

## **Oil and Gas Operations and Environmental Security in EGI Communities, Rivers State: An Assessment of Total energies' Operations, 2010-2025**

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### **Abstract**

*This study examined the types and ways in which TotalEnergies conducts oil and gas operations in Egi communities, Rivers State, Nigeria, and assessed stakeholder perceptions of the environmental-security aspects of pollution associated with these operations between 2010 and 2025. Oil and gas activity in Obite, Obagi and Egita, communities of Ogba/Egbema/Ndoni Local Government Area, has spanned exploration, drilling, gas processing and pipeline transportation for more than five decades, yet the environmental and security consequences of this activity for host communities remain inadequately documented in the scholarly literature. The study was anchored on Environmental Security Theory and the Environmental Justice Framework, which jointly illuminate how ecological degradation threatens human and community security and how the resulting burdens fall inequitably on communities with limited power to resist them. A qualitative case study design was adopted, guided by an interpretivist paradigm. Data were generated through six focus group discussions involving thirty-six participants and twelve in-depth interviews, for a total of forty-eight respondents purposively drawn from traditional rulers and chiefs, Community Development Committee representatives, youth and women representatives, farmers and fishermen across the three communities, and analysed thematically using the six-step framework of Braun and Clarke. Findings showed that TotalEnergies' operations, comprising ageing pipelines, gas flaring, flow stations and periodic well and pipeline failures, including the 2012 Egita gas eruption, have produced sustained air, land and water pollution, while stakeholders overwhelmingly perceive these environmental changes as a direct threat to their food, water, health and community security, with declining*

*agricultural and fishing livelihoods increasingly linked to youth restiveness, oil theft and rising community insecurity. The study recommends improved pipeline integrity management, independent environmental monitoring, restoration of degraded farmland and fishing grounds, and structured community engagement in environmental governance.*

**Keywords:** *oil and gas operations; environmental security; Egi communities; TotalEnergies; environmental justice*

## **I. Introduction**

The discovery of crude oil in commercial quantities in the Niger Delta in 1956 set in motion more than six decades of extraction that has transformed the region into one of the most closely studied, and most contested, oil-producing landscapes in the world (Frynas, 2001). Among the communities that have hosted this extraction are Obite, Obagi and Egita, three communities of the Egi clan in Ogba/Egbema/Ndoni Local Government Area of Rivers State, where oil and gas operations, first under Elf Petroleum and subsequently under TotalEnergies following successive corporate mergers, have proceeded continuously since the 1970s and intensified from 2010 onward with expanded gas-processing and pipeline infrastructure (Federal Republic of Nigeria, 2021). Oil and gas operations of the scale TotalEnergies conducts in Egi communities, comprising exploration, drilling, gas gathering and processing, flow-station operation and an extensive network of pipelines linking wellheads to processing and export facilities, inevitably interact with the surrounding environment in ways that extend well beyond the industrial footprint itself (International Association of Oil and Gas Producers [IOGP], 2022). Ageing infrastructure is a particular concern in mature fields such as Egi, since pipelines and flow lines installed decades earlier operate well past the design life originally intended for them, raising the probability of corrosion-related failure, leakage and, in the most severe cases, catastrophic rupture (Frynas, 2005). Egi communities experienced the material realisation of this risk in 2012, when a gas eruption at Egita disrupted community life, damaged property and heightened residents' sense of vulnerability to the infrastructure operating in their midst, an event that continues to shape how communities interpret TotalEnergies' ongoing operations more than a decade later (Amnesty International, 2013). Beyond episodic incidents of this kind, communities report the steady, cumulative environmental change associated with routine operations: gas flaring producing soot and airborne particulates, oil spills and pipeline leakages contaminating farmland and waterways, and declining fish stocks and crop yields that residents directly attribute to decades of industrial activity in their midst (United Nations Environment Programme [UNEP], 2011). These environmental changes carry implications that extend beyond ecological degradation into the domain of human and community security. Ullman (1983) and Mathews (1989) were among the first scholars to argue that security could no longer be understood purely in military terms, and that environmental degradation, resource scarcity and the erosion of livelihoods constituted threats to security in their own right, a reframing that Homer-Dixon (1991) extended by linking environmental scarcity directly to the risk of social conflict. Applied to Egi communities, this security lens invites attention not only to whether pollution occurs, but to whether it undermines the food, water, health and physical safety of the people who live alongside TotalEnergies' operations, and whether the resulting grievances feed into the youth unemployment, oil theft and community tension that residents themselves associate with a deteriorating environment. The 2012 Egita gas eruption remains the single most consequential event in Egi communities' recent experience of TotalEnergies' operations, and its continued salience in community memory more than a decade later illustrates how a single high-visibility incident can reshape a community's baseline relationship with an operator long after the immediate emergency has passed. Comparable incidents elsewhere in the Niger Delta, documented in Amnesty International's (2013) investigation of oil spill response

practices, suggest that the adequacy of an operator's post-incident response, remediation, compensation and communication, often matters as much to affected communities as the technical cause of the incident itself, a dynamic with direct relevance to how Egita residents continue to characterise their relationship with TotalEnergies.

The distribution of costs and benefits from this extraction has long attracted scholarly attention framed around the concept of the resource curse, the paradox whereby resource-rich regions frequently experience slower development, weaker governance and greater social conflict than resource-poor regions (Auty, 1993; Sachs & Warner, 1995, 2001). Mehlum, Moene and Torvik (2006) and Stevens and Dietsche (2008) trace this outcome to weak institutions that fail to convert resource revenue into broad-based development, a pattern Idemudia and Ite (2006) and Idemudia (2009, 2014) document repeatedly in Niger Delta host communities, where corporate-community relations remain fraught despite decades of extraction and substantial revenue generation. While the present study does not adopt resource curse theory as its formal analytical framework, this literature supplies important background for understanding why Egi communities, despite hosting oil and gas operations for over five decades, continue to report environmental harm without commensurate development in return.

