



SDN

2019 Nigerian oil industry environmental performance index



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The report is based on data from the Federal Government of Nigeria, which is released several years after the year under review. The latest available data in 2024 is for 2021 – and this report will be followed by an EPI for 2020 and 2021, all to be released in 2024.

SDN supports those affected by the extractives industry and weak governance. We work with communities and engage with governments, companies and other stakeholders to ensure the promotion and protection of human rights, including the right to a healthy environment. Our work currently focuses on the Niger Delta.

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Disclaimer

The analysis in this report is indicative and based on publicly available data. The environmental performance index (the Index) and methodology, which we have published online, were independently reviewed by relevant peer organisations, and are based on good-faith assumptions and calculations. We welcome new data and information on environmental emissions in the Niger Delta. We also welcome suggestions for how this work could be improved. We will aim to update our future analysis accordingly. Note that we have, in general, used shortened versions of oil company group titles for readability, but the discussion of each company here relates solely to its Nigerian entity or entities. This research was funded by the Ministry of Foreign Affairs of the Netherlands. Please note that the information and analysis contained in this report do not necessarily represent the views or policies of the government of the Netherlands.

Executive summary

Overview

This report provides a comparative assessment of the environmental performance of 44 oil and gas companies operating in Nigeria in 2019. This is the second annual environmental performance index (the Index) by SDN. The Index is primarily based on the amount of oil spilled and gas flared by each company in seven of the Niger Delta States: Abia, Akwa Ibom, Bayelsa, Edo, Delta, Imo and Rivers. Pollution data is sourced from the environmental monitoring tools of the official government regulator in Nigeria, the National Oil Spill Detection and Response Agency (NOSDRA). Production data is sourced from the Nigerian National Petroleum Corporation (NNPC)'s Annual Statistical Bulletin, which was subsequently audited by the Nigerian Extractive Industry Transparency Initiative (NEITI).

Key findings

- **Oil and gas industry pollution increased between 2018 and 2019.** Contributing to continued environmental degradation and negative impacts on citizens of the Niger Delta.
- **The volume of oil spilled was much higher than in 2018, though the number of spills was slightly lower.** In total, a minimum of 36,334 barrels of oil and other potential contaminants are recorded as spilled in the Niger Delta in 2019, across 601 separate incidents. This was a 43% increase in volume, and a 50% increase in the average spill size, compared to 2018. Nearly a third of all known oil spilled was in two local government areas – Degema and Okrika – making Rivers State the highest for spills again.
- **The volume of gas flared increased slightly, and continues to be a major contributor to greenhouse gas emissions.** Over 475 billion standard cubic feet (scf) of gas was flared in 2019, a 1% increase on 2018, despite decades of efforts to eliminate gas flaring. This volume is equivalent to a quarter of Nigeria's CO₂ emissions, or more than the entire emissions of Ghana.
- **The highest total oil spill and gas flare emissions were generated by international oil companies (IOCs),** namely Shell, ExxonMobil, and Eni, as well as the (then) state-owned oil company, the Nigerian National Petroleum Corporation (NNPC). These companies also have the highest production volumes.
- **In relative terms, domestic oil companies (DOCs) had higher oil spill and gas flare emissions for the volume of oil they produced.** Summit Oil, Britannia-U, Dubri and Excel generated by far the highest oil spill and gas flare emissions per barrel of oil (or equivalent) produced. This is concerning, since DOCs are taking over operations from IOCs, at an accelerating rate. Marginal fields (individual fields carved out of larger blocks) have a particularly alarming emissions ratio.

- **A small number of companies were responsible for the majority of absolute oil spill and gas flare emissions.** 98% of all recorded oil spilled is attributable to six companies (Shell, NAOC, Aiteo, Eroton, Heritage, and ND Western), while 54% of gas flared is attributable to only two (ExxonMobil and NNPC).
- **The 2019 Index ranks Moni Pulo as the best environmental performer, and Shell as the worst.** Moni Pulo was one of 19 companies with no oil spills recorded, and it had a very low gas flare volume, resulting in a low emissions ratio of 1%. In contrast, Shell had the highest oil spill volume, one of the lowest oil spill removal rates (28%), and was the sixth highest gas flarer. Shell's emissions ratio was relatively low (2%), but the high volume of emissions means it ranks bottom for the second year running.
- **Overall, the Nigerian oil and gas industry's environmental record compares extremely poorly with international averages.** Compared to the global average, companies operating in Nigeria spilled 13 times more oil, and flared six times more gas, for every barrel of oil (or equivalent) they produced.
- **There are major discrepancies among data sources on Nigerian oil and gas issues.** The national oil company reports document more than 233,000 barrels of "pipeline crude oil loss" for 2019, without further explanation. This is more than six-times higher than the data from government regulator NOSDRA's Oil Spill Monitor (OSM), the source for this report, which recorded just over 36,000 barrels spilled. There are also differences in gas flare volumes. As such, our analysis is indicative only, but our working assumption is that the true extent of the release of emissions into the Niger Delta's environment is much higher than officially recorded.
- **To develop a clearer picture of industry emissions in Nigeria, greater transparency from government and industry is needed.** The government has not published a detailed set of production figures for the sector since 2019, and this must be revived in the interest of transparency and accountability. Companies' own reporting should include annual accounts for emissions, disaggregated, and with a detailed description of impacts, as a minimum. Publishing this data would help inform action to address environmental concerns, and build mutual trust and accountability among all industry stakeholders. It is also essential to inform the public so they can advocate for effective policies and responses.

Rationale

Our analysis indicates that despite decades of concern over pollution in the Niger Delta, not enough progress has been made in preventing or addressing it. Nearly 6 million litres of oil were spilled in 2019, which in addition to a legacy of unresolved historic incidents, means the region remains an ecological disaster zone.

Meanwhile, new spills, and ongoing gas flaring, mean further contamination of land, air and water. The impact on human health and livelihoods is devastating, and with Nigeria intending to increase oil production by a half in the next decade, it may get worse. The industry is also a major contributor to the climate crisis, so if the Federal Government is going to achieve the ambitious emission targets it has set, then the industry needs to be a primary focus for mitigation.

SDN works to minimise the negative impact of the exploitation of Nigeria's oil and gas, and in publishing this report, we seek to increase understanding and access to information on the environmental performance of the extractive industries in the Niger Delta. We aim to enable constructive engagement on the policy solutions needed to minimise the negative impact of exploration and production, and ensure its benefits are distributed fairly and ultimately harnessed to enable Nigeria's transition to clean energy.

The Index

Our index provides a standardised comparison of the environmental performance of oil companies operating in the Niger Delta. It does this by calculating a score for six indicators related to the emissions each company produced in 2019: specifically, oil spilled and gas flared (burnt off as a by-product of oil production). The first five indicators relate to:

- The total volume of oil spilled by each company.
- The number of spills attributable to each.
- The amount of oil (if any) which was later removed from these spills.
- The volume of gas flared.
- Transparency relating to oil spills, gas flaring, and environmental procedures.

The sixth indicator is an emissions ratio: the amount of oil that each company spilled, and the gas it flared, in proportion to the total amount of useful crude oil it produced. It is important to note that while some companies did not produce oil in 2019, they may still have oil spills or gas flaring attributed to them. This may be, for example, because they engaged in oil exploration but not production. To account for these variations, we have produced different versions of the index. They are included in the database on which the Index is based, and published online alongside this report.

Discussion of findings

Gas flaring

According to the data we used, all but four of the forty-four companies discussed in this report flared at least some gas in 2019 – which, if not explicitly exempted by the regulator, has been prohibited in Nigeria for decades. The total volume of gas flared increased slightly between 2018 and 2019, despite the government working towards eliminating the practice. For the second year running, more than half of all gas flared is attributable to only two companies – NNPC and ExxonMobil. NNPC's share is high – almost

double ExxonMobil's – because it is the joint partner on almost every concession. ExxonMobil's share is four-times as high as the next company, NAOC, and it was also the biggest oil producing company for the year.

The estimated volume flared by the companies in this report in 2019 – 440 billion standard cubic feet (scf) – released 26 million tonnes of carbon dioxide into the atmosphere. This is equivalent to more than a quarter of the entire country's 2019 emissions. In addition, as in other oil and gas industries, there is almost certainly methane leakage from Nigeria's infrastructure, the greenhouse effect of which is significantly more potent than carbon dioxide. As Nigeria aims to increase its oil and gas production, it will need to consider how these factors relate to the commitments it has made under the Paris accords, to which it is a signatory, such as achieving carbon neutrality by 2060. Gas flaring has also been linked to respiratory and reproductive disorders, among other health problems, which has a damaging impact on host communities.

Oil spills

Oil spills and gas flaring are the source of an ongoing public health and environmental emergency in the Niger Delta. In 2019, nearly half of the companies were responsible for at least one oil spill, but there are significant differences among them. For example, more than 98% of the total volume spilled can be attributed to just six operators: Shell, NAOC, Aiteo, Eroton, Heritage, and ND Western. Shell had the highest total spill volume – nearly 13,000 barrels – and remediated just over a third. This is almost double the spill volume of the next company, Aiteo, which acquired most of its concessions from Shell. The total volume spilled by all companies increased by 44% between 2018 and 2019, and the net discharge (i.e. the remaining after clean-up) was nearly a third higher than the year before.

In 2019, the Nigerian oil sector produced 735 million barrels of oil, or around two million barrels per day (bpd), with a market value around US\$42 billion (at an average price of US\$57/bbl). Given this, the volume of oil spilled, in particular, may seem relatively small. However, it is vital to emphasise that oil spills and gas flaring are the source of an ongoing public health and environmental emergency in the Niger Delta. While the oil industry generates a huge amount of revenue for private companies and state authorities, the resources allocated to addressing the legacy of decades of spills are woefully insufficient. The lack of action to address past and current oil spills – or prevent further environmental damage – is unacceptable. It is a violation of the right of Nigerians to a healthy environment, and a major source of grievance in the region. Oil spills have huge economic consequences locally, and it would cost a small fraction of the market value to prevent or remediate them.

Comparing performance

The numbers above are absolute, which is significant, because regardless of the size of their operations, oil and gas companies should be aiming to reduce their potentially harmful emissions to zero, or as close to this as possible. However, it is important to recognise differences in progress towards that goal. This is why we calculate the fifth, relative indicator. This reveals that in relative terms, Summit Oil – a DOC, owned by the family of Chief MKO Abiola, which has operated OML 142 in Edo State since 1989 – had the worst emissions ratio among all companies. At over 500%, Summit Oil generates five-times more emissions than the useful oil and gas it produces. In general, the emissions ratio was much higher for DOCs than IOCs – almost five times as high. This is highly concerning given the growing role of DOCs in the Nigerian oil industry as they increasingly take over operations previously owned and managed by IOCs. The oil and gas

company with the longest presence in the Niger Delta, Shell, was the overall worst performer in the index for the second year in a row. This is after all scores are included and weighted for production (i.e. for gas flaring, oil spills, emissions ratios, and transparency).

It is also evident that the environmental performance of the Nigerian oil industry as a whole does not compare favourably with oil industry performance elsewhere. Comparing findings from this report against other regions worldwide suggests that the Nigerian oil and gas industry is by far the most polluting in the world. In terms of oil spilled per barrel produced, Nigeria was 13 times above the global average. In terms of gas flared per barrel of oil produced, it was six times higher. Almost certainly, this underestimates the pollution, and the situation is far worse than reported here. With the Nigerian government seeking to further expand the industry, there are difficult policy questions to grapple with relating to Nigeria's economic dependency on the sector, the local impact, and the climate crisis implications of the industry as a whole. But it is clear that in terms of the Niger Delta, Nigeria's oil and gas can be exploited in a more socially and environmentally responsible manner.

As such, we call on the Nigerian Federal Government and domestic and international oil companies operating in the region, as well as civil society, to approach the reduction of oil spills and gas flaring with renewed focus. NNPC, which is ultimately involved in the production of almost all Nigerian oil through its partnership agreements with local and other companies, has made clear its objective to increase total industry production. Our objective is to ensure that if this does happen, it is not at the expense of the human and environmental health of the Niger Delta.

Data

The emissions data recorded for Nigeria's oil and gas industry is incomplete. NOSDRA is not able to reach every oil spill site, the data recorded for offshore spills is nominal, and the techniques for measuring spill volumes is not always comprehensive. As such, the actual volume of oil spilled is expected to be much higher than recorded. Meanwhile, gas flaring is measured by satellites, which can never be 100% accurate given the extensive cloud cover in the Niger Delta. However, comparisons with industry and World Bank data show the estimates compare reasonably.

The production data is not released in a timely manner, so analysis can only be conducted a few years after the year under review. This report is based on the last Annual Statistical Bulletin (ASB) released by NNPC, covering 2019 data. Since this, or an equivalent, has not been released by the government since, we will rely on NEITI's annual oil and gas audit going forwards. NEITI's reports are also typically released several years after the year under review, but they do provide an audited version comparing government and industry production data.

Note that as part of this research we consulted with key stakeholders on draft versions of this report. These included representatives of oil companies, NOSDRA, and other civil society organisations. We would like to thank these groups for the contributions they made, which informed changes we made to the report. We also incorporated other changes into this report, based on suggestions made to the previous year's report.

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Abbreviation

ASB	Annual Statistical Bulletin
bbl	Barrel(s) of oil
BOE	Barrel of oil equivalent
barrels	Barrels of oil
bpd	Barrels of oil per day
DPR	Department of Petroleum Resources
FPSO	Floating Production Storage and Offloading vessel
GFT	Gas Flare Tracker
HYPREP	Hydrocarbon Pollution Remediation Project
JIV	Joint Investigation Visit
LGA	Local Government Area
mscf	Thousand standard cubic feet
NEITI	Nigerian Extractive Industry Transparency Initiative
NGFCP	Nigerian Gas Flare Commercialisation Programme
NOGIAR	Nigerian Oil and Gas Industry Annual Report
NOSDRA	National Oil Spill Detection and Response Agency
NPMS	National Production Monitoring System
NUPRC	Nigerian Upstream Petroleum Regulatory Commission
OML	Oil Mining Lease
OPL	Oil Prospecting License
OSM	Oil Spill Monitor
PSC	Production Sharing Contract

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Introduction

This is the second annual Environmental Performance Index of the Nigerian oil and gas industry conducted by SDN. It analyses official government data for production and pollution, to compare the environmental performance of 44 oil and gas companies operating in the sector in 2019.

Since discovering oil in the 1950s, Nigeria has become a major oil and gas producing nation. Its high-quality oil and gas are sold around the world, and the industry is crucial to the national economy. In total, domestic and international companies produced around 2 million barrels of oil per day (bpd) in 2019, almost all of it for export. This is a significant source of revenue for the Nigerian government.

However, the impact on the ground in Nigeria's main producing region, the Niger Delta, has been severe. The region is heavily polluted. This stems from a combination of badly maintained infrastructure, inadequate and poorly enforced regulation, historic militancy, and oil theft as part of the local "artisanal oil industry". Decades of oil spills have ruined land and water sources, creating devastation for a region where many are dependent on agriculture and fishing for their livelihoods. The environmental damage also has disturbing health implications. For example, one study indicates that infant mortality rates double for children whose mothers lived near an oil spill prior to conception ¹, and other research has shown a correlation between the presence of gas flares and respiratory problems.² Because the principal component of natural gas is methane (which releases carbon dioxide when burnt), Nigeria's flare stacks also contribute directly to global the climate crisis.

This report forms part of SDN's work to address these challenges. A crucial first step is to understand the true extent of the problem, and much has already been written on environmental aspects of the oil industry in Nigeria.³ This includes research on technical and infrastructure issues, legislation and regulation, and the political economy of the artisanal oil industry, which operates outside any formal environmental protection standards.

To date, though, this has often focused on specific companies, incidents, or communities. This is partly because of the notorious lack of transparency in the Nigerian oil sector. Statistics are often made public when they are well out of date, if at all. This is made worse by the challenges inherent to research in the region, in particular relating to logistics and security, which are an obstacle to generating new evidence.

However, in 2019, the Nigerian government agency responsible for responding to pollution from the industry, the National Oil Spill Detection and Response Agency (NOSDRA), launched improved versions of two environmental monitoring tools. These are the [Oil Spill Monitor](#) (OSM) and [Gas Flare Tracker](#) (GFT), originally developed for NOSDRA by SDN. The OSM and GFT contain up to date and publicly accessible

1. Bruederle, A. and Hodler, R. (2019). Effect of oil spills on infant mortality in Nigeria. Proceedings of the National Academy of Sciences of the United States of America (PNAS). Vol. 116, no.12, p. 5467-5471. Online: <https://www.pnas.org/doi/epdf/10.1073/pnas.1818303116>

2. SDN. (2023). Gas Expansion and the Energy Transition in Nigeria and the Niger Delta. Online: <https://www.stakeholderdemocracy.org/gas-expansion-and-the-energy-transition-in-nigeria-and-the-niger-delta/>

3. For example see the Bayelsa State Oil and Environmental Commission. (2023). An environmental genocide: The human and environmental cost of Big Oil in Bayelsa, Nigeria. Online: <https://report.bayelsacommission.org>

information on emissions to air and land: oil spilled, and gas flared, as part of oil exploration and production. The data in the OSM is derived from NOSDRA oil spill site assessments, while data in the GFT is based on calculations made using satellite observations of heat emitted from gas flare stacks.⁴

This information makes it possible to produce an estimate of oil company environmental emissions across the Niger Delta. It also enables a standardised comparison of the environmental performance of companies operating in the region in 2019, based on the data available. This includes calculating emissions data for each company, relative to the volume of oil it produced, and therefore accounting for the size of its operations.

This is what this report does. We do not aim to quantify the overall impact of emissions, which is beyond the scope of this research (this would require significant additional data on, for example, human health records, soil contamination levels, and agricultural productivity in areas affected by the oil industry). We do aim to present technical information, in an accessible format, on the extent of oil and gas released into the environment.

We intend to produce this analysis each year, to help track progress in addressing pollution in the Niger Delta. This is especially important given the Nigerian government's public commitments to minimising the environmental consequences of the oil industry – for example, to reduce gas flaring to zero in 2030, a target which faces significant challenges to meet.

In doing so, we recognise that these challenges can only be solved by all parties working together. In the interest of transparency and scrutiny, we have published data and calculations relating to this research – and welcome constructive critique, in recognition that such feedback is invaluable to improving our methodology in future.

Representatives from oil and gas companies, the Nigerian Government, and civil society provided feedback on the last report, and we have integrated suggestions into this one. This includes a rating score for company transparency measures, for example, publishing their own data on oil spills and production. It also includes a section focused on oil spills caused by 'sabotage' or a 'third-party', which were raised as major causes and of major concern.

Our hope is that this analysis will inform discussion about how to reduce the negative impacts of the oil and gas industry, and ensure that its benefits are fairly distributed. Our goal for the report is to support engagement with regulators and oil companies on their environmental management practices, in order to identify the most effective methods of preventing and addressing industry emissions.

4. More information on the data and these tools is included below, and in the Methodology.

The report is structured as follows

01

Overview of dynamics in Nigeria's oil and gas industry in 2019.

02

The sources of data for environmental emissions, and limitations.

03

Findings and commentary on five indicators we use to assess the performance of the 44 individual companies we identified as operating in the Niger Delta in 2019 that produced environmental emissions.

04

Provision of a standardised comparison of the absolute and relative performance of these companies. This is based on a weighted index of five indicators.

05

Conclusion and suggestions for next steps that government, regulators and the industry can take to help reduce the environmental emissions of Nigerian oil and gas.

1. Overview of dynamics in Nigeria's oil and gas industry in 2019

The 2018 Index is prefaced by a history of the Nigerian oil industry – oil spills, clean-up, and gas flaring, and the environmental and social impacts. This can be referenced in the 2018 Index, and is not replicated here. Instead, we have noted some of the main dynamics in the international and domestic oil and gas sector during the year under review. We hope this helps add context to the results and analysis in the 2019 Index.

