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The Economic History of Ewekoro Cement Industry, Ogun State, Nigeria, 1970 - 2000 A.D.

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Abstract

This study titled “The Economic History of Ewekoro Cement Industry Ogun State, Nigeria 1970-2000 A.D.” examines the historical evolution, geographical foundations, economic dynamics, and socio-environmental impact of the Ewekoro Cement Industry on Ogun State, South-Western Nigeria at large established in 1959 as the West African Portland Cement Company (WAPCO) had commenced production in 1960. The industry has grown into one of Nigeria’s oldest and most significant cement production facilities, currently operated under Lafarge Africa Private Liability Company (Plc.) (majority-owned by Huaxin Cement since 2025). However, it is worthy in the first place to note that in the course of conducting the study a very good number of relevant published and unpublished source were interacted with. Furthermore, both quantitative and qualitative techniques were applied into use for the attainment of a proper historical reconstruction and balanced study. The study traces the industry’s development from colonial period and early post-independence eras with origins through successive phases of expansion, structural adjustments, privatisation, and intensified market competitions following the Backward Integration Policy of 2002 A.D. It analyses the strategic importance of the Ewekoro Formation limestone deposits within the eastern Dahomey Basin, the ethnic and cultural context of the predominantly Egba host communities, and the successive ownership and policy shifts that shaped the plant’s trajectory. Findings reveal that while the industry has made substantial contributions to Nigeria’s industrial self-sufficiency, employment generation, infrastructure development, and foreign-exchange conservation, these benefits have been accompanied by persistent environmental degradation, occupational health risks, and social tensions. Continuous exposure to particulate matter, noise, and other emissions have been linked to elevated rates of respiratory and related health conditions among workers and residents. Economic reforms, particularly the Structural Adjustment Programme of 1986, imposed short-term operational constraints, while privatisation and subsequent modernisation improved efficiency and capacity but did not fully

resolve community grievances over land, pollution, and employment equity. The study concludes that the Ewekoro Cement Industry exemplifies the dual character of large-scale industrialisation in a developing economy. Sustainable progress requires stronger environmental regulation, improved occupational health protection, more equitable distribution of benefits, and sustained dialogue between industry, government, and host communities. The experience of Ewekoro offers important lessons for balancing industrial growth with social and ecological responsibility in Nigeria's extractive and manufacturing sectors.

Keywords: Ewekoro, Cement, Industry, Lafarge Africa, Backward, Integration, Policy, Structural, Adjustment, Programme, Environmental, Impact, Occupational, Health, Industrialisation, Ogun, Nigeria.

General Background of the Studied Subject Matter

The cement industry occupies a central role in the industrial and infrastructural development of Nigeria due to its critical function in the construction sector. Cement serves as a fundamental input for building durable infrastructure, housing, and public works, and its production reflects broader industrialization trends within the nation's manufacturing landscape¹. In Nigeria, cement production has evolved dramatically from reliance on imports to substantial domestic manufacturing capacity, driven by major players such as Lafarge Africa Plc and Dangote Cement Plc. This transformation has not only reduced import dependency but has also positioned Nigeria as the largest cement producer in West Africa, with a combined installed capacity of approximately 62.8 million metric tonnes per annum (MMTPA) as of mid-2024, spread across the country's six geopolitical zones². The sector's growth has been fueled by government policies like the Backward Integration Programme (BIP) initiated in 2002 under President Olusegun Obasanjo, which incentivized local production by restricting import licenses and granting quotas only to companies investing in domestic manufacturing facilities. This policy shift turned Nigeria from a net importer evidenced by the infamous "Cement Armada" scandal of the 1970s, where over-importation led to massive economic losses to a self-sufficient exporter, with cement and clinker exports reaching 1.2 million tonnes in 2024, a 69.1% year-on-year increase³.

Recent past studies conducted have demonstrated that, Nigeria's cement industry traces its roots to the post-independence era, with the establishment of the Nigerian Cement Company Plc (NigerCem) in 1954 in Nkalagu, Ebonyi State, marking the nation's first foray into local production.

This was followed by expansions in the 1970s and 1980s, including plants in Ashaka (Gombe State), Benue Cement Company (Gboko), and the Cement Company of Northern Nigeria (Sokoto). By the 1990s, production had surged from under 2 million tonnes in 1990 to over 28 million tonnes by 2013, representing a growth of over 1300%⁴. The industry's evolution was further accelerated by privatization and foreign investments, particularly after the 1999 return to democracy, which saw conglomerates like Dangote Group enter the market. Today, the sector contributes significantly to Nigeria's economy, accounting for about 10.3% of manufacturing GDP in the first half of 2024 and supporting downstream industries such as real estate, transportation, and logistics.

In terms of employment, it directly and indirectly employs thousands, with major players like Dangote Cement supporting over 41,000 jobs across Nigeria and other African countries in 2020 alone, while also contributing around 30% of non-import

VAT and 26% of company income tax. Infrastructure-wise, the industry has been instrumental in mega-projects, including roads, bridges, and housing schemes, helping to address Nigeria's 15.56 million unit housing deficit, which requires an estimated ₦21 trillion to resolve⁵.

Ewekoro, a Local Government Area in Ogun State, has been at the forefront of this industrial transformation since the late 1950s. The establishment of the West African Portland Cement Company (WAPCO) in 1959 marked the beginning of organized cement production in the region, with the plant commencing operations in 1960 using a capital-intensive dry process method. Initially a joint venture between Blue Circle Industries (UK), the United Africa Company of Nigeria, and the Western regional government, the facility was built to counter competition from eastern Nigeria's Niger Cem and capitalize on Ogun State's abundant limestone deposits. Over the decades, the Ewekoro plant grew in capacity and complexity, undergoing modernization and expansion to meet the growing demand for cement within Nigeria and the West African sub-region.

The Ewekoro Cement Industry has not only contributed significantly to Nigeria's capacity to produce cement locally but has also influenced the socio-economic dynamics of its host communities. Its operations have generated substantial employment opportunities, both direct and indirect, stimulating local supply chains for raw materials like limestone quarrying, transportation, and maintenance services. For instance, the plant's expansion projects have created ripple effects, fostering small businesses in logistics, packaging, and support services, while contributing to regional economic activity through taxes and infrastructure improvements. In Ewekoro and neighboring areas like Papalantoro, Lapeleko, and Itori, the industry has led to population growth and urbanization, with improved roads and power supply indirectly benefiting from factory investments. However, these benefits are tempered by challenges; while employment has risen, many jobs are filled by outsiders, and local communities report limited access to high-skilled positions. Corporate social responsibility (CSR) efforts by Lafarge, such as providing social facilities and scholarships, have been noted, but surveys indicate a disparity between company perceptions of CSR and community expectations, with residents emphasizing needs for better health services and infrastructure⁸. Overall, the socio-economic multiplier effects are evident, with the industry helping to alleviate poverty by absorbing labor and boosting local GDP, though equitable distribution remains a point of contention.

At the same time, the industrial presence has raised environmental and social concerns, particularly relating to air quality and community wellbeing, which underscores the multifaceted impact of heavy industry in rural and peri-urban settings. Cement production at Ewekoro releases significant pollutants, including

particulate matter (PM_{2.5} and PM₁₀), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and heavy metals like lead (Pb), chromium (Cr), and cadmium (Cd). Studies from 2005–2006 and more recent assessments show elevated TSP levels (up to 905 µg/Nm³) and atmospheric deposition rates far exceeding WHO and Nigeria's NESREA standards, leading to soil alkalization, reduced vegetation chlorophyll content, and contamination of surface water. Health impacts are profound: factory workers and residents report high incidences of upper-respiratory tract infections, cardiovascular diseases, arthritis, dermatitis, and chronic bronchitis, with PM_{2.5} exposure linked to premature deaths. In Ewekoro, air quality monitoring reveals PM levels at 11–19 µg/m³, requiring ongoing mitigation, while hazard quotients for Cr, Ni, and Cd exceed safe levels via ingestion, inhalation, and dermal contact. Community perceptions highlight air, water, soil, and noise pollution as major issues, with 19.7% of surveyed residents reporting health problems directly attributable to the plant. To address these, Lafarge has implemented measures like coprocessing waste (e.g., rice husks and tires) for energy, dust suppression systems, and environmental audits, aligning with NESREA regulations. However, enforcement gaps persist, and calls for resettlement or safer distances (e.g., 7 km from plants) underscore the need for balanced industrial growth⁹. This study situates the Ewekoro Cement Industry within Nigeria's broader industrial development, examining its historical emergence, expansion, and implications for stakeholders. By tracing its evolution from a colonial-era proposal in 1919 to a modern facility under Chinese ownership and contextualizing its contributions, the research delineates the foundational setting necessary to understand subsequent developments in production efficiency, environmental management, and community engagement within the cement sector. Stakeholders, including government, companies, and communities, must navigate these dynamics to ensure sustainable growth. For instance, while the industry bolsters GDP and exports, addressing environmental externalities through stricter regulations and green technologies is crucial. Future prospects include Dangote's new 6 MMTPA plant in nearby Itori, potentially elevating Ogun State's capacity to 18 MMTPA, but this must be paired with enhanced community health programs and pollution controls. Ultimately, Ewekoro exemplifies the dual-edged sword of industrialization: a driver of progress that demands vigilant stewardship to mitigate harms and maximize benefits for Nigeria's development trajectory¹⁰.

Statement of the Problems

The Ewekoro Cement Industry, located in Ogun State, south western Nigeria, stands as a cornerstone of the nation's industrial landscape, playing a pivotal role in driving infrastructural growth and economic diversification. Established in 1959 as the West African Portland Cement Company (WAPCO), the plant commenced operations in 1960 with its first kiln lit in Ewekoro, marking the beginning of organized cement production in Nigeria¹. This initiative was part of a broader effort during the pre- and post-independence era to harness local resources like limestone, which is abundant in the region, to reduce import dependency and foster self-sufficiency in building materials. Over the decades, the industry has evolved significantly, with expansions such as the commissioning of Ewekoro II in 2011, doubling capacity to 2.5 million tonnes per annum (MTPA), and contributing to Nigeria's status as West Africa's largest cement producer with a combined national capacity exceeding 58.9 MTPA. Now operated by Lafarge

Africa Plc (a subsidiary of Holcim Group), the plant employs around 1,000 people, 95% of whom are Nigerians, and supports downstream industries like construction, housing, and transportation¹¹.

Economically, Ewekoro's operations have been instrumental in Nigeria's backward integration policy, initiated in the early 2000s, which shifted the country from being a net importer to an exporter of cement. This policy, championed by figures like Aliko Dangote and supported by government incentives, has created thousands of jobs and stimulated related sectors, such as logistics and quarrying. For instance, the plant's proximity to major cities like Lagos and Abeokuta enhances its role in urban development, supplying materials for roads, bridges, and housing projects amid Nigeria's rapid urbanization. However, this strategic importance comes at a cost, as the relentless pursuit of industrial expansion has often overshadowed the needs of local communities, leading to persistent socio-environmental tensions¹².

Persistent Environmental Degradation From Operations

Despite its contributions, the Ewekoro Cement Industry's activities, primarily limestone mining, quarrying, and cement production have inflicted severe and multifaceted environmental damage on host communities over more than six decades. Limestone extraction involves blasting, which generates noise pollution exceeding safe levels (often above 85 dB), causing vibrations that crack buildings and disrupt daily life in Ewekoro and nearby settlements like Papalanto, Itori, and

Akinbo. Air pollution is particularly acute, with emissions of particulate matter (PM_{2.5} and PM₁₀), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and carbon dioxide (CO₂) from kilns and equipment. Studies from 2005–2006 indicate that dust deposition rates in the vicinity averaged 10–19 µg/m³, far exceeding World Health Organization (WHO) guidelines of 10 µg/m³ for PM_{2.5}, leading to reduced visibility and a hazy atmosphere¹³.

Dust particles from the plant blanket houses, roads, and farmlands, creating a pervasive white layer that residents describe as "cement snow." This not only degrades the aesthetic and physical environment but also contributes to soil acidification, reducing fertility and altering ecosystems. Water sources, including streams and groundwater, have been compromised through runoff containing heavy metals like lead (Pb), zinc (Zn), and manganese (Mn), with concentrations significantly higher during dry seasons. Natural vegetation, once lush with indigenous species, has suffered defoliation and stunted growth, threatening biodiversity and ecological integrity. These issues are exacerbated by the plant's high water usage for cooling and processing, straining local aquifers in a region already prone to seasonal droughts¹⁴.

Impact on Agriculture and Livelihood

Agriculture, the backbone of livelihood in Ewekoro's rural host communities, has borne the brunt of these environmental assaults. A substantial proportion of farmlands estimated at 30–50% in directly affected areas has experienced diminished productivity due to dust deposition, which clogs plant stomata, reduces photosynthesis, and contaminates soil with alkaline residues. Farmers report yield drops in staple crops like cassava, maize, and yams by up to 40%, with some abandoning plots altogether due to persistent instability. For example, in communities like Egbado

Ajegunle, dust-covered leaves lead to premature wilting, while blasting-induced soil erosion further erodes arable land¹⁵.

This agricultural decline has ripple effects on food security and economic stability. Many residents, predominantly smallholder farmers, face income losses, forcing migration to urban areas or reliance on menial jobs at the plant. Reports highlight compromised water sources, with elevated turbidity and chemical contamination affecting irrigation and livestock watering, leading to reduced animal health and productivity. These challenges underscore a vicious cycle where environmental degradation erodes traditional livelihoods, deepening poverty and inequality in an area where over 60% of households depend on farming¹⁶.