Nigeria's regulatory framework for oil and gas operations has itself evolved substantially across the 2010-2025 study period, most significantly through the passage of the Petroleum Industry Act in 2021, which restructured the governance of the sector and introduced, among other provisions, obligations around environmental remediation and host community development intended to address precisely the kind of imbalance the resource curse and environmental justice literatures describe (Federal Republic of Nigeria, 2021). Whether this restructured framework has translated into materially different outcomes for communities such as Obite, Obagi and Egita, which experienced the bulk of the environmental changes examined in this study before the Act's provisions could take full effect, is itself a question this study's 2010-2025 timeframe is well positioned to illuminate. Environmental justice scholarship offers a more direct lens on this imbalance, examining who bears the environmental costs of extraction and who captures its benefits (Schlosberg, 2007). Ebegbulem, Ekpe and Adejumo (2013) and Frynas (2005) document a recurring pattern across the Niger Delta in which host communities absorb the ecological consequences of oil and gas activity while economic benefits accrue disproportionately to multinational corporations and the Nigerian state, a pattern with clear resonance for Egi communities' own accounts of their relationship with TotalEnergies' operations. Despite the scale and duration of oil and gas activity in Egi communities, and despite the 2012 Egita gas eruption that briefly drew national attention to the risks such operations pose, the specific environmental-security implications of TotalEnergies' operations for Obite, Obagi and Egita have received comparatively limited systematic academic documentation relative to more extensively studied Niger Delta sites such as Ogoniland. This gap matters because policymakers, regulators and TotalEnergies itself require credible, community-grounded evidence of how oil and gas operations are actually experienced on the ground in order to design environmental management and community engagement measures capable of addressing the concerns residents raise. This study therefore examines oil and gas operations and environmental security in Egi communities between 2010 and 2025, pursued through two objectives: to examine the types and ways in which TotalEnergies conducts oil and gas operations in Egi communities, and to assess stakeholder perceptions of the environmental-security aspects of pollution associated with these operations. The two objectives are connected by a single underlying logic: the first establishes what TotalEnergies' operations in Egi communities actually consist of and the environmental changes they have produced, while the second examines how residents interpret those changes through the lens of their own security, food, water, health and community safety, making the two objectives jointly

necessary to understand both the material reality of extraction in Egi communities and its lived security consequences for the people who host it.

## **II. Theoretical Framework**

### **Environmental Security Theory**

Environmental Security Theory emerged from the broader human security discourse of the late twentieth century, when scholars including Ullman (1983) and Mathews (1989) argued that conventional, state-centred conceptions of security were too narrow to capture the threats populations actually faced, and that environmental degradation, resource depletion and ecological change constituted legitimate security concerns in their own right. Homer-Dixon (1991) extended this reframing by demonstrating how environmental scarcity, whether of renewable resources such as cropland, fresh water or fisheries, could generate social conflict by intensifying competition and weakening the institutions responsible for managing that competition, while the United Nations Development Programme's (1994) Human Development Report formally incorporated environmental security as one of seven dimensions of human security alongside economic, food, health, personal, community and political security.

Applied to Egi communities, Environmental Security Theory directs attention to the ways in which TotalEnergies' oil and gas operations, through gas flaring, oil spills, pipeline leakages and the 2012 Egita gas eruption, translate into concrete threats along several of these dimensions simultaneously: food security, as farmland and fishing grounds are contaminated or degraded; water security, as surface water sources become polluted; health security, as residents report respiratory and skin complaints attributed to air and water contamination; and community security, as declining livelihoods and unresolved grievances are linked by residents to rising youth unemployment, restiveness and oil theft in the area.

Environmental Security Theory was selected for this study because it supplies the conceptual bridge between environmental change, which is directly observable in Egi communities' accounts of pollution, and the lived sense of insecurity that residents describe as flowing from that change, treating environmental degradation not merely as an ecological problem but as a direct threat to the security of the communities who depend on the land, water and fisheries that TotalEnergies' operations affect. This makes the theory directly applicable to both objectives examined in this article: it frames Objective 1's account of TotalEnergies' operations as the source of environmental change, and it supplies the analytical vocabulary, food, water, health and community security, through which Objective 2 examines how that change is perceived and experienced.

### **Environmental Justice Framework**

The Environmental Justice Framework developed from grassroots activism in the United States against the disproportionate siting of hazardous facilities in low-income and minority communities, later formalised by Schlosberg (2007) into three interlocking pillars: distributive justice, concerning who bears the costs of environmental harm and who benefits from the activity that produces it; procedural justice, concerning whether affected communities have meaningful voice in decisions governing that activity; and recognition justice, concerning whether the knowledge, concerns and lived experience of affected communities are treated as legitimate within environmental governance.

Applied to Egi communities, distributive injustice is evident in the concentration of pollution and environmental risk on Obite, Obagi and Egita while the economic benefits of TotalEnergies' operations accrue substantially to the company and the Nigerian state (Ebegbulem, Ekpe, & Adejumo, 2013; Frynas, 2005), a pattern consistent with the wider resource curse literature documenting weak local development outcomes in oil-producing communities despite decades of extraction (Idemudia & Ite, 2006; Idemudia, 2009). Procedural

injustice is reflected in residents' accounts of limited consultation over operational decisions affecting their environment, while recognition injustice appears in the tendency for community-reported environmental harm, including residents' own accounts of the 2012 Egita gas eruption and its aftermath, to receive less institutional weight than technical assessments conducted without sustained community input.

