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An Account of Growth, Development, Impact, and Decline of Pan Paper Mills, 2000-2009

Ruth N. Tenge*, Peter Waweru, Babere Kerata Chacha
Department of Social Studies, Laikipia University, Kenya
*Corresponding Author

Abstract
Over the last two decades, Webuye Pan Paper Mill, the nation's leading paper producer, came to an unholy ending. While its decline and its economic and labour history are largely unknown outside of Kenya, this event shook many observers and the locals who depended on it for livelihood and survival. The company faced ongoing issues, possibly related to financial instability (worsening liquidity position), management, operational challenges, and post-governmental collaboration agreements. This study provides important information on the post-colonial, political, and socio-economic development in western Kenya and the country as a whole. From its inception, the industry had dominated the state's economic, social, and physical landscape, building mighty in western Kenya and extracting millions of pounds of 'pulp' wood from its impressive forests. For many generations, thirty thousand people or more worked in the paper mills and in the harsh forest fringe from which raw materials were extracted. Small and big communities emerged around the mills as logging sustained the otherwise declining agricultural areas. These industrial communities were tightly knit, and each company and its workers built their own labour relations systems, including workers' unions. A historical study of labour and paper mills shows how new technologies were incorporated into the industry and how workers and management were often at loggerheads over work processes, work conditions, and work compensation. The theory of modernization was adopted in this study to assess the relationship between policing and post-modernity. Thus, the main aim of this paper is to account for a detailed account of the growth, development, livelihood impact, and decline of pan paper mills, 2000-2009. The study adopted an ex-facto approach, applying snowballing and purposive sampling techniques. Data collected was organized, edited, and coded, and information was analysed through two analytical frames: documentary review and content analysis. The results were arranged according to historical periods for comparison and correlation. The study used descriptive interpretation and a chronological approach.

Keywords: Decline, growth, development, manufacturing pan-African paper mill

Introduction

Pan African mill was the largest manufacturing industry in the Western region. It was established in 1969 and came into operation in 1973. Pan African Mills changed its name to the Webuye pan paper industry because of the effects of dialects (Kirugu, 2013). During the pre-independence time, Webuye was known as Broderick Falls, named after the first Whiteman to visit the hereby Nabuyole Falls on River Nzoia. The Webuye pan paper mill is a joint venture between the Kenya government, the Finance Corporation (the private arm of the World Bank), and Orient Paper Mills, which was part of the Birhia group from India. The industry is located on the Kenya-Uganda road. It is on the banks of river Nzoia, which drains into Lake Victoria. The Orient Paper and Industry Limited has provided the company's

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technical know-how and management services since its inception. The pan paper mills commenced production in 1974 with a rated capacity of 43,000 tons of paper per year.

Pan Paper was founded in 1964 after feasibility studies determined that the factory could be built. Pan African Paper Mills (E.A) Ltd was founded in 1970 by the Kenyan government, with Orient Paper Mills of India and the World Bank's International Finance Corporation as co-sponsors. These two sponsors' substantial investments aided Pan Paper's establishment and its subsequent expansion plans. On the front lines of Technical Cooperation among Developing Countries (TCDC), India's expertise and enterprise helped Pan Paper succeed with Kenyan manpower and natural resources. President Jomo Kenyatta laid the foundation stone for the mills at Broderick Falls (Webuye) in November 1972, and construction of the mills began immediately after the agreements were signed. On November 27, 1974, the machine rolled the first MF Kraft paper made from trees grown in the nearby Kaptagat forests. For the first time in Kenyan history, paper that was wholly a Kenyan product was produced because the main raw materials were grown entirely in Kenya. In April 1975, the second machine producing bleached paper grades was turned on. Since then, various parts of the mills and associated factory sections, such as the cauterizing unit, the Lime Kiln, and the Power House, among others, have been regularly adjusted before being put through capacity trials. The study, therefore, documents a detailed account of the growth, development, livelihood impact, and decline of pan paper mills from 2000 to 2009.

