensification, extensification, and income diversification to maintain livelihood sustainability (Tenrisau Adam et al., 2023).

However, for policy analysis, these strategies should not be read only as cultural or moral-economic behavior. They should also be read as signals that current market, input, water, and institutional arrangements do not yet provide sufficient protection for small farmers. When farmers respond to risk through debt, asset sales, and consumption reduction, the economic problem has moved beyond production and has become a rural welfare problem. The causal chain can be summarized as follows: rising input and water costs reduce net income; low net income increases dependence on debt and quick sales; debt and quick sales weaken bargaining power; weak bargaining power depresses farm-gate prices; and low prices reproduce the next cycle of household vulnerability. The model proposed in this study aims to break this negative feedback loop by converting survival mechanisms into institutionalized economic resilience mechanisms.

B. The Kampung Tani Tangguh Blitar Model as a Local Economic Development Policy

The NVivo project map constructed from primary data shows a clear relationship: high input costs, disease and climate disruption, and unfavorable markets produce fragile farmer household income. Fragile income then pushes farmers toward survival strategies such as borrowing, side jobs, and quick harvest sales. At the same time, farmers expressed the need for input institutions, water access, cultivation assistance, price information, and income diversification. Therefore, the most relevant empowerment model is not seasonal input assistance, but an integrated design that reduces production vulnerability, strengthens economic institutions, and opens value-added opportunities for farmer households.

The Kampung Tani Tangguh Blitar model is proposed as a community-based but policy-oriented intervention. It is community-based because it starts from farmers' real vulnerabilities and local institutional capacity. It is policy-oriented because it can be translated into village development planning, district agricultural programs, food security initiatives, poverty reduction, and micro-enterprise development. The model therefore shifts the article's contribution from a descriptive account of farmer vulnerability to a practical framework for local economic development policy.

The empowerment priorities expressed by the informants are summarized in Table 4, which links the identified vulnerabilities with the interventions farmers consider most urgent.

Table 4
Priority Empowerment Needs Based on NVivo Coding

Empowerment need	Number of informants	Percentage
Collective input purchasing	20	83.3%
Price information and collective marketing	19	79.2%
Healthy soil/IPM training	18	75.0%

Empowerment need	Number of informants	Percentage
Communal water access	16	66.7%
Product processing and diversification	15	62.5%
Strengthening farmer groups/BUMDes	14	58.3%

Source: Primary data processed by the researcher with NVivo, 2026.

Table 4 confirms that the strongest demand is for collective economic and market institutions: collective input purchasing was selected by 83.3% of informants and price information with collective marketing by 79.2%. Healthy-soil training, communal water access, downstream processing, and institutional strengthening were also supported by a majority of informants, providing an empirical basis for the integrated model.

Theoretical Foundation and Novelty of the Model

The model is grounded in people-centered development. Korten argues that development should not depend solely on top-down programs, but should strengthen local capacity, community control, accountability, and self-reliance in managing resources (Korten, 1987). Friedmann complements this view by arguing that poverty is not only material deprivation but also social, political, and psychological powerlessness. Empowerment must therefore expand access to information, organizations, resources, networks, financing, and control over economic decisions (Friedmann, 1992). This orientation is reinforced by Habib's theoretical review of community empowerment and the creative economy, which emphasizes participation, capacity building, the use of local potential, and value-added creative economic activities as foundations for improving community welfare (Habib, 2021).

In this study, Scott, Korten, and Friedmann are not used as separate theories. Scott explains why farmers behave defensively under risk. Korten and Friedmann explain how that defensive behavior can be transformed into collective capacity and institutional power. Farming-system resilience literature then translates this transformation into measurable outcomes: lower input costs, greater production efficiency, reduced crop failure risk, higher farm-gate prices, increased household income diversification, and greater local value added (Darnhofer, 2014; Meuwissen et al., 2019). This synthesis becomes the analytical basis for the Kampung Tani Tangguh Blitar model.

The novelty of the model lies in its integration of four policy logics that are often treated separately. First, collective input institutions address cost efficiency and debt dependence. Second, farmer water banks connect infrastructure with crop-risk reduction and food security. Third, collective marketing based on price information treats bargaining power as a local economic governance issue. Fourth, household-based downstreaming converts rural empowerment into local value-added creation. Compared with conventional farmer empowerment approaches that prioritize training or input assistance, this model combines cost reduction, risk management, market governance, and value-added creation within one village-based policy framework.

