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Waste Pollution from the Jeans Factory in Karangdowo Village, Pekalongan Regency, in 1997

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Abstrak

Artikel ini mengkaji konflik pencemaran lingkungan akibat aktivitas pabrik pencucian jins di Desa Karangdowo, Kecamatan Kedungwuni, Kabupaten Pekalongan pada tahun 1997. Isu pokok penelitian meliputi perubahan kualitas lingkungan akibat limbah industri, respons sosial warga terhadap pencemaran sumur dan sawah, serta dinamika hubungan antara masyarakat, pengusaha, dan pemerintah dalam penyelesaian konflik. Penelitian ini bertujuan untuk menganalisis dampak industrialisasi skala kecil terhadap lingkungan permukiman desa, bentuk perlawanan warga, serta mekanisme penyelesaian sengketa yang ditempuh. Metode yang digunakan adalah metode sejarah dengan tahapan heuristik, verifikasi, interpretasi, dan historiografi, melalui pemanfaatan sumber primer berupa surat kabar sezaman dan dokumen arsip, serta sumber sekunder berupa buku dan artikel ilmiah. Hasil penelitian menunjukkan bahwa pembuangan limbah tanpa pengolahan memadai menyebabkan penurunan kualitas air sumur dan memicu ketegangan sosial. Upaya musyawarah tidak menghasilkan kesepakatan, sehingga warga menempuh jalur hukum perdata dan pidana. Kasus ini memperlihatkan lemahnya pengawasan lingkungan dan posisi tawar masyarakat dalam menghadapi industri lokal.

Kata kunci: pabrik, jeans, pencemaran.

Abstract

This article examines the environmental pollution conflict caused by the activities of a jeans washing factory in Karangdowo Village, Kedungwuni District, Pekalongan Regency in 1997. The main issues of the study include changes in environmental quality due to industrial waste, the social response of residents to the pollution of wells and rice fields, and the dynamics of the relationship between the community, entrepreneurs, and the government in resolving the conflict. This study aims to analyze the impact of small-scale industrialization on the village settlement environment, the forms of community resistance, and the dispute resolution mechanisms pursued. The method used is the historical method with heuristic, verification, interpretation, and historiography stages, through the use of primary sources in the form of contemporary newspapers and archival documents, as well as secondary sources in the form of books and scientific articles. The results of the study show that the disposal of waste without adequate treatment has caused a decline in well water quality and triggered social tensions. Deliberation efforts did not result in an agreement, so residents took civil and criminal legal action. This case shows the weakness of environmental supervision and the bargaining position of the community in dealing with local industry.

***Keywords**: factories, jeans, pollution.*

INTRODUCTION

The development of industrialization in Indonesia has been one of the main pillars of national economic growth. During the Soeharto administration, development policies were oriented toward industrialization and the expansion of the manufacturing sector to increase foreign exchange earnings and expand employment opportunities. One sector

that experienced rapid growth was the textile and textile products (TPT) industry. TPT is a high-tech, capital-intensive, and labor-intensive industrial sector (Asmara et al., 2013). One such industry is the denim or jeans processing industry. This industry has expanded not only in major cities but has also spread to districts with access to cheap labor and abundant water sources.

In various regions across Java, the growth of the textile industry has not only driven local economic growth but has also brought about significant social and environmental consequences. The jeans industry, for example, is known for production stages that heavily rely on chemicals during dyeing, washing, and bleaching processes. These processes generate wastewater containing synthetic dyes, industrial detergents, and other chemical compounds that have the potential to pollute aquatic environments if not properly treated. Several studies indicate that liquid waste from textile production processes contains residues of dyes and chemicals that are difficult to break down, posing a risk of degrading water quality if not subjected to adequate treatment (Nurdian & Surtikanti, 2023). In practice, water sources near industrial zones often serve as the final disposal points for such waste. This situation directly impacts communities that rely on this water for daily needs and agricultural activities, meaning the pollution issue has not only ecological but also social dimensions.

The problem of textile industrial waste pollution becomes more complex when it occurs in densely populated areas. In several regions of Central Java, including Kedungwuni in Pekalongan Regency, the growth of jeans factories in the 1990s brought about changes in the social life of the community. While the presence of industry does expand employment opportunities, on the other hand, residents have raised complaints regarding changes in water quality linked to industrial waste. This situation demonstrates that industrial growth not only brings economic benefits but also gives rise to environmental and social issues that require more systematic management.