Historiographical Background

Historians globally have recently provided some of the most insightful contributions to factory history (Archer & Musić, 2017). There is a rich patrimony of research on factories which is rooted in fields adjacent to labour history, of which many historians have long been aware (Mayo, 1949). From the late 1960s onwards, factory studies began analysing the dynamics of 'factory culture' and its informal and formal organizations (Holzberg & Giovannini, 1981). Ogendo (1972) examined the industrial development in Kenya, which began in1900 until 1939, and noted that the British policy on industrialization was against the development of manufacturing industries in the colonies. The main emphasis of British policy towards the colonies had been on extracting raw materials to supply British industries. Kenya's industrial development started with service industries, especially for railway agricultural equipment.

Another important study by Wysocki (1972) focused on the Salzgitter factory Reichswerk Hermann Goering, which was part of the largest German Second World War production complex that appeared in Wysocki in 1982. Celebrated historian Freeman (Freeman, 2017) tells the story of the factory and examines how it has reflected both people's dreams and nightmares of industrialization and social change. He takes readers through from the textile mills in England that powered the Industrial Revolution and the factory towns of New England to the colossal steel and car plants of twentieth-century America, Eastern Europe, and the Soviet Union, and on to today's behemoths making sneakers, toys, and cellphones in China and Vietnam. He traces arguments about factories and social progress through such critics and champions as Marx and Engels, Charles Dickens, Alexander Hamilton, Henry Ford, and Joseph Stalin.

Lilja (2020) presents a longitudinal study of a textile manufacturing company that relocated from England to South Africa in 1946, from its African establishment to its decline in the late 1980s. Dinubila (2020) reconstructs a story of an industrial plant's location at a greenfield site. Similar to the phenomenon investigated by Jonathan Cowie (Cowie, 1999), Dinubila traces how the Italian car manufacturer FIAT opened a state-of-the-art factory in the early 1990s in a rural area of Basilicata, southern Italy. Thanks to a legal device, it could enjoy exclusion from the collective agreement that bound other unionized plants and exploit the advantage of being one of the few large employers. Workers flocked to the Melfi factory, a 'happy island' in an economically depressed region, but the relentless pace of work and

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managerial autocracy belied the post-Fordist hype that accompanied the plant's establishment. Against all odds, workers went on strike in 2004 (Cunnison, 1982), finally achieving, albeit temporarily, better working conditions. Dinubila (2020) captures the complex interplay of individual and collective memory of this event and the years that followed through oral history. In a way, the factory becomes a 'site of memory,' but it is a memory without nostalgia for a brief episode of militancy that did not change the overall course of labour relations at Melfi.

These reviews indicate that history is crowded with the rise and fall of many factories worldwide. Such history also exists in the Kenya manufacturing sector with little chronological documentation, creating a literature gap that historians need to fill for purposes of factory policy rethinking and improved practice as a source of historical information for the sustainability of such factories. This study collected both historical and oral literature meant to document a detailed account of the growth, development, and decline of pan paper mills from 2000 to 2009.

The Trial and Experimental Years

Pan Paper, officially known as Pan African Paper Mills, was a significant industrial complex in Kenya when constructed in 1972. At that time, it was the largest paper factory in Eastern and Central Africa. The establishment of Pan Paper marked a significant milestone for Kenya's industrial sector, contributing to economic development and job creation in the region. The paper mill played a crucial role in meeting the paper and packaging needs of the growing population in Kenya and the surrounding regions. Its construction represented a significant investment in the country's industrial infrastructure and aimed to boost the local economy (Pan Paper Mills Factsheet, 1991, p.11).