Impact Category	Specific Effects	Estimated Scale in Ewekoro Area
Soil Degradation	Acidification and dust accumulation	30–50% of farmlands affected, yield reduction up to 40%
Crop Productivity	Stunted growth, reduced photosynthesis	Cassava and maize yields down 20–40%
Land Abandonment	Due to persistent pollution	10–20% of agricultural plots unused
Water Compromise	Contamination with heavy metals	Aquifers strained, turbidity levels 2–3x above safe limits

Aim and Objectives of the Study

- ✓ To trace the historical evolution of the Ewekoro Cement Industry from its establishment in 1960 to its contemporary status as a major cement production facility in Nigeria, including key expansions and technological changes:
- ✓ Assess the socio-economic impacts of the industry on local livelihoods, including employment creation, infrastructure development, and community wellbeing.
- ✓ Evaluate the environmental effects of cement production activities on air quality, land use, water resources, and agricultural productivity in the host communities.
- ✓ Identify health challenges associated with industrial operations and community perceptions of pollution and wellbeing in Ewekoro and surrounding areas.
- ✓ Propose policy recommendations aimed at enhancing sustainable industrial practices and mitigating negative impacts on communities and ecosystems.

Significance of the Study

This study holds academic, policy, and practical value by illuminating the complex interaction between industrial activity and community wellbeing in Ewekoro. First, it contributes to scholarly understanding of industrial impacts by documenting both the positive and negative effects of cement production on host communities, an area where empirical evidence remains limited yet critically needed in environmental and development studies. Research has shown that cement production in Ewekoro significantly influences environmental quality affecting air, water,

land use, and local livelihoods while also shaping socio-economic dynamics such as employment and infrastructure development.

Second, the study offers insights for policy-makers and regulatory agencies concerned with environmental management and sustainable industrial policy. By synthesizing data on environmental degradation, land use change, and health perceptions among residents, the research highlights areas where enforcement of environmental standards and community engagement could be strengthened. This is particularly relevant for agencies responsible for monitoring industrial emissions and protecting ecosystem and public health.

Third, the research carries practical relevance for local communities and development practitioners. It provides evidence that can inform community advocacy, industrial accountability, and interventions designed to mitigate negative outcomes while enhancing local benefits such as job opportunities and economic activity. Understanding community perceptions of pollution and health risks further supports efforts to align industrial operations with sustainable development goals.

Finally, the study's findings can guide future research and comparative analyses on industrial sustainability in Nigeria and similar contexts, serving as a reference point for interdisciplinary investigations into industrialization, environmental conservation, and socio-economic development.

Scope and Limitation of the Study

This study focuses on the Ewekoro Cement Industry located in Ewekoro Local Government Area, Ogun State, Nigeria. It investigates the historical development of the industry from its establishment to its current operational status, as well as its socio-economic and environmental impacts on the host communities. The study examines key dimensions such as employment generation, local economic activity, environmental quality (air, land, water), and community perceptions of health and wellbeing. The geographical scope is limited to Ewekoro and neighbouring settlements directly affected by the cement production activities. The temporal scope covers the period from the inception of cement production in the area (1960s) to the present era, providing a longitudinal lens for understanding change and continuity in industrial and community dynamics.

Limitations of the Study:

While this study is designed to be comprehensive, a number of limitations constrain the extent of its findings:

- ✓ **Data Availability:** Access to historical records and detailed corporate data from the Ewekoro Cement Industry may be limited, as some archival materials and proprietary information may not be publicly accessible.
- ✓ **Environmental Measurement Constraints:** The study relies on secondary environmental data and community reports due to challenges in conducting independent scientific measurements (e.g., air quality indices and soil tests), which may limit the precision of environmental impact assessments.
- ✓ **Health Data Limitations:** Comprehensive medical records linking health outcomes specifically to industrial emissions are limited, which constrains the ability to

establish definitive causal relationships between industrial activities and community health conditions.

- ✓ Respondent Bias: Interviews and surveys conducted with community members and

stakeholders may reflect subjective perceptions, which could introduce bias into qualitative findings. Efforts will be made to triangulate these perceptions with secondary sources.

- ✓ Time and Resource Constraints: The scope of primary data collection may be

constrained by available time and resources, potentially limiting the number of respondents and the breadth of fieldwork.

Despite these limitations, the methodological design and triangulation of multiple sources aim to ensure credible and meaningful insights into the research problem, offering valuable contributions to scholarly, policy, and community discussions on industrial development and sustainability.

Research Methodology

This section outlines the research design, sources of data, methods of data collection, and techniques for data analysis that will guide the investigation of the Ewekoro Cement Industry and its impacts.

Research Design

The study will adopt a descriptive-qualitative research design with elements of historical research. This approach is appropriate because the study seeks to:

- ✓ Trace the historical evolution of the Ewekoro Cement Industry,
- ✓ Document and Historically reconstruct the socio-economic and environmental realities experienced by affected communities,
- ✓ Interpret and recommend the stakeholders' perceptions and community experiences within their socio-environmental context for major obstacles associated the Studied Subject matter to be overcome.

The historical dimension enables an exploration of the development trajectory of the industry from its inception to present day, while the descriptive and qualitative aspects allow for rich, contextsensitive insights into lived experiences and observed phenomena.

Sources of Data:

Data for this study will be drawn from both primary and secondary sources:

✓ Primary Data

- ☐ Questionnaires administered to selected members of host communities to capture perceptions of socio-economic and environmental impacts.
- ☐ Observational notes from site visits to Ewekoro and surrounding settlements.

✓ Secondary Data

- ☐ Archival records and historical documents related to the establishment and operation of the Ewekoro Cement Industry.
- ☐ Published studies, books, journal articles, government reports, and industry publications.
- ☐ Media reportage and environmental assessment reports pertinent to the cement industry in Ogun State.

Methods of Data Collection

✓ Questionnaires

- ☐ Structured questionnaires with closed and open-ended items will be distributed to a representative sample of residents.
- ☐ Questions will focus on perceived socio-economic benefits, environmental changes, and health concerns.

✓ Document Review

- ☐ Systematic review of secondary sources to construct a historical narrative and to contextualize empirical findings.

Techniques for Data Analysis

- Qualitative data from open-ended questionnaire items will be analyzed using thematic content analysis, identifying recurring themes, patterns, and interpretations relevant to the study objectives.
- Descriptive statistics (e.g., frequencies, percentages) will be used to summarize quantitative responses from questionnaires.
- Historical data will be synthesized into a coherent narrative to illustrate the evolution of the industry over time.

Ethical Considerations

- Participants will be informed about the purpose of the study and their voluntary involvement.
- Confidentiality and anonymity of respondents will be ensured.
- Permission will be obtained before conducting interviews or administering questionnaires.

Literature Review

Historical Background of the Ewekoro Cement Industry and Its Broader Context

The Ewekoro Cement Industry, operated by Lafarge Africa Plc (formerly known as West African

Portland Cement Company or WAPCO), is located in Ewekoro Local Government Area of Ogun State, southwestern Nigeria. Established in 1959, it is one of Nigeria's oldest and largest cement production facilities, with an annual capacity exceeding 10 million metric tonnes. This industry plays a pivotal role in Nigeria's economic landscape, contributing significantly to the construction sector, which drives infrastructure development across the country¹⁷. Nigeria, as West Africa's largest cement producer with a

total capacity of about 58.9 million metric tonnes per year, relies heavily on facilities like Ewekoro to meet domestic demand and support exports. However, the literature on this industry consistently reveals a dual narrative: substantial economic benefits juxtaposed against severe environmental degradation and public health risks. These findings underscore the tension between industrial growth and sustainable development, particularly in host communities where the impacts are most acutely felt.

Economic contributions include direct employment for thousands of locals, stimulation of ancillary businesses such as transportation and raw material supply, and infrastructure improvements like roads and schools funded through corporate social responsibility (CSR) initiatives. Yet, environmental challenges ranging from air and water pollution to soil contamination have led to widespread health issues, agricultural losses, and socio-spatial disruptions¹⁸. Studies spanning from the early 2000s to recent publications in 2024 highlight these issues, often calling for enhanced regulatory enforcement by bodies like the National Environmental Standards and Regulations Enforcement Agency (NESREA). The convergence of these findings emphasizes the need for integrated approaches involving government, industry, and communities to mitigate harms while maximizing benefits.

Environmental and Economic Impact: Insights from Olatunji and Colleagues

A seminal study by Olatunji et al. (2019) titled "Accounting for the Environmental Impact of Cement Production on Host Communities: A Case Study of Ewekoro, Nigeria" provides a comprehensive analysis of the dual-edged sword of cement production in the Ewekoro Local Government Area. Utilizing a descriptive survey design, the researchers collected data from 150 households through closed-ended questionnaires and interviews, analyzing responses with ChiSquare statistics at a 5% significance level¹⁹. Their findings reveal that cement production profoundly influences environmental quality, adversely affecting farmlands (reported by 75% of respondents), water sources (77%), rooftops (91% due to corrosive dust deposition), and air quality (68%). These environmental pressures stem from the extraction of raw materials like limestone, which leads to habitat destruction, and the emission of particulate matter during kiln operations and transportation²⁰.

Economically, the study highlights positive outcomes, such as job creation for local residents and increased monetary circulation through wages and supply chains. For instance, the factory employs over 1,000 direct workers and supports indirect employment in quarrying and logistics, contributing to local GDP growth. However, the association between industrial activity and degradation is statistically strong ($p < 0.05$ for each variable), indicating that economic gains come at a high ecological cost. Olatunji et al. argue that unchecked operations exert pressures on host communities, including reduced agricultural productivity due to soil alkalinity from dust fallout, which alters pH levels and nutrient availability. This study extends earlier works by emphasizing the need for hygienic waste treatment and stricter tax regimes to fund environmental remediation, aligning with Nigeria's broader push for sustainable industrialization under the Sustainable Development Goals (SDGs), particularly SDG 9 (Industry, Innovation, and Infrastructure) and SDG 11 (Sustainable Cities and Communities).

Expanding on this, a related investigation by Etim et al. (2021) in "Health Risk and Environmental Assessment of Cement Production in Nigeria" corroborates these findings, noting that Ewekoro's operations contribute to atmospheric PM_{2.5} levels that exceed World Health Organization (WHO) guidelines, leading to an estimated 49,100 premature deaths annually from air pollution in Nigeria. The study quantifies economic benefits, such as the factory's role in Nigeria's cement export market, but stresses that without carbon capture technologies, the environmental toll including deforestation for quarry expansion—will undermine long-term economic viability²¹.

Health and Environmental Challenges: Compliance With Regulatory Standards

Research into the health and environmental challenges posed by the Ewekoro cement factory consistently points to extensive pollution across multiple domains, with limited adherence to standards set by NESREA and other bodies. Afolabi et al. (2012) in "Assessment of Health and

Environmental Challenges of Cement Factory on Ewekoro Community Residents, Ogun State, Nigeria" analyzed 172 questionnaires from local residents, revealing widespread land degradation, air pollution, and noise levels exceeding NESREA's permissible limits (e.g., noise above 90 dB in industrial zones). The study documents air pollution as the primary concern (80.81% of respondents affected), leading to respiratory issues like asthma (19.7% prevalence) and heart disease (11%), attributed to prolonged exposure to particulate matter and gases such as SO₂ and NO_x²². This work underscores that environmental degradation often surpasses NESREA's minimum limits for emissions (e.g., PM₁₀ below 250 µg/m³ daily average), with dust fallout causing soil and water contamination. Effective collaboration is deemed essential, involving community-led monitoring, government enforcement, and industry adoption of cleaner technologies like bag filters and electrostatic precipitators. Expanding this, a 2024 study by Arowolo et al. on "Environmental impacts of cement production in Ewekoro" assessed surface water (Akinbo River) and vegetation over two years, finding elevated calcium carbonate levels (pH 6.43–7.41) and heavy metals like Fe and Cr slightly above WHO limits, though overall water parameters showed minimal alteration. Health surveys in the study indicated higher incidences of respiratory ailments among factory workers and residents, emphasizing the need for NESREA-mandated annual audits.

Further, Etim et al. (2021) highlight that cement plants like Ewekoro are major CO₂ emitters after the energy sector, contributing to acid rain and biodiversity loss. They advocate for sorption-enhanced water gas shift and microbial-induced calcite synthesis as sustainable mitigation strategies, noting non-compliance with NESREA's effluent discharge standards in many cases²³. Specific Environmental Parameters: Water Quality Near Lafarge Cement WAPCO

Investigations into water quality around the Lafarge facility reveal significant industrial discharge impacts. Olaleye and Oluyemi (2010) examined kiln emissions' effects on aquatic receptors, finding elevated total dissolved solids (TDS > 500 mg/L), suspended solids (TSS > 30 mg/L), and heavy metals such as iron (Fe up to 0.3 mg/L) and chromium (Cr up to 0.05 mg/L), exceeding NESREA and WHO drinking water standards (TDS < 500 mg/L, Cr < 0.05 mg/L). These elevations are linked to effluent

discharge into the Akinbo River, rendering water unsafe for domestic use and threatening aquatic life through bioaccumulation.

A more recent study by Oyinola et al. (2023) detected Cd, Cr, and Pb in downstream rivers, with concentrations posing risks to ecosystems. Regular monitoring is recommended, including quarterly sampling and bioremediation techniques like phytoremediation using local plants. Expanding on preventive interventions, Mbaka (2023) in a comparative Kenyan study notes similar issues, suggesting Ewekoro adopt integrated water management plans to align with SDG 6 (Clean Water and Sanitation)²⁴.

Land Use and Socio-Spatial Changes: Balancing Gains and Losses

Studies on land use dynamics indicates that cement production at Ewekoro exerts immense pressure on agricultural land, leading to socio-spatial transformations. A 2024 study titled "Balancing industrial growth and environmental sustainability: Land use implications of cement factory operations in Ewekoro, Nigeria" surveyed 233 respondents, identifying employment opportunities (Relative Importance Index, RII = 0.914) and social facilities provision (RII = 0.870) as key positives. However, adverse health effects from emissions were strongly perceived, with quarry expansion converting farmlands into degraded sites, exacerbating food insecurity²⁵. Remote sensing analyses from 1986–2015 show decreased vegetal cover, increased built-up areas, and bare surfaces due to mining. Respondents advocate for green technologies, such as alternative fuels (e.g., biomass) to reduce fossil fuel dependency, and land reclamation post-quarrying. This aligns with broader literature on Nigeria's cement sector, where socio-spatial changes include urban sprawl around factories, displacing traditional livelihoods while fostering economic hubs²⁶.