The conflict between residents living near the jeans factory in Kedungwuni and the factory owners in 1997 serves as a prime example of social tension arising from environmental pollution. For rural communities, wells and rice fields are fundamentally vital living spaces. Wells serve as a source of clean water to meet daily needs, while rice fields are the primary land for food production and a source of livelihood for residents. However, in this case, the wells and rice fields were reportedly contaminated by industrial waste, rendering them unusable for their intended purposes. This situation not only

disrupted environmental functions but also undermined the community's livelihood and sparked social unrest. Consequently, residents protested, demanding that the factory owners improve environmental conditions and suspend operations until the waste issue was resolved.

Generally speaking, regulations regarding environmental management in Indonesia were actually first introduced through the 1982 Framework Law on Environmental Management. However, in practice, implementation and oversight at the local level often face various obstacles, ranging from institutional capacity constraints to power dynamics between capital owners and local government officials. Under such conditions, communities often find themselves in a position of weakness when facing industrial actors (Ardiansyah et al., 2024).

Although research on textile industrial waste pollution has been extensive, most studies still focus on technical aspects, such as the chemical composition of the waste, the effectiveness of wastewater treatment plants (WWTPs), and their impacts on health and environmental quality. These studies tend to frame pollution as merely an ecological and technological issue. Meanwhile, research addressing industrial waste pollution as part of a historical process involving social conflict, power relations, and local community responses remains relatively limited, particularly within the context of the denim industry in the Kedungwuni area of Pekalongan Regency.

The novelty of this study lies in its effort to examine the 1997 case of pollution from a jeans factory not only as an incident of environmental damage, but also as a socio-historical conflict that reveals the relationship between industrialization, rural communities, and environmental policies during the New Order era. This study not only discusses the impact of pollution on residents' wells and rice fields but also examines how the community organized forms of resistance, the role of local government in conflict resolution, and how power dynamics between capital owners and residents influenced the process. By employing an environmental history and political ecology approach, this study aims to offer a distinct perspective from previous research, which has generally been more technically and scientifically oriented.

Additionally, this study contributes to local historical research on textile industrialization in Pekalongan. Until now, the development of the textile industry in Pekalongan has been more frequently understood from the perspective of economic growth and the development of batik, while the ecological impacts and social conflicts resulting from the denim industry have rarely been studied in depth. Therefore, this research is

expected to expand the study of environmental history in Indonesia, particularly regarding the dynamics of industrialization and ecological issues at the local level.

METHODS

Historical research is a systematic process involving the critical examination and analysis of various records and artifacts from the past (Gottschalk, 1969). Historical research methods consist of (a) heuristics, or the process of collecting relevant sources for the study; (b) verification, or the critical evaluation of sources regarding their authenticity, accuracy, credibility, and relevance; (c) interpretation, the process of interpreting and understanding past events based on the analysis of data and historical sources; and (d) historiography, the systematic and chronological writing and compilation of history.

The sources used in this research include primary and secondary sources. The primary sources used in this study consist of contemporary newspapers obtained from the Central Java Provincial Archives and Library Service and the National Press Monument Collection Database Information System. The secondary sources used in this study consist of books, journal articles, and other library sources available on the internet.

RESULTS AND DISCUSSION

A. The Karangdowo Jeans Washing Factory Industry

Pekalongan is known as one of the key industrial regions in Central Java Province. The region's economic structure has long been supported by the manufacturing sector, particularly the textile industry and its derivative products. Industrial activities in Pekalongan operate on various scales, ranging from home-based industries, small and medium-sized enterprises (SMEs), to large-scale industries spread across both the city and the regency. In addition to textile industries such as batik, weaving, garment manufacturing, and fabric or ready-to-wear garment washing, other supporting industries have also developed, such as the trade of textile raw materials, printing, handicrafts, and processed food industries. The characteristics of Pekalongan's industry, which is based on home-based operations and village clusters, result in industrial activities not being concentrated in formal industrial zones but rather integrated with residential areas.

In the 1990s, Pekalongan Regency demonstrated growth in the textile industry, notably in Kedungwuni Subdistrict. This area is known as a hub for small- and medium-scale textile industries that employ a large number of local workers . Data from 1997 indicates that in Kedungwuni Subdistrict, there

were approximately 32 textile industry units employing a total of 1,778 workers (*Pekalongan Regency in Figures 1997*, 1998). These textile industries are divided into several types of business units, including ready-to-wear garment manufacturing, sewing and embroidery, fabric dyeing and finishing, weaving and batik, as well as textile washing and final finishing processes such as jeans washing.