Pan African Paper Mills (PPM) was established in 1967 with a majority shareholding of 54 percent by Orient Paper and Industries of India, whereas the Government and other investors like the International Finance Corporation (IFC) were minority shareholders. The company accumulated huge debts over the years, which it could not service, culminating in its abrupt closure on 30 January 2009 due to power disconnection arising from non-payment of bills to Kenya Power and Lighting Company (KPLC). The management, which was also the majority shareholder, absconded to India in March 2009 without the knowledge of the Government. The company's performance prior to the closure had deteriorated, which was attributed to failing plants, inadequate wood supplies, high cost of fuel, and stiff competition from imported cheap paper products.

Pan Paper was not just a factory but an entire 'complex' that the then President Daniel Arap Moi inaugurated in 1979. The question of Pan African Paper Mills, Webuye has been before the Committee on implementation for the last two years following an assurance by the Assistant Minister for Industrialization on 28th May 2009. The undertaking was made in response to a question by private notice filed by the then Member for Webuye, Hon. Alfred Sambu, regarding re-opening the paper mill. The then Assistant Minister for Industrialization (Hon. Nderitu Muriithi) confirmed that the Government appointed a technical and financial evaluation task force on 2 April 2009 to undertake an urgent evaluation of Pan African Paper Mills, East Africa Ltd, to establish the company's viability.

On March 16, 1999, Pan African Paper Mills (E.A.) Limited appealed to the Electricity Regulatory Board, requesting that the Board order, among other things, a significant reduction in electricity units from Kshs.420 to Kshs. 1.4 per Kilo Watt to make the company competitive. In order to revive the operations further, The IFC had given the miller a Ksh5 billion ($50 million) loan, but it was struggling and only managed to pay off about half the debt. It had Ksh2.6 billion ($26 million) outstanding. In addition, the firm had a total debt portfolio of long-term loans of Ksh7.2 billion, which sank it into seven years of trouble. However, as Pan paper's engines prepared to roar back to life in the sleepy town of Webuye, Bungoma County intrigues surrounding its sale heightened. Employees lucky enough to be called back to work to witness the company's rebirth may never know how the miller, valued

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at Sh18 billion when it was placed under receivership, ended up being disposed of at KSh900 million.

Due to financial constraints and operational difficulties, Pan Paper experienced periods of closure in the 1990s. These closures had significant implications for the local economy, leading to job losses and economic downturns in the surrounding communities. The Kenyan government made several attempts to revitalize Pan Paper during this period. Interventions included financial injections, restructuring efforts, and attempts to attract investors. However, the success of these interventions varied, and the mill continued to face challenges. In the late 1990s and early 2000s, the Kenyan government embarked on a privatization process for several state-owned enterprises, including Pan Paper.

In an oral interview with Okang'a (O.I., Okang'a, 2023), he recalled that in 1987, Pan Paper embarked upon a major afforestation program to replenish the natural resources, enhance the environment, and regain the area residents' trust. The Paper Mills actively supported the government's afforestation and forest renewal programmes and ensured that clear-felled areas were more than adequately replenished. With tree nurseries in Webuye, Kapatagat, and Ainabkoi, Pan Paper raised over one million trees in 1989, and these nurseries were producing millions of trees annually. The tree planting exercise started in 1987 with 50,000 trees, a figure which rose to 800,000 trees by 1988.

In 2005, the government was forced to appoint a task force to investigate the company's affairs and make recommendations on the way forward. The decision to appoint a task force in 2005 indicates a recognition by the Kenyan government of the need to examine the affairs of Pan Paper thoroughly. The company faced ongoing issues related to financial stability, management, and operational challenges. The task force was tasked with determining whether, after 37 years of Indian investors operating in Kenya, the existing management arrangement, presumably the technical service management agreement, was still necessary or beneficial for Pan Paper. This implies a critical evaluation of the effectiveness of the existing structure and the impact of long-term collaboration with foreign investors.

The first signs of the company's worsening indebtedness came to light in early 2005 when it was forced to write to term lenders to plead for debt rescheduling, lamenting that it could not meet principal and interest payments. As it turned out, the lenders refused to agree and recommended instead that an independent study be conducted to establish the company's long-term viability. Consequently, the lenders appointed financial consultants Ms. McKinsey and Company to work out a turnaround strategy and to chart the way forward. However, implementation of the report by the consultants has been slow.