2019 was a year of relative stability for the Nigerian oil and gas industry, with continued recovery following the 2016 oil price crash. Prices averaged around USD\$ 60 per barrel of crude oil, there were no significant militant attacks to infrastructure, and production levels were kept fairly high. Overall, the oil and gas sector contributed US\$D 34 billion (NGN12.2 trillion) in revenue to the Federal Government, and oil production increased to 735 million barrels– a 5% increase on 2018.⁵

But globally, towards the end of the year, there were fears of a looming global recession. This was partly fuelled by the uncertain trajectory of the COVID-19 outbreak. In addition, economic sanctions on Iran and Venezuela threatened to reduce global supply. OPEC intervened with production cuts for member countries, including 57,000 bpd for Nigeria, to 1.685 million bpd.⁶ Towards the end of the year, the quota was increased to 1.774 million bpd, to factor in Total's 200,000 bpd Floating Production Storage and Offloading (FPSO) vessel, which started production at the Egina field in OML 130.⁷ But throughout the year, Nigeria struggled to control its crude oil output, and constantly produced above these targets (2 million bpd).⁸

Politically, performance was better than the Federal Government anticipated, enabling them to increase the 2019 budget, presenting a record budget of USD\$ 34 billion (NGN10 trillion) for 2020. The general elections in May 2019 were marred with controversial conduct,⁹ but ultimately, President Muhammadu Buhari retained office, and there was no disruption or attacks to oil and gas infrastructure from aggrieved stakeholders. President Buhari re-appointed himself as Minister for Petroleum, signalling continuity. But his departmental deputy was replaced, Minister of State Ibe Kachikwu, with former governor of oil and gas producing Bayelsa State, Timipre Sylva. Unlike Kachikwu, who had a long career at ExxonMobil, Sylva was a career politician with very limited experience in the industry. This was a surprise to commentators as Kachikwu had also made credible progress in the role, introducing positive transparency measures, launching the Gas Flare Commercialisation Programme, and simultaneously serving a year as OPEC chairman. Sylva's appointment appeared a calculated political decision following strong performance for the All Progressives Congress (APC) in the Niger Delta, including beating the PDP in the Bayelsa Governorship election for the first time (although this victory was later overturned by the Supreme Court).

5. Premium Times. (2021). Nigeria earned 34 billion from gas, oil in 2019. Online: <https://www.premiumtimesng.com/news/top-news/469036-nigeria-earned-34-billion-from-gas-oil-in-2019-neiti.html>

6. Reuters. (2019a). OPEC members Iraq, Nigeria agree to cut oil output. 19th September. Online: <https://www.reuters.com/article/uk-ener-gy-wec-saudi-oil-idUKKCNiVXoIH>

7. S&P Global. (2019). Crude oil trade: New quota for Nigeria's share of OPEC+ production cuts. 11th October. <https://www.spglobal.com/marketintelligence/en/mi/research-analysis/new-quota-for-nigeria-share.html>

8. NEITI. (2021). Oil and gas industry audit report 2019.

9. SDN. (2019). Niger Delta Watch 2019: A civil society report on the conduct of the Nigerian elections. Online: <https://www.stakeholderdemocracy.org/niger-delta-watch-2019/>

The Federal Government made major legislative changes and other orders in an attempt to increase revenue. This was driven by overall fiscal issues, and worsened by an agreement to pay the State Governments several billions of dollars from oil and gas revenues.¹⁰ Examples included legislation to revisit revenue-sharing deals, specifically a provision that required the government to review sale prices when crude oil exceeded \$20 per barrel. This had not been done since the law was adopted in the 1990s, so the government can legitimately claim it was being “short-changed”, as the Attorney General commented.¹¹ Similarly, the government ordered international oil and gas companies to pay nearly US\$20 billion in royalties and taxes it said were outstanding.¹² Similar revenue-generating changes made it into legislation, including the Deep Offshore and Inland Basin Production Sharing Contract (PSC) Amendment Bill, which was signed into law in November. It increased royalty rates for offshore operations, to keep up with growing production. Analysts estimated that the government lost USD\$ 21 billion (NGN 7.6 trillion) by failing to review the PSC terms, as required by the Act, and that doing so will help the government raise over US\$1.5 billion (NGN 540 billion) in royalties per year.¹³ However, President Buhari withheld assent to the most significant piece of legislation for the industry, the Petroleum Industry Bill (PIB), after almost two decades of development in the National Assembly. Analysts reported that this continued uncertainty was delaying and deterring investment decisions, and thus hampering production growth. Shell also argued that the orders to pay taxes would delay investment into the sector, including their Bonga Southwest Deepwater oil field, which had an expected capacity of 180,000 bpd.¹⁴

In regulation, one major development was the launch of the National Production Monitoring System (NPMS), to facilitate the tracking of oil production from the various oil terminals in the country. It aimed to ensure timely and accurate reporting of oil production and export data, and replaced the paper-based system.¹⁵ However, this did not improve public reporting. From 2019 to date, the end-of-year Nigerian Oil and Gas Industry Report (NOGIAR) was not published. SDN’s 2018 Index was based on this data, and therefore it had implications for the 2019 Index (more in Data and limitations). But more broadly, this is a backward step for transparency. It was not until 2021 that the government started publishing regular production data again, but this is only aggregated at the terminal level – presumably a result of the NPMS system. This is the only data the government now publishes, so there is therefore a lack of company disaggregated production data from the regulator.

In terms of lease and licence holdings, 22 out of 25 renewal applications were approved. The government also revoked six oil mining licenses (OMLs), and one oil prospecting license (OPL), for defaulting on royalty payments. All of these licenses held by Nigerian DOCs.¹⁶ Chevron put two shallow-water OMLs up for sale (86 and 88).¹⁷ This was the latest in a series of divestments from IOCs.¹⁸

10. Reuters. (2019b). Exclusive, Nigeria hits oil majors with billions in back taxes. 21st February. [Online: https://www.reuters.com/article/us-nigeria-oil-debt-exclusive-idUSKCN1QA1EK](https://www.reuters.com/article/us-nigeria-oil-debt-exclusive-idUSKCN1QA1EK)

11. Reuters. (2019c). Nigeria seeks \$62 billion from oil companies: Attorney General. 10th October. [Online: https://www.reuters.com/article/us-nigeria-oil-majors-idUSKBN1WP21H](https://www.reuters.com/article/us-nigeria-oil-majors-idUSKBN1WP21H)

12. Reuters. (2019b).

13. Business Day. (2019). Nigeria’s oil sector in 2019: the good and the bad. 27th December. [Online: https://businessday.ng/exclusives/article/nigerias-oil-sector-in-2019-the-good-and-the-bad/](https://businessday.ng/exclusives/article/nigerias-oil-sector-in-2019-the-good-and-the-bad/)

14. Reuters. (2019). Shell says Nigeria tax claims may delay major offshore field. 26th February. [Online: https://www.reuters.com/article/shell-nigeria-idUSL5N2oL4KG](https://www.reuters.com/article/shell-nigeria-idUSL5N2oL4KG)

15. KPMG. (2019) Nigerian Oil and Gas Update. [Online: https://assets.kpmg.com/content/dam/kpmg/ng/pdf/tax/ng-nigerian-oil-and-gas-update.pdf](https://assets.kpmg.com/content/dam/kpmg/ng/pdf/tax/ng-nigerian-oil-and-gas-update.pdf); Insider. (2019). Total starts up production in Nigeria’s Egina field. 2nd January. [Online: https://www.insider.co.uk/news/total-oil-egina-field-nigeria-13802896](https://www.insider.co.uk/news/total-oil-egina-field-nigeria-13802896)

16. OML98 – Pan Ocean; OML 120 & 121 – Allied Energy (changed name to Erin Energy) – now bankrupt; OML 108 – Express Petroleum; OML 141 – Eramal Resources; OPL 206 – Summit Oil International. Africal Oil and Gas Report. (2019). Nigeria Cuts Output to Obey Quota Instructions. 7th October. [Online: https://africaoilgasreport.com/2019/10/in-the-news/nigeria-cuts-output-to-obey-quota-instructions/](https://africaoilgasreport.com/2019/10/in-the-news/nigeria-cuts-output-to-obey-quota-instructions/)

At the smaller scale, the first Marginal Field bid round since 2002 failed to conclude, and there were no signs that the Federal Government was making progress under the Gas Flare Commercialisation Programme under new Minister of State Sylva. At a corporate level, company mergers included Seplat's acquisition of Eland Oil and Gas for US\$ 486 million (NGN175 billion)¹⁹, and Savannah's acquisition of Seven Energy for US\$ 270 million (NGN 97.2 billion).²⁰ As these were finalised towards the end of the year, they do not affect the 2019 data.

Oil theft and artisanal oil refining continued to be a major issue. The NNPC reported there were 1,387 “pipeline incidences” due to vandalization throughout the year (only 19 due to rupture), leading to losses of 233,000 barrels of crude oil, and 1.9 million barrels of petroleum products.²¹ This is notably less than what NOSDRA documented for 2019: 485 spills with 32,000 barrels lost (80% of total spills, and 90% of total spill volume). While questions surround the accuracy of NNPC's figures, they are indicative of the scale of the phenomenon. In 2019, SDN released an economic study of the artisanal oil industry, which estimates that if 140,000 bpd is stolen – a conservative estimate – then over USD\$745 million (NGN 268 billion) is generated across the value chain in a year.²² This underscores the economic value of the phenomenon, both locally and nationally, which helps explain why it endures. The artisanal oil industry is blamed for causing many of the oil spills that are labelled ‘sabotage’ by a ‘third-party’. As well as the constant drain and damage to infrastructure, the artisanal oil industry allegedly causes major incidents that shut down facilities, and “shut-in” significant amounts of production. For example, in 2019, attempts at pipeline tapping allegedly caused several fires on Aiteo's Nembe Creek Trunk Line, one of two key pipelines to Shell's Bonny Terminal. Force majeure was declared several times, and production was locked in, as it regularly is along that stretch of pipeline.²³ These types of incidents reduce production and increase emissions. In response to the concerns raised by companies while reviewing the 2018 Index, we have included a specific section on sabotage in the 2019 Index.

2019 was also the year that clean-up activities commenced under the long-awaited Hydrocarbon Pollution Remediation Project (HYPREP). HYPREP is an agency established under the Federal Ministry of Environment, tasked with remediating and restoring the Ogoniland area of Rivers State, a situation that the United Nations Environment Programme (UNEP) studied in 2011, and estimated it would cost over USD\$ 1 billion and take 30 years to remediate and restore.²⁴ In January 2019, contracts were awarded for the first clean-up lots. Since 2019, the clean-up has witnessed several successes and challenges. For more updates on progress, see SDN's Bi-Annual Progress reports, based on independent monitoring of HYPREP by civil

17. Reuters. (2019). Exclusive: Chevron puts two Nigerian offshore blocks up for sale. 28th November. Online: <https://www.reuters.com/article/us-chevron-m-a-nigeria-exclusive/exclusive-chevron-puts-two-nigerian-offshore-blocks-up-for-sale-idUSKBN1Y21RR>

18. SDN. (2021). Divesting from the Delta: Implications for the Niger Delta as international oil companies exit onshore production. Online: <https://www.stakeholderdemocracy.org/report-divestment/>

19. Offshore Technology. (2019). Seplat to buy Eland Oil and Gas for £382m. 16th October. Online: <https://www.offshore-technology.com/news/seplat-petroleum-eland/>

20. Oil & Gas Journal. Savannah gets nod to acquire Seven Energy. 23rd August. Online: <https://www.ogj.com/general-interest/companies/article/14038787/savannah-gets-nod-to-acquire-seven-energy>

21. Reported as 308,822 m³ – assumed to be cubic metres = x 1,000 litres. NNPC. (2020). NNPC. (2020). Annual Statistical Bulletin. Online: <https://www.resourcedata.org/dataset/rgi21-nnpc-2019-annual-statistical-bulletin>

22. SDN. (2019). More money, more problems: Economic dynamics of the artisanal oil industry in the Niger Delta over five years. Online: <https://www.stakeholderdemocracy.org/moremoneyproblems/>

23. Oil Price. (2019). Key Nigerian oil export pipeline under force majeure after fire breaks out. 22nd April. Online: <https://oilprice.com/Latest-Energy-News/World-News/Key-Nigerian-Oil-Export-Pipeline-Under-Force-Majeure-After-Fire-Breaks-Out.html>; S&P Global. (2019). Nigeria's Bonny Light on force majeure due to line closure: Shell. 18th September. Online: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/091819-nigerias-bonny-light-on-force-majeure-due-to-line-closure-shell>

24. UNEP. (2011). Environmental assessment of Ogoniland report. Online: <https://www.unep.org/explore-topics/disasters-conflicts/where-we-work/nigeria/environmental-assessment-ogoniland-report>

society groups.²⁵ The clean-up does not affect the data in the Index, but it remains one of the most important steps in Nigeria's journey towards repairing the impact of oil and gas industry emissions. It is an opportunity for the government to learn how to clean up complex sites, and extend this to the rest of the region.

2. Data and limitations

Emissions data

The key regulatory body charged with monitoring Nigerian oil industry environmental performance is the National Oil Spill Detection and Response Agency (NOSDRA). As part of its remit, NOSDRA gathers and stores data on oil spills and gas flaring on two public data platforms. These platforms are the source of emissions data used in this report. Note that they were initially designed by SDN in 2013-2014 as part of a project to provide technical assistance to NOSDRA, and then redeveloped by SDN in 2018-2019.

The first platform is the Oil Spill Monitor (www.nosdra.oilspillmonitor.ng, OSM). The OSM is the source of oil spill data for this index. The information on each spill in OSM comes from a Joint Investigation Visit (JIV) carried out by NOSDRA to determine the cause and consequence of each spill to which it is alerted. Spills are attributed to particular companies as part of this process.

Box 1: Joint Investigation Visits

The Joint Investigation Visit (JIV) is the mechanism NOSDRA uses to assess oil spills in the Niger Delta. When NOSDRA receives information relating to an oil spill, it organises a visit to the reported location. The JIV is attended by NOSDRA staff members, oil company staff, and representatives of local communities affected.

Together, they determine and sign off on a record of the spill, including its precise location, the estimated volume of oil spilled, any containment measures taken, and the company whose infrastructure the spill came from.

The JIV has faced criticism in the past: for example, because disputes can arise over the details of a spill incident. This can lead to incomplete information being recorded in the Oil Spill Monitor (OSM). In the validation process for this report, operators did not agree with the claims that the process is often disputed. These claims are contrary to widespread claims from communities that take part in JIVs, civil society organisations (CSOs), and other observers.

For more see SDN's report, [Improving Oil Spill Response in Nigeria](#).²⁶



Oil spill pollution in creeks of the Niger Delta.

25. SDN. (2023). Independent monitoring of the Ogoni clean-up. Bi-annual reports available online: <https://www.stakeholderdemocracy.org/projects/monitoring-the-ogoni-clean-up/>

The second platform is the Gas Flare Tracker (www.nosdra.gasflaretracker.ng). The GFT uses satellite data to identify gas flare locations, and then estimates the volume of gas flared at each of these.²⁷

It is important to note that there are limitations to these sources. The data in the OSM is almost certainly incomplete: for example, many spill records indicate that an incident took place, but do not have an estimated volume attributed to them. One reason for this is that the Niger Delta is vast, and a lot of pipeline infrastructure passes through remote areas which, for example, may only be accessible by boat. NOSDRA has limited logistical capacity, and so getting to spill sites can be a challenge. In addition, there are sometimes accounts, for example, of oil companies denying NOSDRA access to reported oil spill sites. On the other hand, although it is not possible to verify the validity of the information, some companies are quite open in reporting spills and providing their data on these. In terms of gas, the volumes discussed here are, as noted, estimates (the full calibration methodology for the GFT figures is explained on its website). Oil companies are supposed to provide complete data on amount of gas they flare to Nigerian regulators. However, the extent to which the data they provide is accurate is unclear, with allegations that many flare points lack the metering equipment which is a legal requirement. This data also tends to be provided a long time in arrears (hence the development of the GFT, which provides monthly estimates). The GFT does not attribute gas flared to particular companies, but it does provide estimated volumes by concession. We have matched these with official data on who operates particular concessions in order to attribute gas flared.

Towards the end of 2019, the algorithms for processing the satellite readings of gas flaring were altered. Adjustments include improvements to detect flares with partial cloud cover, and the addition of an intensity variable based on the number of detections in a month. As a result, when the data used in the 2018 is downloaded presently, it is different to what would have been downloaded before the changes. Overall, the total gas flared figure has only a 1% variance limiting concern on an aggregate basis. However, on a concession basis, there are some bigger differences, for example, ranging from -15% in OPL 98 to +99% in OML 16. There is also additional data captured for some months, and a new concession (OPL 217). This is like as a result of the improved calculation of flares with high cloud coverage. This provides limitations to comparing absolute company gas emissions between 2018-2019, but as the Index is weighted (i.e. companies are ranked based on their relative proportion of emissions), it should not affect the overall score. As the overall difference is just 1%, it is also reasonable to compare the total volume of gas flared between these years.

The oil industry in Nigeria is generally opaque, and the availability of even basic corporate information on companies and their operations can be limited. The effect of all these factors is therefore confusion regarding the true extent of environmental emissions in the Niger Delta, which is part of the rationale for carrying out this research. Standardising reporting metrics and increasing disclosure requirements would be one way that the government could help address this. In the meantime, our assumption is that actual industry environmental emissions may be significantly higher than the picture we present here.

26. SDN. (2015). Improving Oil Spill Response in Nigeria. Online: <https://www.stakeholderdemocracy.org/wp-content/uploads/2016/06/Improving-Oil-Spill-Response-in-Nigeria.pdf>

27. The primary data source for the Gas Flare Tracker is the Visible Infrared Imaging Radiometer Suite (VIIRS) on board the Suomi National Polar-orbiting Partnership (S-NPP) satellite. The VIIRS source data is made available from the National Oceanic and Atmospheric Administration. The VNF product data used to locate gas flare sites and estimate the volumes of gas flared is from the Earth Observation Group at www.mines.edu. For more information, visit <http://nosdra.gasflaretracker.ng/data.html>.

We also updated the emissions ratio calculation to include gas production. This reduces the difference in performance between the Nigerian industry and other regions, but it remains a stark difference, with Nigeria performing far worse than others. The method can still be improved by integrating gas production into the Index in future. At the moment, for the overall Nigerian oil and gas industry's emissions calculation only, we have used the total gas production figure for the year. The improvements would help focus only on the companies that we include in the Index – i.e. those who spilled oil, or flared gas, and had an oil production volume attributed to them in the year under review.

Production data

Production data for the 2019 report comes from the NNPC's Annual Statistical Bulletin (ASB). In previous years, the ASB was followed by the Nigerian Oil and Gas Industry Report (NOGIAR), released by the regulator, the Department of Petroleum Resources (DPR). We therefore had two versions of the data to validate the figures. But no NOGIAR was released for 2019, so we relied on the ASB for this Index.

Using data from the ASB requires further work. Firstly, the ASB does not report total production on a company basis. Many of the joint arrangements have their production reported jointly, rather than this being split between the partners. We therefore had to split these based on the arrangement. Secondly, the arrangement of companies owning and operating a lease is not reported in the ASB. Previously we relied on the NOGIAR for an updated list of concession details. For 2019, the concession details were based on the 2018 NOGIAR report, and then updated based on any ownership or operatorship changes reported in the news. It is therefore possible that minor changes have not been detected.

While these challenges can be overcome for the 2019 Index, this is a worrying development for transparency going forwards. At the time of writing (2023), no further NOGIAR or ASB reports have been published by the government. The Nigerian Upstream Petroleum Regulatory Commission (NUPRC) – the new government regulator that took over from the Department of Petroleum Resources in 2021 – only publishes oil data that is aggregated at the export terminal level, under different blends of crude oil. This is clearly inadequate to break down to companies or concessions – as multiple sources feed into the same export terminals. It also does not publish details on the broader trends within the industry, which both the ASB and NOGIAR covered previously. Beyond 2019, the Index will rely on the Nigerian Extractive Industry Transparency Initiative (NEITI) Annual Oil and Gas Audit for data. NEITI reports that their data is signed off by the Government. The data within the ASB matches the NEITI data, and is in the same format, which indicates that it is a sound resource to base the analysis on, and leads us to assume that the ASB continues to be produced internally, but is no longer published.

Further detail on sources and data is included in the Methodology for this report, which is published as a separate document.

3. Findings on environmental emissions in the Niger Delta

This section provides an overview of oil and gas emissions in the Niger Delta in 2019, based on the data available. It is organised into three parts. First, it provides a summary of oil and gas emissions for the region as a whole. Second, it breaks this down into oil and gas emissions by specific companies, in terms of five core environmental performance indicators. Third, it weights and combines these indicators to provide an overall comparison of oil company environmental performance; where the fewer emissions are generated, in both absolute and relative terms, the higher a company's score.