One of the subsectors within the Kedungwuni textile industry is *the jeans washing* business, which serves as the final stage of ready-to-wear garment production. This process aims to impart specific color effects, textures, and appearances to denim fabric before it is marketed. In 1997, there were approximately 11 jeans washing businesses in Kedungwuni Subdistrict, employing around 142 workers. The presence of jeans washing businesses indicates the development of production specialization within the Pekalongan textile industry cluster, where each village or area has a specific production function within the industrial chain. However, jeans washing businesses generally generate colored liquid waste containing chemicals from the processes of washing, bleaching, and re-dyeing the fabric, thus requiring adequate waste management.

In the context of this industrial development, a social conflict arose in 1997 in Karangdowo Village, Kedungwuni Subdistrict, between local residents and the owner of a jeans washing factory. This conflict was directly related to the presence of a denim washing facility operating in the middle of the village settlement. The denim washing factory in Karangdowo Village is known to have been in operation since 1993 and is part of the local textile industry network in Kedungwuni. Initially, the factory's presence in the residential area did not face significant opposition, as home-based industries were a common phenomenon in the region. However, as time went on and production capacity increased, environmental impacts began to be felt by residents, particularly regarding the discharge of liquid waste into the surrounding environment (Berita Yudha, 1993).

Social conflict between residents and the owners of the jeans factory in Karangdowo cannot be separated from the characteristic distribution of Kedungwuni's industry, which is integrated with the community's living spaces. Small-scale textile industries in this area are generally located in residential yards or village land without any separation between industrial and residential zones. This situation means that production activities have the potential to directly affect the quality of the living environment, especially if waste management is inadequate. Thus, the Karangdowo conflict reflects the social consequences of rapid small-scale

industrialization in rural areas during the 1990s in Pekalongan Regency.

The jeans-washing factory in Karangdowo Village had been operating for about four years before the conflict erupted in 1997. During that period, production activities continued, generating liquid waste that was discharged into open fields surrounding the factory. In the early stages, the environmental impacts may not have been tangibly felt by residents. However, after several years of operation, residents began to experience a decline in well water quality, the emergence of unpleasant odors, and noise disturbances from machinery. It was these changes in environmental conditions that subsequently triggered social tensions between the community and the business owner.

B. Response Local Resident

The environmental conflict between residents of Karangdowo Village, Kedungwuni Subdistrict, Pekalongan Regency, and the jeans-washing company PD Putra Kemoren Jaya is an example of a local environmental dispute arising from direct interaction between small-scale industrial activities and residential areas. This case illustrates how household-scale economic activities or small-scale industries lacking adequate waste management can escalate into social and legal conflicts. Based on documented reports, the conflict intensified throughout the latter part of 1997, involving affected residents, business owners, local government officials, law enforcement, and legal aid organizations.

The primary trigger of the conflict was alleged environmental pollution resulting from the discharge of denim washing wastewater from the PD Putra Kemoren Jaya factory into the surroundings of the residential area. Residents of Karangdowo, particularly in RW 5, experienced a direct deterioration in environmental quality, especially in their well water—which had long been their primary household water source. Well water that was previously safe for consumption turned discolored, murky, and foul-smelling, rendering it unfit for drinking. This situation created difficulties in accessing clean water, as residents had to seek water sources from other areas.

In addition to groundwater contamination, residents also complained of air pollution in the form of a pungent odor from the waste, as well as noise from the jeans-washing machines operating until the early hours of the morning. These disturbances indicate that the impacts of industrial activities are not only ecological but also social, as they affect the comfort and health of the residential environment. Residents believe that the factory's operations proceed without regard for the village's environmental carrying capacity,

particularly since wastewater is discharged directly into open rice fields without a Wastewater Treatment Plant (WWTP).

Residents' concerns about pollution were further reinforced after testing was conducted on six well water samples located near the factory site. These samples were taken from wells owned by several residents whose homes are situated close to the factory. Laboratory analysis results from the Jakarta Water Supply Company (PDAM) indicated that the well water did not meet the standards for clean water because the levels of certain substances exceeded the permissible limits, such as iron, manganese, and organic compounds (Suara Merdeka, 1997). This finding served as evidence supporting the residents' claim that the deterioration in water quality was linked to the discharge of industrial wastewater from the jeans-washing factory.