The company's profitability had been deteriorating over the years. The mention of an operating profit of Ksh415 million ($5.9 million) during the year ending June 30, 2006, indicates a challenging financial situation, especially when compared to the accrued interest charges of Ksh730 million ($10.4 million). This suggests that the company was struggling to generate sufficient profits to cover its interest expenses. The report notes an upward trend in working capital deficits. Working capital is a key indicator of a company's short-term financial health, and working capital deficits can impact its ability to meet its short-term obligations. The liquidity position of Pan African Paper Mills had worsened.

In May 2008, the government released to the company Ksh140 million ($2 million), leaving a balance of Ksh86 million ($1.2 million). A sum of Ksh100 million ($1.4 million) had been factored into the budget. Under the bailout plan, the Indian investors were also to inject new capital at a level proportionate to their shareholding in the company. Pan Paper has an annual capacity of 120,000 tonnes of paper per annum and controls close to 60 percent of the market in Kenya (KNA/KY/13/6, 2008).

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The Era of Decline, 2000-2009

The 1970s and 1980s were the most difficult years for Kenya's manufacturing sector. External shocks caused by the 1970s oil crisis, World Bank structural adjustment programmes in the 1980s, and market liberalization in the 1980s and 1990s all had a negative impact on the manufacturing sector (Chege et al., 2014). The dream of rapid industrialization envisioned at independence became elusive. The sector's performance has fallen short of policymakers' expectations. The manufacturing sector's contribution to GDP has declined in recent years, falling from a high of 10.8 percent in 2008 to 8.4 percent in 2017 (Government of Kenya, 2018). The specific factors that led to this scenario were numerous and have been outlined.

Impact on Input Costs: The global oil crisis in the 1970s, triggered by geopolitical events in the Middle East, sharply increased oil prices. This had a direct impact on manufacturing industries worldwide, including Kenya. Higher energy costs increased production costs for manufacturers, affecting their competitiveness.

World Bank Structural Adjustment Programmes (SAPs) in the 1980s-Economic Reforms: In response to economic challenges, many developing countries, including Kenya, implemented structural adjustment programs (SAPs) recommended by international financial institutions like the World Bank and the International Monetary Fund (IMF).

Austerity Measures*:* SAPs often included austerity measures such as fiscal discipline, currency devaluation, reduction of government subsidies, and privatization of state-owned enterprises. While intended to address economic imbalances, these measures often led to short-term challenges, including job losses and economic downturns (Chege et al., 2014).

Trade Liberalization: The 1980s and 1990s saw a global market liberalization and trade openness trend. In Kenya, this involved reducing trade barriers, tariffs, and other restrictions on imports and exports.

Increased Competition: While market liberalization aimed to promote efficiency and competitiveness, it also exposed domestic industries, including manufacturing, to increased competition from foreign goods. Some local manufacturers faced challenges in competing with cheaper imported products.

Recessionary Pressures: The combination of external shocks, structural adjustments, and market liberalization contributed to economic downturns in Kenya during these decades. Industries faced challenges such as reduced consumer demand, lower industrial output, and financial instability (Chege et al., 2014).

Pan Paper began to struggle in 1992 with the introduction of SAPs due to various factors, including mismanagement and eventually collapsed in 2009. Early in 2009, the company began to experience difficulty in paying for recurrent production costs, such as electricity, oil, and spare parts. It sought permission to increase the prices of its products, but the government declined the request. It was also unable to secure further bank loans or guarantees. In this quandary, the company approached the workers' union and subsequently negotiated an agreement by which the workers were paid only 30 percent of wages while they stayed at home for 3 months, with effect from February 2009. The union willingly agreed to these proposals in the belief that the concession would help bring the company out of its financial crisis. The agreement was executed, and the workers waited to return to work thereafter. However, before the expiration of the stay at home period, the foreign partners had abandoned the factory and quietly left the country.

