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TIME HAS CHANGED: A PHENOMENOLOGICAL STUDY OF FARMERS' LIVES AMID INDUSTRIAL EXPANSION

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Abstract

The development of the Kendal Industrial Estate (KIK), as part of Indonesia's national industrialization agenda, has resulted in large-scale land conversion in Wonorejo Village, Kendal. This study aims to deeply examine the transformation of fish farmers' lives following the conversion of agrarian space into industrial zones. Employing a qualitative approach through an Interpretative Phenomenological Analysis (IPA) design, this research explores the subjective experiences of five directly affected farmers. Data were collected through in-depth interviews, participatory observation, and documentation. The findings reveal that the relocation of fish ponds triggered income decline, disruption of local agribusiness supply chains, and a crisis in farmers' social identity. Although some successfully transitioned to new occupations, adaptive inequality emerged due to differing levels of social and economic capital. Farmers who failed to adapt experienced structural marginalization and a loss of social status within the village community. These findings reflect a process of agrarian dispossession, where farmers lost access to the means of production without fully integrating into the modern industrial labor system. Moreover, the disappearance of ponds damaged the local food production ecosystem and eroded community-based values such as mutual cooperation. While KIK has delivered macroeconomic benefits, including increased investment and employment opportunities, the development remains poorly integrated with local economic systems in an equitable and sustainable manner. Based on these results, it is recommended that land conversion policies actively involve affected communities, ensure fair compensation, and safeguard the socio-ecological sustainability of rural livelihoods. This study emphasizes the need for development approaches that pursue not only economic growth but also justice and resilience for agrarian societies at the local level.

Keywords: ***Agribusiness, Disruption, Industrialization, KIK, Phenomenology***

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INTRODUCTION

The aquaculture sector in Wonorejo Village, Kendal Regency, has long been the backbone of the community's economy. Aquaculture activities not only support the needs of the aquaculture owners, but also create jobs for local workers, fishery traders, and various other supporting sectors. This is in line with the findingsZaki et al. (2024)which shows that shrimp farming in coastal areas plays a significant role in improving the community's economy by providing permanent and seasonal jobs, as well as contributing to the welfare of the shrimp farm workers' families. In these conditions, shrimp farms act as a local agribusiness base that has a major impact on household economic resilience and village social structure.

However, since the start of the construction of the Kendal Industrial Area (KIK) in 2016, the implementation of which is based on Kendal Regency Regional Regulation Number 20 of 2011 concerning the Regional Spatial Planning Plan (RTRW) for 2011–2031, the relocation activity of pond land on the east coast of Kendal has begun to support the development of industrial areas as stated in Article 3 paragraph (2) letter a and the strategy in Article 4 paragraph (1), the social and economic landscape of Wonorejo Village has undergone drastic changes. This large-scale industrialization project has caused massive land conversion, including the conversion of pond land into industrial areas. These changes have a direct impact on the livelihoods of pond farmers, changing production orientation, work patterns, and even the long-established social order. Similar conditions were also found in the case of pond relocation in Gresik Regency, where most of the pond farmers experienced a change in profession and increased income after relocation, although social adaptation is a challenge in itselfZaki et al. (2024). In Makassar, the development of the Center Point of Indonesia (CPI) has also shifted the livelihoods of shrimp farmers and fishermen due to changes in the coastal ecosystem, with uneven impacts on local communities.Alfan et al. (2021). Meanwhile, in Jakarta Bay, the construction of coastal embankments has resulted in the loss of housing and economic access for traditional fishermen, as well as causing significant socio-economic pressures.The Greatest Showman (2019). This comparison shows that each relocation has different characteristics

and impacts, and in the context of Kendal, the relocation carried out within the RTRW framework shows unique socio-economic dynamics that are important to study further. Losing a pond does not only mean losing economic assets, but also losing production space, family heritage, and the social identity attached to the profession of pond farmer. These changes encourage rural communities to undertake various forms of adaptation. Some move to non-agrarian sectors such as jobs in village government or other informal sectors. Others try to continue farming in other areas or switch to new types of agribusiness. However, many are marginalized and unable to adapt economically. Then various forms of socio-economic transformation emerge that reflect the consequences of agrarian transition and the direct impact of industrialization on agrarian communities.