The extent of procedural injustice in Egi communities can be usefully assessed against Arnstein's (1969) classic ladder of citizen participation, which distinguishes genuine partnership and delegated power from lower rungs of the ladder, informing, consultation and mere placation, where affected communities are told about decisions or asked for input without any real influence over the outcome. Participants' accounts in this study, of learning about operational changes after the fact rather than being consulted in advance, and of engagement that resembles notification more than negotiation, suggest that TotalEnergies' community engagement in Egi communities continues to operate closer to the lower rungs of Arnstein's ladder than to the genuine partnership the Environmental Justice Framework identifies as necessary for procedural fairness. The Environmental Justice Framework was selected because the Egi experience is, at its core, a justice question, why communities that have hosted oil and gas operations for over five decades continue to report worsening environmental conditions with limited corresponding benefit, and because it supplies criteria for evaluating whether TotalEnergies' community engagement and environmental management practices meaningfully address this imbalance or merely sustain it. Read together with Environmental Security Theory, the framework grounds this study's twin concerns: Objective 1's documentation of what TotalEnergies' operations consist of and the environmental burdens they generate, and Objective 2's assessment of how communities perceive the resulting threats to their security, both read through a lens attentive to the inequitable distribution of extraction's costs and benefits.

### **III. Conceptual Review**

#### **a. Oil and Gas Operations**

Oil and gas operations encompass the full sequence of activities through which hydrocarbon resources are located, extracted, processed and transported, including seismic exploration, exploratory and production drilling, well completion, gas gathering and processing, flow-station operation, and pipeline transportation of crude oil and natural gas to export or processing terminals (IOGP, 2022). Each stage carries a distinct environmental footprint: drilling generates produced water and drill cuttings requiring careful disposal; gas processing, where associated gas is separated and either utilised or flared, produces airborne emissions including particulate matter and greenhouse gases (International Energy Agency [IEA], 2023); and the extensive pipeline networks connecting wellheads to processing facilities represent a long-term, distributed source of risk, since corrosion, mechanical failure or third-party interference can result in spills or leakages at any point along their length (World Bank, 2023). In mature oil and gas provinces such as the Niger Delta, where extraction has continued for over five decades, ageing infrastructure compounds these risks considerably. Frynas (2005) documents how pipelines and flow lines installed decades earlier frequently continue operating well beyond their original design life, a pattern with direct bearing on Egi communities, where the infrastructure supporting TotalEnergies' operations, inherited through successive corporate transitions from Elf Petroleum, includes pipelines and facilities of considerable age. The National Oil Spill Detection and Response Agency (NOSDRA, 2025) and the Nigerian Upstream Petroleum Regulatory Commission (NUPRC, 2025) provide regulatory oversight of pipeline integrity and spill response nationally, though enforcement capacity relative to the scale of ageing infrastructure across the Niger Delta remains a recurring concern in the literature (Amnesty International, 2013).

Waste management practices associated with drilling and gas processing add a further, less visible dimension to this operational footprint. Produced water and drill cuttings generated during drilling operations require disposal practices capable of preventing contamination of surrounding soil and groundwater, a standard the United States Environmental Protection Agency (2023) sets out in some detail for oil and gas production wastes internationally, and against which the waste-dumping practices some Egi residents describe near their farmland compare unfavourably. Where such wastes are not managed to comparable standards, the resulting soil and groundwater contamination can persist long after the drilling activity that produced them has moved elsewhere, compounding the cumulative environmental burden already generated by spills, leakages and flaring. For this study, oil and gas operations are operationalised as the combination of exploration, drilling, gas processing, flow-station activity and pipeline transportation that TotalEnergies has conducted in Obite, Obagi and Egita between 2010 and 2025, together with the periodic incidents, including the 2012 Egita gas eruption, and the routine environmental changes, gas flaring, oil spills and pipeline leakages, that residents associate with the ongoing conduct of these operations. This operationalisation supplies the empirical foundation for Objective 1, which examines the types and ways in which these operations have been conducted and the environmental consequences they have generated.

### **b. Environmental Security**

Environmental security denotes the condition in which a population's access to the ecological resources, clean air, water, arable land and fisheries, necessary for its wellbeing and livelihood is not threatened by degradation of the surrounding environment (Mathews, 1989; Homer-Dixon, 1991). The concept extends the human security framework the United Nations Development Programme (1994) popularised, situating environmental security alongside food, water, health and community security as interconnected dimensions of a population's overall security, such that degradation in one dimension, contaminated water, for instance, readily propagates into others, compromised health, reduced agricultural output and eroded livelihoods. In oil-producing contexts, environmental security has been shown to interact closely with community stability, since the erosion of agricultural and fishing livelihoods that pollution produces can intensify competition over remaining resources, entrench economic marginalisation, and contribute to the conditions under which youth unemployment, restiveness and involvement in illicit activity such as oil theft become more likely (Idemudia, 2014). This linkage between environmental degradation and broader community security is central to how Egi residents themselves interpret their circumstances, connecting declining crop yields and fish stocks not only to household economic hardship but to a wider sense that their community's safety and cohesion are under strain. Within this framework, environmental security is operationalised for this study as residents' perceived and experienced exposure to pollution-related threats to their food, water, health and community safety arising from TotalEnergies' oil and gas operations in Egi communities. This operationalisation supplies the empirical foundation for Objective 2, which assesses how stakeholders across Obite, Obagi and Egita perceive these environmental-security aspects of pollution associated with operations examined under Objective 1.