The workers and other stakeholders did not realize that the company was already in Receivers' hands, whose advertisements in national and regional newspapers informed them and the general public that the company had failed and, even worse, that the foreign managers had secretly left the country. The company advertised its stock of spare parts and other assets for sale to the general public in the advertisements. As a result, over 32,000 workers and

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dependent suppliers were suddenly laid off. While the company's inability to obtain bank credit and eventual collapse may be attributed to the global financial crisis, it was most likely also the result of poor management.

During this time, the factory was abandoned by the management contracted from India by the Indian-based Birla group, which held the majority of the shares. During an interview, Wilberforce Ogange (10/8/2023), a cobbler in Webuye town along Kenyatta Street, observed that Webuye was once bustling with activity but has since devolved into a wasteland of poverty and hopelessness. The massive factory that stood like a pillar of life in the middle of town collapsed, leaving many of the town's homes desolate. The Mills' vandalized and rusted machines resemble a ruined monument, a stark reminder of a better past (Otieno et al., 2020).

President Mwai Kibaki reopened the Webuye-based industry in August 2010. It has since faced many issues, including insufficient funding, tighter environmental regulations, court cases, management squabbles, frequent staff turnover, and high energy prices. The company owed Kenya Power and Lighting up to Ksh100 million in unpaid bills at the time of reopening. Despite government efforts to resurrect the dilapidated factory through treasury allocations, the company is on the verge of closing due to unpaid power bills. So far, the government has spent Ksh 1.6 billion to reopen the factory. The company is in a legal battle with the receivers appointed by short-term lenders, with Ecobank, Bank of Baroda, and Barclay Bank attempting to assert authority. This is against the backdrop of a revival team led by the then permanent secretary of industrialization Karanja Kibicho (Kenya Engineer, 2023).

According to Cleophas Wasike (O. I., 2023), one of the former Pan Paper employees, described how the factory's collapse and subsequent closure took the lives of some of his closest friends. He described how these friends died as a result of the trauma. He also claimed that he was only able to survive this pressure because he invested in small shops in the town. According to him, those who did not invest found it difficult to recover from job loss, so many succumbed to the pressure.

> *Now, there is no sound or smell, and servant quarters that used to sparkle with whitewash as families moved up and down are rusted and filthy, and some have been abandoned, occupied by monkeys and shrubs, with insects shrieking every nightfall. Hotels stopped cooking food, and bars closed.* (O.I., Wasike, 2023).

The availability of paper raw materials is a global issue. There is a general decline in the supply of wood bi-products, including the paper commodity. Paper production costs reveal that the United States' global share of industrial roundwood peaked at 28 percent in 1999 and fell to 17 percent by 2013, with the decline attributed to a combination of cyclical factors and long-run trends. A once thriving paper manufacturing company in Kenya, the Pan Africa Paper Mill in Webuye declined to oblivion due to the economic and technological challenges hitting the subsector (Kogi, 2023).

Structural Adjustment Programs (SAPs) in Kenya, initiated by the World Bank and the International Monetary Fund in 1988 and, more specifically, after 1991, transformed many aspects of Kenyans' daily lives. It is important to note that economic performance in the 1980s and 1990s was stagnant. For example, agricultural sector growth fell from 5 percent in the 1970s to less than 1 percent in the 1990s, while industrial sector output fell from 11 percent in the 1970s to 2 percent in the 1990s. However, despite the fact that the SAPs led to the liberalization of the domestic economy and opened it up to international competition, the industrial sector remained inward-oriented, excessively intensive import-dependent, capital-intensive import-dependent, capital-intensive, and incapable of absorbing an adequate proportion of the rapidly increasing labour force, according to Chirwa (KNA/KY/13/6, 1974).

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Pan Paper was used to obtain free wood from government forests. The electricity was also free. As a gift, the management gave the president a small token. The company was also not paying taxes. People were told to plant trees after the government forest was depleted, but they opposed the idea. When President Moi's presidency ended in 2002, the Indian management felt it was too expensive to run the company, which was now fully taxed, and the power company demanded their pay. The Indians fled. As a result, the company failed (O.I., Mutila, 2023).