Biophysical Effects: Impact on Agricultural Productivity

Studies on biophysical effects demonstrate that cement dust deposition undermines plant physiology. A focused investigation on maize (*Zea mays*) around Ewekoro found reduced chlorophyll content (up to 30% decrease) and disrupted photosynthesis due to stomatal blockage by alkaline dust. This leads to lower crop yields, with dust layers reducing light penetration and increasing leaf temperature, stressing plants like cassava and sugarcane as well.

Salami et al. (2002) reported smaller basal areas and heights in local tree species, attributing this to combined effects from Ewekoro and nearby dust sources. These agronomic impacts reinforce rural livelihood vulnerabilities, with recommendations for buffer zones planted with dust-tolerant species like neem trees to mitigate fallout²⁷.

Heavy Metal Contamination: Ecological and Health Hazards

Assessments of heavy metal contamination reveal elevated levels in soils and plants, posing longterm risks. Okoro et al. (2017) found Pb (35.43 mg/kg), Zn (213.64 mg/kg), Cr (35.60 mg/kg), and Cu (41.63 mg/kg) in soils, with Cr exceeding allowable limits (WHO soil guideline < 100 mg/kg for Cr). Plants bioaccumulated these metals above permissible levels (e.g., Zn > 100 mg/kg in vegetables), indicating transfer to the food chain. Ecological risk indices ranged from 49.71 to 749, classifying areas as low to extremely contaminate. Stricter oversight, including soil amendments with organic matter to bind metals, is urged to prevent health hazards like neurological damage from Pb exposure.

Community Perceptions: Air Pollution and Public Health

Empirical studies on perceptions show high awareness of air pollution's health links. Oguntoke et al. (2012) surveyed residents, finding widespread concerns over PM10 emissions causing respiratory diseases. In Ewekoro, 72% of respondents linked pollution to health risks, with prevalence rates higher than in control areas²⁸. Air pollution negatively affects public health (significant negative relationship), advocating for community engagement in monitoring. These social dimensions highlight the need for health education and CSR-focused clinics.

Synthesis and Recommendations for Sustainable Development

Collectively, the literature demonstrates that while Ewekoro contributes to economic activity— supporting Nigeria's infrastructure boom it presents formidable environmental and health challenges. Economic metrics show job creation and GDP contributions, but at the cost of pollution exceeding standards, agricultural decline, and health burdens like a 19.7% asthma rate. Achieving sustainability requires integrated policies: enhanced NESREA enforcement, adoption of green technologies (e.g., carbon capture), community-inclusive CSR, and regular impact assessments. Proactive stakeholder engagement can transform Ewekoro into a model for balanced industrial development, aligning with Nigeria's Vision 2050 for environmental resilience.

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The Historical Evolution and Geographical Survey of Ewekoro and Cement Industry

Recent past studies conducted have stated Ewekoro Local Government Area (LGA) in Ogun State, south-western Nigeria, occupies a strategic position within the eastern segment of the Dahomey Basin (also known as the Benin Basin), a major Cretaceous-to-Tertiary sedimentary basin extending along the West African coast from Ghana through Togo, Benin, and into south western Nigeria. This basin is renowned for its thick sequences of sedimentary rocks, particularly the Paleocene-Eocene limestone formations of the Ewekoro Formation, which have proven vital for industrial development due to their highquality calcium carbonate content suitable for cement production¹. The Ewekoro Formation, first systematically described in the 1960s, consists primarily of fossiliferous limestones (often glauconitic in parts), intercalated with shales and marls, deposited in shallow marine to transitional environments during a period of marine transgression following the Cretaceous. These deposits, traceable over hundreds of kilometers, feature high calcite purity (frequently exceeding 90% in economic zones), low impurities in select layers, and thicknesses ranging from 10–15 meters in exposed sections, making them one of Nigeria's premier limestone resources for Portland cement manufacturing².

The historical origins of the Ewekoro area traced back to pre-colonial Yoruba settlements, with the indigenous inhabitants belonging predominantly to the Egba-subgroup of the Yoruba ethnic group, particularly the Egba Owus (or Egba Owu variant). The etymology of "Egba" is debated among historians and linguists, but a prominent interpretation derives from "Ègbálugbó" or similar terms meaning "wanderers towards the forest" or "those who wandered into the forest." This reflects the migratory history of Egba communities during the collapse and disintegration of the Oyo Empire in the late 18th and early 19th centuries. As the once-dominant Oyo Empire weakened due to internal strife, external pressures (including Fulani jihad incursions and regional wars), and slave raids, various Yoruba subgroups including the Egbas fled southward in search of refuge. Oral traditions and historical accounts describe these migrations as chaotic yet purposeful, with Egba groups moving from original settlements around Orile Owu, forested areas near presentday Ibadan, and other northern Yoruba territories into the denser, protective forests of what became Egba heartland³. These migrations, peaking around 1825–1830, led to the establishment of agrarian settlements focused on subsistence farming (cassava, maize, yams, and cash crops), petty trade along interregional routes, and communal governance under traditional chieftaincy systems. The Egbas, like other Yoruba migrants, adapted to the forested environment, forming loose confederacies for defense against threats from neighboring powers such as Dahomey and remnants of Oyo/Ibadan conflicts. In the broader Egba context, this period culminated in the founding of Abeokuta

around 1830 under leaders like Sodeke, who sought natural fortifications (e.g., Olumo Rock). While Abeokuta became the central Egba hub, peripheral settlements, including those in what is now Ewekoro remained rural outposts, maintaining strong ties to Egba identity and culture⁴.

Modern administrative history marks a significant shift. Ewekoro LGA was formally created on May, 22nd 1981, during the civilian administration of Ogun State Governor Chief O Labisi Onabanjo (often referred to as Bisi Onabanjo), as part of efforts to decentralize governance, promote local development, and address regional needs in post-military Nigeria. Prior to this, the area had been merged with neighboring territories (notably Ifo LGA) under military restructuring in 1984¹. It was restored as an autonomous entity on December 16, 1996, by the Federal Military Government under General Sani Abacha, alongside other LGAs in Ogun State, increasing the state's total from 15 to 20. The headquarters is at Itori, with principal settlements including Papalanto (often the industrial focal point), Arigbajo, Wasimi, Obada, Elere, Owowo, Mosan, Abalabi, Yobo, and Onigbedu. Pre-industrial Ewekoro remained predominantly rural and agrarian, with communities relying on farming, local trade along routes linking Abeokuta, Lagos, and other southwestern centers, and traditional Yoruba social structures⁵.

Recent past studies conducted have pointed out that the cement industry's historical "movement" into Ewekoro began in the late colonial and early post-independence period, driven by Nigeria's urgent push for import substitution industrialization and exploitation of local mineral resources. Geological reconnaissance and detailed surveys in the 1950s building on earlier colonial-era mapping identified the vast, high-grade limestone reserves in the Ewekoro Formation as ideal for large-scale Portland cement production. These deposits offered proximity to transport corridors, water sources, and markets in Lagos and beyond, while addressing Nigeria's heavy reliance on imported cement amid rising construction demands. This led to the establishment of the West African Portland Cement Company (WAPCO) in 1959, as a joint venture between Blue Circle Industries (UK, majority stakeholder via Associated Portland Cement Manufacturers), the United Africa Company (UAC) of Nigeria, and the Western Region Government of Nigeria. The venture was strategically motivated: to counter competition from the newly commissioned Niger Cem plant in Nkalagu (Eastern Nigeria) and capitalize on southwestern limestone to reduce import dependency. The Ewekoro plant adopted a capital-intensive dry-process technology initially, producing the famous "Elephant" brand Portland cement. Production officially commenced on December 3, 1960, with the lighting of the first kiln, marking the beginning of organized large-scale cement manufacturing in southwestern Nigeria and contributing to national self-sufficiency efforts post-independence⁶.

Furthermore, this industrial entry symbolized a profound "movement" from colonial-era import reliance to domestic production, aligning with broader post-1960 industrialization policies. Over the decades, the industry underwent significant evolution: ownership shifted with Lafarge (France) acquiring Blue Circle's stake in 2001 (following Lafarge's global takeover of Blue Circle), rebranding to Lafarge Cement WAPCO Plc (later Lafarge Africa Plc). Key expansions included a new wet-process plant commissioned in 2003 (adding 1.32 million tonnes capacity to address aging infrastructure) and the Ewekoro II line in 2011 (adding ~2.2–2.5 million tonnes, with associated power

infrastructure). Most recently, in 2025, China's Huaxin Cement acquired a majority stake (~83.81%) from Holcim (Lafarge's parent) for approximately \$1 billion, signaling continued foreign investment and potential for further modernization amid Nigeria's cement boom². This transformation has profoundly reshaped Ewekoro: from a quiet rural agrarian enclave dominated by farming and trade, it has become an industrial hub. The cement plant's presence has spurred urbanization, in-migration (for jobs in quarrying, logistics, and support services), population growth, improved infrastructure (roads, power), and economic diversification, while also introducing environmental and social challenges discussed in later chapters. The interplay between geological endowment, historical migration, administrative evolution, and industrial insertion underscores Ewekoro's unique trajectory in Nigeria's development story⁷.

Geographical Location of Ewekoro Cement Industry

The Lafarge Africa Plc cement plant (formerly known as the West African Portland Cement Company, or WAPCO) is strategically located along the Lagos-Abeokuta Expressway in southwestern Nigeria. Its precise coordinates are approximately 6°53'37"N to 6°54'20"N latitude and 3°12'19"E to 3°12'26"E longitude (with Ewekoro 1 at roughly 6.893522°N, 3.205342°E and Ewekoro 2 nearby at 6.902791°N, 3.207143°E). The facility is situated in the vicinity of Ewekoro town, with immediate neighboring communities including Papalanto (to the south), Onigbedu, Itori (the LGA headquarters), Arigbajo, Obada, and Elere⁸. This positioning places the plant in a peri-urban to rural-industrial transition zone, where agricultural lands and settlements are in close proximity to quarrying and production activities. Similarly, the plant complex lies entirely within Ewekoro Local Government Area (LGA) of Ogun State, which covers a land area of approximately 594 km² (though some older administrative records cite around 63.5–600 km² variations due to boundary adjustments). Ewekoro LGA is bounded to the west by Yewa South LGA, to the south by Ifo LGA, to the north by Abeokuta North LGA, and to the east by Obafemi Owode LGA. Ogun State itself is bordered by the Republic of Benin to the west, Lagos State and the Bight of Benin to the south, Ondo State to the east, and Oyo and Osun States to the north. The plant's location benefits from excellent connectivity via the Lagos-Abeokuta Expressway (a major federal highway linking Lagos metropolis to the interior) and supporting rail links, enabling efficient inbound transport of supplementary raw materials (such as gypsum from various Nigerian sources and clay/shale from local or regional deposits) and outbound distribution of cement to high-demand markets in Lagos, Abeokuta, and beyond⁹.

Geologically, the Ewekoro area is situated in the eastern Dahomey Basin (also known as the Benin Basin), a Mesozoic-Cenozoic sedimentary basin extending from southeastern Ghana through Togo, Benin, and into southwestern Nigeria. This basin formed during the separation of the African and South American continents, with thick sedimentary sequences deposited in response to rifting and subsequent marine transgressions. The cement plant specifically exploits the Ewekoro Formation, a Paleocene to early Eocene (approximately 66–50 million years ago) stratigraphic unit characterized by thick, fossiliferous limestone beds intercalated with shale, marl, sandy limestone, and minor phosphatic or glauconitic layers¹⁰. The Ewekoro Formation is renowned for its high-quality limestone, primarily composed of calcium carbonate (CaCO₃) in the form of calcite, with average CaO content ranging from 45–53 wt% (often around 46–48% in quarry analyses,

competitive with or slightly below ideal cement-grade thresholds of ~56% but suitable with blending or processing adjustments). It includes minor impurities such as SiO₂ (1–14 wt%, averaging ~5%), Fe₂O₃ (~1–3%), MgO (up to 15% in some zones but typically low), Al₂O₃ (~1–2%), and trace elements. The limestone is fossiliferous, containing allochems like coralline algae, gastropods, pelecypods, echinoid fragments, bivalves, sponges, foraminifera (e.g., benthic species like *Anomalinoidea*, *Cibicides*, and *Gavelinella*), and non-skeletal grains (pellets, ooids, intraclasts). Microfacies include grainstone, packstone, and wackestone, reflecting shallow marine depositional environments with varying energy levels from low-energy, quiet lagoons to higher-energy shoals³. The formation's thickness varies but is typically 12–16 m in exposed quarry sections (e.g., 12–15 m in Ibese and Ewekoro areas), though subsurface data from boreholes indicate localized thickening up to 20 m or more. These deposits represent some of Nigeria's largest and most accessible limestone reserves for industrial use, with historical estimates for the broader Ewekoro/Sagamu region in the tens to hundreds of millions of tonnes (e.g., early surveys noted ~31–36 million tonnes at specific sites, but cumulative basin-wide reserves are far larger, supporting multiple cement plants). The limestone's calcitic nature, high purity in CaCO₃, and proximity to the surface make it ideal for clinker production via quarrying (blasting, crushing, and loading) directly at the plant site⁴.

Studies interacted with have indicated that the plant historically employed a combination of production processes: initial operations (from 1960) used wet-process kilns for flexibility with variable raw materials, but expansions (notably the 2003 wet-process addition and later upgrades) shifted toward more efficient dry-process methods with preheater kilns. Current and recent configurations emphasize dry-process technology (preheater/precalciner kilns, vertical raw mills, roller presses for cement milling) to enhance energy efficiency, reduce fuel consumption, and lower emissions. On-site quarrying operations involve large-scale extraction through controlled blasting in benches, followed by crushing, grinding, and transport to the kiln feed system. Supplementary fuels (e.g., biomass like oil palm residues and rice husks via Lafarge's Geocycle subsidiary since ~2014) are increasingly co-processed to substitute fossil fuels (natural gas, coal), aligning with sustainability goals⁵.