The Karangdowo conflict involves a number of actors with differing positions and interests. The first key actor is the residents of Karangdowo Village, who feel they have been wronged. The affected residents primarily come from RW 5, an area adjacent to the factory site. They are represented by several leaders, including Urip Saryono, Hadi Sunarso, Kusman, and Bambang Siswanto (Suara Merdeka, 1997). These resident representatives signed a complaint letter and granted power of attorney to a legal advisor to advocate for the community's interests. The residents' position in this conflict is that of pollution victims demanding environmental restoration and compensation for losses.

The second main actor is the business owner, H. Rosif Rofiqi, as the owner of PD Putra Kemoren Jaya. He is the operator of a jeans-washing business operating in the middle of the village settlement. The business owner's primary interest is to maintain the continuity of the business and the jobs of the workers who depend on the factory. The business owner objected to permanently closing the business due to production orders and the fate of the employees, although he was willing to make adjustments such as constructing a borehole or a wastewater retention pond. The business owner's position in the conflict is that of a party accused of polluting the environment but striving to maintain the legitimacy of his business.

The third key player is the legal advisory team from Pekalongan University (Unikal), consisting of Budi Supriyanto, Yurofikun, and Rachmat Prijohartono. This team serves as both legal counsel for the residents and environmental advocates in the case. Their roles include receiving complaints, drafting civil and criminal lawsuits, assisting residents in deliberations, and reporting to law enforcement authorities. The presence of the legal advisory team indicates that the

conflict has shifted from a social grievance to a formal legal dispute.

In addition to these three main actors, there are supporting actors influencing the conflict's dynamics. The local government, through the Muspika (sub-district office, police sector, and military post), acts as a mediator in negotiations between residents and the business owner. The Regent of Pekalongan also expressed the view that resolution should be through village-level negotiations because the industry in question is small-scale and it would be difficult to require it to build its own wastewater treatment plant. Police officers then act as investigators following reports of alleged environmental pollution. The presence of the Prokasih Team (Clean River Program) and environmental technical agencies also demonstrates the government's involvement in environmental oversight.



Figure 1. Thumbprinting of the power of attorney in the waste complaint. (Doc. Suara Merdeka).

The conflict began with a complaint filed by residents with the legal advisory team at Pekalongan University in early December 1997. About 50 residents came to the Unikal campus to voice complaints regarding well contamination caused by factory waste. They submitted a complaint letter demanding environmental remediation and granted legal authority to the legal team. This complaint marked the initial step toward formalizing the conflict, as residents' grievances had previously been informal at the village level (Suara Merdeka, 1997).

The complaint was initially expected to take the form of a demonstration at the Pekalongan Regency DPRD building. Security forces had even been on standby at that location. However, the residents chose to go directly to the Unikal campus to seek legal assistance. This event demonstrated the residents' strategy of pursuing formal advocacy channels rather than mass action, while also reflecting their trust in academic institutions as legal mediators.

After being granted power of attorney, the legal advisory team stated they would file civil and criminal lawsuits against the business owner. This statement marked the escalation of the conflict from the stage of social grievances to a legal dispute. At this stage, residents began collecting evidence of contamination, including laboratory test results for well water and documentation of environmental conditions. This evidence was

subsequently used in the advocacy process and negotiations.

C. Conflict Resolution

Before the lawsuits were filed in court, the local government encouraged a resolution through village deliberation. The Regent of Pekalongan stated that the conflict should be resolved through a (family-based) approach because the jeans-washing industry is small-scale and has limited technical capacity for wastewater treatment. This perspective reflects an administrative approach that prioritizes social stability and the sustainability of the local economy.

The first meeting brought together residents, business owners, village officials, the police, and legal advisors. During the meeting, residents presented three main demands: the closure of the jeans-washing facility, the restoration of environmental conditions particularly clean water and compensation for losses resulting from pollution. The business owner stated he had no objection to closing the business but left the decision to the authorities and raised concerns about severance pay for employees if the factory were closed. This statement highlighted the dilemma between environmental interests and labor rights. However, residents deemed this response insufficient because it offered no certainty regarding environmental restoration or compensation. Consequently, the meeting failed to reach an agreement.