This study aims to examine the impact of KIK development on changes in the lives of shrimp farmers in Wonorejo Village, especially in social and economic aspects. A qualitative approach is used to explore in depth the life experiences of affected farmers, as well as to understand the dynamics of changes in profession, income, social relations, and sustainability of local agribusiness. This study is important considering the increasingly widespread conversion of agricultural land in Indonesia and the need for a village development strategy that not only pursues economic growth, but also maintains the socio-ecological sustainability of agrarian communities.

By presenting the results of this study, it is hoped that new understandings will emerge about how industrialization affects local agribusiness systems and how communities respond to these structural transformations. This study is also expected to be a basis for policy makers in designing more inclusive and equitable development interventions for rural communities affected by industrial projects.

RESEARCH METHODS

This study uses a qualitative approach with an Interpretative Phenomenological Analysis (IPA) design. This approach was chosen because it aims to understand the subjective experiences and meanings given by individuals to the social phenomena they experience directly.(Kahija, 2017). The research location is in Wonorejo Village, Kaliwungu District, Kendal Regency, Central Java. This location was chosen purposively because it is an area directly affected by the development of the Kendal Industrial Area (KIK), with a large-scale conversion of pond land. The research subjects consisted of five pond farmers who experienced changes in their lives after the development of KIK, and were selected using purposive sampling techniques based on variations in responses and their socio-economic backgrounds.

Data collection was conducted through in-depth interviews, participant observation, and documentation. Interviews were conducted in a semi-structured manner to allow flexibility in exploring experiences and meanings that emerged from participant narratives. Observations focused on village environmental conditions, social interactions, and economic activities that took place around the research location. Documentation included field notes, photographs, and supporting documents from the village government and news related to KIK. The research location is in Wonorejo Village, Kaliwungu District, Kendal Regency. The reason for choosing this location is because Wonorejo Village is the village with the largest area taken by KIK compared to other villages, as much as 90% of the KIK area is in Wonorejo Village. This research was conducted in September - November 2024.

Analysis Method

Data analysis was conducted using a thematic approach typical of science. According toThe Last Supper (2017)AndFarid et al. (2018)emphasizes in-depth interpretation of participants' life experiences, making it very suitable for studying the impact of complex agrarian transformation due to industrial area development. The stages of analysis include interview transcription, repeated reading, coding of important meanings, identification of emergent themes, to the compilation of superordinate themes that represent collective meanings. Data validity is maintained through triangulation of sources and methods, discussions with key informants, and cross-checking between interview results. The results of the analysis are presented in the form of descriptive and reflective narratives that describe the socio-economic changes of farmers in depth.

Data analysis in this study used the Interpretative Phenomenological Analysis (IPA) approach which emphasizes a deep understanding of the participants' life experiences. The analysis process was carried out in stages and systematically to explore the hidden meaning behind the participants' narratives. The first stage began with an appreciation of the interview transcript, where the researcher read repeatedly to understand the context and nuances of the experiences conveyed. Next, an initial exploration stage was carried out which recorded responses, impressions, and important findings freely and reflectively.

From this process emerge emergent themes that describe the important meanings of individual experiences.These themes are then organized into superordinate themes, which are large themes that encompass several smaller, interrelated themes. The analysis continues with a comparison of patterns between cases, especially if there is more than one participant, to see similarities and differences in experience. The final stage is the

arrangement of themes, which is organizing all findings into a descriptive and reflective thematic narrative. Through this flow, IPA helps researchers to not only understand participants' experiences descriptively, but also interpret how meaning is formed in the context of their lives, so that the results of the analysis become more in-depth and meaningful.