Topographically, Ewekoro LGA features gently undulating terrain with low hills, shallow valleys, and occasional marshy depressions typical of the coastal plain transition zone between the Nigerian sedimentary lowlands and the interior. Elevations are generally low (50–150 m above sea level), facilitating easy quarrying but also increasing vulnerability to dust dispersion and runoff impacts. The climate is tropical wet-and-dry (Aw Köppen classification), influenced by the West African monsoon: annual rainfall averages 1,200–1,500 mm (peaking May–October during the wet season, with heavy convective storms), while the dry season (November–March) brings the harmattan dust haze. Temperatures remain consistently warm, averaging 26–28°C year-round (daily highs often 30–34°C). This regime supports lush vegetation in undisturbed areas (secondary rainforest transitioning to derived savanna) but exacerbates environmental concerns around the plant, such as dust fallout during dry seasons, surface water contamination from runoff, and strain on local aquifers used for plant cooling/processing⁶. Furthermore to the above the site's strategic advantages proximity to abundant limestone reserves, reliable transport corridors (Lagos Abeokuta road/rail for market

access), nearby water sources (streams and groundwater for process needs), and existing power infrastructure have sustained operational viability since 1960. However, these same factors contribute to ongoing environmental and community challenges, including air quality degradation from particulate emissions, noise/vibrations from quarrying, and land use conflicts with agriculture in surrounding villages. Mitigation efforts by Lafarge (now under Huaxin majority ownership since 2025) include dust suppression systems, alternative fuel adoption, and community programs, though enforcement and monitoring remain critical for long-term sustainability⁷.

Ethnic Composition of the Ewekoro People

The population of Ewekoro Local Government Area (LGA) remains predominantly Yoruba, with the Egba subgroup particularly the Egba Owus (also referred to as Egba Owu or Owu-influenced Egba branches) forming the indigenous majority and core cultural backbone of the area.

This ethnic profile aligns closely with the broader demographic pattern of Ogun Central Senatorial District, where Egba communities dominate six LGAs, including Ewekoro, Abeokuta North, Abeokuta South, Ifo, Obafemi Owode, and Odeda⁸.

Historical Origins and Migration Context

Previous studies conducted have stressed that the Egba people, as a distinct Yoruba subgroup, traced their roots to migrations during the turbulent 18th–19th centuries amid the decline of the Oyo Empire. Oral traditions and historical accounts describe the Egba as "wanderers towards the forest" (from "Ègbálugbó"), reflecting their southward movements from Oyo-controlled territories to escape oppression, slave raids, and internecine wars involving groups like the Dahomey Kingdom and rival Yoruba factions. Key leaders such as Lisabi Agbongbo Akala played pivotal roles in resistance and unification, liberating Egba communities from exploitative Oyo rule and fostering a sense of collective identity⁹.

In the Ewekoro region specifically, settlements were established by Egba migrants who integrated into forested, agrarian landscapes ideal for farming. Sub-branches like the Egba Owu (linked to Owu Kingdom influences) predominate in core areas such as Papalanto, Itori, and surrounding villages. These groups maintained distinct chieftaincy structures while aligning under broader Egba governance frameworks, such as those headed by the Alake of Egbaland in nearby Abeokuta. The 1830 founding of Abeokuta as a fortified refuge under leaders like Sodeke further solidified Egba presence in the wider region, with spill over settlements extending into what became Ewekoro LGA¹⁰.

Current Population and Growth Dynamics

The official 2006 Nigerian National Population Census recorded 55,093–55,156 residents for Ewekoro LGA (with minor variations across sources due to enumeration differences). Post-2006 figures rely on projections from the National Population Commission (NPC) and independent estimates, as no full national census has been conducted since (the planned 2023 census remains pending).

Recent Projections Indicate Significant Growth:

- ✓ Approximately 93,700 by 2022 (NPC cohort-component model, assuming consistent state-level growth rates of ~3.4% annually).

- ✓ Estimates around 96,801 for 2025 in some compilations for Ogun State LGAs.
- ✓ Other sources suggest figures between 78,434 (mid-range estimates) and over 100,000 in more recent informal projections (e.g., 2018–2020 studies citing >100,000).

This expansion reflects an average annual growth rate of about 3–3.4%, higher than national averages in some periods, largely attributable to industrial in-migration and peri-urbanization driven by the Lafarge Africa Plc cement plant (formerly WAPCO) and ancillary activities. The industry's presence since 1960 has attracted workers and traders, boosting population density to around 147–150 persons per km² (on a land area of ~594–636 km²). Settlements like Papalanto,

Itori, Arigbajo, Wasimi, Obada, and Elere have experienced notable influxes, shifting parts of the LGA from purely rural to rural-peri-urban character¹¹.

Ethnic Composition and Diversity

Ethnic homogeneity remains strong, with Yoruba (Egba dialect predominant) serving as the primary language for daily communication, local governance, markets, and cultural expression. The Egba Owus variant emphasizes communal values, agricultural heritage, and historical resilience.

Minor Non-Indigenous Elements Include:

- ✓ Migrants from other Yoruba subgroups (e.g., Awori, Ijebu, and Remo variants), drawn by job opportunities.
- ✓ Smaller groups from northern Nigeria (e.g., Hausa/Fulani traders or laborers in quarrying, logistics, and petty trading).
- ✓ Occasional migrants from other parts of Nigeria or West Africa, though these remain limited.

This diversity is recent and industry-linked, with indigenous Egba residents still comprising the overwhelming majority (likely >90–95% based on regional patterns).

Socio-Economic and Cultural Aspects of the People of Ewekoro:

Traditionally, livelihoods centered on subsistence farming (cassava, maize, yams, vegetables), petty trading, and communal resource management. Industrialization has diversified this base: direct employment at the cement plant (~1,000 workers, many local), indirect jobs in quarrying, transportation, maintenance, and small businesses, plus CSR-driven initiatives (e.g., skills acquisition, youth empowerment, health/education support from Lafarge)¹².

Cultural Life Remains Deeply Rooted in Yoruba-Egba Traditions:

- ✓ Chieftaincy Systems — Hierarchical structures with baales (village heads), obas (kings), and high chiefs overseeing land, disputes, and rituals. Local leaders collaborate with broader Egba authorities (e.g., Alake of Egbaland).
- ✓ Festivals and Ceremonies — While Ewekoro-specific events are tied to local customs, residents participate in regional Egba celebrations like the annual Lisabi Festival (Ègbáliganza or Lisabi Day), honoring hero

Lisabi through processions to Igbo Lisabi (sacred forest), cultural displays, regalia, music, dance, and tributes. This festival, held around February–April in Abeokuta with extensions to communities, features traditional attire (agbada, iro and buba, coral beads), football competitions, exhibitions of Adire/Ofi fabrics, and prayers for unity/prosperity.

- ✓ Religious Landscape — Christianity (predominant in many areas), Islam, and indigenous beliefs coexist harmoniously, with syncretic practices in festivals and life-cycle events (naming, marriage, funerals).
- ✓ Communal Land Tenure — Family/lineage-based ownership persists, though industrial quarrying has sparked tensions over access and compensation.

Influence On Community-Industry Relations

This ethnic and cultural composition profoundly shapes interactions with the cement industry. Indigenous Egba residents, valuing ancestral land ties and environmental stewardship, frequently raise concerns about land acquisition for quarrying, pollution (dust, noise, water impacts), and job equity often noting preferences for skilled outsiders or non-locals in technical roles¹³. At the same time, they benefit from economic multipliers: wage injections, infrastructure improvements (roads, power), CSR programs (health clinics, scholarships, agricultural tools, elderly support), and indirect opportunities in supply chains. These dynamics underscore a complex relationship economic gains tempered by calls for equitable benefits, stronger environmental safeguards, and greater local inclusion in high-value positions highlighting the need for sustained dialogue between industry, traditional leaders, and communities to foster truly inclusive development.

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Ewekoro Cement Industry; Emergence, Growth And Impact On Ewekoro's Society And Economy And The Quest For Its Founding Fathers

However, it is worthy to note that studies conducted have pointed out that the emergence of the cement industry in Ewekoro is deeply rooted in the collaborative efforts of the late colonial and early post-independence eras in Nigeria, a period marked by urgent national aspirations for industrial self-reliance, import substitution, and economic diversification. Prior to the 1950s, Nigeria depended almost entirely on imported cement, primarily from the United Kingdom and other European sources, which incurred high costs due to shipping, tariffs, and foreign exchange demands. The discovery and appraisal of substantial limestone deposits in South-Western Nigeria particularly in the Ewekoro Formation of the eastern Dahomey (Benin) Basin presented a strategic opportunity to establish domestic production¹. Similarly, Geological surveys of the mid-20th century confirmed the presence of high-quality limestone reserves in Ewekoro, characterized by thick beds of Paleocene-Eocene sedimentary rocks rich in calcium carbonate (often exceeding 90% calcite in pure zones, with low impurities in SiO₂, MgO, and other elements suitable for Portland cement clinker manufacturing). These deposits, estimated in early assessments to support millions of tonnes of extraction, were among the most accessible and economically viable in the region, with favorable chemistry (e.g., CaO ~53%, CO₂ ~42%, minor Fe₂O₃, Al₂O₃, and P₂O₅) that met or approached international standards for cement raw materials².

However, studies have further shown that this resource potential converged with growing domestic demand for cement, driven by post-World War II reconstruction, infrastructure projects, housing needs, and the emerging construction boom. Competition intensified with the establishment of Nigeria's first indigenous cement plant: the Nigerian Cement Company (NigerCem) at Nkalagu in the Eastern Region (now Ebonyi State), commissioned in 1957 (with production starting around that time after initial setup in 1954–1955). NigerCem, backed by the Eastern Regional Government, began supplying cement to eastern and parts of central Nigeria, prompting southwestern leaders to respond swiftly to avoid market dominance by the east and secure regional industrial balance³. In this context, the West African Portland Cement Company (WAPCO) was formally incorporated on February, 26th, 1959, as a joint venture structured to combine international expertise, local commercial networks, and governmental commitment to industrialization. Unlike ventures led by singular visionary individuals (as seen in some later Nigerian enterprises like Dangote Cement), WAPCO's founding was predominantly institutional and corporate-led, reflecting the era's collaborative model for large-scale infrastructure projects⁴.

The Primary Founding Partners and Their Contributions Were:

- Associated Portland Cement Manufacturers (APCM), later rebranded as Blue Circle

Industries (United Kingdom), which held the majority stake of approximately 51%. Blue Circle was then one of the world's foremost cement producers and had long been Nigeria's dominant supplier of imported cement. Their pivotal role included providing advanced technical know-how, engineering design, capital investment, and operational expertise. APCM/Blue Circle introduced the

capital-intensive dry-process kilning technology initially adopted at Ewekoro, which emphasized efficiency in fuel and raw material use compared to wet processes prevalent elsewhere. This technical edge was crucial for establishing a competitive local facility⁵.

- United Africa Company of Nigeria (UAC), a powerful subsidiary of Unilever operating across West Africa, contributed about 10% stake. UAC supplied invaluable local market intelligence, established distribution channels, logistical infrastructure (including transport and warehousing), and commercial acumen honed from decades of trading in colonial and early independent Nigeria. Their involvement ensured the new plant's products could penetrate domestic markets effectively⁶.
- Western Region Government of Nigeria, through the Western Nigeria Development Corporation (WNDC), held a substantial 39% stake. This reflected the progressive industrialization agenda of the Western Region under leaders like Chief Obafemi

Awolowo, who prioritized harnessing local resources for economic empowerment. The WNDC's participation provided governmental backing, land allocation, policy support, and alignment with national import-substitution goals, while ensuring regional equity in industrial development⁷.

The total initial investment was around £5 million (a significant sum at the time), funded jointly by these partners. The plant's strategic siting in Ewekoro was deliberate: vast, high-purity limestone reserves lay adjacent to the site, minimizing haulage costs (raw materials account for 70–80% of cement production expenses); the location along the Lagos-Abeokuta road offered excellent accessibility for equipment imports, fuel supply, and product distribution to high-demand urban centers like Lagos; and proximity to South-Western markets reduced transport overheads compared to imported cement, where factory-gate prices were often half the landed cost after tariffs and freight⁸.

Production officially commenced on December 3, 1960, with the lighting of the first kiln (Kiln No. 1, with an initial capacity of 200,000 tonnes per annum). This milestone marked the birth of organized, large-scale cement manufacturing in South-Western Nigeria, producing the iconic "Elephant" brand Portland cement named for its strength and reliability, quickly becoming a household name in construction. Early output focused on meeting regional demand while competing directly with NigerCem and imports⁹.

Subsequent Expansions Demonstrated Resilience and Adaptation:

- 1964: Installation of Kiln No. 2, doubling capacity to 400,000 tonnes per annum (TPA).
- 1972: Addition of Kiln No. 3, raising total capacity to 700,000 TPA.
- Peak pre-modernization production reached around 706,500 tonnes in 1977.
- A second plant was commissioned in Sagamu in 1978 (wet-process, initial 600,000 TPA, later upgraded to ~900,000 TPA).

Ownership Evolved Through Globalization and Privatization Waves:

- In 2001, Lafarge SA (France) acquired Blue Circle Industries globally, gaining control of WAPCO.
- By 2008, the company was renamed Lafarge Cement WAPCO Nigeria Plc to reflect full integration into Lafarge's operations.
- Modernization efforts included replacing the aging 1960s dry-process plant with a state-of-the-art facility commissioned in 2003 (1.32 million TPA, wet-process adoption for efficiency), inaugurated by President Olusegun Obasanjo.
- The Ewekoro II brownfield expansion (2.5 million TPA) was commissioned in 2011 by President Goodluck Jonathan, doubling the site's capacity to 4.5 million TPA and boosting national supply amid housing and infrastructure drives.
- Most recently, in 2025, China's Huaxin Cement completed its acquisition of an 83.81% stake from Holcim (Lafarge's post-merger parent) for approximately USD 774 million–1 billion (deal closed August 29, 2025, after regulatory and legal hurdles), marking a shift to Chinese strategic ownership while Lafarge Africa remains publicly listed and operationally focused on Nigeria.