3.1 Regional overview

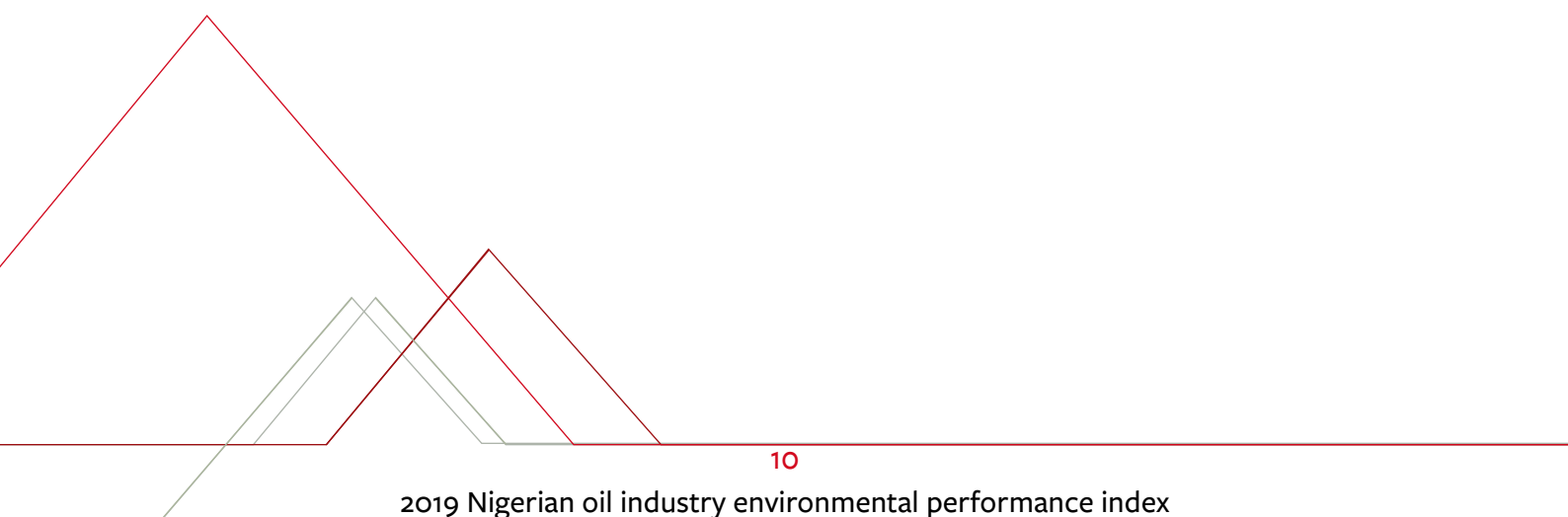
This section looks at the absolute amounts of oil and gas released into the environment in the Niger Delta in 2019, according to Oil Spill Monitor and Gas Flare Tracker data.

3.1.1 Oil

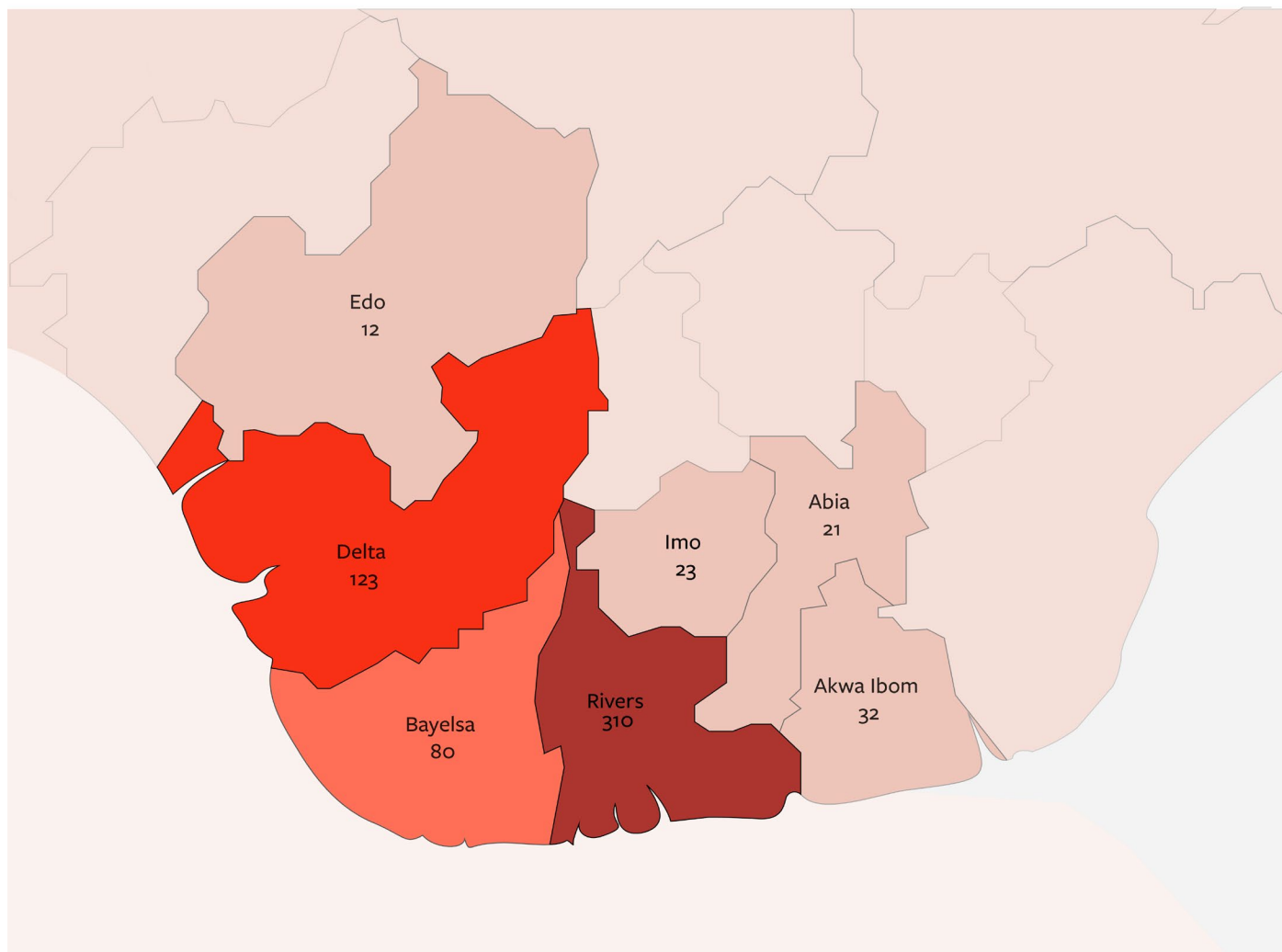
Spill quantities and locations

601 oil spill incidents recorded by NOSDRA in the OSM in 2019 are included in this report. This is slightly less than the 617 recorded in 2018. The map below shows the number of spills with a known location in each state.

Note that this, and all analysis of oil spills in this report, is based on the information made available to date in the OSM. The map, for example, should therefore not be treated as definitive. Rivers State had the highest number of reported spills – more than all other states combined. There may be many reasons for this, such as, for example, that the roads are better in Rivers State than other states, or more spills took place there during the dry season, both of which would make site access easier, and therefore the completion of spill reports.

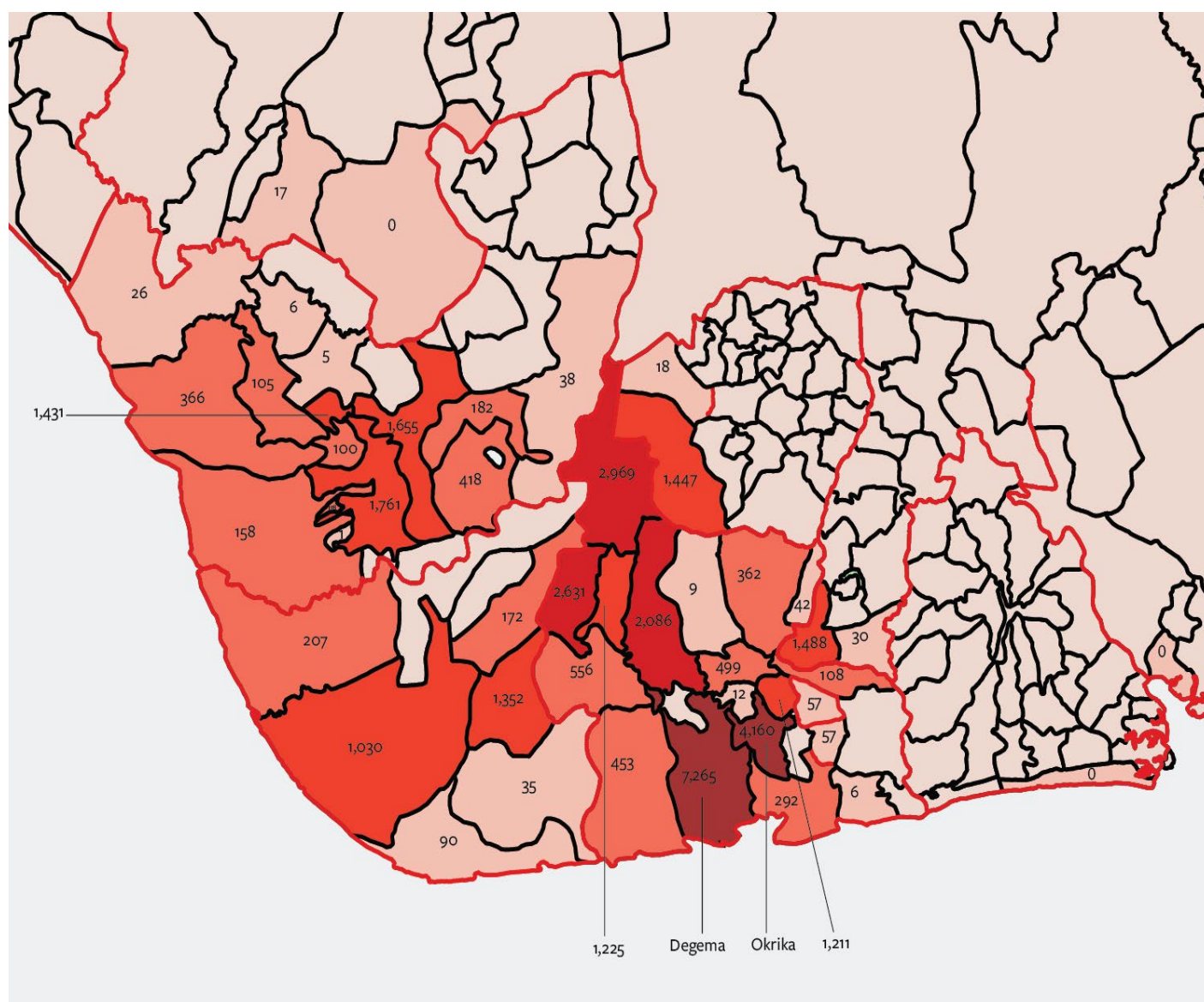


Map 1: Number of oil spills by state:



In total, the 601 spill incidents released an estimated 36,334 barrels, or just under 6 million litres. While there were fewer spills than in 2018, the total volume was over 11,000 barrels higher in 2019 (more than a 43% increase). The volume of oil spilled in each Local Government Area (LGA) is shown on the map below. The darker the red, the more oil was spilled:

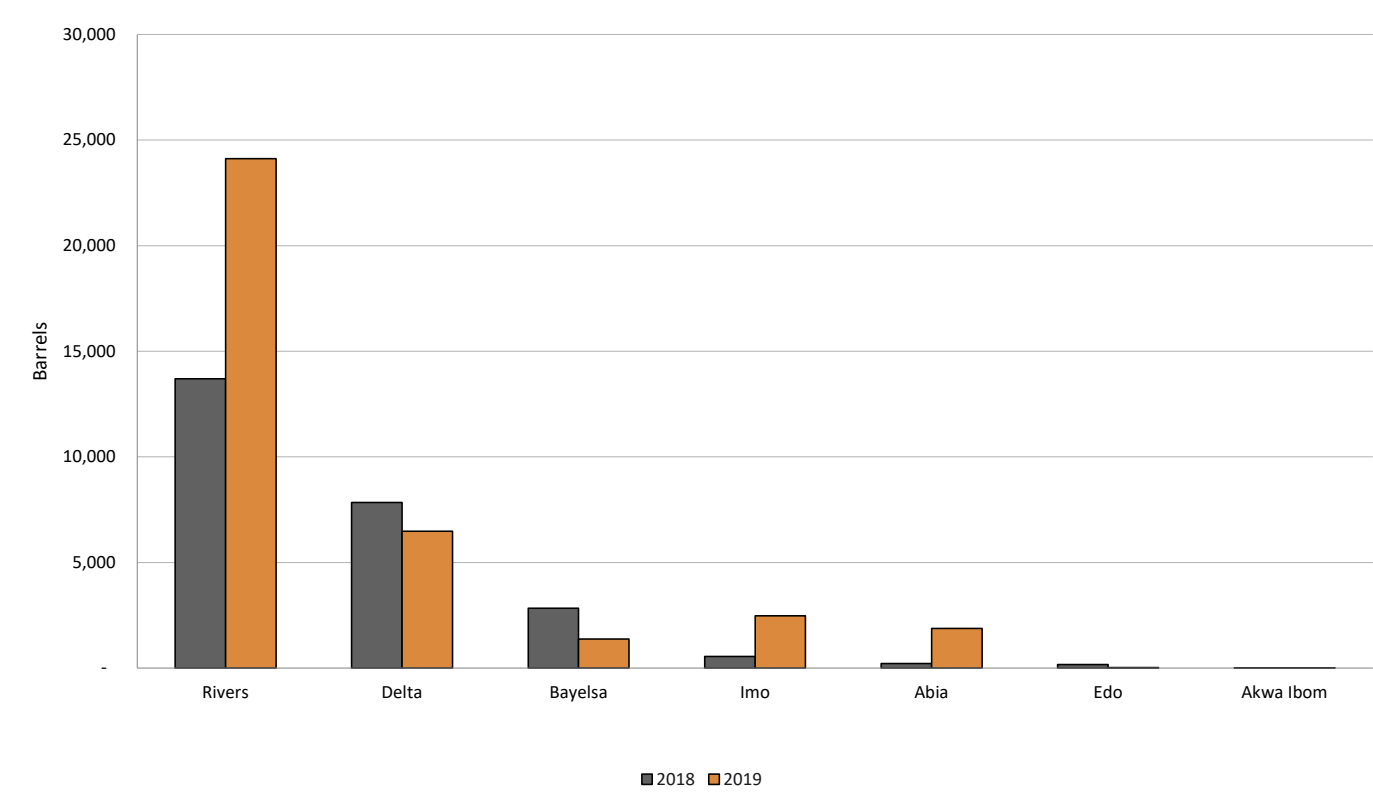
Map 2: Spill volume by LGA



As the map clearly demonstrates, two LGAs alone in Rivers State – Degema and Okrika – saw more than 11,000 barrels of oil spilled—nearly a third of the total recorded for all states. Their neighbouring LGAs also had high spill volumes. This helps explain why Rivers State had the highest spill volume overall.

Rivers State recorded a 76% increase in spill volume between 2018-2019, which should be of major concern, given the high volume. While Imo and Abia States recorded a relatively lower volume of spills, they recorded the highest increase year-on-year, 353% and 786% respectively. This increase can be attributed to a small number of spills - Abia State had three spills over 120 barrels, and Imo State had two spills over 650 barrels.

Graph 1: Total oil spilled by State ²⁸



28. Note that figures are rounded and care should be taken not to over-interpret them. For example, offshore spills are often recorded in the OSM using the nearest state and with a nominal quantity. This is presumably because of the difficulty in accessing and quantifying evidence relating to these, but it means that although Akwa Ibom recorded 32 spills in 2019, the total volume amounts (taking into account rounding errors) to only 2 barrels.

Box 2: Oil spill impact case study, Bayelsa State.

In late 2021, SDN made several visits to host communities in OML 29 in Bayelsa State where there was a large oil spill, and documented the environmental, social, and economic impacts.

There was no official report on the volume of oil spilled, and the figure is disputed. Estimates range between 18,000 to 1 million barrels (see box 3 for more details). Either estimate puts the spill in NOSDRA's 'major' category of 2,500 bbls and above, while the independent estimate would make it by far the biggest in the last decade, and one of the largest in world history.

Efforts to stop the spill were slow, taking nearly 40 days. During which time, the waterways had dispersed the pollution. A local NGO recorded 40 communities were impacted in the area, including in neighbouring Rivers State, illustrating the widespread impacts a single spill can have.

The environmental impact was devastating. Locals told SDN that:

"Aquatic life and water bodies have been destroyed, the mangrove dried up, insects also died, the land got polluted and less fertile, vegetation turned pale and shrouded by debris, water wells have also been polluted leaving us with no other source of water supply than the river".

This had a knock-on impact on livelihoods and the local economy:

"The spill adversely affected our livelihood by damaging our fishing nets, hooks and lines, and other fishing implements. Even the fishes we catch have either died, been deformed, or migrated far into the Atlantic Ocean, thereby increasing our sufferings."

"Even our fish ponds were ravaged and we lost fishes to the gaseous emissions from the spill."

"Our farms were overtaken by oil and gas residues [...] Our coconuts, vegetables, plantain and banana, cassava, sugarcane, avocado pear, guava, cocoyam, all damaged!"

As a result, *"there was widespread hunger and starvation because most communities could not engage in fishing and farming, which is largely our preoccupation here."*

The spill also reportedly led to immediate health impacts:

“We suffered [an increase in] different ailments like malaria, typhoid, strange rashes on our bodies, severe cough, and some of our children suffered convulsion. Also, eye defects were largely experienced, especially by the elderly and children.”

In addition, a four-year-old girl died of ailments suspected by community members to have been caused by gas poisoning. But the reality is that the health impacts are likely to remain for years, due to increased concentrations of toxins in waterways and soil. Some relief materials were provided by the operator to the nearby communities – dried noodles, rice, and canned tomatoes – but were not enough to meet everybody’s immediate needs, let alone future needs when harvests failed due to environmental damage. Community members reported that “some families received just a cup of rice, or a rubber (carrier bag) of garri (milled cassava), to feed on after suffering for weeks. You can imagine the insult!”.



Fishing equipment the community said is no longer usable due to damage from the oil spill.



Mangrove forests that were reportedly healthy prior to the spill, but are now visibly badly damaged.



Relief materials such as rice and noodles provided to the community by the company during the spill.

Oil spill containment and recovery

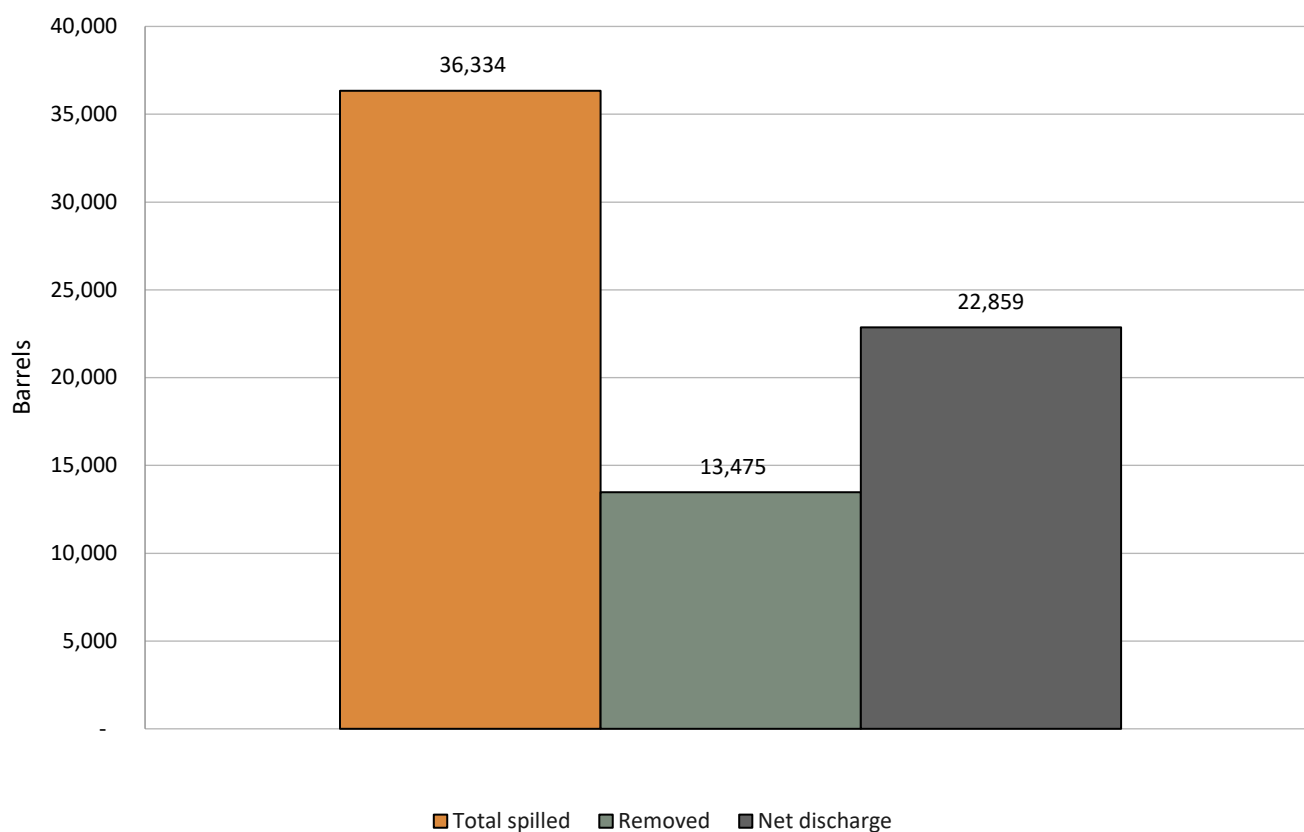
When a spill takes place, initial containment measures can be taken to limit its spread. For example, if a spill takes place near a river, floating booms can be placed across the river, to prevent the current taking the oil downstream. It is important that these measures be implemented as quickly as possible (although sometimes they do not take place at all). If they are put in place, mechanical removal—in simple terms, scooping up oil with shovels and other implements—can then be used to recover the trapped oil. Note that this can physically remove the oil from site, but is not the same as remediation or restoration, which involves long-term treatment to remedy the toxic and other effects of oil spills on the environment.