RESULTS AND DISCUSSION

Declining Income and Economic Fragility

Before the presence of the Kendal Industrial Area (KIK), ponds were the backbone of the economy of the Wonorejo Village community. From the results of pond cultivation, farmers were able to meet basic household needs, finance their children's education to a higher level, and save for long-term needs. This is in accordance with the opinionThe Last Supper (2022)which states that independent pond cultivation has been proven to play a significant role in increasing the income of coastal communities and becoming a sustainable alternative source of livelihood. Participants in this study stated that pond results provide economic stability and a sense of pride because they are obtained from independent work without relying on fixed wages. One participant even mentioned that pond results during their productive period were able to finance education costs in big cities and buy private vehicles. “Since I was little, I have helped my parents work in the fish ponds. Well, when I was in college, because my budget was low, I rented a fish pond in Wonorejo Village and the proceeds were not enough to increase my college pocket money. Imagine, I paid my college tuition fees using old people’s money, I used my own pocket money and then drove a car just for the fish pond business. Even though it was rented land.”

However, after the construction of KIK and the conversion of land, the income conditions of farmers changed drastically. The pond owners lost their main source of income. Some did receive compensation from land acquisition, but the money could not immediately replace the productive value of the lost ponds. The cash received often ran out quickly because it was not accompanied by financial strategy assistance or strengthening of new economic capacity. This condition illustrates a concrete form of accumulation by dispossession as put forward by David Harvey and expanded byBernstein (2010). When land is taken over for the benefit of industrial capital, farmers lose control of their means of production and are shifted from agribusiness producers to economically vulnerable individuals. This process weakens the local production base and increases dependence on external sources of income.

On the sideOn the other hand, farmers who still have ponds outside the KIK area are also not free from economic pressures. The declining water quality due to rob intrusion, increasing feed prices, and weather uncertainty make the harvest unstable. When productivity declines, production costs remain high, causing profit margins to narrow. This is exacerbated by the weak support of local agribusiness institutions, such as cooperatives or access to microfinance that should be able to help farmers face business risks. Sudaryanto et al. (2018)emphasizes that the resilience of people's agribusiness is largely determined by the availability of an economic institutional network that is able to absorb risks and support sustainable production. Unfortunately, in Wonorejo Village, land acquisition occurred without a post-conversion economic sustainability design. There was no integration between industrial projects and previously existing local production systems, so farmers were in a situation calledBernstein (2010)as "lost from the system of production but not yet fully absorbed into the new capitalist system."

The impact of this decline in income is also psychosocial. Farmers who previously felt proud as shrimp farmers are now experiencing a loss of self-esteem. They have not only lost their income, but also their social identity as productive individuals in their community. This shows that the economic crisis due to the loss of shrimp ponds is not only material, but also touches on the existential aspects of farmers' lives. “The results of the pond are extraordinary, but for now I don’t want to be a pond farmer. I really wanted to before, but now I don’t want to. What’s the point of being a farmer if you end up losing money? It’s better to be a village official sitting in an office and be able to take on other side jobs. The results are sufficient and there’s no shortage.”

“This pond is more than just a source of livelihood for me. Because it has been my life since I was a child until I was an adult. It certainly has many stories that have made me who I am. But if it turns out that it can no longer be continued, what else can I do? Later, I will actually suffer a great loss.” The participant's statement reflects a shift in meaning towards the profession of shrimp farmer. In the past, shrimp farming was seen as a profitable and worthy job, but in the current conditions, the profession is actually interpreted as a source of loss and economic uncertainty. The sentence "The shrimp pond produces extraordinary results, but for now I don't want to be a shrimp farmer" shows a sharp difference in views between past experiences and current reality.

Switching Careers and Adaptation Inequality

After losing their fish ponds due to the development of the Kendal Industrial Area (KIK), farmers in Wonorejo Village face a difficult choice: survive without production tools or switch to other professions.others that do not necessarily match their capacity and experience. Changes in the village economic structure from agrarian to industrial force residents to adapt, but the reality shows that this process of changing professions does not run evenly and fairly among community groups. Similar things can also be seen in the international scope, where farmers affected by land conversion have difficulty adjusting economically and socially.(Phuc, 2023).