These founding entities and successive transformations laid the enduring foundation for one of Nigeria's oldest, most resilient, and strategically vital cement facilities. From a modest 200,000 TPA start in 1960, the Ewekoro complex has grown into a key pillar of Lafarge Africa's ~10.5–10.6 million TPA Nigerian operations (including Sagamu and other assets), symbolizing the transition from colonial import dependence to domestic industrial strength, while anchoring socioeconomic development in Ewekoro and beyond¹⁰.

Government Policies And Impact On Ewekoro Cement Industry

Studies interacted with have argued that Governmental policies have profoundly shaped the trajectory of the Ewekoro cement industry (now under Lafarge Africa Plc, majority-owned by China's Huaxin Cement since 2025), transforming it from a modest joint-venture operation reliant on imported cement markets to a key contributor to Nigeria's domestic dominance and emerging export capability in the sector. These policies reflect evolving national priorities: from colonial-era and early post-independence import substitution, through structural adjustment-era liberalization, to targeted industrial protectionism in the 2000s, and more recent emphasis on sustainability and environmental compliance¹¹.

Foundational Policy Context (1950s–1960s): Import Substitution And The Quest For Industrialization (ISI)

In the late colonial and immediate post-independence period, Nigeria pursued Import Substitution Industrialization to foster self-reliance, reduce foreign exchange outflows, and exploit local resources. The Western Region Government, under leaders like Chief Obafemi Awolowo, actively promoted regional development through joint ventures in strategic sectors¹².

This policy environment directly enabled the establishment of the West African Portland Cement Company (WAPCO) in 1959 as a tripartite partnership involving Blue Circle Industries (UK) (majority stake), United Africa Company of Nigeria (UAC), and the Western Nigeria Development Corporation (WNDC) (39%

stake). The siting in Ewekoro capitalized on the high-quality limestone deposits in the Dahomey Basin, aligning with national goals to harness indigenous raw materials for basic industries¹³.

Early National Development Plans Reinforced this Approach:

- The First National Development Plan (1962–1968) prioritized industrial growth, infrastructure, and self-financing through savings accumulation, supporting cement as a foundational input for construction.
- The Second National Development Plan (1970–1974), post-civil war, emphasized upgrading local production of intermediate goods, linking cement to agriculture, transport, and mining.

These plans facilitated WAPCO's initial operations (1960 kiln lighting) and incremental expansions (e.g., additional kilns in 1964 and 1972), establishing Ewekoro as a southwestern anchor amid rising post-war reconstruction demand¹⁴.

Liberalization and Privatization (1980s–1990s)

The Structural Adjustment Programme (SAP) of 1986 under Ibrahim Babangida shifted toward market liberalization, privatization, and reduced state intervention. This era saw stagnation in cement capacity (no new plants 1980–2000), declining local production (from ~3.5 MMTPA peak in 1986 to ~2.28 MMTPA by 2000), and surging imports (from 0.8 MMTPA to 3.34 MMTPA). Legacy plants like WAPCO faced obsolescence and inefficiency¹⁵. The return to democracy in 1999 under Olusegun Obasanjo accelerated privatization drives, divesting state-owned enterprises. This paved the way for foreign investment: Lafarge SA (France) acquired Blue Circle in 2001, gaining control of WAPCO (renamed Lafarge Cement WAPCO Nigeria Plc by 2008). Privatization injected capital for modernization while aligning with broader economic reforms¹⁶.

Landmark Policy: Backward Integration Policy (BIP) – 2000 Up To The Period Under Review:-

The Backward Integration Policy (BIP), introduced in 2002 under President Olusegun Obasanjo, marked a pivotal shift. Originating from discussions with major importer Aliko Dangote (who noted higher profitability in importation over production), the BIP mandated that cement import licenses be granted only to companies proving investment in domestic manufacturing¹⁷. Key incentives included:

- Waivers on VAT and customs duties for cement production equipment imports.
- Access to long-term credit and preferential limestone concessions.
- Protectionist measures (tariffs, levies, phased import restrictions) against unchecked foreign cement.

The Policy's Enforcement Transformed the Sector:

- National Reversal From Importer to Self-Sufficient/Exporter: Pre-BIP (early 2000s), Nigeria imported heavily (e.g., ~\$304 million foreign exchange loss at 2008 peak). By mid-2010s, self-sufficiency was achieved; production exceeded demand by 2012–2015, with occasional exports.
- Capacity Surge: Installed capacity rose from ~4 MMTPA (producing ~2 MMTPA) pre-BIP to ~45

MMTPA (producing ~28 MMTPA) by ~2012–2013, reaching over 60–65

MMTPA by the mid-2020s (including Dangote ~32–35 MMTPA, Lafarge ~10.5 MMTPA, BUA ~11–17 MMTPA)¹⁸.

- Direct Impact on Ewekoro/Lafarge: The BIP spurred modernization and expansion. The obsolete 1960s dry-process plant was replaced in 2003 with a modern wet-process facility (commissioned ~1.32 MMTPA). In 2011, the Ewekoro II (Lakatabu) brownfield plant added ~2.2–2.5 MMTPA, doubling site capacity to ~4.5 MMTPA (contributing to Lafarge's national ~10.5 MMTPA footprint across Ewekoro, Sagamu, Ashaka, and Mfamosing).
- Broader Effects: Privatization of moribund plants, attraction of foreign direct investment

(e.g., Lafarge's integration), stimulation of ancillary sectors (logistics, quarrying, bagging), and job creation (tens of thousands nationally). It positioned Nigeria as West Africa's largest Producer and Sub-Saharan exporter.

Subsequent frameworks like the National Economic Empowerment and Development Strategy

(NEEDS), Vision 20:2020, Economic Recovery and Growth Plan (ERGP), and National Development Plan 2021–2025 sustained momentum, emphasizing sustainable industrialization, infrastructure, and green growth¹⁹.

Environmental and Sustainability Policies In Contemporary Period:-

Post-BIP, NESREA (National Environmental Standards and Regulations Enforcement Agency, established 2007) introduced stricter emissions, effluent, and waste standards. Regulations on particulate matter (PM), NO_x, SO₂, and heavy metals have pushed compliance, though enforcement gaps remain²⁰. For Lafarge Africa, this reinforced sustainability:

- ✓ Adoption of alternative fuels (biomass co-processing, e.g., oil palm kernels, rice husks) at Ewekoro since 2014, reaching up to 40% substitution in some periods, reducing fossil fuel reliance and aligning with plans for ≥35% alternative fuels by 2023.
- ✓ Investments in pollution controls (e.g., ~7.5–8 million CHF for baghouse filters replacing electrostatic precipitators at Ewekoro in recent years) to curb stack emissions.
- ✓ Partnerships (e.g., 2025 MoU with Lagos State for waste-to-energy co-processing) to divert non-recyclable waste to kilns.

These policies turned Ewekoro into a model of policy-driven industrial growth: economic multipliers (jobs, taxes, CSR), reduced import dependency, and export potential. However, challenges persist: enforcement inconsistencies, environmental compliance costs, community tensions over pollution, and market glut risks amid excess capacity (~65 MMTPA vs. ~30–32

MMTPA demand in recent years). Balanced implementation remains key to sustainable benefits²¹.

Availability, Accessibility and Proximity Of Cement Industry To Raw Materials

Studies conducted have stressed that siting and sustained viability of the Ewekoro cement plant (operated by Lafarge Africa Plc, formerly West African Portland Cement Company or WAPCO) are fundamentally anchored in the exceptional availability, superior quality, strategic proximity, and economic extractability of raw materials chiefly limestone, supplemented by clay/shale, gypsum, and other minor additives. This resource endowment has been the primary locational determinant since the plant's inception in 1959–1960, enabling consistent, cost-effective production over more than six decades amid Nigeria's evolving cement industry landscape²².

Geological Context: The Ewekoro Formation Within the Eastern Dahomey Basin

The Ewekoro plant draws its principal raw material from the Ewekoro Formation, a Paleocene to

Eocene (approximately 66–34 million years ago) carbonate unit within the eastern segment of the Dahomey Basin (also known as the Benin Basin or Dahomey Embayment). This sedimentary basin stretches along the Gulf of Guinea coast from South-Western Ghana through Togo, Benin Republic, and into South-Western Nigeria, representing a passive margin basin formed during the breakup of Gondwana and the opening of the South Atlantic.

In South-Western Nigeria, the Ewekoro Formation forms part of the post-rift Tertiary sequence, overlying the Cretaceous Araromi Formation (shales, siltstones, and minor sands) and underlying the Akinbo/Oshosun Formations (flaggy grey shales with thin limestone interbeds). The formation is traceable over approximately 320 km from Ghana westward to Nigeria's eastern basin margin, but its most extensive and economically viable exposures occur in the Ogun State region, particularly around Ewekoro, Sagamu (Shagamu), Ibese, and nearby areas²³.

The Ewekoro limestone is a fossiliferous, well-bedded carbonate deposit formed in a shallow marine (neritic to inner shelf) environment during a transgressive phase, characterized by warm, low-energy to moderate-energy conditions with normal salinity and well-oxygenated waters¹.

Depositional Microfacies Include:

- ✓ Shelly biomicrites and biosparites (dominated by shell fragments and algal components).
- ✓ Algal biosparites.
- ✓ Phosphatic biomicrites (with glauconite in places).
- ✓ Biomicrosparites and wackestone-packstone-grainstone textures.

These facies reflect a progression from quieter, mud-dominated settings to higher-energy zones with bioclast reworking, influenced by storm waves and minimal terrigenous input.

Thickness, Composition, and Quality of Limestone Deposits

Exposed sections of the Ewekoro Formation typically show limestone thicknesses of 11–15 meters

(averaging 12–12.5 m in many quarry profiles), though subsurface logging in some areas (e.g., Ibese) indicates up to 12–15 m of continuous or interbedded carbonate layers before transitioning to marl or shale. The unit often exhibits nodular to massive bedding,

with colours ranging from milky-white to light-grey, grey, or dark-grey, and textures from fine-grained to Shelly/fossiliferous²⁵.

Geochemical Analyses (Primarily via XRF and PIXE) Consistently Demonstrate High Purity:

- ✓ Calcium Carbonate (CaCO_3) content is typically high, with CaO ranging from ~33–60 wt% (averages often 45–53 wt% across studies), translating to ~80–90%+ CaCO_3 equivalent in purer zones (e.g., ~86.8% CaCO_3 from Ca ~38% in some PIXE data).
- ✓ Low impurities: SiO_2 (0.5–13 wt%, often <5–10% in core zones), Al_2O_3 (<1–3 wt%), Fe_2O_3 (<1–3 wt%), MgO (0.4–3 wt%, indicating mostly calcitic rather than dolomitic), and minor SO_3 , MnO , TiO_2 , Na_2O , K_2O (<1 wt%).
- ✓ Loss on ignition (LOI) values of ~35–45 wt% confirm dominant carbonate decomposition.
- ✓ Trace elements like Sr (supporting calcitic nature) and low detrital signals (low $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratios) indicate minimal continental clastic contamination during deposition²⁶.

However, it is important to understand that these attributes classify the deposits as high calcium/pure limestone to magnesian limestone, ideal for Portland cement clinker production (requiring high CaO for lime saturation, low alkalis/sulfur for quality control, and minimal silica for blend adjustments). The limestone's fossil content (e.g., foraminifera, bryozoans, echinoids) and low magnesium in many samples further enhance its suitability, as excessive MgO can complicate clinker formation²⁷. Proven reserves in the broader Ewekoro-Sagamu-Ibese belt support decades of sustained extraction. Historical estimates for the Ewekoro Quarry specifically cite ~31 million tonnes, while regional belt figures (including extensions) contribute to Nigeria's larger limestone inventory (~2.3 billion tonnes total proven/probable, with southwestern deposits prominent). The deposits' accessibility shallow overburden, gentle topography, and minimal groundwater interference in upper sections facilitates open-pit quarrying with low stripping ratios²⁸.

Proximity and Extraction Logistics

Proximity is a decisive economic factor in cement production, where raw materials (especially limestone) account for 70–80% of input costs and transport over distances >20–30 km significantly erodes margins.

- ✓ The Lafarge Ewekoro plant is sited directly adjacent to its on-site quarries (within the concession area at ~6°54'–6°55'N, 3°12'–3°13'E), allowing immediate blasting, primary crushing, and conveyor transport of limestone to the plant.
- ✓ Extraction involves standard open-pit methods: drilling, explosive blasting (controlled to minimize vibration), loading/hauling with excavators and dump trucks, followed by secondary/tertiary crushing and stockpiling.
- ✓ Other additives are sourced regionally with relative ease: clay/shale from nearby formations (e.g., Akinbo/Oshosun shales), gypsum from local or imported sources, and minor iron/alumina correctives as needed.

- ✓ The plant's location along the Lagos-Abeokuta Expressway (~64 km from Lagos) provides excellent multimodal access: road for heavy inbound (fuel, equipment) and outbound cement/clinker distribution to high-demand Lagos metropolis, Abeokuta, and South-Western markets; proximity to rail links and Apapa/Tin Can ports for potential exports or imports.

Water for wet grinding (historical processes), cooling, and dust suppression is drawn from local sources (e.g., groundwater, Akinbo River catchment), though intensive usage has contributed to aquifer strain and seasonal drawdown²⁹.

Enabling Expansions and Operational Efficiency

This raw material and infrastructural synergy has underpinned key milestones:

- ✓ Initial 1960 dry-process plant (~0.2 MMTPA).
- ✓ Expansions in the 1960s–1970s (additional kilns).
- ✓ 2003 modernization (new wet-process line, 1.32 MMTPA).
- ✓ 2011 Ewekoro II brownfield addition (2.5 MMTPA), elevating site capacity to ~4–4.5 MMTPA (part of Lafarge's ~10.5 MMTPA Nigerian total).
- ✓ Ongoing optimizations under Huaxin Cement's 2025 majority ownership.

Low-cost, proximate sourcing has minimized logistics expenses, supported high-volume output (~1.8 MMTPA in some reports), and positioned Ewekoro as a cornerstone of Lafarge's southwest cluster (alongside Sagamu)³⁰.