The abrupt closure of the industry in 2009 left thousands of people jobless and without a source of income, the majority of whom were casual workers paid on a daily basis and thus without a source of income. As a result, most people moved back to the suburbs or outside of town in search of work, resulting in a massive exodus from the town and, thus, depopulation. This had a greater impact on the town because investors also left because the threshold population left behind could not sustain their firms, resulting in economic deterioration. However, since the industry's demise, no systematic research has been conducted to determine the town's demographic changes and the level of deterioration of its physical infrastructure (Oyoma, 2015).

> T*here is nothing left for us here," said 35-year-old Joseph Wafula. "I am thinking of following one of my friends to either Nairobi or Mombasa. Maybe they might have something for me to do. I could pay school fees for my children, buy food, give my wife some pocket money, and even spare some change for a good time in town," he said. Now I have nothing. We have had so many promises from the government and the receiver manager coming our way that we stopped anticipating when the factory will be reopened.* O.I., Wafula, 2023).

Following the company's closure, the IFC notified PPM in April 2009 that it had formally relinquished its $36 million debt claim in PPM. According to the IFC, after several failed attempts to turn around and restructure PPM over the last five years, the debt was deemed irrecoverable and an unsustainable burden for any turnaround plan. In addition to debt forgiveness, IFC agreed to fund a general environmental audit, regardless of whether PPM remained closed or reopened under new ownership. If it reopens, the IFC audit will ensure a safe and proper restart; if it closes permanently, the audit will ensure a safe and proper facility decommissioning (Reconcile Institute, 2008).

The collapse of Pan Paper had immense effects on the people of western Kenya, mainly Bukusu locals, who made up a big percentage of workers. It is saddening that over 3,000 workers lost their jobs abruptly in 2009 when the mill's engine coughed its last. Most people depended only on the machine to pay all their bills. Many workers did not believe that the company had collapsed. Many died in town out of shock when they realized that the machine had collapsed for good. Many people abandoned their families in town and ran away. They could not stand the pain of seeing their loved ones suffer in their hands. This left suffering and misery to many families that remained with single parents, either a mother or father only.

Impacts of Pulp and Paper Industries on People

Only limited statistics are available on injuries and accident rates in general in this industry. Compared to other manufacturing industries, the 1990 accident rate in Finland was below the average; in Canada, the rates from 1990 to 1994 were similar to other industries; in the United States, the 1988 rate was slightly above average; in Sweden and Germany, the rates were 25 percent and 70 percent above the average (ILO, 1992; Workers' Compensation Board of British Columbia, 1995).

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The most well-documented health problems encountered by pulp mill workers are acute and chronic respiratory disorders as far as non-malignant diseases are concerned (Toren et al., 1996)). Exposure to extremely high concentrations of chlorine, chlorine dioxide, or Sulphur dioxide may occur due to a leak or other process upset. Exposed workers may develop acute chemical-induced lung injury with severe inflammation of air passages and release of fluid into the air spaces, requiring hospitalization.

Hypersensitivity pneumonitis associated with exposure to thermophilic microorganisms and bagasse (a sugar cane by-product) is still seen in mills using bagasse for fibre. Other respiratory hazards commonly encountered in the pulp and paper industry include stainless steel welding fumes and asbestos. Maintenance workers are the group most likely to be at risk from these exposures. Cardiovascular mortality has been reported to be increased in pulp and paper workers, with some exposure-response evidence suggesting a possible link with exposure to reduced Sulphur compounds (Jäppinen, 1987; Jäppinen & Tola, 1990).