Some participants in this study were able to adapt relatively successfully. For example, Participant A became a village official, while Participants B, D, and F used land acquisition compensation to switch to the property sector and manage fish ponds outside the affected area. Their ability to switch professions was supported by initial capital, access to information, and adequate social relations. This emphasizes the importance of social and economic capital in shaping a person's adaptive ability to structural change.

"After the pond started to get bad, factories started to appear, I left the pond a long time ago, bro. I met my uncle in Jakarta, working there. So when I worked there, the story is that I was in a strange place, in the end I went back to the village. Neng Wonorejo meneh and I started to become a village official. That's the story." -Participant A “I built a boarding house in 2014, when KIK started buying land in this village. Well, at that time I understood the people who felt it. 'Why build a boarding house here, will anyone want to board here?' I already felt it. Maybe they thought I was crazy building a boarding house in the middle of a village like this. Well, in 2016, desss, KIK started officially. And now many people are joining in building boarding houses. So I'm not really worried if the land disappears." -Participant B

“After KIK bought all the land, I immediately bought another land out there. But the results were not as good as here. I lost a lot. Here I tried to make a boarding house like Mr. A. I was tired of the fishponds, and I kept losing money. Just a boarding house or rented house.” -Participant D "I bought land to plant rice, the results are quite good. I also made a pond in the neighboring sub-district but the results are not as good as here. I bought a house and boarding house also for monthly income" -Participant F

In contrast, Participant C experienced adaptation failure. Lacking replacement land, formal work skills, or sufficient social support, he experienced prolonged unemployment. This phenomenon shows what is called(Bernstein, 2010)as the “liminal proletariat”, namely individuals who have lost access to the means of production but have not managed to enter the modern wage labor system. “After the land was taken by KIK, I didn’t work anymore. The children have also left. I’m tired, so I just stay at home. I’m confused about other jobs, I’ve only been able to work in fish ponds so far. I can’t get into factories either, they don’t want to accept someone like me” -Participant C

A similar situation was also revealed byMohammadi et al. (2021)that land loss often not only impacts income, but also destroys the social identity of farmers as agribusiness producers. This situation shows that the process of depeasantization is not automatically followed by proletarianization. Not all farmers who lose land succeed in migrating to the formal work sector. Many are absorbed into the informal sector or become disguised unemployed due to limited skills, age, or access to job information.Fitawok et al. (2022)also emphasized that aggressive urbanization often increases the risk of socio-economic vulnerability of small farmers.

This transformation creates new social inequalities in society. Those who successfully change professions and have new businesses begin to occupy higher social positions, while those who fail to adapt experience social status degradation and economic dependence. Without adequate mentoring or training schemes, the land conversion process tends to widen social gaps and create new classes in rural areas.(Phuc, 2023)

This change also changes the structure of social legitimacy in the village. If previously social position was determined by ownership of ponds and agribusiness productivity, now status is starting to shift towards affiliation with government institutions or industry. Those who work in the formal sector or become industry partners are considered “more successful”, while those who remain in the traditional agrarian sector are often seen as unable to keep up with the times.Mohammadi et al. (2021)states that changes like this show how post-industrial economic transformation also has an impact on the value system and power relations at the community level.

Disruption of Production and Local Agribusiness Supply Chains

Before the development of the Kendal Industrial Area (KIK), ponds were the main production center in Wonorejo Village. The pond agribusiness system runs in a relatively stable cycle starting from the cultivation process, harvest, local distribution, to community consumption. Ponds are not only a source of income for farmers, but also provide affordable protein for villagers. The harvest is usually directly marketed to the local market or consumed by the farmer's family itself. Thus, the ecosystem of food production and distribution in this village is

Picture1. Comparison of Wonorejo Village Map Conditions in 2010 (Left) and 2025 (Right)