Where available, the OSM includes data on how much (if any) oil has been recovered from each spill as a result of such containment measures. In this Index, we refer to this as “oil removed”. It is therefore possible to generate a net figure for how much oil has been discharged—the amount which remains in the ground and water—by subtracting this from the total volume spilled. We refer to this as the “net discharge”.

In 2019, 13,475 barrels, or 37% of total oil spilled, was later removed. This rate was slightly higher than in 2018, when 7,893 barrels, or 31% of oil spilled was later removed. The total net discharge across the Niger Delta was therefore 22,859 barrels, or 3.6 million litres.²⁹ This is nearly a third higher (31%) than the 17,415 barrels net discharge in 2018.

Therefore, in 2019, more than a third more oil was spilled (43%), and nearly a third more (31%) was left in the environment, than the year before.

Graph 2: Total oil spilled and removed



29. There are approximately 159 litres in a barrel of oil.

NOSDRAs record of oil spill recovery was questioned by operators during the validation process. For example, Shell claimed that “the final volume recovered was in the post cleanup and site certification reports submitted and signed by NOSDRA”, but that “the recovered volume was not updated on the OSM”. They claimed that if the updated forms are used, Shell’s full clean-up rate was 71%, while NOSDRA’s record shows just 29% of oil was later removed. We asked NOSDRA to comment on this claim, and provide further clarity on how often they update the record of oil spills, but did not receive a reply before publishing. We hope to be in a better position to comment in the next report, and in the meantime, will maintain the NOSDRA OSM as the source data for all companies.

Box 3: Oil spill response case study, Bayelsa State

Our experience from working with communities is that company responses to oil spills all too often remain slow and insufficient, leading to severe environmental impacts, both immediate and long-lasting.

The spill in this case study took place at OML 29 on the border of Bayelsa and Rivers States in November 2021. The infrastructure causing the spill was owned by DOC Aiteo, who acquired IOC Shell’s 45% stake for US\$1.7 billion in 2015. At the time of the divestment, it was Shell’s largest onshore joint venture. The first case study (above) explored the impact of this spill, while this case study examines the challenges that were faced during the response.

The case study highlights several areas for improvement across oil spill response in the Niger Delta, including disputes over reporting, the capacity of domestic oil companies to respond, and the need for proactive measures to decommission abandoned infrastructure.

Early warning signs overlooked

Local reports of leakage from the well before the blowout were not addressed effectively, nor reported to the regulator by the operator. Local fishermen told SDN they saw small leakages of crude oil from the well in the weeks before the blowout. They claim they reported this to the pipeline surveillance team, who in turn, claim they reported it to Aiteo’s Drilling Superintendent in charge of operations at the platform. After several requests, the operator reportedly sent a team, who “cut off supply from the wellhead into the adjoining supply pipeline”, and “did some shabby works on the wellhead using rags (pieces of cloth)”, according to community members. When the community made further complaints, they say the operator told them, “that the well in question was an abandoned well and not producing [...] so they couldn’t do anything about it, otherwise who would bear the cost?”.

Uncertainty over the spill start date

The start date of the spill is disputed. The nearby community claimed that the well blowout happened on the 1st December - four days before the date it was reported by the operator (Aiteo) to the regulator (NOSDRA) on the 5th of December. Locals told SDN that they could not miss the explosion, which was so loud that they “thought it was a bomb blast at the oil facility”, which sent “yellow fumes into the atmosphere, overtaking the community”, and caused panic and evacuation of settlements. Under Nigerian regulations, if the operator failed to act within 24 hours, then it is

mandated to pay a fine (a low N500,000). It also means that the spill would have been free to flow without containment for longer than necessary, leading to a greater volume of spillage.

Delays in response

Several delays occurred before containment measures and technical expertise were deployed. Five days after the spill was reported by Aiteo, Clean Nigeria Associates, a response system set up to work with on-site recovery contractors, were sent to the site. They deployed booms to contain the spread of crude oil, and claimed that 3,000 barrels of crude oil were recovered. However, the operator was unable to shut the well, and was reliant on an US-based firm, Boots & Coots, whose staff did not arrive in Nigeria until two weeks after the spill was reported. However, that team was also not successful in closing the well, and another, Kenyon International, was hired, but did not start on-site assessments until three weeks after the spill was reported by Aiteo. A few days later, Aiteo claimed that the well would be plugged within two days, but it took another two weeks for the well to be finally 'killed', and for oil and gas to stop leaking. That was more than five weeks since the spill was reported.

Difficulties in deploying Joint Investigation Visits

In addition to the slow response by the technical team, the investigation team suffered set-backs. An early attempt to conduct a Joint Investigation Visit was not successful, as the team could not reach the location due to the high-pressure discharges. Several subsequent visits to the vicinity were led by politicians – from the State Governor, to the Federal Minister of Environment, and Federal Minister of State for Petroleum Resources – but these did not include the JIV team. The next JIV was not attempted until more than a week after the well had been 'killed', but this was also aborted as the security agencies would not let the media join them. A third attempt was successful, but this came three weeks after the well had been 'killed'. This undermined the ability of the team to record the volume and contaminants released, as large volumes had dispersed.

Lack of accurate documentation and record keeping

The official record of the incident is disputed, including details of the start date of the spill, the main contaminants released, and the volume of the spill. The clean-up contractor estimated 18,000 bbls, while an independent expert estimated 500,000 – 1,000,000 bbls. As noted earlier, both estimates far surpass the 'major' category, and the latter, if accurate, would make it the biggest spill of the decade worldwide, and possibly larger than the Exxon Valdez spill. In addition, Aiteo and NOSDRA claimed that the cause of the blowout was sabotage – i.e., that somebody had tampered with the infrastructure. However, the host communities, civil society groups, and the State Government fiercely disputed this, and therefore refused to sign off the JIV report. The State Government claimed the JIV team could not see the exact point of leak for examination, and suspected that the operator had tampered with faulty valves before the third JIV visit went ahead. The host communities also dispute this cause, referencing to SDN their prior reports of leakage to the operator, and the fact that no dead bodies of 'saboteurs' were recovered. This kind of dispute is common for JIV reports, and there are often concerns that companies are incentivised to ensure the cause is found to be due to third-party damage, as they do not have to pay compensation.

As a result of the disputes, no official record of the spill has been made public, or recorded on the regulators Oil Spill Monitor platform. While the regulator stated that “*whatever was lost to the environment, is certainly less than what was recovered*”, meaning that the majority of oil was recovered, it is not clear what the net discharge was. The Bayelsa State government launched a committee to gather evidence and pursue the matter in the courts, but no action appears to have been taken. The operator of the facility continues to pump crude oil and gas from the field, and according to community members, has not taken any actions to restore the environment, nor provide compensation to those who lost their livelihoods or are suffering impacts to health.

Areas for improvement

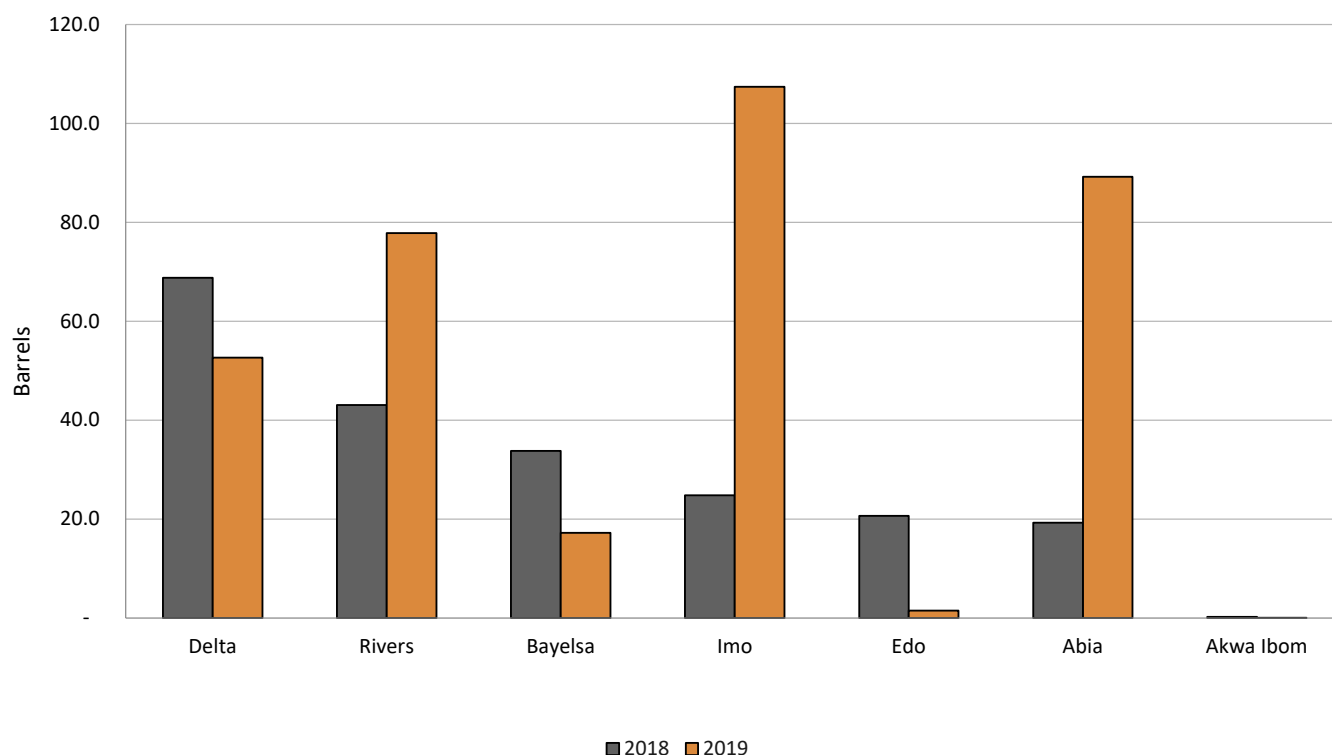
This case study highlights several areas where action is needed to mitigate and respond to future spills:

1. Emergency response measures need to be improved. The time for containment measures and the eventual ‘killing’ of the well took too long, allowing tens, if not hundreds of thousands of barrels of toxic crude oil to escape, as well as hundreds of thousands of cubic feet of noxious gas. The host communities claimed they reported leaks in the weeks before the blowout, but there was not adequate response. Moreover, according to community members, the same wellhead had minor leaks in 2018 and 2019, followed by JIVs, but there were no proactive measures to mitigate a more serious blowout.
2. Examine the capacity of companies to respond. This case study highlights the lack of preparedness of the operator, and possibly points to the higher risks faced by DOCs, as they are inheriting poor quality infrastructure, and lack the kind of capital to invest and upgrade it. Regulators should be supported to ensure they can conduct an industry wide assessment of capacity, and order improvements where there are weaknesses.
3. Strengthen the JIV reporting process. The magnitude of the pollution meant that officials could not conduct an investigation while the spill was ongoing, but it still took another three weeks after the spill was stopped for this to take place. In addition, the final report was highly disputed, which is common, and hints that the JIV process needs greater independence from oil and gas companies to come to acceptable conclusions.
4. Enforce industry-wide decommissioning of abandoned infrastructure. The fact that the operator claims this was a non-producing well raises the importance of decommissioning infrastructure that is no longer in use. The communities report that there are several other infrastructures in the area that are not in use, and this is a common scene across the Niger Delta. Operators are now required by law to submit decommissioning plans to the regulator, and pay into a fund to ensure works can be completed. The NUPRC should be supported to kick-start decommissioning across the region to avoid future incidents like this, and help restore the environment to its natural state.

Number of spills and average spill size:

In 2019, the average spill size for the entire Niger Delta was 61 barrels. This is almost 50% higher than in 2018 (47%). However, breaking the data down by state reveals big differences in the average spill size. For example, in Imo State the average was 107 barrels, which is more than double the size of spills in every state, other than Rivers and Abia States. As noted earlier, this is due to a lower number of total spills (21) and two massive spills of 653 and 828 barrels recorded.

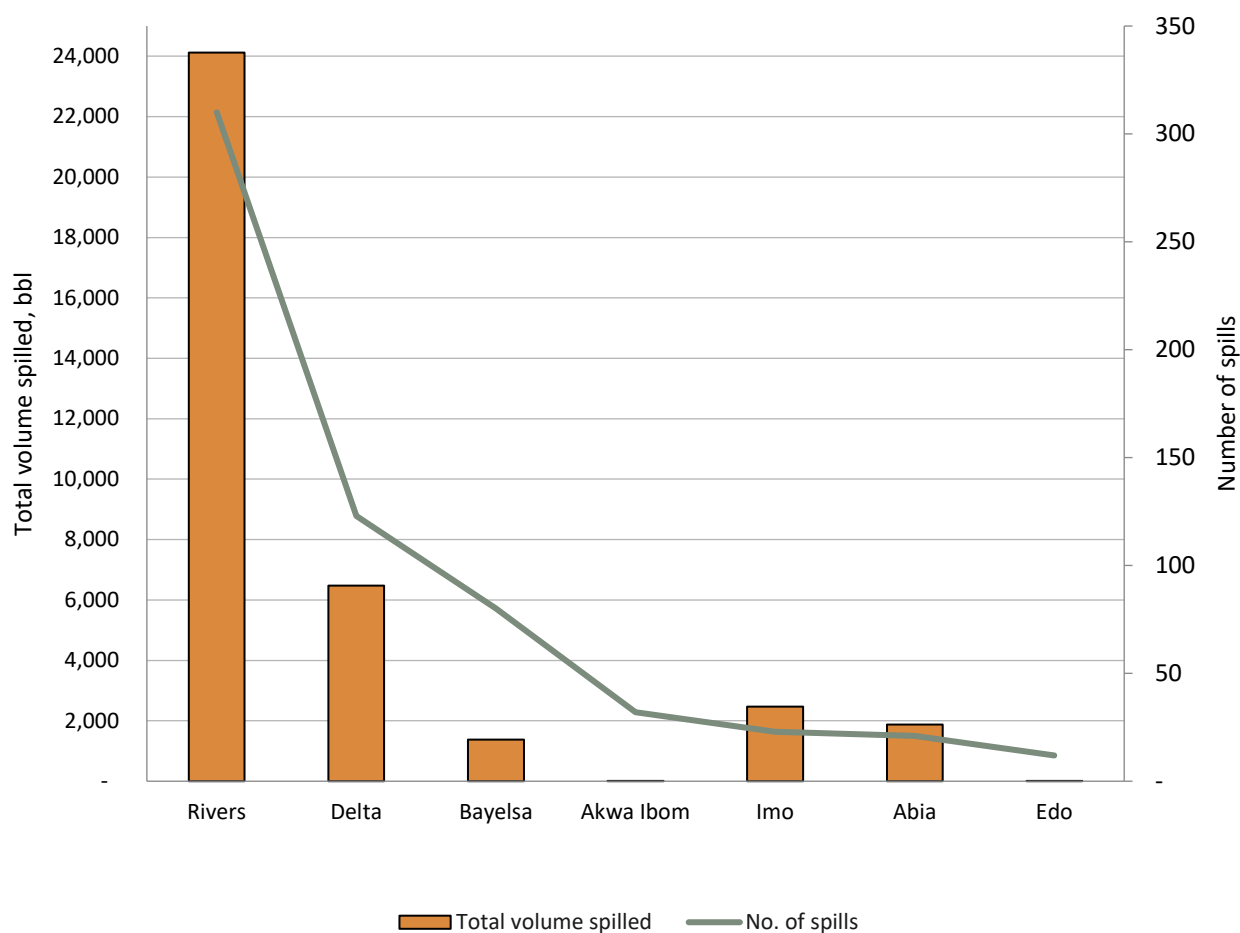
Graph 3: Average oil spill size by state



Rivers and Delta States had a far higher number of spills than other states. The two states witnessed all seven spills with a recorded volume over 1,000 barrels. This combined with their relatively high average spill volume explains why these two states account for over 85% of all oil spilled – 21,537 barrels in total. This suggests that at least in terms of absolute impact, these two states may be the worst affected, based on data available.³⁰

30. Note that because oil blocks and State boundaries do not overlap, it is difficult to determine specific production volumes by State. As such, care should be taken not to over-interpret this data: for example, if, as well as spill volumes, oil production in Delta and Rivers States is also much higher than elsewhere, then the relative amount of oil spilled may be lower. This topic needs further research.

Graph 4: Total volume spilled and number of spills by State



However, it is also obvious that Akwa Ibom State, which saw 32 spills recorded, has an almost negligible spill volume (2 barrels, or 0.1 barrels per spill). This is surprising, as the state is the highest oil producer by volume. The lack of spill data may be because production – and therefore spills – take place offshore and are not investigated by the regulator, and are recorded in the OSM to the nearest state, in this case Akwa Ibom State, and have what usually appears to a nominal volume, close to zero, attributed to them. This is not unreasonable, as it at least records that an incident took place. However, it highlights the need for more effective oil spill monitoring offshore, as it seems very likely that the total spill volume offshore is much higher, given the scale of production, and therefore the actual volume of spills in Akwa Ibom State is likely to be much higher.

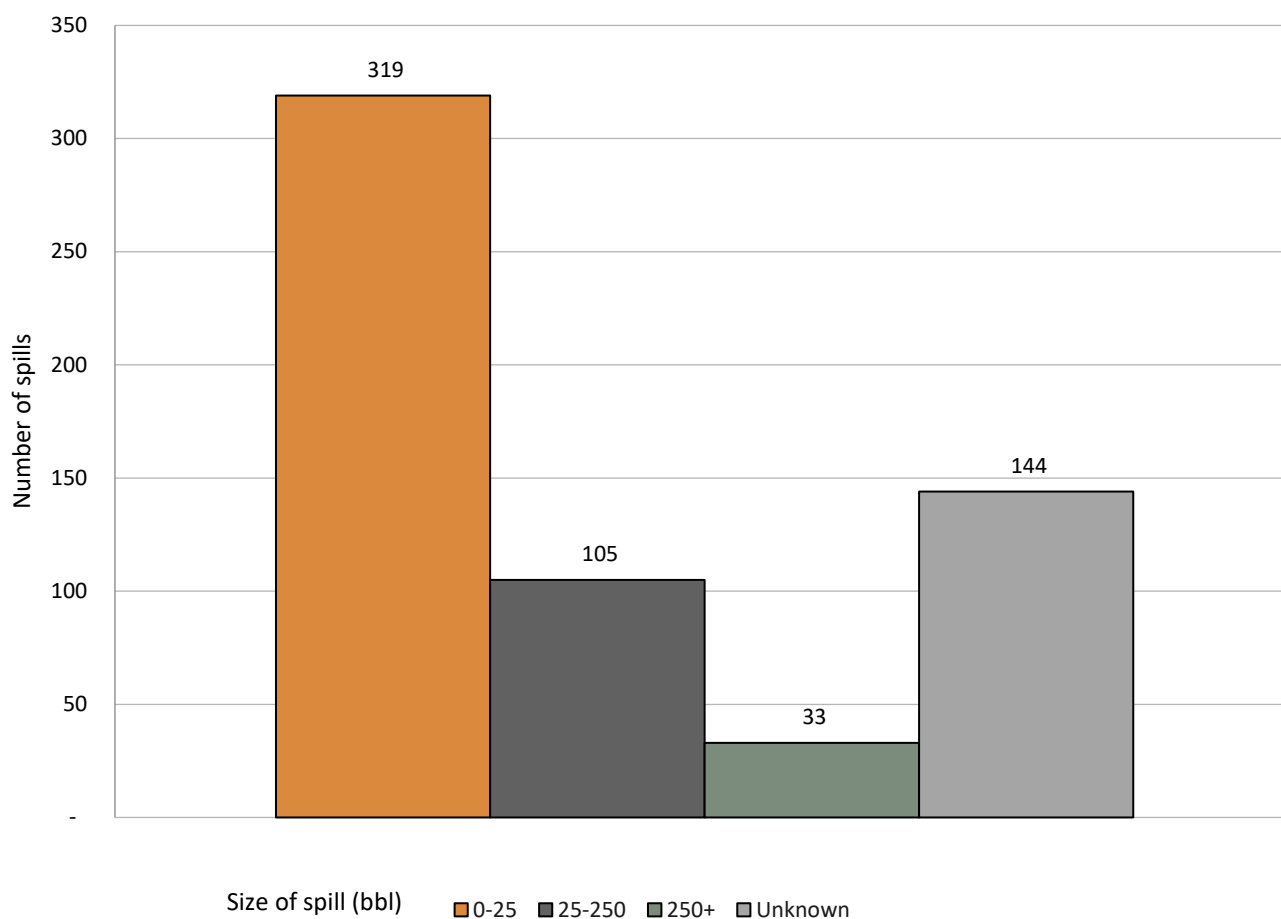
Spills by size

NOSDRA's classification of oil spills (see table) is based on the capacity needed to respond to them. In 2019, there were at least 138 spills of 25 barrels or more, which qualify as "minor" if they take place in inland waters. However, 25 barrels equates to nearly 4,000 litres of oil. This is easily enough to create lasting damage across a community.