## **IV. Research Methodology**

The study adopted a qualitative case study design, appropriate for examining the lived, situated experience of communities hosting oil and gas operations over a sustained period. The "case" comprises the Egi communities of Obite, Obagi and Egita in Ogba/Egbema/Ndoni Local Government Area of Rivers State, bounded temporally to 2010-2025, a period reflecting the intensification of TotalEnergies' operational footprint in the area and encompassing the 2012 Egita gas eruption. The study was underpinned by an interpretivist paradigm, recognising that

residents' understanding of environmental change and its security implications is socially constructed through lived experience rather than reducible to a single objective measurement. The three study communities were purposively selected on the basis of their direct hosting of TotalEnergies' oil and gas infrastructure, including flow stations, gas-processing facilities and pipeline corridors, and their varied exposure to the specific incidents and forms of pollution examined in this study, Egita in particular for its direct experience of the 2012 gas eruption. The target population comprised adult residents of these three communities with sustained residence sufficient to speak to environmental change over the study period, encompassing traditional rulers and chiefs, Community Development Committee representatives, youth representatives, women representatives, farmers and fishermen. Purposive sampling was the primary technique, selecting participants across these stakeholder categories to capture a range of perspectives on TotalEnergies' operations and their environmental-security implications. The study comprised six focus group discussions involving thirty-six participants and twelve in-depth interviews, for a total of forty-eight respondents drawn from traditional rulers and chiefs, Community Development Committee representatives, youth representatives, women representatives, farmers and fishermen across Obite, Obagi and Egita. Primary data were generated through semi-structured in-depth interviews and focus group discussions conducted in English and Pidgin English at venues of participants' choosing, organised around residents' experience of TotalEnergies' operations, perceived environmental changes since 2010, and the implications of these changes for food, water, health and community security. Sessions were audio-recorded with informed consent and transcribed verbatim, with secondary data drawn from UNEP (2011), Federal Republic of Nigeria (2021) policy documentation, and relevant academic literature used to contextualise and triangulate the primary findings, consistent with Yin's (2018) guidance on case study evidence and Patton's (2015) approach to purposive sampling in qualitative inquiry. Trustworthiness was addressed following Lincoln and Guba's (1985) criteria of credibility, transferability, dependability and confirmability, achieved through triangulation across stakeholder categories and communities, attention to negative and divergent cases, thick description, and sustained reflexivity regarding the researcher's own positionality, supplemented by Krueger and Casey's (2015) guidance on focus group facilitation and Rubin and Rubin's (2012) approach to responsive interviewing. Sample adequacy was assessed against the principle of data saturation described by Guest, Bunce and Johnson (2006), with data collection continuing until no substantively new themes emerged across successive interviews and discussion groups.

A number of limitations attend this design and are acknowledged accordingly. The qualitative case study approach, while well suited to capturing the depth and texture of community experience, does not permit statistical generalisation to Niger Delta communities beyond Obite, Obagi and Egita, and the findings should be read as analytically rather than statistically representative. The reliance on participant recall for environmental changes extending back to 2010 introduces the possibility of recall bias, particularly for gradual changes less memorable than discrete events such as the 2012 Egita gas eruption, and the study did not incorporate independent environmental sampling or laboratory testing capable of technically verifying the extent of the pollution participants described, a limitation consistent with the resource constraints typical of community-based qualitative research of this kind and one that future studies combining qualitative testimony with technical environmental assessment could usefully address. Data were analysed using thematic analysis following the six-step framework of Braun and Clarke (2006): familiarisation with transcripts, generation of initial codes through inductive coding, searching for candidate themes, reviewing themes for coherence and distinctiveness against the coded data, defining and naming final themes, and producing the analytic narrative presented in this article, with Nowell, Norris, White and Moules' (2017) guidance on establishing trustworthiness in thematic analysis applied throughout, and Creswell

and Poth's (2018) and Creswell and Creswell's (2018) treatment of qualitative and case study inquiry informing the overall design. Ethical safeguards included informed consent, pseudonymisation of participants by stakeholder role and community rather than by name, and accurate, undistorted reporting of divergent as well as convergent accounts, consistent with the reflexive orientation Ellis (2000) and Denzin and Lincoln (2018) describe as central to credible qualitative research.

## V. Data Presentation

A total of 48 participants took part in the study across Obite, Obagi and Egita, comprising 36 focus group discussion participants across six groups and 12 in-depth interview respondents. Table 1 presents the consolidated distribution of study participants by stakeholder category and data collection method.

**Table 1: Distribution of Study Participants by Stakeholder Category and Community (N=48)**

| Stakeholder Category                            | FGD Participants | IDI Participants | Total | Percentage (%) |
|-------------------------------------------------|------------------|------------------|-------|----------------|
| Traditional Rulers/Chiefs                       | 0                | 3                | 3     | 6.3            |
| Community Development Committee Representatives | 0                | 3                | 3     | 6.3            |
| Youth Representatives                           | 12               | 2                | 14    | 29.2           |
| Women Representatives                           | 12               | 2                | 14    | 29.2           |
| Farmers                                         | 6                | 1                | 7     | 14.6           |
| Fishermen                                       | 6                | 1                | 7     | 14.6           |
| Total                                           | 36               | 12               | 48    | 100.0          |

Source: Field Survey, 2025

The 48 study participants were drawn from across Obite, Obagi and Egita, the three Egi communities hosting TotalEnergies' oil and gas operations, with youth and women representatives together accounting for over half of all participants (58.4%), reflecting their central involvement in the six focus group discussions and their direct daily exposure to the environmental conditions examined in this study. Traditional rulers, chiefs and Community Development Committee representatives, though fewer in number, were purposively included through in-depth interviews for their long institutional memory of TotalEnergies' operations across the full 2010-2025 study period and their position within community governance structures engaging directly with the company.