Core Design of the Model

The five pillars of the proposed model are consolidated in Table 5. Each pillar is presented together with the problem addressed, the program form, the responsible actors, and an initial economic indicator so that the framework can be translated into implementable policy actions.

Table 5
Design of the Kampung Tani Tangguh Blitar Model

Pillar	Problem addressed	Program form	Main actors	Initial economic indicator
Collective input institution	High fertilizer, seed, and pesticide prices; dependence on input creditors	Collective input purchasing, need recording, price negotiation, seasonal bridging fund	Farmer groups, gapoktan, BUMDes	Lower input prices; reduced input debt
Healthy soil and integrated pest management field school	Plant disease, tired soil, high pesticide costs	Balanced fertilization, local organic inputs, biological agents, botanical pesticides, seasonal pest records	Extension workers, DKPP, farmer groups	Lower spraying frequency; improved soil condition; reduced crop loss
Farmer water bank and communal water governance	Water shortages and high watering costs	Water source mapping, small reservoirs, shared pumps, water distribution schedule	Village government, farmer groups, BUMDes	More stable water access; lower water costs
Collective marketing and price information	Low prices, collector dominance, limited market information	Collective sales unit, grading and sorting, price group, buyer partnerships, SIP price reference	Farmer groups, BUMDes, large traders, DKPP	Improved farm-gate prices; more non-collector sales
Household-based downstreaming and income diversification	Seasonal and fragile income	Household-scale processing, additional businesses, women and youth participation, local branding	Farmer households, village MSMEs, youth farmers, universities	More income sources; increased local value added

Source: Researcher design based on primary data and theoretical synthesis, 2026.

Table 5 demonstrates that the model does not treat vulnerability as a single technical problem. Instead, it connects cost efficiency, ecological risk management, water governance, market organization, and income diversification with existing village and district institutions and with measurable economic outcomes.

The first pillar is a collective input institution. This pillar addresses the most dominant node in the coding results: high input costs. Collective purchasing of fertilizers, seeds, and pesticides through farmer groups or BUMDes can improve farmers' negotiating position and reduce dependence on collectors or retail input sellers. This is consistent with the argument that farmer economic institutions are formed to manage farming activities collectively and that institutional strengthening helps members become aware of, willing to adopt, and capable of adopting innovations (Haryanto et al., 2022; Khairunnisa et al., 2019).

The second pillar is a healthy soil and integrated pest management field school. It places cultivation improvement as a way to reduce costs while lowering ecological damage. The proposed activities include balanced fertilization, use of local organic fertilizer, reuse of straw and agricultural waste, botanical pesticides, biological control agents, and seasonal pest and disease recording. This pillar is realistic because the Food Security and Agriculture Office of Blitar Regency has implemented extension on the use of rice straw as liquid organic fertilizer, and its infrastructure function includes development, guidance, and value-added improvement of agricultural products (Dinas Ketahanan Pangan dan Pertanian Kabupaten Blitar, 2023; Dinas Ketahanan Pangan dan Pertanian Kabupaten Blitar, n.d.).

The third pillar is farmer water banks and communal water governance. This pillar is designed for villages experiencing water pressure during the dry season. Activities include mapping village water sources, building or optimizing small reservoirs and water tanks, operating shared pumps, creating group-based water distribution schedules, and establishing simple maintenance fees. The water bank is not merely technical infrastructure. It is a social mechanism for reducing water costs, stabilizing production, and lowering crop failure risk.

The fourth pillar is collective marketing and price information. Activities include collective sales units, daily price information through farmer group communication channels, grading and sorting before sale, partnerships with larger traders, local markets, MSMEs, and interregional buyers, and use of the Blitar Regency Food Information System as a price reference for negotiation. This pillar is rational because the system is designed to provide producer and consumer price information that can support local market transparency (Sistem Informasi Pangan Kabupaten Blitar, n.d.). Collective marketing is also supported by studies showing that auction markets and organized trade can improve farmers' bargaining position (Rusdiyana, 2017; Untari, 2024; Fauzi, 2026).

The fifth pillar is household-based downstreaming and income diversification. Activities include household-scale processing of agricultural products, additional businesses based on local commodities, participation of women and young farmers, product branding, and links with village MSMEs. This pillar is important because one root of farmer vulnerability is dependence on a single seasonal income source. Research on livelihood sustainability shows that diversification into services, trade, livestock, or other activities is an important strategy for maintaining household livelihood sustainability (Tenrisau Adam et al., 2023). Household-scale processing can also create value added from primary products, so downstreaming does not always have to be imagined as large-scale industry (Ngamel, 2015).