Table 1: NOSDRA oil spill size guide

Spill site	Spill size (bbl)		
	Minor	Medium	Major
Inland waters	0-25	25-250	250+
Land, swamp, shore-line or open sea	0-250	250-2,500	2,500+

Graph 5: Total number of spills by size in barrels



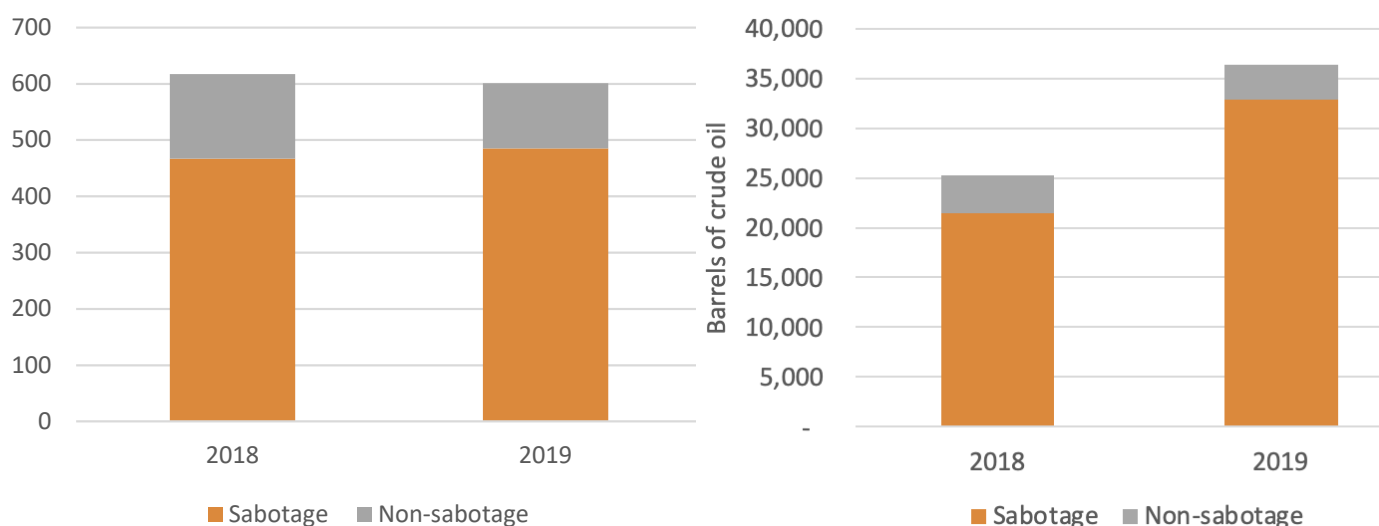
Spills by sabotage

The causes of oil spills are mostly labelled as “sabotage” or “third-party”. As outlined in the context section, this is typically blamed on the artisanal oil industry, where individuals fix a tap onto a pipeline in order to syphon crude oil, either to sell it or process it in an artisanal oil refinery. “Sabotage” can also relate to attacks on pipelines, which are conducted for many reasons, ranging from local disputes with an oil and gas company over community payments, contracts, or environmental pollution, to more coordinated attacks by militant groups to force the hand of government or companies in negotiations over demands.

As noted, the artisanal oil industry and “third-party” interference are major concerns for the oil and gas industry, regulators, and local communities in the Niger Delta. Company representatives were concerned that the 2018 Index methodology did not sufficiently acknowledge the challenge of third-party oil spills. For example, staff from one company said that an operator producing oil solely onshore, in an oil theft hotspot, would face different challenges from a company operating solely offshore. We acknowledge the significant role that third party interference can play in oil spills, and are now including this section in the report.

In 2019, the causes of 80% of oil spills were attributed to “sabotage”, and this accounts for 90% of the total oil spill volume. This is an increase on 2018, where 75% of spills were attributed to “sabotage”, and 84% of the total oil spill volume.

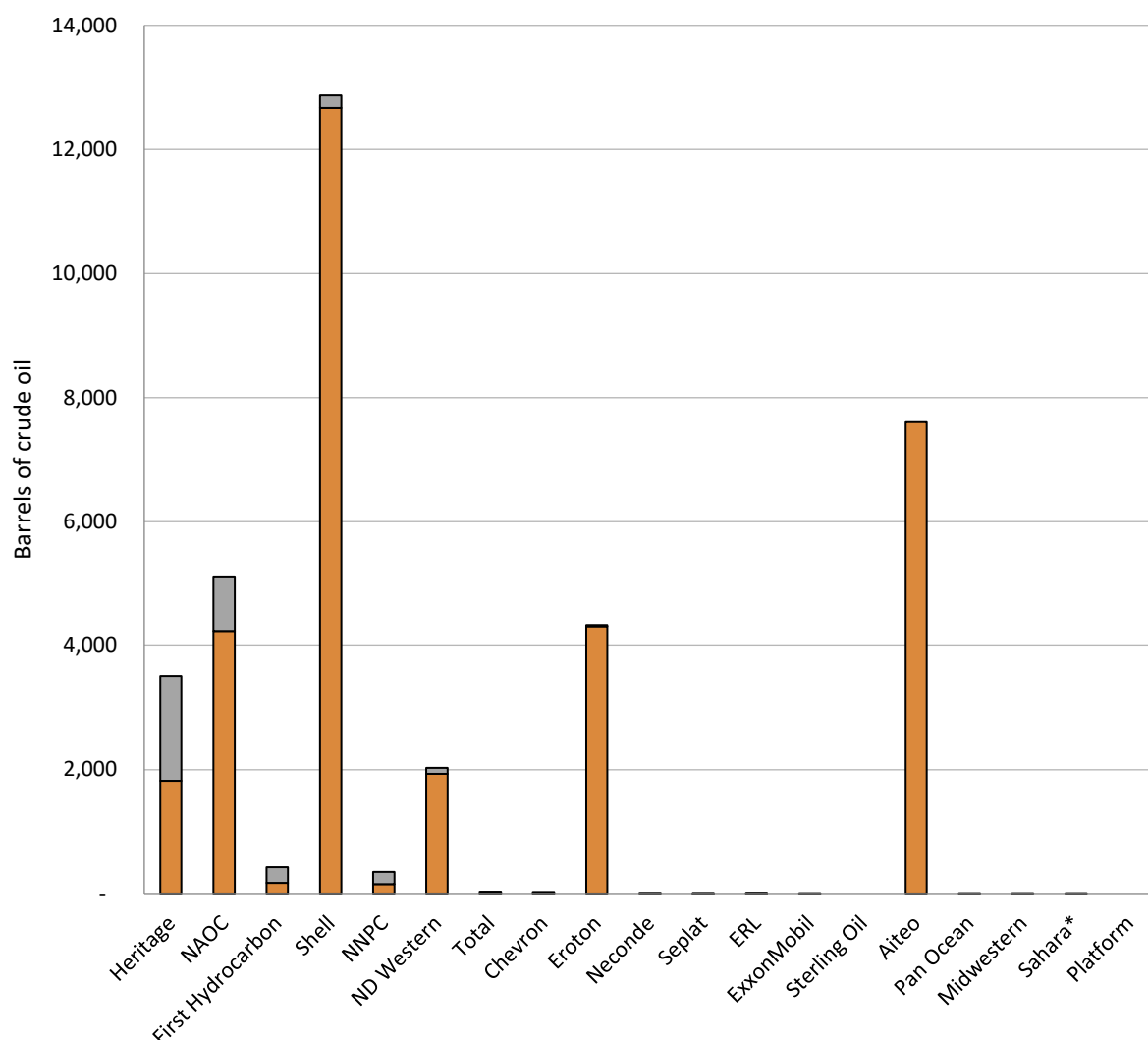
Graphs 6 and 7: Number of spills by cause (2018-19), and Volume of oil spilled by cause (2018-19)



Aiteo, Midwestern, Pan Ocean, Platform and Sahara attributed all of their spills to sabotage, but these companies had a relatively small number of incidents overall (21 in total). Shell (94%) and NAOOC (88%) claimed that almost all their oil spills were from sabotage. Together they were responsible for a much higher number of spills (203 and 198) – together, over two thirds the number of total spills, and half of all spill volume. As such, they are responsible for a much higher number of spills caused by sabotage (175 and 198) – together, over two thirds of all spills caused by sabotage, and over half of all spill volume for spills caused by sabotage. Aiteo had the second highest total spill volume attributed to sabotage. This is probably because it operates the 97-kilometre Nembe Creek Trunk Line, which it bought from Shell in 2015 for US\$2.9 billion.

The NCTL reportedly has a high number of tapping points, but is also at the centre of a legal dispute, as Aiteo claims Shell did not disclose the poor condition of the pipeline in the sale.³¹

Graph 8: Volume spilled by companies, ranked by non-sabotage volume (2019)



Sabotage is clearly a serious problem facing the industry. However, further consideration will be needed on the validity and extent to which third-party interference should be reflected in a company's score in the Index. This is for two main reasons. Firstly, the process of attributing a cause for a spill is highly disputed, with the JIV team often disagreeing with community members on the cause, especially over whether it was sabotage or operational failure (see box 3 for a case study). Secondly, it is often argued by observers that oil and gas companies push for a spill to be recorded as sabotage so that they avoid liability, and do not have to pay compensation for damages. This is part of a broader narrative that argues companies are not liable for such spills, because it is criminal elements that are attacking their infrastructure. This is enabled by the Nigerian legal system, which does not use the “*no fault liability*” principle, unlike most other countries. If it was applied to oil and gas companies, they would be held responsible for all oil spills from their infrastructure. The argument would be that they can introduce measures to make the infrastructure safer – such as conducting better maintenance, replacing old pipelines liable to corrosion, and burying pipelines below ground, rather than above ground, in and around settlements.

31. Reuters. (2021). Nigeria court freezes Shell accounts ahead of Aiteo lawsuit. 19th February. Online: <https://www.reuters.com/article/uk-shell-nigeria-lawsuit-idUSKBN2AJ1P>

3.1.2 Gas flaring

Total gas flared

Graph 7 below shows how much gas is estimated to have been flared in each state, in thousand standard cubic feet (mscf, a common industry unit). Table 3 shows how much was flared in each state as a share of the total. Flaring in Delta State and Rivers State alone accounted for two-thirds (66%) of all gas flared in the Niger Delta:

Graph 9: Gas flared by State

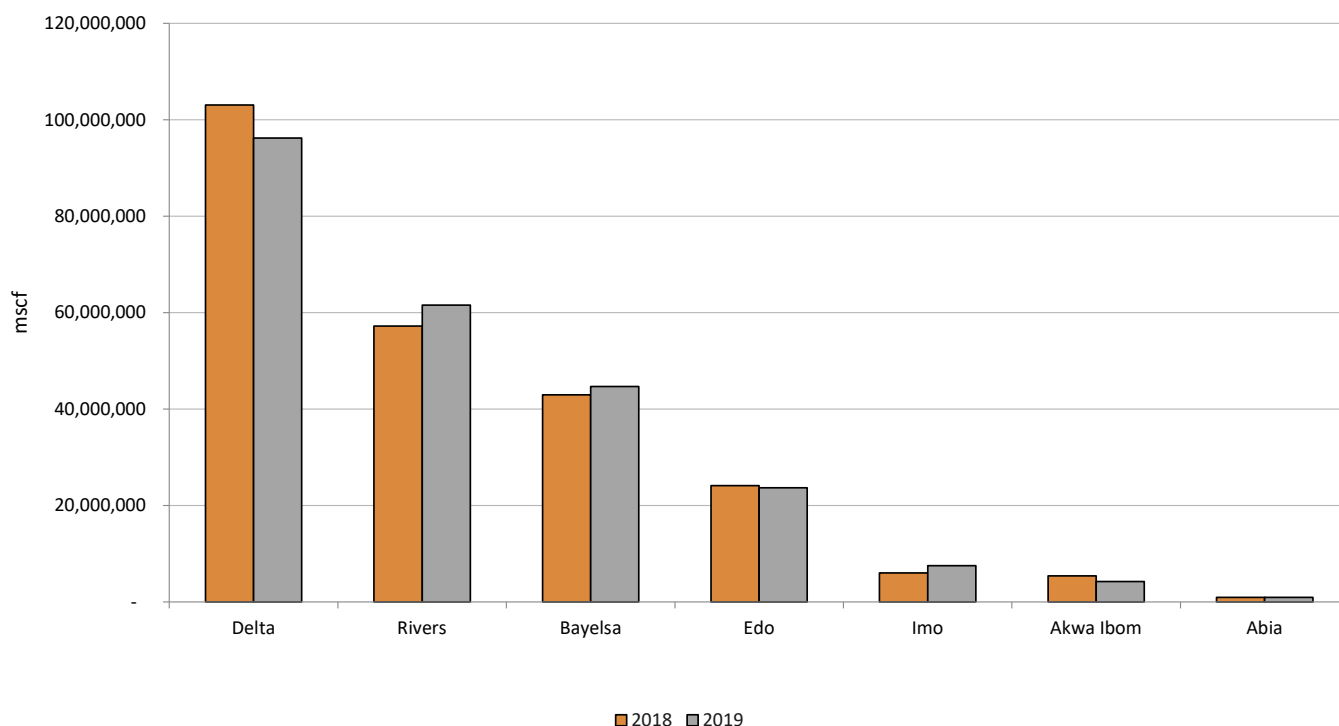


Table 2: Gas flared by State as a percentage of the total

State	2019 (mscf)	% of total
Delta	96,230,270	40
Rivers	61,564,002	26
Bayelsa	44,716,380	19
Edo	23,689,672	10
Imo	7,526,624	3
Akwa Ibom	4,260,908	2
Abia	986,936	0
Total	238,974,791	100

Gas flare carbon emissions

The total amount of gas flared onshore and offshore in Nigeria amounts to an estimated 26 million tonnes of carbon dioxide released into the atmosphere in 2019. There is a very small difference between the proportion emitted offshore and onshore (136,000 tonnes).

These emissions are equivalent to 25% of Nigeria's total 2019 carbon emissions (105 million tonnes). For comparison, Nigeria's total gas flare emissions are also two-thirds higher than the entire emissions of Nigeria's (admittedly much smaller) regional neighbour Ghana, which produced 18 million tonnes of CO₂ in 2019. This also does not take into account the huge amount of methane emissions that are released by flaring gas, and by fugitive emissions (leakages) from pipelines and other infrastructure.

3.2 Company analysis

The figures in the previous section describe the overall scale of environmental emissions in the Niger Delta, according to data available in the Oil Spill Monitor and Gas Flare Tracker. These emissions are attributable to the companies which make up the Nigerian oil sector. However, there will clearly be differences among them. This section identifies some of these differences, examining emissions on a company-by-company basis. It describes company environmental performance in terms of five core indicators, in turn. The first four are absolute, while the fifth is relative to a company's oil production volume. The indicators are:

- Quantity of oil spilled (in barrels)
- Number of oil spills
- Oil spill removal rate (the proportion of oil spilled by a company which was later removed)
- Volume of gas flared (in mscf)
- Emissions ratio (total oil spilled and gas flared relative to company oil production)

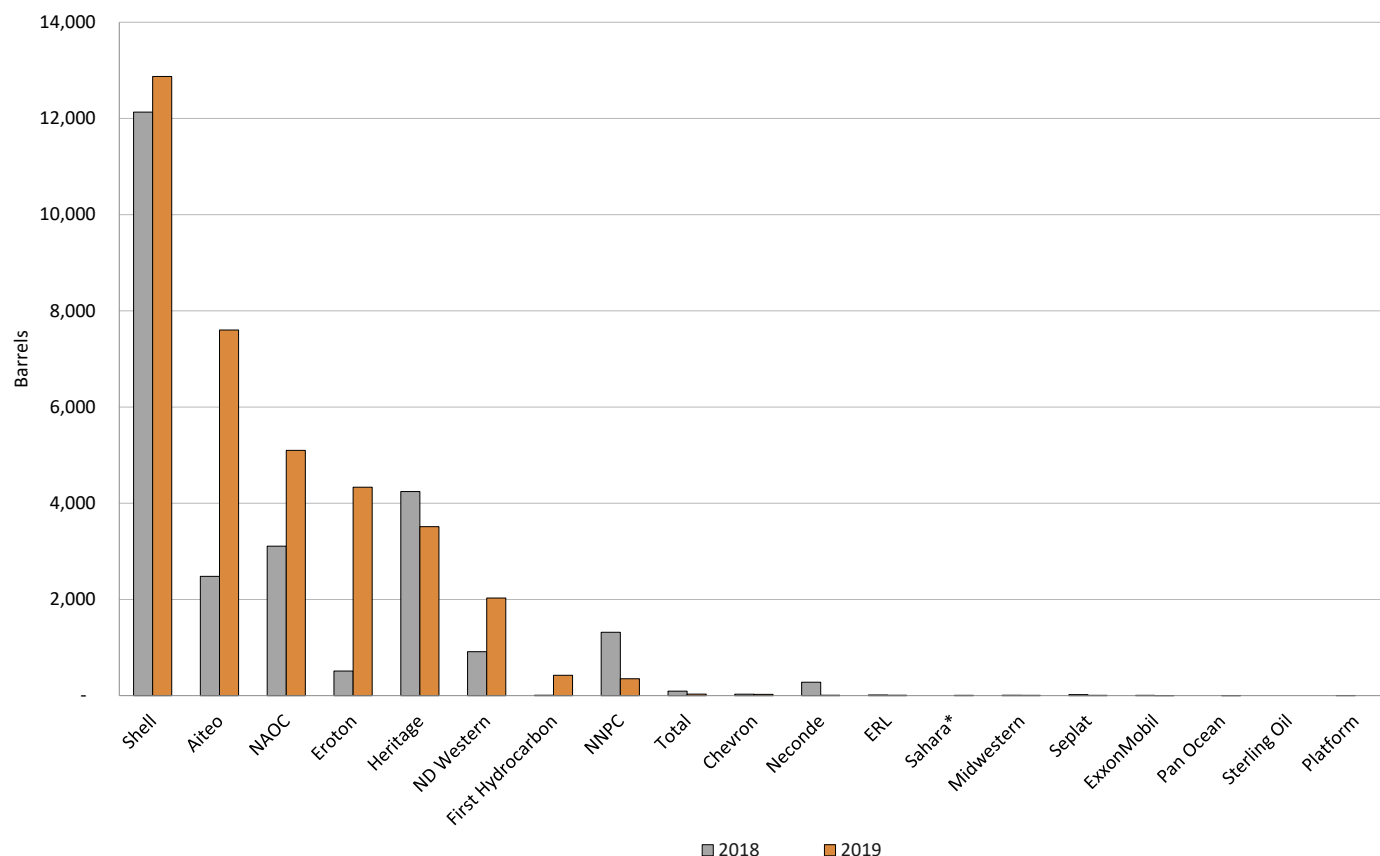
3.2.1 Indicator one: total oil spilled

In total, 19 companies operating in the Niger Delta in 2019 had oil spills attributed to them by NOSDRA. Indicator one describes the total volume of oil spilled as a result of all spills attributed to each company. The lower the total spill figure, the better the environmental performance is considered to be in the Index:

³⁴. *ibid*

³³. This does not, of course, mean that the other companies did not spill oil, only that they were not recorded as having done so. Note as previously that the information in this report is the public record of oil spills in 2019, according to the relevant Nigerian environmental regulator.

Graph 10: Total oil spilled by company



Almost all the oil spilled – 98% of the total volume, over 35,000 barrels – is attributable to six companies³⁵:

- The Shell Petroleum Development Company (the Nigerian subsidiary of Shell Plc)
- Aiteo, a Nigerian domestic oil company
- The Nigerian Agip Oil Company (the Nigerian subsidiary of Eni)
- Eroton, a Nigerian domestic oil company
- Heritage (the Jersey-based owner of domestic Nigerian oil company Shoreline)
- ND Western, a Nigerian domestic oil company

Out of these six companies, only Heritage recorded a lower (17%) volume of oil spilled in 2019 than the year before. Eroton's volume increased by a huge 744%, followed by Aiteo's 206%, ND Western 122%, NAOC's 64%, and SPDC's 6%. In 2018, five out of these six companies were responsible for 92% of all oil spilled – with Eroton joining this group of major polluters in 2019, mostly due to two huge spills of 119 and 4,004 barrels (both in Okrika LGA of Rivers State). It is also important to note that a quarter of all spill reports have no volume attributed to them, which if documented, would change the findings.