Farmers and fishermen, whose livelihoods depend most directly on the land and water resources affected by oil and gas activity, were represented through both focus group discussions and in-depth interviews, ensuring their occupational perspective was captured both collectively and individually. This composition, spanning traditional authority, youth, women, farmers and fishermen across all three communities, ensured that the data captured both the operational history of TotalEnergies' activities and the lived, security-framed experience of the environmental changes those activities have produced, the two dimensions examined respectively under Objective 1 and Objective 2 of this article.

The balance struck between focus group discussions and in-depth interviews was itself methodologically deliberate. Focus group discussions, comprising the bulk of the sample at 36 of 48 participants, were used with youth, women, farmer and fisherman categories to capture collectively negotiated community perspectives and to surface the kind of shared narrative that emerges when neighbours compare and corroborate one another's experience of environmental change in real time. In-depth interviews, by contrast, were reserved for traditional rulers, Community Development Committee representatives and a smaller number of youth and

women representatives, where the institutional position or individual circumstance of the respondent made a one-on-one setting more appropriate for eliciting candid, detailed testimony, particularly regarding the community's relationship with TotalEnergies and the 2012 Egita gas eruption.

## **VI. Data Analysis**

### **Objective 1: Types and Ways in which TotalEnergies Conducts Oil and Gas Operations in Egi Communities**

Participants across all three communities identified pipeline infrastructure, gas flaring and periodic operational incidents as the dominant forms through which TotalEnergies' oil and gas operations are experienced at the community level, with the 2012 Egita gas eruption repeatedly invoked as the clearest illustration of the risks ageing infrastructure poses.

"The pipelines that pass through our land are very old, they have been here since before some of us were born, and they burst or leak from time to time; it was one of these pipelines that caused the gas explosion we had here in Egita in 2012, since then we no longer trust that these facilities are safe, and even now we still see waste being dumped close to our farmland by the company's contractors."

#### **Traditional Ruler, IDI, Egita**

"Na dis same pipe wey dey pass near our farm, e don old well well, sometimes we go see am dey leak small small, before we no go even know, na when we see say our crops don start to die we go know say something don happen again."

#### **Farmer, FGD, Egita**

Gas flaring at the flow stations emerged as a particularly visible and continuous feature of TotalEnergies' operations, with participants describing its physical evidence in ways that extended beyond air quality complaints into daily domestic life.

"If you hang your white cloth outside to dry near the flow station, by the time you go and bring it inside, it has changed colour, it is no longer white, it has become grey or black from the soot; this is how we know the gas flaring never stops, day and night, we are breathing this smoke every day."

#### **Farmer, FGD, Obite**

"Sometimes gas dey come out from ground for some places near the pipeline, e go just dey burn small small, nobody go tell you say na wetin dey happen, we just dey see am and we dey fear, because na dat kind thing cause the wahala we get for 2012."

#### **Farmer, FGD, Egita**

Beyond flaring and pipeline incidents, participants situated TotalEnergies' operations within the wider infrastructure of exploration, drilling and gas processing that has expanded across the three communities since 2010, describing an intensification of activity that has brought both greater visibility of operations and greater exposure to their environmental consequences.

"Since around 2010, the company's operations have expanded, more drilling, more gas processing work, more pipelines connecting one facility to another, we see more trucks and more workers, but we also see more of the problems that come with it, the spills, the flaring, the waste, it feels like the operations are growing faster than any effort to control the effect on us."

### **Community Development Committee Representative, IDI, Obagi**

Taken together, participant accounts describe TotalEnergies' operations in Egi communities as a continuous, expanding set of activities, exploration, drilling, gas gathering and processing, flow-station operation and an ageing pipeline network, whose environmental footprint is registered locally through recurring gas flaring, periodic spills and leakages, and the occasional

catastrophic incident of which the 2012 Egita gas eruption remains the clearest example. The consistency of this account across traditional rulers, Community Development Committee representatives and farmers alike, spanning all three communities, suggests that the environmental changes associated with these operations are not isolated or occasional but a routine feature of life alongside TotalEnergies' infrastructure, a pattern consistent with the ageing-infrastructure risk that Frynas (2005) and IOGP (2022) associate with mature oil and gas provinces more generally. A further, related pattern in participant accounts concerns the sequencing of operational activity and community awareness: several participants noted that they typically become aware of specific operational changes, new drilling activity, pipeline maintenance, or the commissioning of new facilities, only once the associated equipment, personnel or vehicular traffic becomes physically visible in or near their community, rather than through any advance notification from TotalEnergies or its contractors, a pattern of after-the-fact awareness that recurred across accounts from traditional rulers, Community Development Committee representatives and ordinary residents alike and forms an important backdrop to the environmental-security perceptions examined under Objective 2.

## **Objective 2: Stakeholder Perceptions of the Environmental-Security Aspects of Pollution**

Participants consistently framed the environmental changes described under Objective 1 not merely as ecological damage but as direct threats to their food, water and health security, with women and fishermen in particular describing the compounding effect of pollution on household welfare.

"The fish we used to catch here, tilapia especially, is almost extinct in this river now, we used to catch plenty, now we can go the whole day and catch almost nothing, the water itself does not look the same again since the spills started affecting this area, and it is affecting how we feed our families."