Environmental and Sustainability Concerns

Studies have further shown that intensive quarrying blasting, dust generation, and land clearance has generated significant environmental trade-offs, including:

- ✓ Land degradation and habitat loss from quarry expansion.
- ✓ Dust fallout (particulate matter blanketing farmlands, vegetation, and settlements).
- ✓ Vibration/noise from blasting affecting nearby communities (e.g., Papalanto, Itori).
- ✓ Surface/groundwater impacts (runoff with elevated Ca, Fe, heavy metals; aquifer Depletion).
- ✓ Biodiversity reduction and soil alkalization.

Mitigation efforts by Lafarge include dust suppression systems (e.g., baghouse filters replacing electrostatic precipitators), alternative fuels (biomass co-processing since 2014), quarterly

NESREA monitoring, annual audits, and CSR initiatives (tree planting, water management). However, persistent community concerns highlight the need for stricter enforcement, reclamation, and buffer zones to balance resource advantages with sustainable stewardship³¹. In summary, the Ewekoro plant's enduring success stems from an optimal confluence of geological endowment, high-purity reserves, zero-distance quarrying, and logistical

connectivity—making it one of Nigeria's most advantageously sited cement facilities despite growing calls for enhanced environmental safeguards³².

National Development, Plan and Cement Industry in Ewekoro

Nigeria's successive National Development Plans (NDPs) and medium-term economic strategies have consistently positioned the cement industry as a flagship sector for industrialization, import substitution, infrastructure development, job creation, and economic diversification. These plans have provided the policy scaffolding that enabled the transformation of the Ewekoro cement facility from its colonial-era origins as WAPCO in 1959–1960 to its current role as a key component of Lafarge Africa Plc's operations into a symbol of policy-driven industrial success amid evolving national priorities³³.

Early Post-Independence National Development Plans 1962–1980A.D

The foundational First National Development Plan (1962–1968) and subsequent plans (e.g., Second NDP 1970–1974, Third NDP 1975–1980) emphasized rapid industrialization through import substitution, state-led investments in manufacturing, and harnessing local resources to support post-independence construction booms. These plans prioritized domestic production of essential building materials like cement to reduce foreign exchange outflows and build selfreliance in infrastructure³⁴.

This policy environment directly aligned with the establishment and early expansions of the West African Portland Cement Company (WAPCO) in Ewekoro. The 1960 commissioning of the first kiln (200,000 tonnes per annum capacity) and subsequent additions in the 1960s–1970s (additional kilns in 1964 and 1972) were facilitated by regional government support (Western Nigeria

Development Corporation) and national goals of competing with eastern plants like NigerCem in Nkalagu. The plans' focus on construction-led growth (roads, housing, public works) created sustained demand, enabling Ewekoro to contribute to Nigeria's emerging industrial base despite

Limited capacity and import dependence at the time.³⁵

Structural Adjustment and Transition Period 1980s–1990A.D.

The economic crises of the 1980s led to the Structural Adjustment Programme (SAP) in 1986, which shifted toward privatization, deregulation, and market-oriented reforms. While cement production stagnated due to forex shortages and aging infrastructure, the groundwork for revival was laid through liberalization that attracted foreign investment. The return to civilian rule in 1999

Accelerated privatization of legacy state-owned plants, setting the stage for modern expansions.³⁶

Backward Integration Policy (BIP) and Integration into Medium-Term Strategies 2002–2020A.D.

Previous studies conducted have proved that the pivotal Backward Integration Policy (BIP), introduced in 2002 under President Olusegun Obasanjo, became the cornerstone of cement sector transformation. The BIP conditioned import licenses on investments in local manufacturing, offering incentives such as tax holidays, duty waivers on equipment imports, preferential forex access, long-term limestone concessions, and infrastructure support (e.g., gas supply)³⁷. This policy was embedded in broader

frameworks like the National Economic Empowerment and Development Strategy (NEEDS 2004–2007), Vision 20:2020, and the Economic Recovery and Growth Plan (ERGP 2017–2020), which prioritized self-sufficiency, job creation, foreign exchange conservation, and infrastructure-led growth.

The BIP's Impact Was Profound:

- ✓ National installed capacity surged from ~4 MMTPA (producing ~2 MMTPA) pre-BIP to 45 MMTPA (producing ~28 MMTPA) by 2012–2015, achieving self-sufficiency by 2012–2015 and shifting Nigeria to net exporter status.
- ✓ For Ewekoro specifically, the policy catalyzed major upgrades: the obsolete 1960s plant was replaced in 2003 with a modern 1.32 MMTPA wet-process facility (commissioned amid BIP momentum), and the Ewekoro II brownfield expansion (2.5 MMTPA) was inaugurated in 2011 by President Goodluck Jonathan, doubling site capacity to 4.5 MMTPA.
- ✓ These investments supported national goals of affordable housing (addressing deficits through mega-projects like roads, bridges, and urban development) and downstream multiplier effects (logistics, quarrying, construction).
- ✓ Studies founded shown that Lafarge Cement producing Company (post-2001 acquisition of Blue Circle) benefited from BIP incentives, enabling privatization, modernization, and integration into global standards. The policy fostered competition, attracted FDI, and aligned with ERGP's focus on stabilizing the economy post-recession.

Recent and Current National Development Plan 2021–To Date:-

The National Development Plan (NDP) 2021–2025 builds on prior successes, adopting an integrated, multi-sectoral approach to achieve inclusive growth, macroeconomic stability, and sustainable development. Key objectives include:

- ✓ Accelerating economic diversification and industrialization.
- ✓ Investing in critical infrastructure (transport, power, housing, digital economy).
- ✓ Generating millions of jobs and lifting millions out of poverty.
- ✓ Promoting green technologies, climate resilience, and environmental sustainability.

The NDP emphasizes private sector-led growth (with ~86% of projected N348 trillion investment from private sources), human capital development, and alignment with SDGs and Nigeria Agenda 2050. In the cement sector, it supports continued capacity expansion, energy efficiency, and low carbon transitions to meet rising demand from urbanization, housing (targeting deficit reduction), and infrastructure projects.

It would not be out of place to provide further details regarding Ewekoro plant as follows:-

- ✓ Expansions like Ewekoro II directly contributed to national infrastructure targets, supplying cement for

roads, bridges, housing schemes, and urban projects amid rapid southwestern growth.

- ✓ Economic contributions remain substantial: ~1,000 direct jobs (95%+ Nigerians), thousands indirect in quarrying/logistics/supply chains, annual injections exceeding ₦6 billion via wages, local procurement, and taxes, plus CSR initiatives (education scholarships, health facilities, water/road improvements in host communities like Papalanto, Itori).
- ✓ The plant supports mega-projects and exports (part of national clinker/cement outflows), enhancing foreign earnings and GDP (cement contributes ~10%+ to manufacturing GDP in recent years).

Studies on Economic History have also highlighted that sustainability alignment is evident in recent NDP priorities (green industrialization, emissions reduction). Lafarge Africa pioneered bioenergy adoption at Ewekoro since 2014, substituting natural gas with locally sourced biomass

(Oil palm residues replacing nearly half of previous fossil fuel use; rice husks trailed/increasing). Geocycle (Lafarge's alternative fuels arm) co-processes agricultural wastes, achieving up to 40%+ alternative fuel substitution at Ewekoro, reducing GHG emissions, improving energy reliability amid gas supply issues, and stimulating rural economies through waste valorisation. Recent initiatives include bag house filter replacements (reducing dust/CO₂), waste-to-energy partnerships (e.g., Lagos non-recyclable waste co-processing), and low-carbon products (e.g., ECO Planet cement lines with >30% CO₂ reduction).

In another revealed development studies have demonstrated that by 2025–2026, Lafarge Africa's National Capacity stands at 10.5 MMTPA (with Ewekoro/Sagamu cluster ~4.5 MMTPA), with ongoing expansions (e.g., Ashaka to 2 MMTPA, Sagamu to 3.5 MMTPA) targeting 14 MMTPA total— aligning with NDP infrastructure push and post-2025 continuity. In essence, Ewekoro exemplifies how national development plans from import substitution in the 1960s to BIP-driven self-sufficiency in the 2000s–2010s and sustainable/green industrialization in the 2020s— have catalyzed local industrial growth, delivered socio-economic benefits (employment, community development, infrastructure support), and advanced policy-driven sustainability in Nigeria's cement landscape, balancing economic progress with environmental stewardship.

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Socio-Economic Development And Challenges of the 21st Century

Studies conducted have revealed that the impact of relocation, economic reforms and structural adjustment exercise as aspect associated with development and challenges of the 21st Century.

The trajectory of the Ewekoro cement industry originally established as the West African Portland Cement Company (WAPCO) and later operating as Lafarge Africa Plc was profoundly shaped by successive waves of economic reforms and, most decisively, by the Structural Adjustment

Programme (SAP) introduced in July 1986 under the military administration of General Ibrahim Babangida. These reforms, layered upon earlier post-independence policy frameworks and later transitions, generated a dual legacy of short- to medium-term operational constraints and longer-term structural shifts that prepared the ground for privatisation, modernisation, and eventual capacity expansion. The period also involved pressures related to land use and community displacement associated with quarry expansion and industrial operations, which intensified under the strained economic conditions of the reform era. ¹

Further to the above studies have demonstrated that in the immediate post-independence decades, particularly during the oil-boom years of the 1970s, the Ewekoro plant operated within a relatively protected import-substitution industrialisation regime. Government policy prioritised domestic production of essential building materials, supported by tariffs, import licensing, and regional/state equity participation. WAPCO's early expansions (additional kilns in the 1960s and 1970s, and the commissioning of the Sagamu plant in 1978) benefited from this environment. Domestic cement production rose, and capacity utilisation in the broader industry hovered in the range of 58–67 percent in the early 1980s. However, the collapse of oil prices in the early 1980s triggered a severe economic crisis characterised by falling government revenues, rising external debt, acute foreign-exchange shortages, and mounting fiscal deficits. Spare parts, refractory materials for kiln linings, specialised equipment, and imported

inputs such as gypsum became scarce and prohibitively expensive. Production at Ewekoro and other plants suffered intermittent disruptions; maintenance backlogs accumulated; and overall industry capacity utilisation began to stagnate or decline. By the mid-1980s, several state-influenced plants were operating well below design capacity, with some reports indicating industry-wide utilisation falling toward or below 60 percent in certain years.² The formal adoption of the Structural Adjustment Programme in July 1986 marked a decisive turning point. SAP's core instruments sharp naira devaluation through a market determined exchange-rate system (centred initially on the Second-Tier Foreign Exchange Market), trade liberalisation and the dismantling of most import licensing, removal or reduction of subsidies (including on petroleum products), interest-rate deregulation, fiscal austerity, and the promotion of privatisation and commercialisation of public enterprises had mixed but predominantly adverse short- to medium-term effects on the cement sector in general and on Ewekoro in particular.³

Currency devaluation dramatically raised the naira cost of all imported inputs. Gypsum, refractory bricks, spare parts, and (in periods of domestic gas shortage) fuel oil became far more expensive. This cost push raised factory-gate production costs at Ewekoro and contributed to higher cement prices, even as real demand weakened. Trade liberalisation initially exposed local producers to competition from cheaper imported cement, although high inland transportation costs and residual tariffs offered partial natural protection. Credit and interest-rate liberalisation made working capital more expensive, constraining investment in plant rehabilitation and working-capital financing. Fiscal austerity sharply reduced government capital expenditure on construction and infrastructure, dampening domestic demand for cement throughout the late 1980s and early 1990s.

Public-sector cement consumption contracted as oil revenues declined and the state scaled back large projects.

Empirical indicators illustrate the strain. Industry-wide capacity utilisation fluctuated in the high 50s to mid-60s percent range for much of the late 1980s, with some plants performing far worse. WAPCO (encompassing both Ewekoro and Sagamu) fared relatively better than purely state owned enterprises, achieving utilisation rates reported around 70 percent in certain late 1980s/early-1990s data, partly because of its partial private ownership and access to technical support from Blue Circle. Nevertheless, even WAPCO experienced ageing equipment, deferred maintenance, and reduced operational flexibility. Dust-control and environmental-management systems deteriorated under constrained capital and foreign-exchange budgets, contributing to growing community complaints about air quality and land degradation in the Ewekoro area. Workers faced periods of delayed or irregular salaries, reduced overtime opportunities, and heightened job insecurity as production volumes and margins came under pressure.⁵

The reform period also intersected with land-use and community-relocation pressures. Intensive limestone quarrying, necessary to sustain production amid cost pressures, expanded the footprint of extraction activities. While large-scale formal community relocation programmes (such as the later movement of residents and deities from Oke-Oko Sekoni) became more visible in the 2010s, the economic stress of the SAP years intensified local grievances over land acquisition, compensation, vibration from blasting, and the progressive encroachment of quarry operations on

farmlands and settlements. These pressures formed an early dimension of the social costs that accompanied industrial survival strategies under structural adjustment.⁶

Despite the immediate hardships, SAP and related reforms laid important longer-term foundations. The shift from state-led industrialisation toward market orientation, the gradual reduction of public equity in enterprises such as WAPCO, and the creation of a policy environment more open to private capital and foreign investment prepared the ground for the eventual privatisation of residual government stakes and the large-scale private investment that followed after the return to civilian rule in 1999 and the introduction of the Backward Integration Policy in 2002. In this dual sense, the cumulative impact of relocation pressures, economic reforms, and structural adjustment on the Ewekoro cement industry was both constraining and transformative: it weakened operational efficiency, raised costs, and intensified social and environmental stresses in the short and medium term, while simultaneously creating the structural conditions that later enabled modernisation, capacity expansion, and a more commercially oriented ownership model.