³⁵Note as previously that the data presented here is the data made available by NOSDRA. We have standardised the names of oil companies to shortened versions of corporate group titles for readability. See the Annex for further information.

3.2.2 Indicator two: number of oil spills

Shell had the highest number of spills overall, followed closely by Agip —203 and 198 respectively during the course of 2019. This is significant: as discussed previously, a spill need not be large to have a major impact, and so it is as important to address the cause of frequent small spills as it is to address major incidents.³⁶ Shell's high number of spills, combined with its relatively high average spill volume (63.4 barrels), explains why it spilled more than double NAOC's total volume.

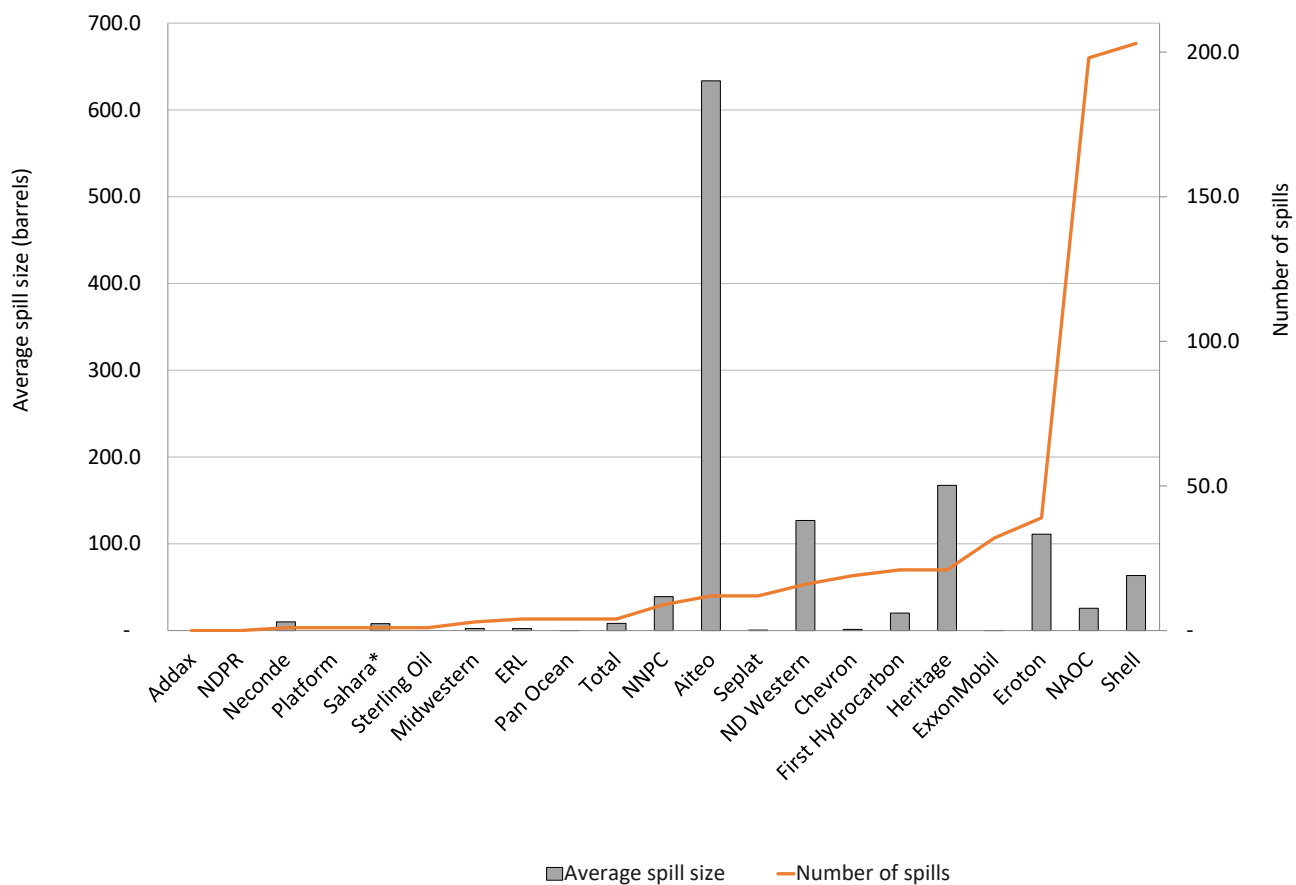
Shell disputed the NOSDRA record during the validation process, claiming that they only recorded 196 spills in 2019, compared to NOSDRA's record of 203. Shell claimed that water leaks and "incidents where theft points were proactively removed from our pipeline without any spills were wrongly captured as part of oil spill numbers for SPDC". There are three spills attributed to Shell where the contaminant is water, but no volume is attached. We could not identify the other spills they refer to. Nonetheless we maintain that using data from the official government regulator is the right approach. If there are issues with recording spills, and improvements need to be made, then there needs to be a broader discussion between operators and regulators.

Three domestic oil companies – Eroton, Aiteo, and Heritage – were responsible for the six largest spills recorded in 2019. Eroton reportedly had 39 spills, but only 15 had a spill volume attributed. However, one was the largest spill all year – over 4,000 barrels. Aiteo recorded only 12 spills (10 with a volume attributed), but three of these were among the top four spills by volume, which explains why the company's average volume per spill (633 barrels) is significantly higher (nine-times) than for all other companies (72 barrels).

The lower the number of spills recorded, the better the environmental performance is considered to be in the Index. Note that in the graph below, the average spill size is included for comparison, but does not contribute to the indicator score.

³⁶ There are numerous reasons for when, where and why oil spills take place. The OSM includes data on reported cause, with sabotage reportedly being responsible for three-quarters of incidents. However, as previously noted, ultimate responsibility for preventing and cleaning up oil spills lie with the companies that operate oil infrastructure.

Graph 11: Number of oil spills and average spill size by company



3.2.3 Indicator three: oil spill removal rate

Total (gross) volume spilled is the most relevant figure for a company’s environmental performance: oil has the most direct impact on the local environment and the communities which live there, and the aim of oil companies should be not to spill any. However, it is also important that spills are cleaned up once they have taken place, which begins with removing surface oil at a spill site.

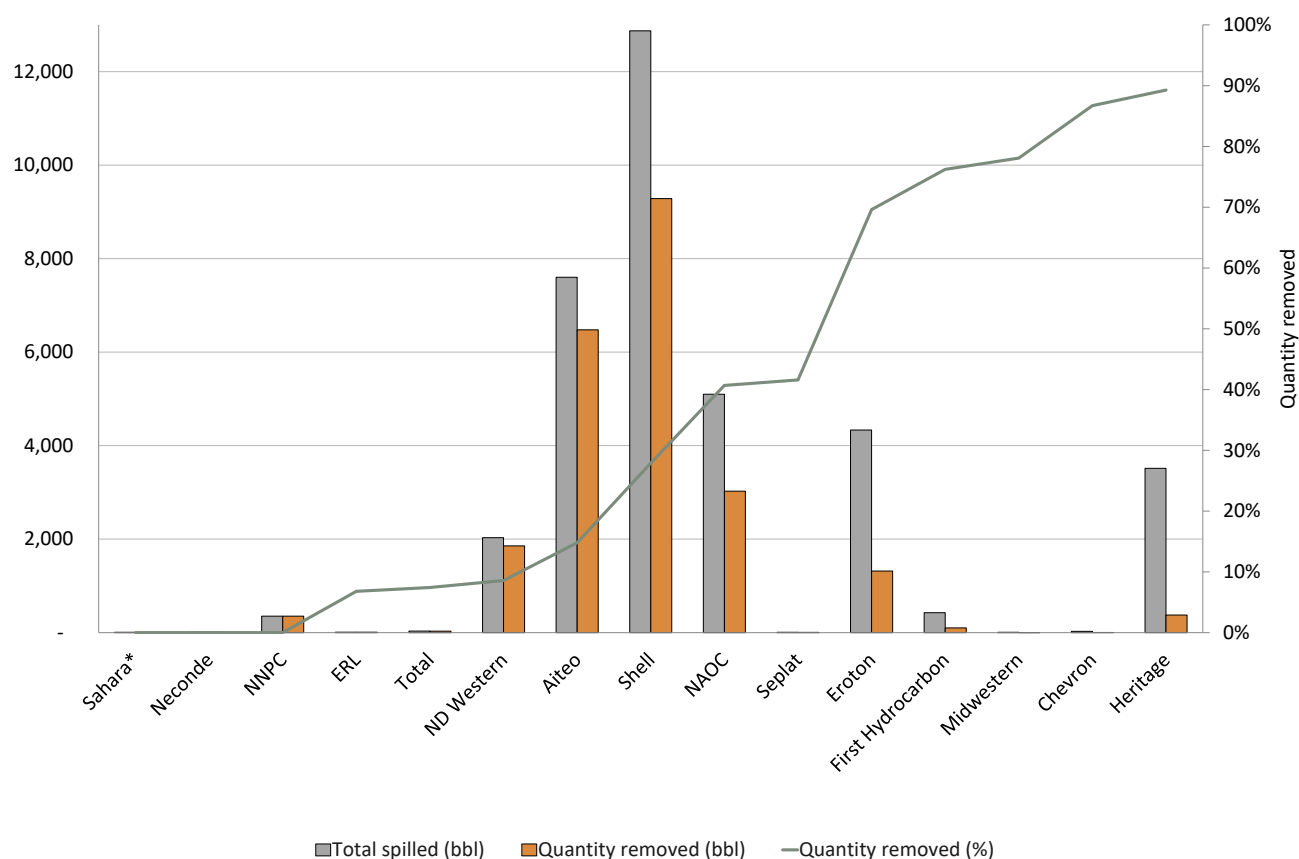
We calculated the total oil spill removal rate for the spills attributed to each company, and plotted this against the total net discharge (total volume spilled less total oil removed).³⁷ Doing so highlights that although Heritage and Eroton have the fourth- and fifth-highest absolute spill volume, the high removal rate for spills means that their net discharge is significantly reduced.

On the other hand, although around a third of oil spilled by Shell was removed, its high total volume spilled means that the estimated 9,284 barrels net which it discharged into the environment presumably remain there, untouched—more than 40% of the net discharge for the entire region.

Note that these oil removal volumes are recorded by NOSDRA in its data on 2019 oil spills. As clean-up activity may continue after the time of assessment, further oil may later be recovered. This should still be documented, but it is often not. This is discussed in Appendix 2.

The higher the oil removal rate, the better the environmental performance is considered to be in the Index:

Graph 12: Total spill, net discharge and oil removal rate by company

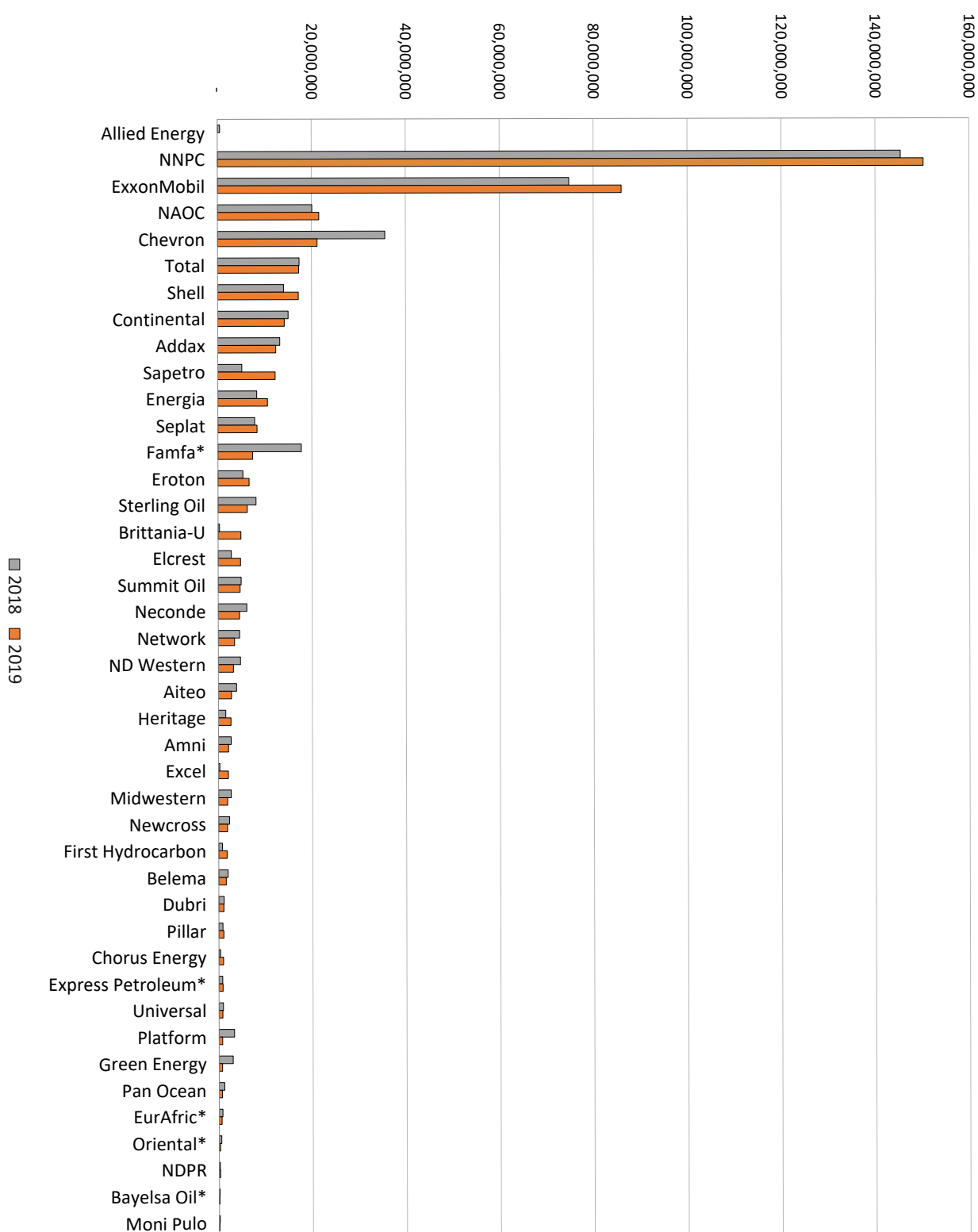


3.2.4 Indicator four: gas flared

This indicator describes the total volume of gas flared by each company. There is a huge difference between the companies to which flared gas can be attributed to in the Niger Delta in 2019. The lower the figure, the better the environmental performance is considered to be in the Index:

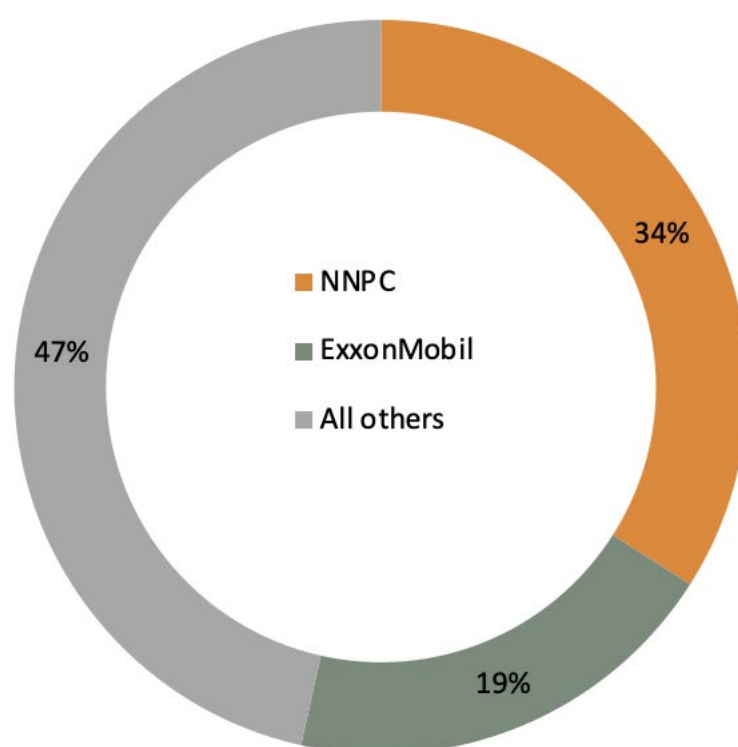
37. Note that oil removal may not necessarily be a result of company action. However, it still affects the total amount of oil spilled attributable to a company, and hence environmental performance is partly a function of this metric.

Graph 13: Gas flared by company



Of the top six, only Chevron recorded a lower volume of gas flared year-on-year (40%). More than half (53%) of the gas flared in the region is attributable to two companies: ExxonMobil and the state-owned oil company, NNPC. This is slightly higher than in 2018, when these two companies were responsible for half of all gas flared. NNPC's total is unsurprising, given that on paper it is involved in almost all exploration and production in Nigeria via the joint venture and other operating agreements through which the industry is organised. ExxonMobil on the other hand appears to be a long way from achieving zero flaring, which the FGN has committed to achieve by 2030.

Graph 14: The two largest gas flarers



3.2.5 Indicator five: emissions ratio

Indicators one to four relate to the absolute release of oil and gas into the environment. This is important, as oil companies should be aiming to reduce oil spills and gas flaring to as close to zero as possible, regardless of the size of their operations. However, as different companies produce different quantities of oil, it is also possible, and instructive, to examine the emissions they produce relative to this.

In order to so, oil and gas volumes must first be made directly comparable. This can be done using a conversion factor, which turns a given volume of gas flared into barrels of oil equivalent (BOE).³⁸ This is the number of barrels of oil that would have the equivalent energy value to the gas flared. As oil and gas are often found in the same geological formation, it is common industry practice to calculate this figure in order to compare total hydrocarbon reserves across different resource basins, and so it serves here to estimate total hydrocarbon reserves released into the environment.

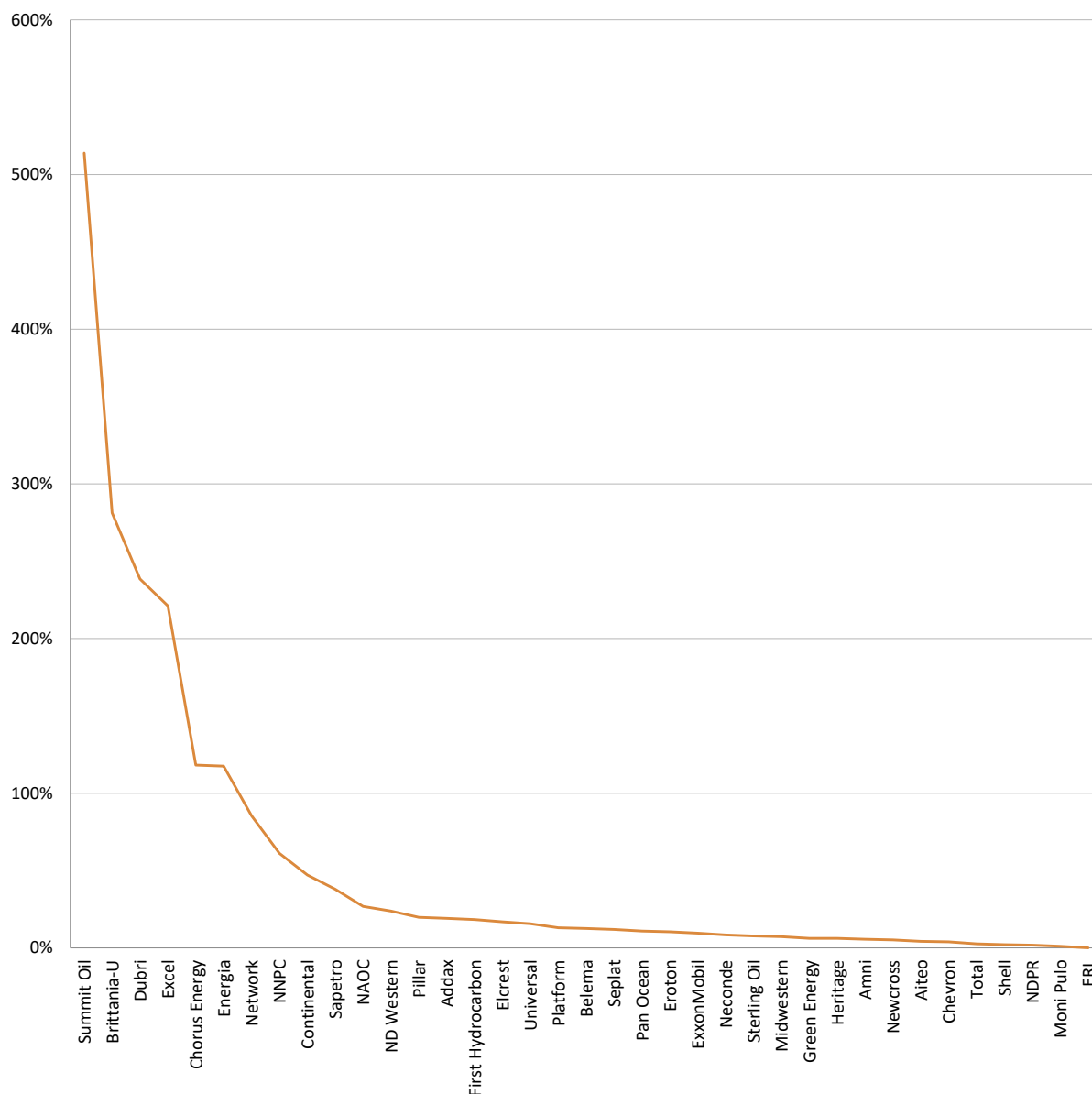
Once the BOE figure has been obtained, combining it with a company's total oil spill volume (which is already in barrels) gives a total emissions figure: that is, the total amount of oil and gas a company released into the environment. Dividing this figure by each company's annual oil production then gives its emissions ratio, which is its total emissions expressed as a percentage of its useful oil production.