**Fisherman, FGD, Obagi**

"Tilapia no dey again for dis water, e no dey pay for us to go river again, na so the oil don spoil everything, and na so we dey manage small small to survive, because na fishing be our main work."

**Fisherman, FGD, Obagi**

Health and living conditions featured prominently in participants' accounts, with several linking specific physical symptoms directly to the pollution associated with TotalEnergies' operations, and women describing the added burden this place on their caregiving responsibilities.

"Many of us in this community have skin rashes that we did not have before, and some of us cannot sleep well at night because of the smell and the noise from the flaring, our children too are affected, it is not something we can just ignore anymore, this is our health we are talking about."

**Farmer, FGD, Obite**

"As a woman, when my children fall sick because of the water or the air, it is me that has to take care of them, it is me that has to find money for medicine, this burden falls mostly on women and children in this community, the men can go and work but it is women who carry the sickness at home."

**Woman, IDI, Obagi**

The most far-reaching accounts connected environmental degradation directly to a broader sense of insecurity within the community, linking declining livelihoods to youth unemployment, restiveness and rising involvement in oil theft and related conflict.

"When the environment is polluted like this, it is not just about the fish or the crops, it affects our food security, our water, our health, and even the peace in this

community, because when the youths cannot fish or farm, some of them turn to other things, including cultism, and that brings its own insecurity to all of us."

**Woman, FGD, Obagi**

"Many of the young men here have no work because the fishing and farming that used to sustain us has reduced, some of them are drawn into oil theft, others into cultism, and this creates tension, even conflict, between the community and the company, and sometimes between the youths and our own leadership, all of this insecurity, we trace it back to what has happened to our environment."

**Youth Representative, IDI, Obite**

Across all three communities, participants' accounts converged on a single interpretive frame: pollution associated with TotalEnergies' operations is experienced not as a discrete environmental problem but as a threat that propagates across food, water, health and community security simultaneously, consistent with the interconnected dimensions of human security the United Nations Development Programme (1994) identifies. The explicit linkage participants drew between declining fishing and farming livelihoods and rising youth unemployment, oil theft and cultism-related tension is particularly significant, suggesting that in Egi communities' own understanding, environmental insecurity and community insecurity are not separate concerns but two faces of the same underlying condition. Notably, this integrated perception of threat was not confined to any single stakeholder category: traditional rulers, Community Development Committee representatives, women, youth, farmers and fishermen each independently drew connections across at least two of the food, water, health and community security dimensions in the course of describing their own experience, suggesting that the propagation of environmental harm across these dimensions is not an artefact of how the research questions were framed but a genuine feature of how residents themselves experience and narrate their circumstances.

## **VII. Discussion of Findings**

### **Types and Ways of TotalEnergies' Operations and Their Environmental Consequences**

The finding that ageing pipeline infrastructure, recurring gas flaring and periodic operational incidents, most severely the 2012 Egita gas eruption, dominate community accounts of TotalEnergies' operations is consistent with the ageing-infrastructure risk that Frynas (2005) documents across mature Niger Delta oil and gas provinces, where facilities frequently continue operating well beyond their original design life. Read through Environmental Security Theory, the persistence of these incidents years after they first occur, participants in 2025 still invoking the 2012 eruption as a live reference point, demonstrates a failure of the acute-threat protection the theory identifies as foundational to environmental security, since a single unresolved incident can continue to shape a community's sense of vulnerability long after the event itself has passed. The visible, continuous evidence of gas flaring that participants described, soot discolouring laundry hung to dry, gas visible burning near pipeline corridors, illustrates how routine operational practice, not only episodic incidents, constitutes an ongoing environmental exposure for Egi communities, a pattern consistent with the particulate and emissions profile the International Energy Agency (2023) associates with unmitigated gas flaring in oil and gas processing. That this evidence was reported consistently across Obite and Egita, communities located near different elements of TotalEnergies' infrastructure, suggests the exposure is systemic to the company's operational footprint in the area rather than confined to a single facility or incident. Read through the Environmental Justice Framework, the expansion of TotalEnergies' operations that Community Development Committee representatives described since 2010, more drilling, more processing, more pipelines, without a corresponding expansion in environmental safeguards perceptible to residents, illustrates the

distributive imbalance the framework identifies: growth in operational scale appears to residents to have outpaced growth in protection from the environmental risks that scale generates, reproducing the pattern Idemudia and Ite (2006) describe of extraction intensifying without commensurate local benefit or protection.

The waste-dumping practices some farmers reported near their land, set against the produced-water and drill-cuttings management standards the United States Environmental Protection Agency (2023) sets out, point to a further gap between the technical standards available to the industry internationally and their consistent application in Egi communities specifically. This gap is not simply a matter of technical capacity, since TotalEnergies operates to demonstrably higher standards in other jurisdictions, but reflects, in Environmental Justice Framework terms, a recognition deficit in which the environmental protections Egi communities receive appear calibrated to what local regulatory enforcement can compel rather than to the standards the operator is technically capable of delivering.

### **Environmental-Security Perceptions and Community Implications**

The finding that pollution from TotalEnergies' operations is perceived as a threat spanning food, water, health and community security simultaneously confirms Environmental Security Theory's central proposition that environmental degradation rarely remains contained within a single security dimension, but instead propagates across the interconnected dimensions the United Nations Development Programme (1994) identifies. The near-extinction of tilapia stocks fishermen described in Obagi exemplifies this propagation directly, water pollution undermining food security through lost fish catch, which in turn undermines the economic security of fishing households, illustrating how a single environmental pathway can cascade into multiple, compounding forms of insecurity.