Policy Adoption by Local Government

To make the Kampung Tani Tangguh Blitar model relevant to economics and policy studies, it must be positioned as an adoptable local government program rather than only as a conceptual community empowerment model. The model can be integrated into several policy channels. At the village level, it can enter the Village Government Work Plan through farmer group strengthening, BUMDes business units, small-scale water infrastructure, and village MSME development. At the district level, it can be included in annual regional work plans through agricultural extension, food security, poverty reduction, local economic development, and infrastructure programs. In relation to the Regional Medium-Term Development Plan (RPJMD), the model can be framed as an operational instrument for strengthening agricultural competitiveness, food security, rural welfare, and community-based economic growth.

The model is also compatible with food security policy because it directly addresses the causes of production instability: water scarcity, plant disease, soil degradation, and input dependency. It is compatible with poverty reduction because it targets net household income, debt dependence, and income diversification. It is compatible with micro and small enterprise policy because downstream processing encourages local value added, women and youth involvement, and village-level product branding. Therefore, the model creates a bridge between agricultural development, rural poverty policy, and local economic development.

Adoption by local government requires a clear institutional arrangement. The district Food Security and Agriculture Office can lead technical assistance, pest management, soil health, and price information integration. Village governments can support water infrastructure, data collection, and village budget allocation. BUMDes can manage collective input procurement, water service units, and marketing units. Farmer groups and gapoktan can organize participation, record needs, monitor pest attacks, and operate collective sales. Universities can support monitoring, evaluation, training modules, and documentation of best practices. This division of roles prevents the model from becoming a one-time project and turns it into a recurring local economic development mechanism.

The feasibility of implementation depends on using existing institutions rather than creating a new bureaucracy. A practical pilot can begin with two villages in each district, selected based on readiness of farmer groups, water vulnerability, and market pressure. Financing can combine village budget allocation, district agricultural programs, BUMDes revolving funds, CSR support, and university community service programs. The first year should focus on low-cost interventions with visible benefits, such as collective input purchasing, pest monitoring, price information sharing, and small-scale processing trials. Larger water infrastructure can be phased in after village vulnerability mapping and cost-benefit assessment. This phased design is consistent with OECD guidance that resilience strategies should have clear objectives, defined responsibilities, risk assessment, and action plans (OECD, 2025a).

Economic Development Pathways and Evaluation Mechanisms

Table 6 translates the five model pillars into a sequence of immediate mechanisms, expected economic effects, and evaluation indicators. This presentation clarifies how each intervention can be monitored as an economic development policy rather than merely as an activity-based empowerment program.

Table 6
Economic Development Pathways of the Kampung Tani Tangguh Blitar Model

Policy intervention	Immediate mechanism	Expected economic effect	Evaluation indicator
Collective input institution	Bulk purchasing and negotiation reduce input unit price	Higher net farm income and lower debt burden	Input cost per season; input debt value
Healthy soil and IPM field school	Balanced input use and early pest control reduce crop loss	Higher production efficiency and more stable yields	Spraying frequency; yield loss; soil organic practice adoption
Farmer water bank	Shared water assets reduce private watering costs	Lower dry-season cost and lower crop failure risk	Water cost per season; number of farmers served
Collective marketing and price information	Farmers negotiate with price reference and larger volume	Higher farm-gate prices and stronger bargaining power	Average selling price; share of collective sales
Household downstreaming	Primary products processed into higher-value goods	More income sources and local value added	Number of processed products; additional household income

Source: Researcher analysis, 2026.

The economic logic of the model can be summarized in five pathways. First, collective input institutions improve farm efficiency by reducing input unit prices and dependence on input credit. Second, healthy soil and integrated pest management improve productivity stability by reducing crop loss and the excessive use of chemical inputs. Third, farmer water banks reduce dry-season costs and lower crop failure risk. Fourth, collective marketing and price information improve bargaining power and farm-gate

prices. Fifth, downstream processing and diversification increase local value added and reduce household dependence on seasonal harvest income.