For example, a company that produced 100,000 barrels of oil in a year, and 10,000 BOE as emissions, would have an emissions ratio of 10%: it released the equivalent of 10% of its useful oil production into the environment as emissions. More than 100% means that a company is producing more in environmental emissions than it is in useful output.

³⁸. The process for doing so is described in the methodology

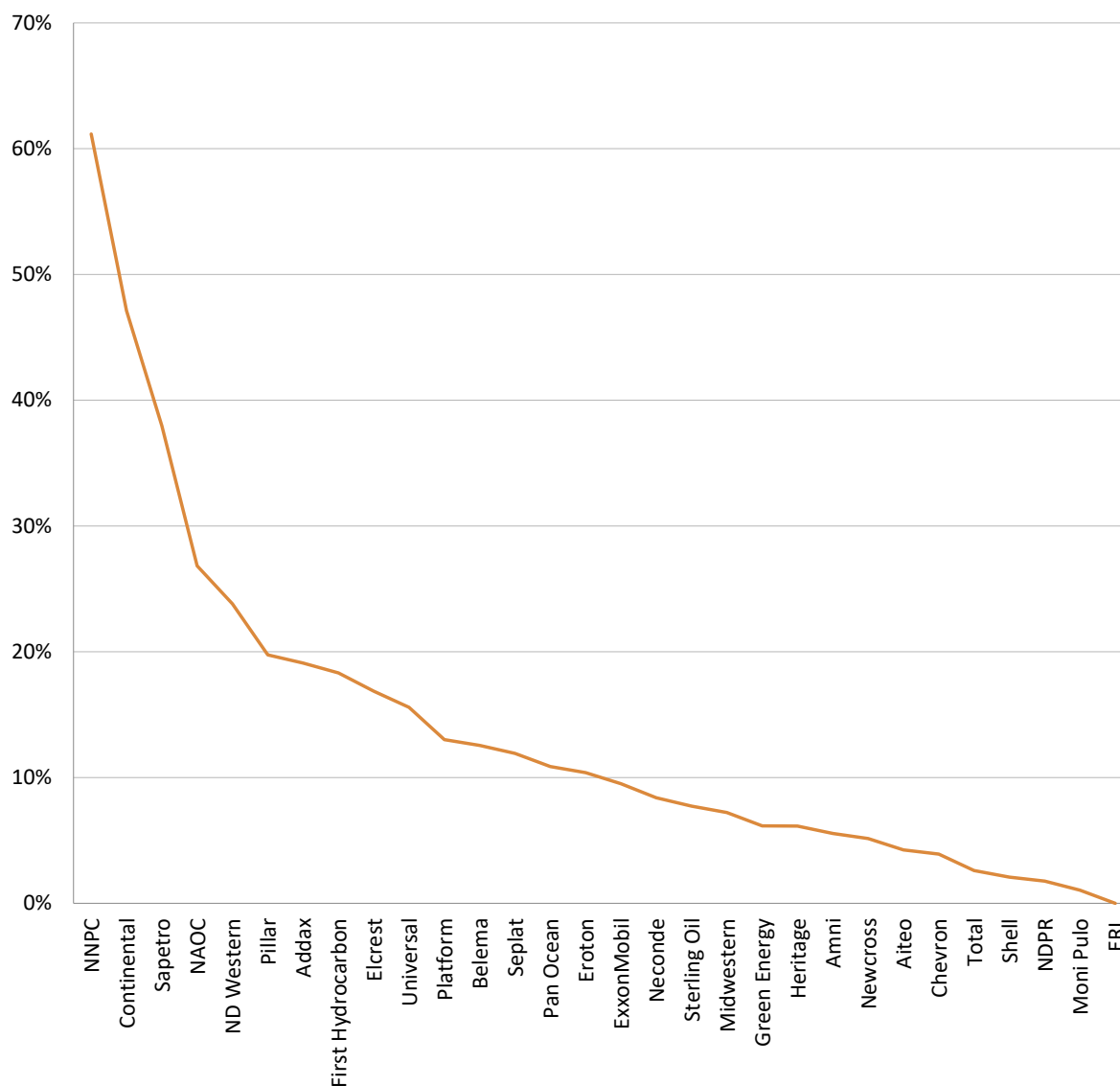
Note that an emissions ratio can only be calculated if a company actually produced oil. The graph below shows the ratio for all companies which have official production volumes attributed to them for 2019. The lower the percentage, the better the environmental performance:

Graph 15: Emissions ratio by company, oil producers only



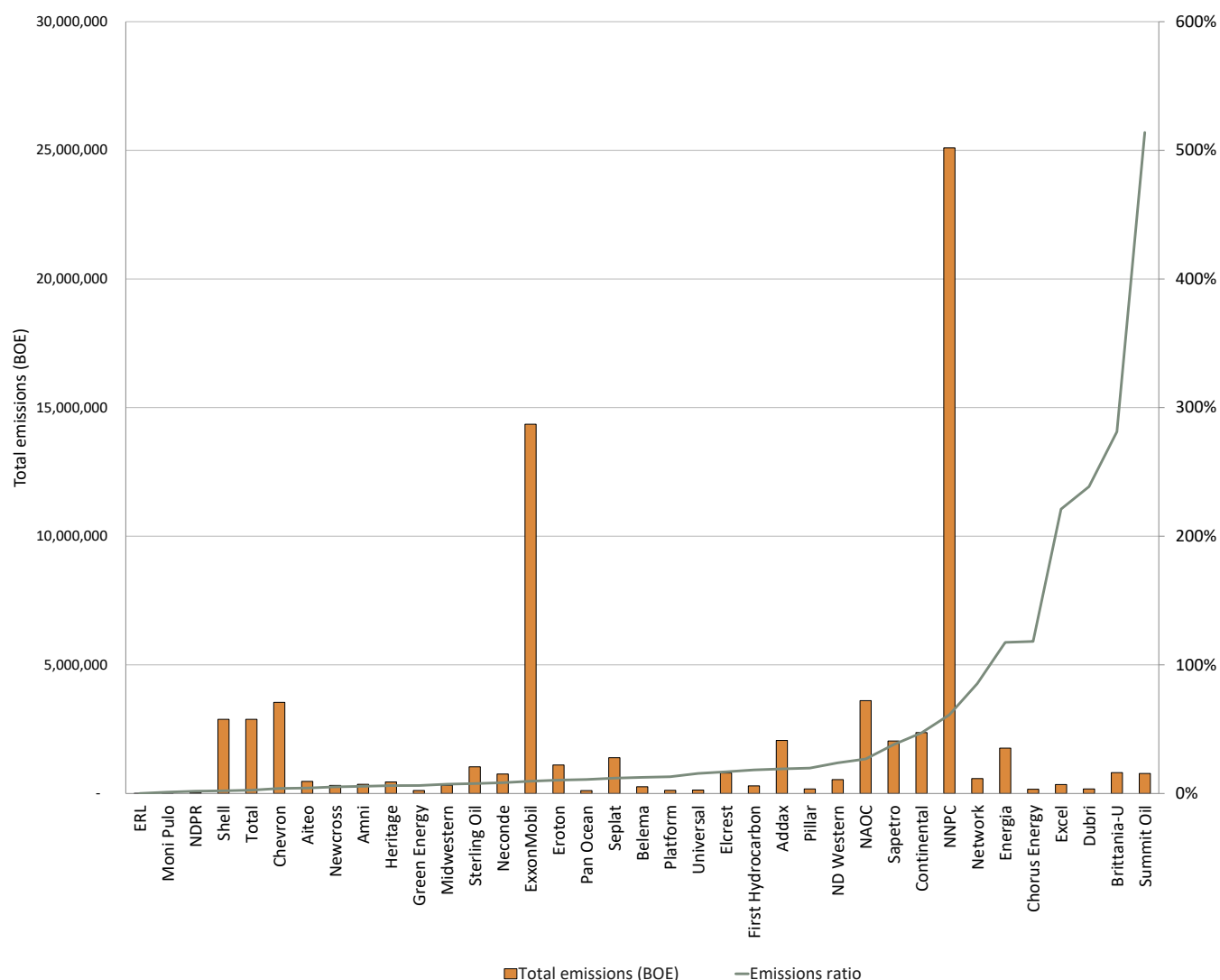
Performing this calculation makes it obvious that the worst performers in relative terms are the Nigerian domestic companies. The worst by far is Summit Oil (514%), followed by Brittania-U (281%), Dubri (239%), Excel (221%), Chorus Energy (118%), Energia (117%), and Network (85%). These are all DOCs, and overall, relative to production, domestic oil companies pollute more (in BOE terms). However, these are clearly outliers. Excluding these seven companies makes the differences between the emissions ratios of the other companies more distinct:

Graph 16: Emissions ratio by company, oil producers only – excluding seven outliers



Plotting the emissions ratio against the total emissions for each company, as in Graph 17, also highlights the different ways of evaluating environmental performance. Because of the scale of their operations, the major international companies discharge far more in absolute terms. However, in general, their relative performance is stronger. Indeed, Shell—the worst performer in absolute terms—is among the best in terms of its relative environmental emissions.

Graph 17: Total emissions and emissions ratio by company



However, the degree to which gas flaring tends to account for the majority of total emissions should be taken into account. As noted previously, more than half of all gas flared in Nigeria can be attributed to NNPC and ExxonMobil, which helps to explain why they have very high total emissions. But the impact of oil spills, which make up a much smaller proportion of total emissions, may be more significant for local communities in the Niger Delta. We place a higher weight on oil-related indicators in our Index because of this.

4. The environmental performance index

The indicators analysed in section three demonstrate how disaggregating emissions data enables oil company environmental performance to be assessed in different ways. Individual indicators are benchmarked against the worst absolute emissions in each category, based on the principle that companies should be targeting zero oil spills and gas flared.

To provide an overall assessment of each company, we developed these by combining the indicators and calculating a total score for each company between 0 and 1.³⁹ The higher the number, the better a company's relative environmental performance. To reiterate, this is relative to the other companies in the Index. Only the theoretical high score of 1 would imply 'zero' emissions from oil spills and gas flaring.⁴⁰ However, this would not necessarily mean that a company did not have other environmental impacts, such as operational emissions, as well as challenges related to issues including land use, water management, and deforestation.

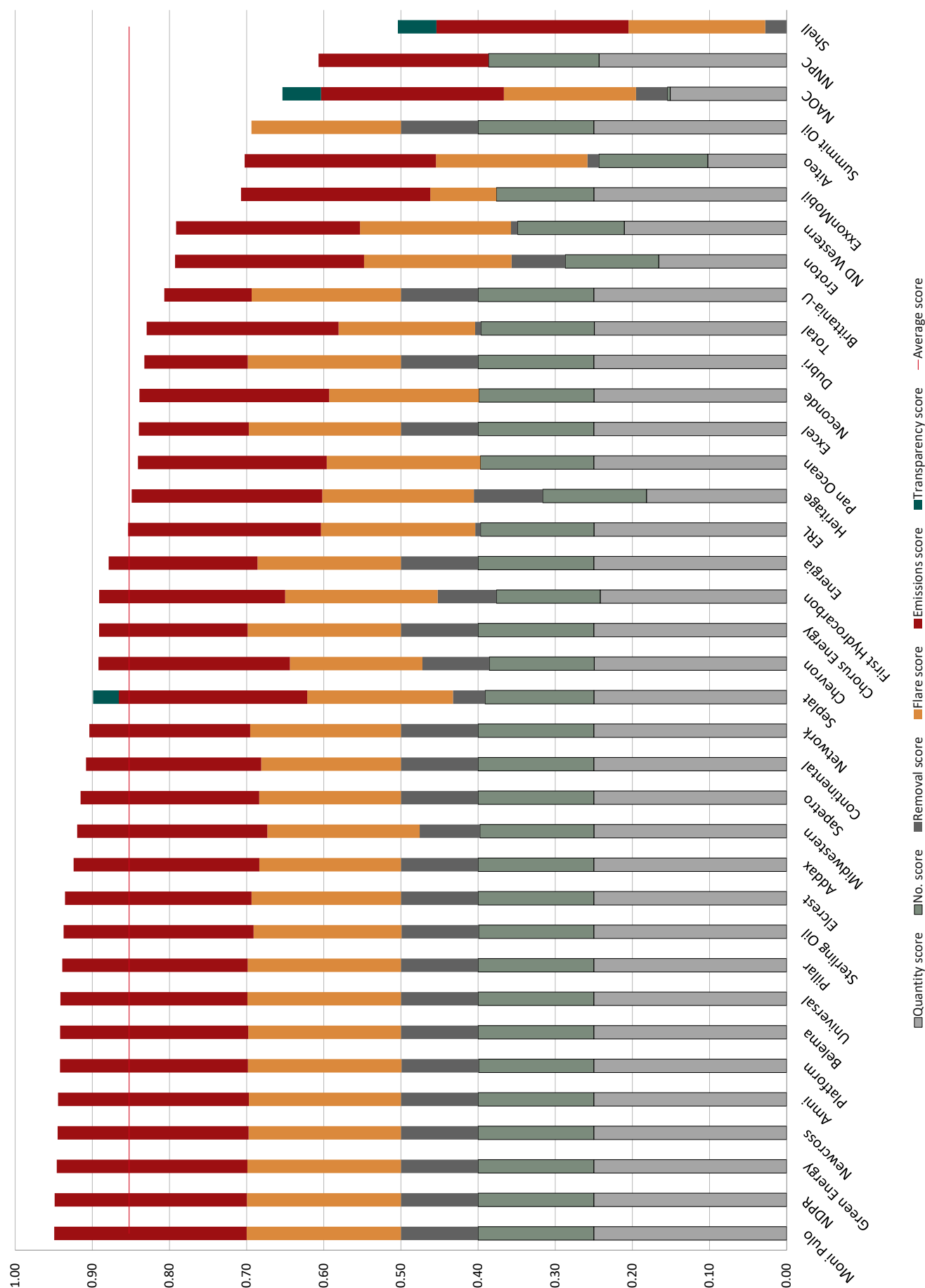
Note that we have produced three versions of the Index. This is to account for the fact that not all companies spilled oil, flared gas, or produced oil in the first place, and so relative performance differs depending on how companies are grouped. All three versions of our Index are included in the database which accompanies this report, and we encourage readers to look at these.

The version of the Index in Graph 18 includes the 37 companies which produced oil and spilled oil or flared gas in 2019. The higher a company's score, the better its relative environmental performance:

39. The process for doing this is described in the methodology.

40. Scores are rounded, and so it appears that some companies score 1. This is not the case.

Graph 18: The 2019 environmental performance index – all oil producing companies



In broad terms, some clear features can be identified:

1 With higher production, all other things being equal, come higher emissions. As such, the international oil companies tend to score less well, in absolute terms. Of the major international companies, Shell had the lowest environmental performance score two years in a row, according to the calculations used in our methodology. This is because we prioritise the absolute discharge of oil, on the grounds that size matters: one ‘minor’ spill has the potential to damage cropland for one community, but a spill of a thousand barrels could ruin the productive capacity of an entire stretch of shoreline. This is an order of magnitude worse.

Other international companies, such as ExxonMobil, as well as the national oil company, NNPC, flare a very large volume of gas. This accounts for their placement further down the Index, while others still, such as NAOC, have a high number of spills. As previously discussed, the cumulative impact of these is an important consideration when discussing environmental performance.

2 In relative terms, Nigeria’s domestic oil companies (DOCs) perform worse than international oil companies (IOCs) (table 3). Their absolute environmental emissions are lower than the bigger companies, so they tend to appear further to the right in the Index. However, because their absolute production volumes are much lower, their emissions ratios are higher, as graphs 16 and 17 in this report make clear.

Table 3: Average emissions ratio for IOCs vs DOCs

	2019	2018
Domestic oil companies (DOCs) Emissions ratio	27.4%	18.3%
International oil companies (IOCs) Emissions ratio (Chevron, NAOC, ExxonMobil, Shell, Total)	5.4%	5.4%

Another way to demonstrate this is by putting the rank for each company’s total score (in other words, its overall position in the Index) next to the individual rank for its emissions ratio. This shows that while Shell, for example, has the worst overall rank in the Index, it is third-best in terms of the quantity of emissions it produced per barrel of oil. Indeed, the worst performers on a per-unit basis (those in orange and red in the right-hand column of table 4) are all indigenous Nigerian companies. Calculating the average emissions ratio for domestic and international companies as a group (table 3) also shows that the international companies have stronger performance on a per unit-basis. The emission ratio remained the same for IOCs, but increased significantly for DOCs. It is not encouraging that the IOCs did not make progress, but it is even more worrying that the DOCs are getting worse. As DOCs are gradually taking over from IOCs, if they do not improve their emissions ratio, the overall emissions from the industry will increase drastically. Greater attention also needs to be paid to the environmental performance of marginal field operators. If we isolate the companies to calculate their emissions ratio, we find it was 31.5% in 2019 – higher than the average for DOCs.

Table 4: Total score rank vs emission ratio score rank

Company	Rank (total score)	Rank (emission ratio score)
Moni Pulo	1	2
NDPR	2	3
Green Energy	3	11
Newcross	4	8
Amni	5	9
Platform	6	20
Belema	7	19
Universal	8	21
Pillar	9	25
Sterling Oil	10	13
Elcrest	11	22
Addax	12	24
Midwestern	13	12
Sapetro	14	28
Continental	15	29
Network	16	31
Seplat	17	18
Chevron	18	6
Chorus Energy	19	33
First Hydrocarbon	20	23
Energia	21	32
ERL	22	1
Heritage	23	10
Pan Ocean	24	17
Excel	25	34
Neconde	26	14
Dubri	27	35
Total	28	5
Brittania-U	29	36
Eroton	30	16
ND Western	31	26
ExxonMobil	32	15
Aiteo	33	7
Summit Oil	34	37
NAOC	35	27
NNPC	36	30
Shell	37	4

Red - lower relative
performance

Green - higher relative
performance

As noted previously, we prioritise total emissions in our Index, and this is important: absolute emissions released into the environment are what matter most for the inhabitants of the Niger Delta, and as a proportion of total emissions, the contribution of smaller companies is much less. Nonetheless, the differences in relative environmental performance are relevant: for example, domestic oil companies are gradually taking over from international oil companies, as the latter divests from the assets they have managed for decades.

3 Overall, there are some clear performance ‘bands’. 57% of companies in the Index above (20 of 35) score above the average score of 0.85. But this means that 57% of companies score within a small range of total possible scores. This is partly a function of the fact that a small number of companies are responsible for the majority of oil spilled, and oil spill indicators account for half of each overall score. Those companies which did not spill at all will therefore tend to cluster at the other end of the Index, as the relative differences between them are minimised, although this does not mean there are not important differences between companies in terms of specific indicators (as discussed).

4 The minimal differences between many of the companies may also be a product of broader challenges related to the data available on the Nigerian oil industry. It is very difficult to verify the volumes of oil spilled. The JIV process is imperfect, and, for example, although there are technologies available to oil companies to do so, it is not clear how offshore oil spill volumes are measured, if at all. This means that companies which operate entirely offshore may appear to produce fewer environmental emissions than they actually do.