The gendered pattern in which women described absorbing the caregiving burden when pollution-related illness affects their households extends the Environmental Justice Framework's distributive pillar into the household itself: the costs of environmental harm are not distributed evenly even within an affected community, but fall disproportionately on women who bear primary responsibility for the care of sick children and the management of household welfare under conditions of environmental stress, a finding consistent with the gendered vulnerability documented more broadly in oil-producing communities of the Niger Delta. The most consequential finding of this study is the direct linkage participants drew between environmental degradation and community security, specifically the connection between declining farming and fishing livelihoods and rising youth unemployment, oil theft and cultism-related tension. This finding extends Environmental Security Theory beyond its conventional focus on food, water and health security into the domain of physical community safety, suggesting that in Egi communities, unresolved environmental harm functions as an upstream driver of the very insecurity, oil theft, youth restiveness and intra-community tension, that regional security interventions in the Niger Delta have typically treated as a separate, purely security-sector problem rather than as a downstream consequence of unaddressed environmental grievance. Assessed against Arnstein's (1969) ladder of citizen participation, the procedural deficit identified under Objective 1, engagement that residents experience as notification rather than negotiation, offers a plausible explanation for why environmental grievance in Egi communities has translated into security concerns rather than being channelled through recognised institutional avenues for redress. Where communities perceive themselves as having no meaningful voice in decisions over the operations affecting their environment, the frustration produced by unresolved environmental harm has fewer legitimate outlets, a dynamic consistent with the broader Niger Delta pattern in which unaddressed community grievance over extractive activity has repeatedly found expression through informal and, at times, illicit channels rather than formal grievance mechanisms.

## VIII. Key Findings

- i. TotalEnergies' oil and gas operations in Egi communities comprise a continuous and, since 2010, expanding set of activities including exploration, drilling, gas processing and pipeline transportation, whose ageing infrastructure has produced recurring gas flaring, periodic spills and leakages, and the catastrophic 2012 Egita gas eruption that participants still invoke as their principal reference point for operational risk. The persistence of this event in community memory more than a decade later suggests that its consequences for trust between TotalEnergies and Egi communities have not been fully resolved by whatever remediation and compensation measures followed at the time.
- ii. Gas flaring at flow stations produces continuous, visibly evidenced air pollution across Obite and Egita, with soot discolouring laundry and residents reporting daily exposure to smoke from operations that do not appear to pause. This visible, tangible evidence of air pollution appears to sustain community concern more consistently than official air-quality reporting, which residents indicated they rarely see or have access to.
- iii. Water pollution associated with oil spills and pipeline leakages has severely depleted fish stocks, particularly tilapia, in waters relied upon by Obagi fishermen, directly undermining household food security and livelihoods. Fishermen described this decline as a gradual but unmistakable trend over the study period rather than a sudden change, consistent with the cumulative, long-term contamination pathway the Environmental Security Theory framework anticipates.
- iv. Residents report a rise in skin rashes, sleep disruption and other health complaints they attribute to air and water pollution from TotalEnergies' operations, with women bearing a disproportionate share of the resulting caregiving burden. No participant reported having received formal medical confirmation linking these symptoms to specific pollutants, underscoring the limited healthcare infrastructure available locally to investigate and confirm such linkages.
- v. Participants across all three communities consistently frame pollution as a threat spanning food, water, health and community security simultaneously, rather than as a narrowly environmental problem. This integrated framing was volunteered by participants themselves rather than prompted by the interview or discussion guide, lending it particular interpretive weight.
- vi. Declining farming and fishing livelihoods are directly linked by residents to rising youth unemployment, oil theft and cultism-related tension, positioning environmental degradation as an upstream driver of broader community insecurity in Egi communities. This linkage, drawn independently by both youth and women participants across different communities, represents the study's most significant extension of environmental security concerns into the domain of community safety.
- vii. Community engagement mechanisms currently in place between TotalEnergies and Egi communities were consistently described by traditional rulers and Community Development Committee representatives as falling short of genuine partnership, more closely resembling notification of decisions already made than consultation capable of shaping those decisions.

## IX. Conclusion

This study set out to examine the types and ways in which TotalEnergies conducts oil and gas operations in Egi communities and to assess stakeholder perceptions of the environmental-security aspects of pollution associated with these operations between 2010 and 2025. The evidence assembled from six focus group discussions and twelve in-depth interviews across Obite, Obagi and Egita demonstrates that TotalEnergies' operations, comprising exploration, drilling, gas processing and an ageing pipeline network, have produced sustained air, land and

water pollution, punctuated by the catastrophic 2012 Egita gas eruption that continues to shape community perceptions of operational risk more than a decade later.

The study further establishes that residents do not perceive this pollution as a narrowly environmental concern but as a direct and compounding threat to their food, water, health and community security, with declining fishing and farming livelihoods explicitly linked to rising youth unemployment, oil theft and cultism-related tension within the community. Read jointly through Environmental Security Theory and the Environmental Justice Framework, these findings confirm that Egi communities' experience of hosting oil and gas operations is simultaneously a matter of unresolved environmental risk and of distributive injustice, in which the costs of extraction fall on communities whose voice in the governance of the operations producing those costs remains limited. The study concludes that addressing environmental security in Egi communities requires TotalEnergies and relevant regulatory authorities to treat pipeline integrity, flaring management and spill response not merely as technical or compliance matters but as determinants of community security in the fullest sense, since the evidence gathered here suggests that unresolved environmental harm in host communities can translate, over time, into the very forms of community instability that security interventions elsewhere in the Niger Delta have struggled to contain. These conclusions should be read alongside the limitations acknowledged in the methodology, particularly the absence of independent environmental sampling to technically verify the extent of pollution participants described and the geographic confinement of the study to three of several Egi communities hosting oil and gas infrastructure. Future research combining this study's qualitative, security-framed approach with technical environmental assessment, and extending coverage to additional Egi communities and to comparable TotalEnergies operations elsewhere in Rivers State, would strengthen the evidentiary basis for the environmental-security claims this study advances and could help establish whether the patterns identified in Obite, Obagi and Egita hold more broadly across the wider Egi clan.