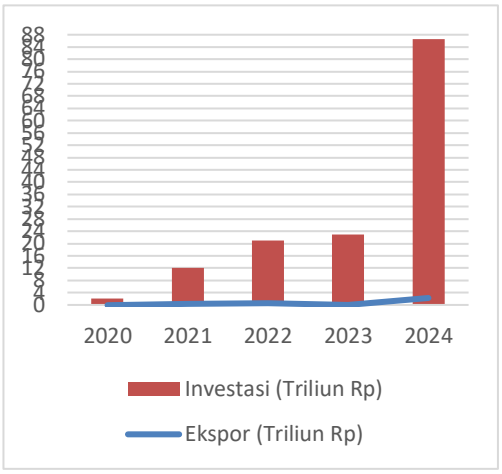
local, sustainable, and community-based. However, after the construction of KIK and large-scale land conversion, the structure of pond production experienced significant contraction. The area of productive land decreased drastically, water quality was disturbed, and interest in continuing cultivation weakened. One participant said that after KIK was present, water quality worsened and many farmers stopped their efforts. The direct impact was a decrease in the volume and diversity of local fish production.

Source: Primary Research Data. Google Earth, satellite imagery © 2025 Maxar Technologies, processed using Arcgis

This condition causes disruption in the local food supply chain. The local fish market that used to be supported by residents' ponds is starting to lose its stable supply. Villagers have difficulty getting fresh fish at affordable prices because they have to rely on supplies from outside the village. In fact, the remaining commodities are mostly marketed outside the village for higher economic value. This phenomenon is similar to research conducted byCherevko (2023)which occurred in Ukraine during the conflict, where the disruption of agribusiness infrastructure resulted in the loss of local production orientation and food distribution, as well as increasing the economic and social vulnerability of rural communities.

In addition to the economic aspect, this disruption also destroys social ties. In the past, harvesting activities were carried out through mutual cooperation involving neighbors and relatives, but now this has faded along with the increasingly individualistic market orientation. Thus, the loss of ponds is not only about the loss of land or income, but also about the destruction of local production systems embedded in social structures, consumption cultures, and community economic patterns. This disruption shows how industrial development that is not integrated with the existing agribusiness system actually creates a food security crisis and socio-economic fragmentation at the local level.

Although the Kendal Industrial Area (KIK) policy seems to sacrifice the interests of villages and shrimp farmers, this policy still has a significant positive impact on the Republic of Indonesia, especially in terms of increasing investment, exports, and employment absorption.The positive impact can be seen in the following image:



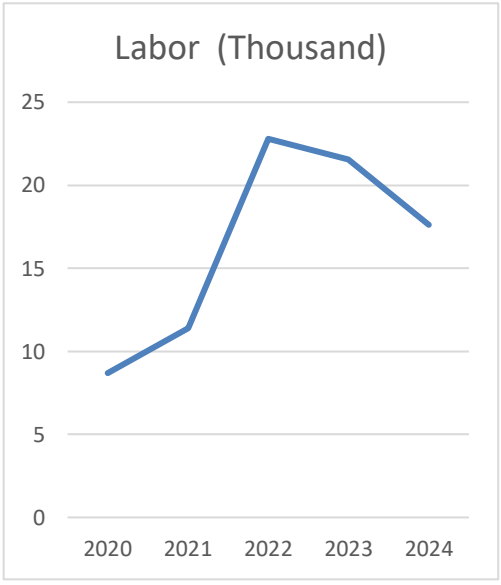
Source: Researcher's Primary Analysis, processed from the Annual Report of the Special Economic Zone KIK(National Council for Special Economic Zones, 2020, 2021, 2022, 2023, 2024)

Picture 2. Development of Investment and Export of Kendal Industrial Area

Figure 3 shows the development of the Kendal Special Economic Zone (KEK) during the period 2020 to 2024 in two indicators: investment value and export value. This graph shows that the investment value has increased significantly, from IDR 2 trillion in 2020 to IDR 86.57 trillion in 2024. This spike marks the entry of the Kendal SEZ as one of the national strategic industrial areas, especially in the automation-based manufacturing sector and industry 4.0.