These pathways clarify the causal relationship between vulnerability, intervention, and resilience. Vulnerability begins when input, water, and disease risks raise costs and reduce net income. Survival strategies appear when households try to absorb these pressures individually through debt, side jobs, reduced consumption, or quick sales. Institutional intervention changes the pathway by shifting the burden from individual coping to collective problem solving. Collective input purchasing reduces costs before planting. Water banks and IPM reduce production risk during cultivation. Collective marketing improves price formation at harvest. Downstreaming creates additional income after harvest. Economic resilience therefore emerges when farmers are no longer limited to absorbing shocks individually but gain institutional capacity to reduce, distribute, and transform risk.

The success of the model should not be measured only by the number of training sessions or the amount of assistance distributed. It should be measured by changes in cost structure, price received by farmers, the share of collective sales, the number of households with additional income sources, the adoption of soil health practices, and the reduction of crop loss. A feasible evaluation design can combine baseline and endline surveys, village administrative records, BUMDes transaction records, farmer group sales records, and qualitative reflection meetings after each planting season. In later stages, comparison with non-pilot villages or quasi-experimental impact evaluation can be used to measure whether the model produces statistically significant changes in income, productivity stability, input debt, and poverty vulnerability. This makes the model more compatible with the evidence needs of economic policy evaluation.

Implementation Stages

The implementation of Kampung Tani Tangguh Blitar can be divided into four stages. The first stage is village vulnerability mapping. This stage identifies the main costs, dominant diseases, water problems, selling patterns, available institutions, and local market actors. The output is a village vulnerability profile that can be used for planning and budgeting.

The second stage is the formation of working units. These consist of an input unit, water unit, pest and disease monitoring unit, marketing unit, and downstream processing unit. The working units should be embedded in existing farmer groups, gapoktan, or BUMDes to avoid creating parallel institutions. At this stage, local government and extension workers prepare technical modules and coordination mechanisms.

The third stage is one-planting-season implementation. Activities include collective input purchasing, field school sessions, pest and disease recording, water distribution, price information sharing, grading and sorting, collective sales, and household product processing trials. The fourth stage is evaluation and redesign. Evaluation should compare costs, yields, prices, participation, sales channels, water access, and additional household income before and after program implementation. This learning cycle is consistent with people-centered development because the community becomes the subject of change rather than a passive recipient of assistance (Korten, 1987; Friedmann, 1992).

Program Success Indicators

The success indicators of this model can be formulated gradually. In the short term, success is indicated by lower input prices paid by farmers, more stable access to water, reduced frequency of chemical input use, and more farmers selling harvests through collective mechanisms. In the medium term, success is indicated by reduced crop failure incidents, better selling prices, lower dependence on collectors, and an increased number of farmer households with more than one income source. In the long term, the main indicators are self-sustaining farmer institutions, increased value added of village agricultural products, and reduced household economic vulnerability to seasons, disease, and price fluctuations.

These indicators are directly connected to economic development. Lower input costs increase net income. Reduced crop failure protects production and food availability. Better selling prices increase farmer welfare and local purchasing power. Diversified income reduces rural poverty risk. Local processing increases value added retained in the village economy. Therefore, the Kampung Tani Tangguh Blitar model is not only a community empowerment concept, but a practical policy design for strengthening agricultural economic resilience in Blitar Regency.

CONCLUSION AND RECOMMENDATION

This study finds that farmers in Blitar Regency face interconnected economic, ecological, market, and institutional vulnerabilities, including unstable income, rising input and water costs, crop and soil risks, and weak bargaining power. In response, farmers rely largely on defensive strategies, such as side jobs, borrowing, family labour, reduced household consumption, and low-risk cropping, which protect subsistence but do not resolve structural constraints. The study therefore proposes Kampung Tani Tangguh Blitar as an integrated local economic development model built on five pillars: collective input institutions, healthy-soil and integrated pest-management field schools, farmer water banks, collective marketing supported by price information, and household-based processing and income diversification. The model links Scott's moral economy, Korten's people-centred development, Friedmann's empowerment perspective, and farming-system resilience by treating farmers' survival practices as evidence for institutional policy design. The Blitar Regency Government should pilot the model in vulnerable villages with active farmer groups, integrate it into village and district plans, and assign clear roles to agricultural agencies, village governments, BUMDes, extension workers, farmer organisations, universities, and market partners. Evaluation should measure reductions in input and water costs and crop losses alongside improvements in farm-gate prices, collective sales, income diversification, local value added, food security, and rural welfare. Because the findings are based on qualitative interviews with 24 farmers and the model has not yet been piloted, longitudinal or quasi-experimental studies should test its economic effects and applicability in other farming contexts.

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