Impact of Implemented Privatization and Commercial Policies on Ewekoro Cement Industry

Privatisation and Commercialisation Policies, particularly those accelerated after Nigeria's return to civilian rule in 1999, fundamentally transformed the ownership structure, management culture, capital base, and operational performance of the Ewekoro cement plant. These reforms marked a decisive break from the mixed public-private model that had characterised the industry since its establishment and aligned the facility with the broader shift toward market-oriented industrial policy in Nigeria.⁸

The original West African Portland Cement Company (WAPCO) was structured as a joint venture from its inception in 1959. Blue Circle Industries (formerly Associated Portland Cement

Manufacturers) of the United Kingdom held the largest private stake, alongside the United Africa Company (UAC) of Nigeria and significant equity participation by the Western Region Government (later held through the Western Nigeria Development Corporation and subsequent state investment vehicles). Residual federal and state government holdings, combined with the broader culture of public-enterprise management, limited managerial autonomy, constrained access to large-scale capital for modernisation, and often subjected commercial decisions to political considerations. By the late 1990s, the plant's equipment had aged, capacity utilisation remained suboptimal relative to potential, and the need for substantial reinvestment had become evident.⁹ The Bureau of Public Enterprises (BPE), established under the privatisation and commercialisation programme, pursued the progressive divestment of residual state holdings across the cement sector. The decisive turning point for Ewekoro came in 2001 when Lafarge S.A. of France acquired Blue Circle Industries globally. This transaction transferred majority control of WAPCO to Lafarge, leading to the rebranding of the company first as Lafarge Cement WAPCO Nigeria Plc and later as Lafarge Africa Plc. The change in ownership brought not only new capital but also international management systems, technical expertise, and stricter commercial performance standards.¹⁰

The most visible impacts of privatisation and commercialisation on the Ewekoro operations were felt in capital injection and physical modernisation. Private ownership unlocked substantial investment

that had been difficult to mobilise under the previous ownership structure. In 2003, the obsolete 1960s-era production line was replaced with a modern facility rated at 1.32 million metric tonnes per annum (MMTPA). This was followed by the major brown field expansion known as Ewekoro II (also referred to as the Lakatabu plant), commissioned in 2011 with an installed capacity of 2.5 MMTPA. Together these investments raised the site's total capacity to approximately 4.5 MMTPA and positioned Ewekoro as a core asset within Lafarge's South-Western Nigerian cluster.¹¹ Operational efficiency improved markedly under commercial management. Stricter cost-control systems, higher capacity utilisation rates, more rigorous preventive maintenance regimes, and the adoption of international best practices in production technology, quality assurance, and logistics were introduced. Energy management, kiln optimisation, and product quality consistency all registered measurable gains relative to the pre-privatisation period. These improvements strengthened the plant's ability to compete in an increasingly liberalised domestic market.¹²

Corporate social responsibility (CSR) also became more institutionalised. Privatised management formalised structured community development programmes covering education (scholarships and school infrastructure), health facilities, water supply, road improvements, and skills-acquisition initiatives in host communities around Ewekoro, Papalanto, Itori, and neighbouring settlements. While these interventions represented a clear advance over earlier ad-hoc practices, community perceptions of adequacy, equity, and genuine consultation often remained mixed, reflecting ongoing tensions between corporate priorities and local expectations.¹³ Employment dynamics underwent significant change. Direct employment at the Ewekoro site stabilised around one thousand workers, with a stated corporate preference for Nigerian nationals. However, the rising technical complexity of modern cement production meant that skilled and managerial positions increasingly demanded higher qualifications and specialised experience. This sometimes resulted in the recruitment of non-local personnel for key technical roles, generating periodic local grievances over job equity and access to higher-value employment opportunities.¹⁴

Environmental compliance pressure intensified under multinational ownership. As a subsidiary of a global group, Lafarge became subject to greater international scrutiny and parent-company sustainability standards. Investments were made in improved dust-suppression systems, bag house filters, and, from 2014 onward, the co-processing of alternative fuels (including agricultural biomass such as palm residues and rice husks). Regular environmental audits and closer alignment with NESREA regulatory requirements improved overall environmental performance relative to the pre-privatisation era, although residual challenges related to particulate emissions, noise, and quarry impacts continued to generate community concerns.¹⁵ A further ownership transition occurred in 2025 when China's Huaxin Cement acquired an 83.81 percent stake in Lafarge Africa from Holcim (the successor entity following the Lafarge-Holcim merger). This transaction signalled continued foreign strategic interest in the Nigerian cement sector and opened the possibility of additional technological upgrades and capacity enhancements at Ewekoro and other Lafarge Africa plants.¹⁶ Overall, privatisation and commercialisation policies shifted the Ewekoro cement industry from a relatively inefficient, partially state-influenced enterprise constrained by limited capital and managerial autonomy into a more capital-intensive,

commercially oriented operation capable of competing effectively in a liberalised market. At the same time, these changes raised expectations among regulators, host communities, and international stakeholders for improved social performance, environmental stewardship, and inclusive local development. The long-term success of the privatised model continues to depend on the ability of successive owners to balance commercial viability with the legitimate social and environmental claims of the communities that host the industry.¹⁷

Market Competition and Impact

The Nigerian cement market evolved from a protected, oligopolistic structure in the pre-2000s era into a more competitive (though still highly concentrated) landscape following the introduction of the Backward Integration Policy (BIP) in 2002. The performance, pricing strategies, capacity utilisation, and long-term strategic decisions of the Ewekoro cement plant were heavily influenced by this profound shift in market dynamics.¹⁸

Prior to the BIP, the domestic cement market was characterised by limited installed capacity, frequent supply shortages, and heavy reliance on imports. Administered price controls and a restrictive import-licensing regime created artificial scarcity, generated significant rents for licence holders, and discouraged large-scale investment in local production. Domestic output remained far below national demand, and consumers frequently faced high prices and erratic availability. The policy environment favoured importers and existing producers who benefited from scarcity rather than efficiency or expansion.¹⁹

The BIP fundamentally altered this landscape. By restricting cement import licences to companies that demonstrated concrete investment in domestic manufacturing facilities, the policy triggered an unprecedented wave of capacity expansion. Dangote Cement led the transformation with aggressive investment that eventually raised its Nigerian capacity above 30 million metric tonnes per annum (MMTPA). BUA Cement and other players followed, while existing operators, including Lafarge Africa, accelerated their own expansion and modernisation programmes. Within a decade, Nigeria moved from chronic deficit to self-sufficiency and, subsequently, to net exporter status.²⁰

The impacts on the Ewekoro plant were multi-dimensional. Intensified competition, driven particularly by Dangote's rapid scale-up, exerted sustained downward pressure on prices and forced incumbent producers to improve operational efficiency, product quality, and distribution networks. Lafarge's long-established Elephant brand could no longer rely on scarcity rents; it had to compete on consistency of quality, brand loyalty, logistical reliability, and proximity advantages in the high-demand South-Western market.²¹

Price dynamics changed markedly. The era of administered prices gave way to market-determined pricing. Occasional price wars, followed by periods of stabilisation, compressed margins across the industry. While lower real prices over the longer term benefited the construction sector and housing development, they simultaneously squeezed producer profitability and heightened the imperative for continuous cost reduction and efficiency gains at plants such as Ewekoro.²²

Market share and capacity utilisation at Ewekoro reflected both strengths and constraints. The plant retained a solid competitive position in the South-Western region, particularly in supplying

Lagos and surrounding states, owing to its strategic location and established distribution channels. However, its relative share of total national output declined as new mega-plants came on stream in other parts of the country. Capacity utilisation improved following the 2003 modernisation and the 2011 Ewekoro II expansion, yet remained sensitive to fluctuations in domestic demand, energy supply reliability (especially natural gas), and the intensity of competitive pricing.²³

Strategic responses by Lafarge were correspondingly robust. The company accelerated plant upgrades, invested in product diversification (including lower-carbon and specialised cement formulations), expanded the use of alternative fuels, and strengthened its distribution and logistics networks. Competitive pressure also accelerated the shift toward sustainability and cost leadership as necessary conditions for long-term survival in a more demanding market

Environment.²⁴Downstream effects of the intensified competition were broadly positive for the wider economy. Real cement prices declined over the long run relative to the scarcity-driven levels of the pre-BIP era, supporting infrastructure development, housing construction, and related downstream industries. At the same time, the margin pressure on producers reinforced the need for ongoing technological upgrading, energy efficiency, and operational excellence.²⁵

By the mid-2020s, the Nigerian cement market remained oligopolistic, dominated by three major players Dangote Cement, BUA Cement, and Lafarge Africa (under Huaxin majority ownership) yet far more competitive and capacity-rich than in the pre-2002 period. Within this structure, the Ewekoro plant continued to function as a critical south-western production and distribution hub, leveraging its location, modernised assets, and established market presence to maintain relevance in an environment defined by scale, efficiency, and continuous competitive pressure.²⁶

Psychological, Social and Environmental Challenges/Obstacles Confronted by Workers in Ewekoro Cement Industry

Workers at the Ewekoro cement plant have confronted a complex array of interconnected psychological, social, and environmental challenges. Many of these intensified during periods of economic reform, privatisation, and heightened market competition, and they continue to shape occupational health outcomes, workplace relations, and the broader interface between the industry and its host communities.²

Environmental and occupational health challenges constitute the most visible and extensively documented category. Continuous occupational exposure to cement dust particularly fine particulate matter (PM_{2.5} and PM₁₀) noise from quarry blasting and heavy machinery, and emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), and heavy metals has been linked to elevated rates of upper-respiratory tract infections, chronic bronchitis, asthma, dermatitis, conjunctivitis, and other conditions among both factory workers and residents of nearby settlements. Studies conducted between the early 2000s and 2024 consistently report ambient particulate concentrations and dust deposition rates in the immediate vicinity of the plant that exceed World Health Organization (WHO) guidelines and Nigeria's National Environmental Standards and Regulations Enforcement Agency (NESREA) limits. Noise levels associated with quarrying and crushing operations frequently exceed 85–90 decibels, contributing

to progressive hearing impairment, sleep disturbance, and elevated physiological stress. These physical hazards impose a persistent occupational health burden that has outlasted successive technological upgrades.²

Psychological challenges arise directly from the cumulative effect of these environmental stressors and from the job-related uncertainties that have accompanied structural changes in the industry. Workers frequently report anxiety concerning long-term health risks associated with prolonged dust and noise exposure. Fear of job loss or redeployment during periods of corporate restructuring, ownership transition, or competitive pressure has been a recurring source of insecurity. Shift work, demanding production targets, and the physical intensity of plant and quarry operations further contribute to chronic stress. Employees who reside in or near the affected communities often experience additional moral distress arising from the visible environmental degradation of the surrounding landscape and its impact on family members and neighbours. The job insecurity that characterised the Structural Adjustment Programme years and the subsequent privatisation transitions exacerbated these feelings of vulnerability and uncertainty.²

Social challenges are equally significant and closely intertwined with the environmental and psychological dimensions. Persistent perceptions of employment inequity particularly the belief that skilled, technical, and higher-paying positions disproportionately favour non-local recruits have generated tension between indigenous workers and management. Relations between the plant and host communities remain strained over issues of land acquisition for quarry expansion, compensation adequacy, pollution externalities, and the distribution of corporate social responsibility benefits. Health problems experienced by workers frequently impose secondary social costs on households, including medical expenses, reduced household labour capacity, and care giving burdens. Although modern safety management systems have reduced the frequency of serious industrial accidents relative to earlier decades, the residual risk of workplace injury continues to shape worker attitudes and community perceptions. The influx of migrant labour attracted by industrial employment has also altered local social dynamics, occasionally generating friction over access to resources, housing, and cultural differences.³⁰

Collectively, these psychological, social, and environmental challenges illustrate the human cost of operating a large-scale, resource-intensive industry in a densely settled peri-urban environment. Privatisation and subsequent modernisation brought measurable improvements in formal safety systems, dust-control technologies, the provision of personal protective equipment, and structured occupational health programmes. Nevertheless, residual risks and community-level externalities have persisted. Effective mitigation requires sustained investment in cleaner production technologies, rigorous and transparent enforcement of occupational health and environmental standards, meaningful worker participation in safety and health management, and more inclusive, trust-based frameworks of community engagement that address both material and psychosocial dimensions of industrial impact.³¹

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General Conclusion of The Studied Subject Matter

Conclusively this study set out to examine the historical evolution, geographical foundation, economic dynamics, and multi-dimensional impact of the Ewekoro Cement Industry on its host communities and the wider Nigerian economy. Tracing the industry from its establishment in 1959–1960 as the West African Portland Cement Company (WAPCO) through successive phases of expansion, policy reform, privatisation, and intensified market competition, the research has demonstrated that the Ewekoro plant occupies a central yet ambivalent position in Nigeria's industrial development trajectory.

The geographical and historical survey established that the siting of the plant was deliberately chosen to exploit the high-quality limestone deposits of the Ewekoro Formation within the eastern Dahomey Basin. The indigenous Egba (particularly Egba Owus) population, whose agrarian and communal traditions long predated industrialisation, provided the social and cultural context within which the industry developed. The industry's emergence was shaped by colonial and early post-independence import-substitution policies, while its subsequent growth was powerfully influenced by national development plans and, most decisively, by the Backward Integration Policy of 2002.

Economic reforms and the Structural Adjustment Programme of 1986 imposed significant short- and medium-term costs rising input prices, constrained capacity utilisation, deferred maintenance, and heightened job insecurity yet simultaneously prepared the structural conditions for later privatisation and large-scale private investment. Privatisation, particularly the transfer of majority

control to Lafarge in 2001 and the subsequent modernisation programmes of 2003 and 2011, transformed the plant into a more capital-intensive and commercially oriented operation. The later acquisition of majority ownership by Huaxin Cement in 2025 marked another phase of foreign Strategic interest. Market competition after 2002, driven largely by the rapid expansion of Dangote Cement and other players, exerted downward pressure on prices, forced efficiency gains, and reduced the relative national market share of the Ewekoro plant even as its absolute capacity and regional importance in the southwest remained substantial. At the same time, the study has documented persistent psychological, social, and environmental challenges confronted by workers and host communities. Continuous exposure to particulate matter, noise, and other emissions has generated measurable health burdens, while issues of employment equity, land pressure, and community–industry relations continue to generate tension.

In sum, the Ewekoro Cement Industry exemplifies the dual character of large-scale industrialisation in a developing economy: it has contributed significantly to domestic cement supply, employment, infrastructure development, and foreign-exchange conservation, while simultaneously imposing environmental externalities, health costs, and social dislocations on its immediate surroundings. Sustainable progress will depend on the capacity of successive owners, regulators, and host communities to strengthen environmental safeguards, improve occupational health protection, ensure more equitable distribution of benefits, and maintain meaningful dialogue. The experience of Ewekoro therefore offers both a record of industrial achievement and a continuing reminder of the social and ecological responsibilities that must accompany resource based industrial growth in Nigeria.