Exposures to numerous substances designated by the International Agency for Research on Cancer (IARC) may have probable and possible carcinogen occurrences in pulp and paper operations. Asbestos, known to cause lung cancer and mesothelioma, is used to insulate pipes and boilers. Talc is used extensively as a paper additive and can be contaminated with asbestos. Wood dust has recently been classified by IARC as a known carcinogen, based mainly on evidence of nasal cancer among workers exposed to hardwood dust (Kromhout, 1995). Diesel exhaust, hydrazine, styrene, mineral oils, chlorinated phenols and dioxins, and ionizing radiation are other probable or possible carcinogens that may be present in mill operations.

Environmental Impacts of Pulp and Paper Industries

Regarding air pollution, air emissions of oxidized sulphur compounds from pulp and paper mills have caused damage to vegetation, and emissions of reduced sulphur compounds have generated complaints about ‘rotten egg’ odours. Studies among residents of pulp mill communities, in particular children, have shown respiratory effects related to particulate emissions, and mucous membrane irritation and headache thought to be related to reduced Sulphur compounds (Bascom & Raford, 1994).

As far as water pollution is concerned. contaminated wastewater from pulp and paper mills can cause the death of aquatic organisms, allow bioaccumulation of toxic compounds in fish, and impair the taste of downstream drinking water. Suspended solids discharged from pulp and paper mills include bark particles, wood fibre, sand, grit from mechanical pulp grinders, papermaking additives, liquor dregs, by-products of water treatment processes, and microbial cells from secondary treatment operations (Weidenmüller, 1984). The chlorinated organics have been of particular concern because they are acutely toxic to marine organisms and may bioaccumulate (Smook, 1989). Being one of the largest industrial sectors in the world, the pulp and paper industry has an enormous influence on global forests, thus causing deforestation and loss of biodiversity. This sector, which includes products such as office and catalogue paper, glossy paper, tissue, and paper-based packaging, uses over 40 percent of all industrial wood traded globally.

The indiscriminate logging in the rainforest and uncontrolled felling of trees for fuelwood are reported to have had adverse effects on the environment (Fuwape & Onyekwelu, 1995). The adverse effects caused by the operations of forest industries include loss of biodiversity, wildlife migration, ecological imbalance, soil erosion, flooding, desert encroachment, and disruption in the hydrological cycle of water catchment areas. The tropical forest provides a habitat for two-thirds of all identified terrestrial species (Myers, 1992).

The effect of the destruction of forest cover on catchment water balance and runoff dynamics depends on the climate, topography, soils, and the type of forest (Vertessy & Dye,

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2000). Devastating destruction of farmland and houses has been reported in areas where indiscriminate tree felling has occurred (Fuwape & Onyekwelu, 1995).

Social-Economic Impacts of the Pulp and Paper Industry

Lula (2011) indicates that it is difficult to separate economic, social, and cultural issues in traditional rural communities due to industrial developments since they are interlinked and affect one another. For instance, the loss of grasslands would mean that the sustainability of the historic agrarian economy of a community is undermined. Consequently, social relationships of production and reproduction (such as bride price, normally paid with cattle, labour, exchanges, wealth store, and food security through tribute payment) are negatively affected (Brainbridge, 2005). Besides, the loss of much of a region's flora and fauna due to deforestation has social, cultural, and economic implications for society in general (Foster, 2009). The social structure of a given area would change drastically due to industrialization.

Conclusion

The history of Webuye pan per mills from 1969-2009 provides valuable insights that contribute to policy consideration at various levels. The rise and subsequent challenges the company faces emphasise the importance of diversifying the industrial base. The policy framework should encourage diverse industries to avoid over-reliance on a single sector, reducing vulnerability to external shocks. The historical challenges highlighted the significance of policies encouraging industrial modernization and the adoption of advanced technology to enhance efficiency.

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List of Informants

1. Alphonce Okang'a, 66 years old, 4/12/2023
2. Cleophas Wasike, Former Employee of Pan Paper Mills, 14/04/2023
3. Ombete Mutila, 18/08/2023
4. Joseph Wafula, 20/08/2023
5. Wilberforce Ogange, 10 /8/2023

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