A second meeting at the subdistrict level brought the two parties together again with government officials mediating. Residents even specified a compensation amount of approximately Rp 24.48 million and proposed alternatives for groundwater restoration, such as constructing pump wells or groundwater injection. However, the business owner continued to reject permanent closure and was only willing to temporarily shut down operations for inspection by the Prokasih Team. The failure of the second meeting confirmed that the conflict had reached a deadlock in negotiations.

The failure of mediation prompted residents, through their legal counsel, to pursue legal action. The planned lawsuit covers both civil and criminal aspects. The civil claim pertains to demands for material and immaterial compensation resulting from environmental pollution. Material damages include the cost of obtaining clean water and loss of time, while immaterial damages include anxiety, health issues, and discomfort caused by the odor and noise.

Meanwhile, a criminal report was filed with the Pekalongan Police Chief and Regent alleging violations of Articles 41, 42, and 43 of Law No. 23 of 1997 on Environmental Management (Suara Merdeka, 1997). These articles stipulate penalties for acts of environmental

pollution or destruction, whether committed intentionally or through negligence. Legal counsel assessed that the disposal of untreated waste, along with the alleged lack of an operational permit, constituted elements of an environmental crime.

The police subsequently questioned the factory owner and several residents as witnesses. However, during the investigation, differing legal interpretations emerged. Authorities relied on violations of disturbance permits and local regulations, while the residents' legal counsel argued that the Environmental Law, which carries harsher penalties, should be applied. This discrepancy highlights the tug-of-war over legal interpretation in handling environmental cases at the local level.

Amid the legal proceedings, social and administrative pressure led the business owner to temporarily close the jeans-washing factory. This closure was formalized in a written statement following a meeting with the local government officials (Muspika) and the Prokasih Team. The business owner also stated that they would construct a watertight wastewater retention tank as a condition for resuming operations. This temporary closure can be understood as a form of administrative sanction as well as a temporary compromise between environmental interests and business continuity. Nevertheless, the closure did not halt the legal proceedings, as the residents continued to pursue both civil and criminal lawsuits. This indicates that the administrative resolution was not deemed sufficient by the affected parties.

The case of pollution from denim washing waste was finally heard in the Pekalongan District Court, with H. Rosif Rofiqi as the defendant. The case was classified as a misdemeanor, so the hearing was presided over by a single judge without a prosecutor's indictment. This classification indicates that the legal handling tends to position the case as a minor violation, not a serious environmental crime.

During the hearing, the judge verified the defendant's identity and heard testimony from witnesses, including a police investigator and two residents of Karangdowo. The resident witnesses explained that the factory's wastewater had contaminated well water, caused odors, and generated noise. They also stated that approximately 20 residents had to seek clean water from other areas because their wells were no longer usable. Evidence in the form of laboratory test results from Jakarta's PDAM and photographs of the environmental conditions were submitted as evidence. The defendant contested some of the witnesses' statements, asserting that the well water was still drinkable and that the waste was now being collected in a temporary tank and pumped out by a

tanker truck. He also claimed that the machine noise was not disruptive because it sounded like a sewing machine. Additionally, the defendant presented licensing documents as proof of compliance with administrative requirements

After hearing the testimony of the witnesses and the defendant, the judge postponed the verdict for eight days to review the laboratory evidence, photos of the waste, and the factory's permit documents. This postponement indicates that the court is still evaluating the validity of the pollution evidence and the legality of the business operations before rendering a verdict.

CONCLUSION

Based on the research findings, it can be concluded that the existence of a jeans-washing factory in Karangdowo Village, Kedungwuni Subdistrict, in 1997 had consequences for the community. The discharge of liquid waste without proper management caused contamination of well water and the surrounding environment, thereby disrupting ecological functions and residents' livelihoods. The environmental quality changes directly experienced by the community triggered a collective response in the form of complaints, legal advocacy, and civil and criminal lawsuits. This conflict demonstrates that pollution issues are not merely technical in nature but are intertwined with power dynamics among residents, business owners, and local governments. Attempts to resolve the issue through deliberation failed to reach an agreement due to conflicting interests and the community's weak bargaining position. Overall, this case illustrates that rural industrialization without effective spatial planning and environmental oversight has the potential to spark social conflict. This study underscores the importance of strengthening regulations, oversight, and community participation in industrial management to ensure that economic development does not sacrifice environmental sustainability and social justice.

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