Appendices

- Appendix (A) Sample Questionnaire Administered to Residents and Workers in Ewekoro and Neighbouring Communities
- Appendix (B) Interview Guide for Key Informants (Traditional Leaders, Plant Officials, and Community Representatives)
- Appendix (C) Selected Historical Documents and Company Milestones (WAPCO Incorporation 1959; Plant Commissioning 1960; Ewekoro II Inauguration 2011)
- Appendix(D) Summary Tables of Installed Capacity, Production Output, and Employment Figures (1960–2025)**
- Appendix (E) Selected Environmental Monitoring Data (Particulate Matter, Noise Levels, and Heavy Metal Concentrations)
- Appendix (F) Map of Ewekoro Local Government Area Showing Plant Location, Quarries, and Major Settlements

Figures

Figure 1: A location Map Showing the Containment Hierarchy From Nigeria Down to the Plant:

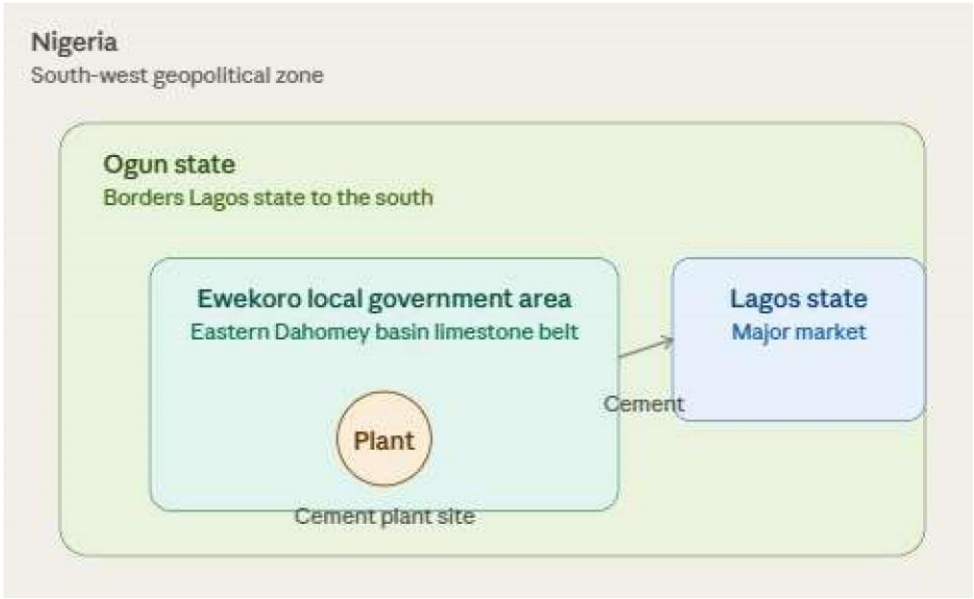


Figure 2: Shows the Geological Setting — a simplified cross-section of the Eastern Dahomey Basin with the Ewekoro Formation limestone highlighted:

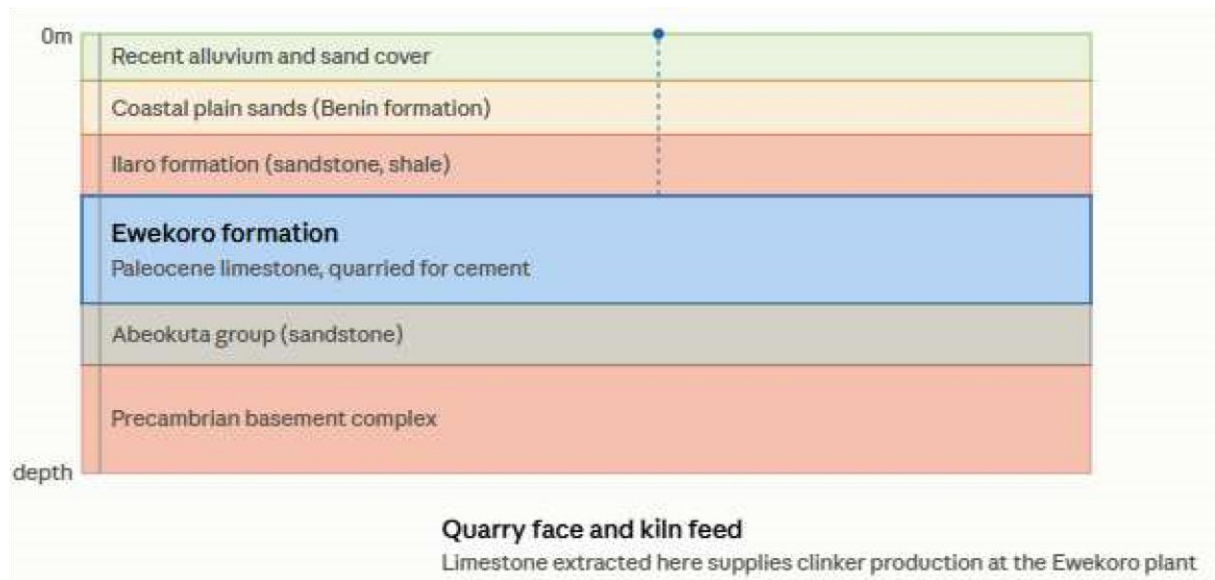


Figure 3: A Timeline of the Industry's Development, Built From The Company's Own Reported Milestones:

1959	West African Portland Cement Co founded
1960	First kiln lit at Ewekoro, 200,000 tpa
1964	Second kiln raises capacity to 400,000 tpa
1972	Third kiln raises capacity to 700,000 tpa
1978	Second WAPCO factory opens in Sagamu
1979	WAPCO listed on the Nigerian Stock Exchange
2002	Backward integration policy adopted nationally
2003	New dry-process Ewekoro plant, 1.32Mt capacity
2008	Renamed Lafarge Cement WAPCO Nigeria Plc
2011	Lakatabu plant doubles capacity to 4.5Mt
2023-2025	Bag plant added; Lafarge Africa joins Huaxin group

Figure 4: Charts the Plant's Capacity Growth using the kiln-by-kiln figures WAPCO has published:

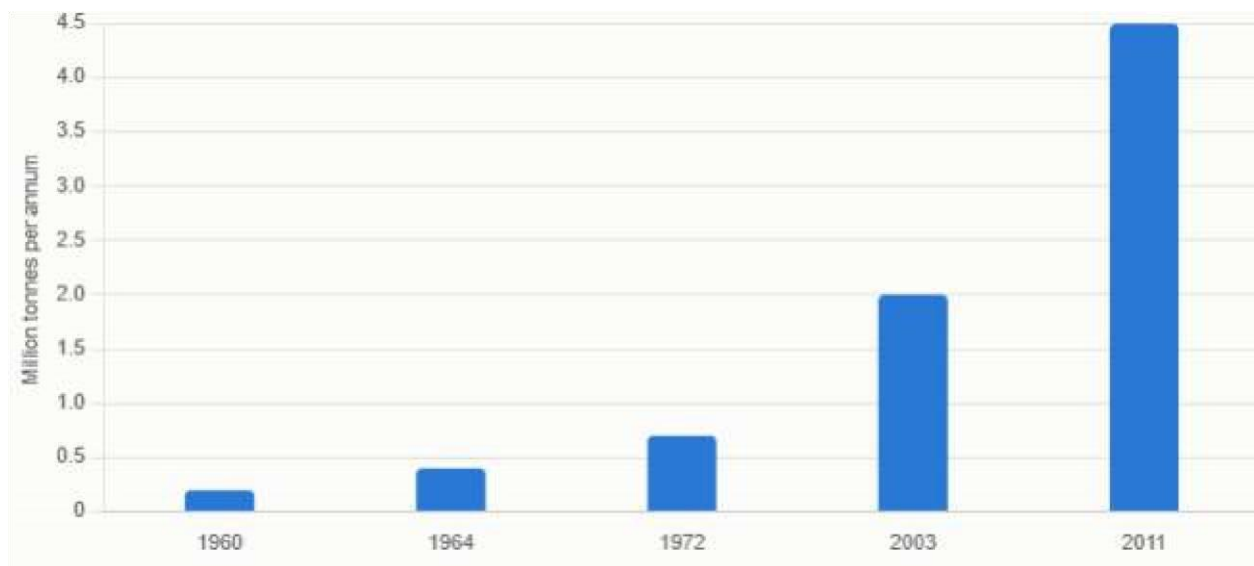


Figure 5: Compares National Cement Capacity Before and after the 2002 Backward Integration Policy, using figures from industry reports (Ohimain 2014; Oxford Business Group; BusinessDay, 2026):

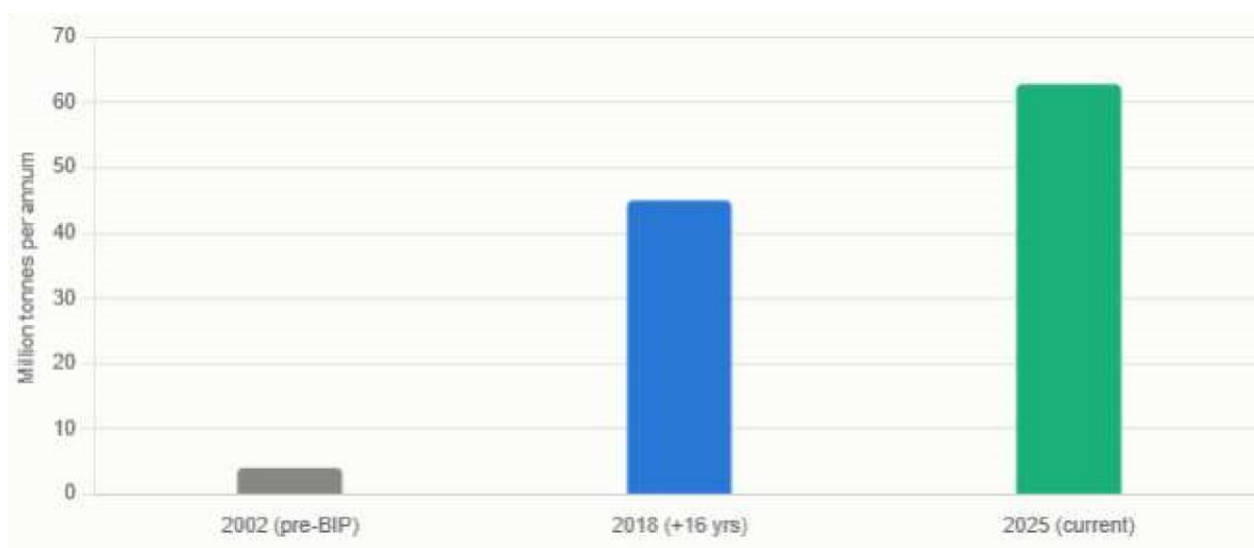
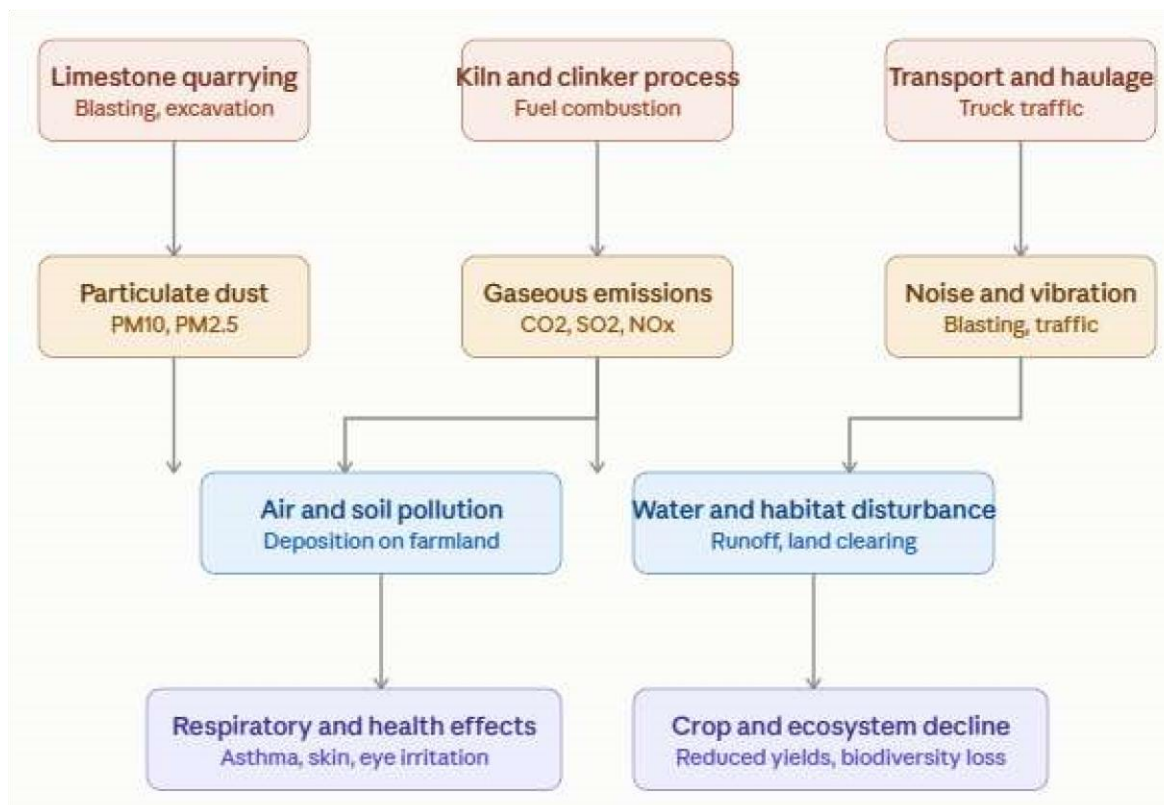


Figure 6: A Schematic of how Cement Production Activities Translate Into Environmental and Health Impact:



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