In terms of exports, Kendal SEZ began to show a real contribution in 2022 with a value of IDR 500 billion, and jumped to IDR 2.27 trillion in 2024. This growth indicates the success of the region in encouraging downstreaming and creating added value from the local industrial sector. Overall, this graph represents the ongoing economic transformation in the Kendal region, from an agrarian structure to a modern industrial base integrated into the national SEZ policy. Meanwhile, the absorption of labor can be seen in the following figure:

Source: Researcher's Primary Analysis, processed from the Annual Report of the Special Economic Zone KIK(National Council for Special Economic Zones, 2020, 2021, 2022, 2023, 2024)



Picture3. Absorption of Labor by Kendal Special Economic Zone

Based on Figure 4, the number of workers experienced rapid growth from 2020 to 2022, but decreased slightly in 2023 and 2024. Despite the decline, Kendal Special Economic Zone remains the area with the highest national labor absorption. This phenomenon reflects a shift in production orientation from labor-intensive sectors to capital-intensive and technology sectors, along with the entry of the battery, automotive, and electronics industries. The decline does not reflect a decline, but rather an adjustment to the need for a more specialized workforce.

Based on this, it proves the statement from participant D "If seen in general, perhaps the presence of KIK is good for society." This is reinforced byWardhana et al. (2025)which shows that the Kendal Special Economic Zone has created a significant increase in employment opportunities and community income through strengthening the manufacturing sector and the economic growth of the industrial-based region. However, according toAggarwal (2024)which emphasizes that SEZ can create productive structural changes if developed with policy designs that are in line with the local social and economic context. So it can be explained that KIK can be beneficial for all parties if designed with the right policies.

Industrial Land Efficiency and Compensation Value Inequality

The development of the Kendal Industrial Area (KIK) is a major project that is claimed to be able to drive regional economic growth and create new jobs. However, from the perspective of the Wonorejo Village community whose land was converted from productive ponds to an industrial area, the effectiveness of this space conversion raises fundamental questions, both in terms of usefulness and justice. "If you look at it in general, maybe the presence of KIK is good for the community. But for us as shrimp farmers, how is it? It feels like we are the ones who are being harmed... as if they are 'poisoning' us" Pond farming not only serves as a source of income for farmers, but also as part of the local food production ecosystem and a symbol of community economic independence. After the land was taken over by industry, not all areas showed optimal utilization. Some land areas remained empty or had not been developed productively for quite a long time. This raises doubts about the actual efficiency of post-conversion land use. In addition, there is an imbalance in the exchange value of land. Farmers receive compensation in the form of cash that is relatively quickly used up without further economic assistance, while the economic value of land increases drastically after becoming part of an industrial area. This phenomenon reflects what is called byBernstein (2010)as a process of accumulation by dispossession in which capital accumulates resources by taking over land from farmers, cutting off access to the means of production, and transferring added value to outside parties who are more economically and politically dominant.

This kind of land conversion policy can also be assessed through the framework of utilitarianism theory. According toBudiono (2019)If a public policy only benefits a small group of industrial elites, but harms the local community at large in economic, ecological, and social aspects, then the policy is contrary to the utilitarian principle of “the greatest good for the greatest number”. In this perspective, the macro benefits of the presence of KIK must still be weighed against the structural losses experienced by rural communities, both in the short and long term.

The lack of citizen participation in spatial planning and the weak integration of local agribusiness systems in industrial area design indicate that development is carried out exclusively. This inequality has the potential to widen the social gap and give rise to conflicts over ownership and legitimacy of space. Spatial efficiency cannot only be assessed from planning claims on paper, but must be assessed from how much actual benefit can be felt by the affected community. Therefore, reflection on efficiency and fairness in the conversion of pond land into industrial areas emphasizes the importance of spatial planning that is not only oriented towards growth, but also pays attention to the even distribution of benefits and the participation of local communities in decision-making.