## **X. Recommendations**

Based on the findings of this study, the following recommendations are made:

- i. TotalEnergies should prioritise the inspection, maintenance and phased replacement of ageing pipeline and flow-line infrastructure across Obite, Obagi and Egita, adopting internationally recognised integrity-management standards (IOGP, 2022) to reduce the risk of further incidents comparable to the 2012 Egita gas eruption.
- ii. Regulatory bodies, including the National Oil Spill Detection and Response Agency and the Nigerian Upstream Petroleum Regulatory Commission, should strengthen independent environmental monitoring of TotalEnergies' operations in Egi communities, including regular, publicly reported air and water quality assessments, to verify company self-reporting and build community trust in oversight.
- iii. TotalEnergies, in partnership with relevant government agencies, should invest in the restoration of degraded farmland and depleted fishing grounds in Egi communities, supported by livelihood diversification programmes for households whose agricultural and fishing income has been most severely affected by pollution.
- iv. TotalEnergies should institutionalise structured, ongoing community engagement mechanisms, including regular consultation with traditional rulers, Community Development Committees, youth and women representatives, to ensure that community concerns over environmental change are heard and addressed before they translate into the community security tensions participants in this study described.

## References

- Amnesty International. (2013). *Bad information: Oil spill investigations in the Niger Delta*. Amnesty International.
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216-224.
- Auty, R. M. (1993). *Sustaining development in mineral economies: The resource curse thesis*. Routledge.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). *The SAGE handbook of qualitative research* (5th ed.). SAGE Publications.
- Ebegbulem, J. C., Ekpe, D., & Adejumo, T. O. (2013). Oil exploration and poverty in the Niger Delta region of Nigeria: A critical analysis. *International Journal of Business and Social Science*, 4(3), 279-287.
- Ellis, C. (2000). Creating criteria: An ethnographic short story. *Qualitative Inquiry*, 6(2), 273-277.
- Federal Republic of Nigeria. (2021). *Petroleum Industry Act, 2021*. Federal Government Printer.
- Frynas, J. G. (2001). Corporate and state responses to anti-oil protests in the Niger Delta. *African Affairs*, 100(398), 27-54.
- Frynas, J. G. (2005). The false developmental promise of Corporate Social Responsibility: Evidence from multinational oil companies. *International Affairs*, 81(3), 581-598.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.
- Homer-Dixon, T. F. (1991). On the threshold: Environmental changes as causes of acute conflict. *International Security*, 16(2), 76-116.
- Idemudia, U. (2009). Oil extraction and poverty reduction in the Niger Delta: A critical examination of partnership initiatives. *Journal of Business Ethics*, 90(Suppl. 1), 91-116.
- Idemudia, U. (2014). Corporate-community engagement strategies in the Niger Delta: Some critical reflections. *The Extractive Industries and Society*, 1(2), 154-162.
- Idemudia, U., & Ite, U. E. (2006). Corporate-community relations in Nigeria's oil industry: Challenges and imperatives. *Corporate Social Responsibility and Environmental Management*, 13(4), 194-206.
- International Association of Oil and Gas Producers [IOGP]. (2022). *Environmental performance indicators - 2021 data (IOGP Report 2022s)*. IOGP.
- International Energy Agency [IEA]. (2023). *Gas market report, Q4-2023*. IEA.
- Krueger, R. A., & Casey, M. A. (2015). *Focus groups: A practical guide for applied research* (5th ed.). SAGE Publications.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- Mathews, J. T. (1989). Redefining security. *Foreign Affairs*, 68(2), 162-177.
- Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *The Economic Journal*, 116(508), 1-20.
- National Oil Spill Detection and Response Agency [NOSDRA]. (2025). About NOSDRA. <https://nosdra.gov.ng>
- Nigerian Upstream Petroleum Regulatory Commission [NUPRC]. (2025). About NUPRC. <https://nuprc.gov.ng>

- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13.
- Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). SAGE Publications.
- Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed.). SAGE Publications.
- Sachs, J. D., & Warner, A. M. (1995). Natural resource abundance and economic growth (NBER Working Paper No. 5398). National Bureau of Economic Research.
- Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. *European Economic Review*, 45(4-6), 827-838.
- Schlosberg, D. (2007). *Defining environmental justice: Theories, movements, and nature*. Oxford University Press.
- Stevens, P., & Dietsche, E. (2008). Resource curse: An analysis of causes, experiences and possible ways forward. *Energy Policy*, 36(1), 56-65.
- Ullman, R. H. (1983). Redefining security. *International Security*, 8(1), 129-153.
- United Nations Development Programme [UNDP]. (1994). *Human development report 1994: New dimensions of human security*. Oxford University Press.
- United Nations Environment Programme [UNEP]. (2011). *Environmental assessment of Ogoniland*. UNEP.
- United States Environmental Protection Agency [USEPA]. (2023). *Oil and gas production wastes*. USEPA.
- World Bank. (2023). *Global gas flaring tracker report*. World Bank.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.