Comparison of Results with Previous Research

In this study, it was found that changes in land use in Wonorejo Village, which was originally used for agriculture and fish ponds, to become an industrial area (KIK) had a significant impact on the social and economic lives of farmers. Farmers who lost their land experienced a decrease in income, and many were forced to switch to non-agrarian sectors to earn a living. This finding is in line with researchFitawok et al. (2022), which shows that farmers affected by land expropriation processes in Bahir Dar, Ethiopia, also shifted to other sources of income after losing their farmland. Farmers in both studies experienced increased expenditure on staple foods, although there were differences in the policy context that influenced their ability to adapt. In addition, the studyCui et al. (2025)in China shows that changes in land transfer decisions also encourage farmers to seek off-farm employment. However, there is a significant difference in terms of policy support in China, which provides more incentives for farmers to shift to the non-agricultural sector, while in Wonorejo Village, many farmers have difficulty adapting to these changes due to the lack of policies that support this transition.

Social changes are also evident in the identities of farmers who lost their land. In this study, farmers expressed feelings of social and economic marginalization,and their identity changes from farmers to workers in the informal sector or factory workers. This was also found in the studyPhuc (2023)on farmers' reactions to compulsory land acquisition for urbanization in Vietnam. In Vietnam, farmers who lost their land also felt unfair towards the compensation process carried out by the government, and although there were complaints, their resistance was more in the form of unorganized dissatisfaction or everyday resistance. Despite complaints, they were unable to influence significant policy changes. Similarly, in the studyFitawok et al. (2022)Despite changes in the social identity of farmers due to land loss, some farmers were able to adapt to the new conditions. However, it is important to note that they found it difficult to earn income comparable to their previous income as farmers.

Compensation policy is also an important issue raised in this study. Farmers in Wonorejo Village feel that the compensation they receive is not in accordance with the productive value of the lost land, which worsens existing social and economic inequality. This finding is similar to that found inMohammadi et al. (2021)which also revealed that compensation policies in cases of land use change in Iran are inadequate and cause land tenure problems and social conflicts among farmers. Meanwhile, although in China, according toCui et al. (2025), there are policies that are more supportive of farmers' transition to the non-agrarian sector, these policies still contain challenges that affect farmers' ability to adapt to these changes.

In terms of social and economic adaptation, this study shows that some farmers have successfully adapted by switching to non-agrarian sectors such as the informal sector or small businesses. This was also found inCui et al. (2025)who identified that farmers in China who lost their land generally shifted to non-farm work after losing access to land. However, this transition process was not always smooth, and many farmers were trapped in economic uncertainty.Fitawok et al. (2022)also showed that although some farmers in Bahir Dar managed to adapt, they still faced difficulties in increasing their incomes after losing their land. Meanwhile,Mohammadi et al. (2021)in Iran shows that social and economic transitions are more difficult for farmers who lose land due to their inability to access the resources they previously managed, as well as policies that do not support the sustainability of their livelihoods. While there are similarities in the social and economic impacts of land-use change across countries, the biggest differences lie in the policies implemented and the social support provided to facilitate farmers' livelihood transitions. This study highlights the importance of fair compensation policies and policies that support the transition from agriculture to non-agriculture for farmers affected by land-use change.

CONCLUSION

This study shows that the development of the Kendal Industrial Area (KIK) has had a complex socio-economic impact on the lives of shrimp farmers in Wonorejo Village. Using the Interpretative Phenomenological Analysis (IPA) approach, it was found that the conversion of shrimp pond land into an industrial area caused the loss of the main source of livelihood, disruption to the local agribusiness system, and changes in the social identity of the community. Some farmers were able to adapt by changing professions, but many also experienced economic marginalization due to not being absorbed into the new economic structure. This inequality in adaptation shows the weakness of structural protection for vulnerable groups in the development process.

Based on these findings, it is recommended that industrial area development policies be accompanied by fair compensation mechanisms, assistance for local needs-based economic transitions, and active community involvement in spatial planning. In addition, it is important to ensure integration between local agribusiness systems and industrial design so that development does not sacrifice the socio-ecological sustainability of rural communities. Responsive policies toLocal context is key to realizing inclusive and equitable development.

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