Moreover, sources differ drastically. This Index uses data from the tools developed by SDN for NOSDRA (note that NOSDRA provides the actual data in the OSM, although the GFT generates gas flare volume estimates from satellite observations). But there are discrepancies with other agencies as well as oil companies. For example, in comparison with the NOSDRA figure of 36,334 barrels of oil spilled in 2019, NNPC reports 233,076 barrels of “*pipeline crude oil loss*”, without further comment, in its 2019 ASB.⁴¹ The NNPC figure is more than six-times higher than the NOSDRA figure. To add more confusion, the NEITI audit for 2019 reports 42,247,750 barrels of crude oil losses due to theft and sabotage, which is over 1,100 times higher than the NOSDRA figure.⁴² There are also differences between DPR-reported gas flare volumes and those in the GFT, as well as between company oil production volumes from different sources.

These discrepancies are extremely hard to reconcile, and as such our analysis is indicative only. But it is clear that the true extent of oil spill pollution in the Niger Delta may be far higher – and, importantly, that there may be additional companies which have spilled oil, but which are not presently included in the OSM data. If this is true, there will likely be greater variance in the scores in the Index.

As an example of another difference in figures, Shell Nigeria’s website says that it spilled nearly 15,000 barrels of oil in Nigeria in 2019, while the figure for Shell in the OSM (for the states covered in this report, where the vast majority of onshore oil production takes place) is nearly 13,000. Recording oil spills is challenging, and there may be valid reasons for the discrepancy; we use NOSDRA’s figures for all companies, in order to ensure consistency and fairness. However, using Shell’s own figures would actually lead to the company scoring worse.

41. NNPC. (2021). NNPC 2019 Annual Statistical Bulletin.

42. NEITI. (2021). Oil and Gas Audit Report 2019.

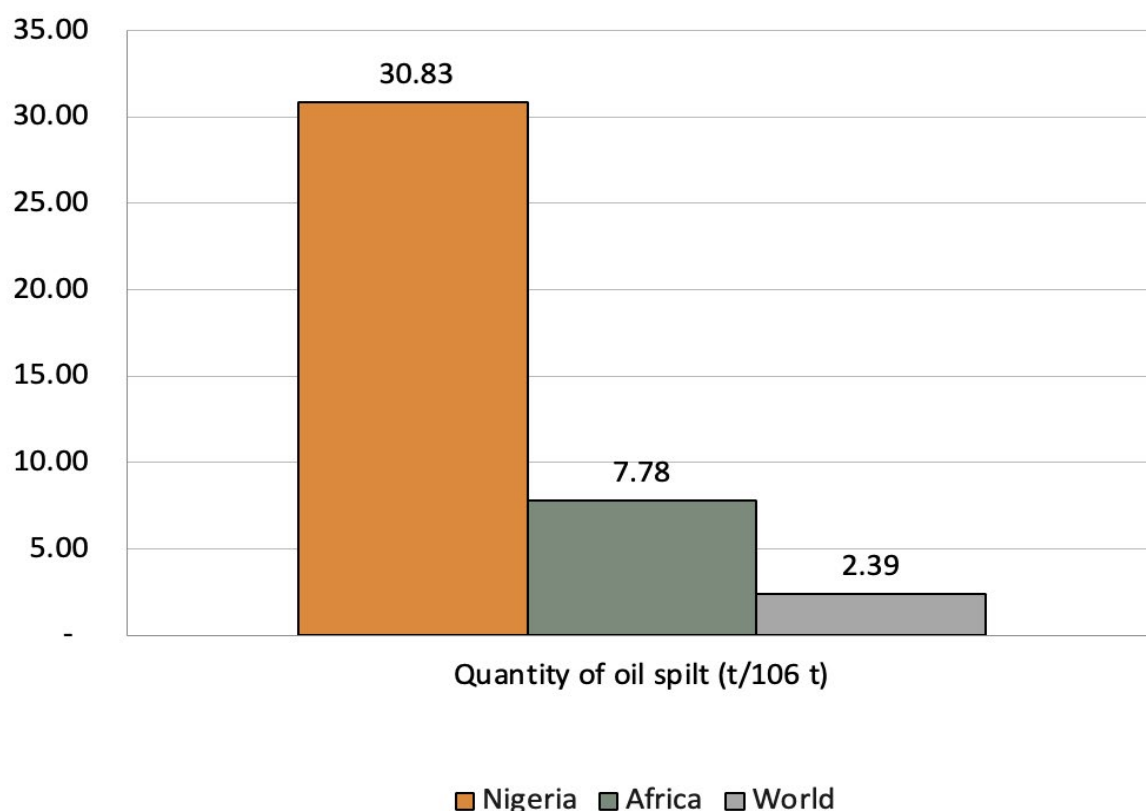
It is to Shell's credit that it provides detailed information on oil spills on its website, and that NNPC provides at least an aggregate industry figure. Other companies also provide information of varying detail. But the discrepancies reveal the degree to which NOSDRA – which does a difficult job, in difficult circumstances – needs additional support and funding to deliver its remit.

Companies who know their wellhead production volumes and the amount delivered at the end of a pipeline are presumably able to measure the difference and infer losses from this data, while NOSDRA relies on having spills reported to it and then delivering physically and politically complex site visits to assess each one. It is therefore no surprise if figures differ.

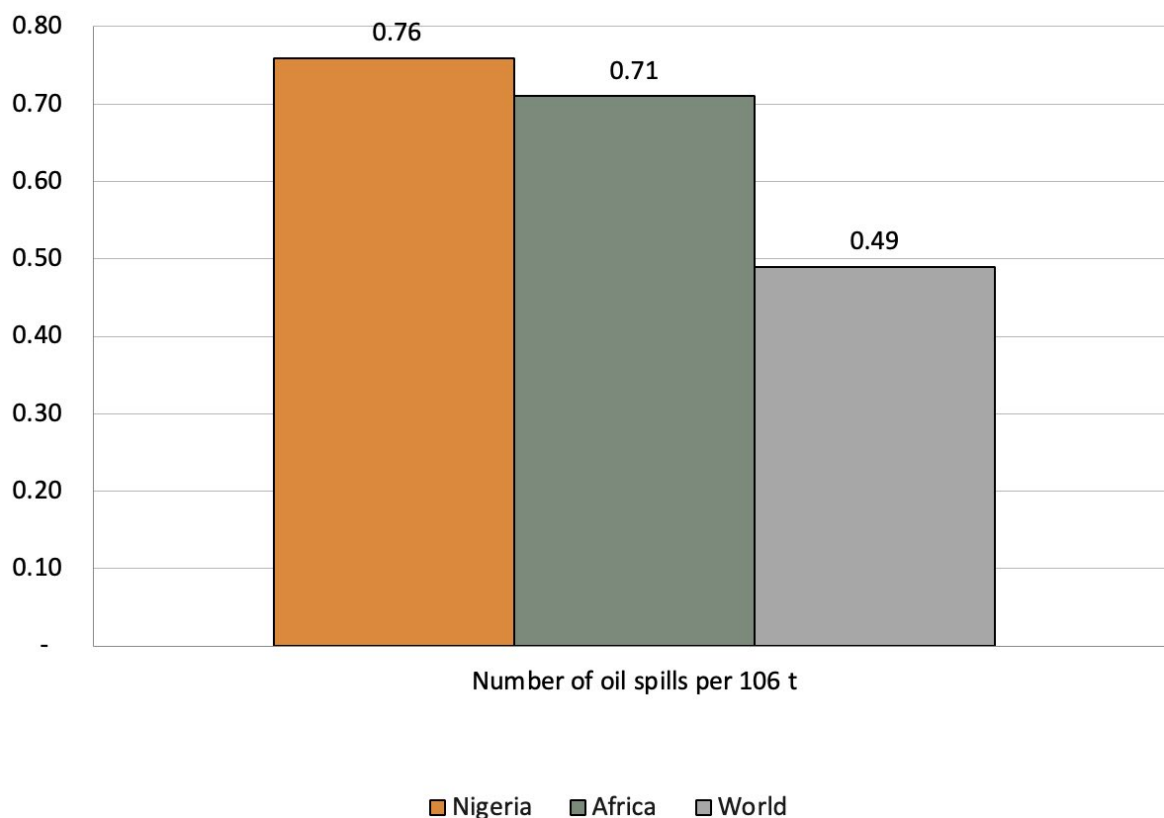
5 The total quantity of emissions in Nigeria is large. In absolute terms, the companies we looked at spilled over 36,000 barrels of oil, and flared nearly half a trillion cubic feet of gas. These are sizeable figures in aggregate, while communities can be significantly impacted by a single spill or gas flare site. Furthermore, Nigeria is demonstrably a poor performer in international terms. This is made clear by placing 2019 Nigerian environmental emissions data alongside the 2019 data of the International Oil and Gas Producers' Association (IOGP). This is an imperfect comparison, partly because it depends on calculation assumptions. However, the discrepancy is sizeable, with the Nigerian oil industry appearing to have far higher emissions than other oil industries (graphs 19-21).

The comparison implies that the Nigerian oil and gas industry is far dirtier than any other region in the world, when assessed on an emissions per barrel of production basis. Companies operating in Nigeria flare 3 times as much as Africa as a whole, 15 times as much as Russia and Central Asia, and six times the global average. In terms of oil spilled, companies in Nigeria spilled four times more than Africa as a whole, 147 times higher than Russia and Central Asia, and 13 times the global average.

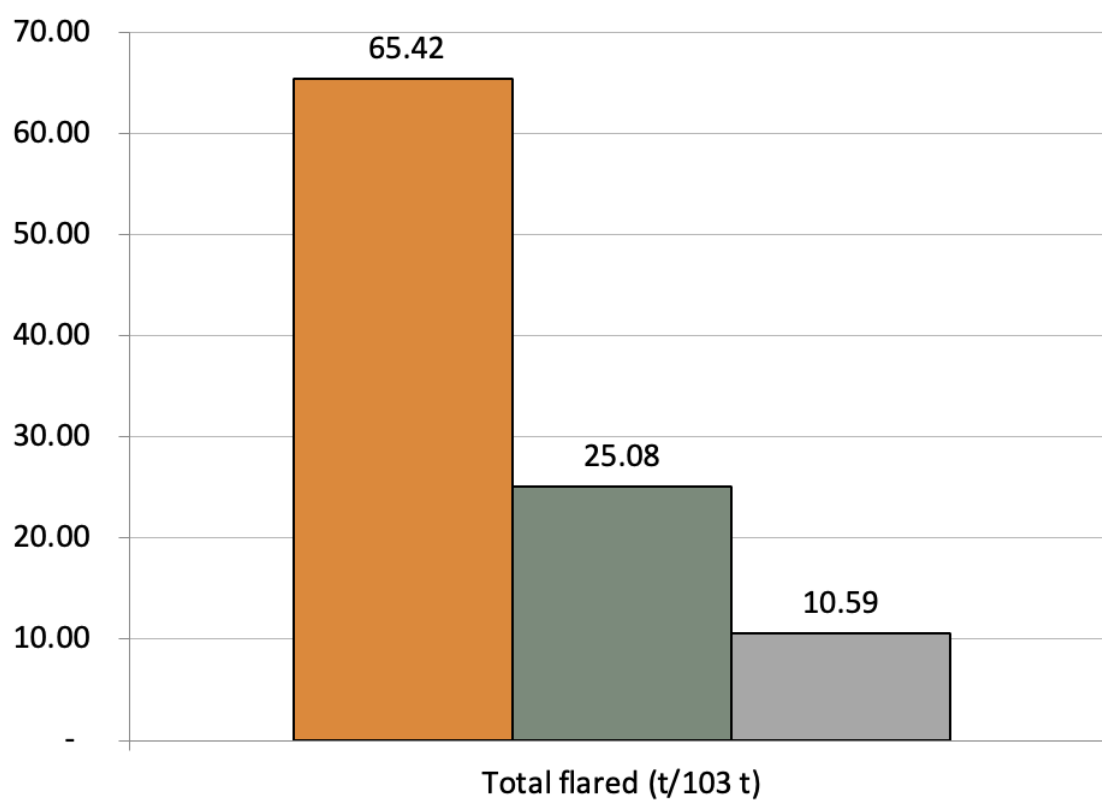
Graph 19: Nigerian vs international oil industry - oil spilled quantity



Graph 20: Nigerian vs international oil industry – number of oil spills



Graph 21: Nigerian vs international oil industry - gas flared quantity



The poor performance of the Nigerian oil sector is obvious to inhabitants of the Niger Delta, which is why there continues to be significant local anger at the environmental impacts of the industry. **As such, care should be taken not to interpret the fact that many companies score close to 1 in our Index—which ranks relative not absolute performance—as a sign of strong performance. It simply means that their emissions are lower than those of other companies in Nigeria.** Relative to the rest of the world, the Nigerian oil industry overall is a demonstrably poor performer.

5. Conclusion: The environmental cost of Nigerian oil and gas

The 2019 Index illustrates that emissions increased across the industry compared with 2018. We intend to produce this report on an annual basis, to examine trends in the environmental performance of the Nigerian oil and gas industry, and to help identify measures to support action on environmental performance.

5.1 Emissions in context: current and future developments

Oil and gas industry emissions in Nigeria increased between 2018 and 2019, further destroying the environment in the Niger Delta, which is already one of the most polluted places on earth, according to the United Nations.⁴³ Gas flaring contributed to a quarter of the country's CO₂ emissions, and is a significant contributor to other emissions that have a significantly worse heating potential, including methane and black carbon.⁴⁴ This analysis is based on all data published by the regulator – which likely covers only a fraction of total oil spills and gas flaring for the year. Almost certainly, this underestimates the pollution, and the situation is far worse than reported here. Comparing findings from this sample against other regions worldwide suggests that the Nigerian oil and gas industry is by far the most polluting. In terms of oil spilled per barrel produced, Nigeria was 25 times higher than the global average. In terms of gas flared per barrel of oil produced, it was five times higher.

It is clear that the environmental impact of any individual incident depends on many factors, including: where an oil spill takes place; whether a community is down or upwind of a gas flare; and local capacity to initiate and follow up on containment, and response measures to pollution. But the cumulative environmental cost of repeated oil spills and flaring is huge. In 2019, there were at least another 601 oil spills, which added at least another 36,000 barrels of crude into the area's land and water. Only a little over a third of this was removed, leaving more crude oil spilled in the environment than the year before. In any case, removal does not mean the reversal of impact, and an increasing body of research is documenting the long-term effects of emissions on human health.⁴⁵

43. The UN called it a “sacrifice zone”. UN Special Rapporteur on human rights & the environment. (2022). Sacrifice Zones: 50 of the most polluted places on earth. Online: <https://www.ohchr.org/sites/default/files/2022-03/SacrificeZones-userfriendlyversion.pdf>

44. CCAC. (2021). Nigeria Aims for Methane Cuts, Potentially Averting 30,000 Air Pollution Deaths Every Year. Online: <https://www.ccacoalition.org/en/news/nigeria-aims-methane-cuts-potentially-averting-30000-air-pollution-deaths-every-year>

45. See for example Bayelsa State Oil and Environmental Commission. (2023). An environmental genocide: The human and environmental cost of Big Oil in Bayelsa, Nigeria. Online: <https://report.bayelsacommission.org>

This is especially worrying considering the physical location of at least half of Nigeria's oil and gas industry infrastructure: onshore, amidst 30 million people, who cannot escape the impacts of pollution on their everyday health. Given the subsistence nature of livelihoods for most communities in the region, the economic cost is also high. Even a small spill of a few barrels of crude oil is often enough to make land and waterways toxic enough to kill off farms or fisheries, and cause shocks in already faulty local economies. A farmer whose crops fail because their land has been poisoned will lose their entire means of generating income, possibly for many years if land is not remediated and restored. As such, the destruction of livelihoods in this manner makes those who lose them dependent on other people, while they are often pushed into more destructive livelihood practices, such as clearing primary rainforest areas in the search for unpolluted land. It also generates an incentive to join the artisanal oil industry, which pollutes significant amounts of hydrocarbons. This is an understandable short-term response, but one which contributes to the longer-term problem.

The situation must change. Those who bear the biggest local impact from the oil industry are among those least able to seek redress: the route to justice for communities which have suffered from environmental damage is slow, complicated, and expensive.

Furthermore, the Federal Government maintains that it aims to increase oil and gas production. As such, without improvements in pollution prevention, management, and control, the state of the environment in the Niger Delta can be expected to get significantly worse. The government is also exploring for crude oil and gas in other parts of the country, such as the Lake Chad basin in the North East. If Nigeria ends up developing new oil-producing regions, it is imperative that the mistakes of the past be avoided.

5.2 Addressing the challenge: government priorities

A holistic and multi-agency government approach, led by the president of Nigeria, is required to address these issues in the Nigerian oil and gas sector. This analysis indicates that the environmental performance is worse than all other regions of the world. It is a national embarrassment, a crime against Nigerian citizens, and a curse preventing investment and development in the marginalised Niger Delta region.

It is unrealistic to expect the Nigerian government not to exploit its hydrocarbon reserves, in the near term, at least. Crude oil will be extracted for decades to come, and plans are being implemented to produce and consume more gas as part of a transition away from crude oil.⁴⁶ But these resources can be exploited far more responsibly, alongside strategies to invest the revenues generated into a long-term just transition towards an economy powered by cleaner energy sources.

The overriding priority should be to empower, legally and financially, a set of independent regulators to oversee the industry. The President must work with the National Assembly to revive the NOSDRA Amendment Bill, intended to strengthen the statutory basis on which NOSDRA can inspect and regulate oil producers. Under the new PIA (passed in 2021), there remains a conflict of interest between maximising revenues and minimising environmental costs, as regulation of production and environmental performance both fall under the same agency (the Nigerian Upstream Petroleum Regulatory Commission, which replaced the Department of Petroleum Resources). To remedy this, oil spill and gas flare regulation should be transferred to NOSDRA, with the parent ministry, the Federal Ministry of Environment, empowered with the mandate to lead on overall environmental regulation of the industry.

46. SDN (2023).

However, while passing legislation is one thing, enforcing it is another. NOSDRA should be provided with the funding and logistical resources to discharge its mandate. Its Zonal Office staff – responsible for organising the response to oil spills on site – sometimes lack the basic equipment necessary to do their job. As the case study in Box 3 shows, NOSDRA often faces difficulties when responding to spills, especially those with a high volume and public interest. This must change. For its part, NOSDRA should assess and make public the estimated number of oil spill sites it is unable to reach or conduct a full investigation into, so a clearer picture of the true extent of pollution can be drawn.

Similarly, the NUPRC should abide by the new regulations on decommissioning and publish a comprehensive asset integrity review for all oil and gas infrastructure in the Niger Delta. It should be used to identify the surfeit of unused and abandoned infrastructure that should be decommissioned and removed entirely. NUPRC has powers to compel operators to carry out decommissioning, who in turn are now required to have a plan and funding in place to do so for all concessions. Going forwards, this should inform the development of a plan to monitor integrity, and ensure the repair and upgrade of all infrastructure which does not meet international best practice standards (for example, pipelines over 20 years old, or which do not include leak detection and remote flow reduction capability). Similarly, the NUPRC should take a zero-tolerance policy towards ending gas flaring, as it is illegal and contributes an enormous amount of climate heating emissions. Companies should not be provided exemptions to continue flaring, and should be forced to implement mitigation guidelines, and make flares available as part of the Gas Flare Commercialisation Programme. The NUPRC must also start publishing a detailed set of accounts for the oil and gas sector, in the interest of transparency and accountability. This has not been done since 2019, and it is only through the NEITI audit that production data will be available going forwards.

The government must also prioritise achieving success for the Hydrocarbon Remediation Project (HYPREP). HYPREP is the major clean-up project intended to address decades of pollution in the Ogoniland area of Rivers State. It is years behind schedule, and facing fresh challenges. Successfully executing HYPREP, and ensuring that progress is transparent and publicly accountable, would demonstrate meaningful commitment to addressing past, and preventing future, environmental damage from the oil industry.

Finally, progress needs to be delivered on harnessing natural gas, with the twin objectives of reducing flaring and increasing access to power. Lack of access to reliable electricity is an obstacle to economic growth in Nigeria. It also drives demand for generator fuel. This, in turn, is a factor in the artisanal oil refining industry, which operates completely outside any formal environmental protection initiatives, is a major source of pollution, and is sometimes used to justify inaction on the broader issues in the Niger Delta. The Nigerian Gas Flare Commercialisation Programme offers a potential, and long overdue, solution.

5.3 Oil and gas industry action

As our analysis shows, performance varies across companies and geography. The range of circumstances in which companies operate may partly account for this – onshore and offshore, in new, marginal, and mature fields – with different infrastructure and working practices involved in extracting resources related to each. DOCs continue to perform far worse than IOCs, relative to the amount of oil and gas they produce. On the

47. Such as the NUPRC ‘Guidelines for management of fugitive methane and greenhouse gases emissions in the upstream oil and gas operations in Nigeria’. <https://www.nuprc.gov.ng/wp-content/uploads/2022/11/METHANE-GUIDELINES-FINAL-NOVEMBER-10-2022.pdf>

other hand, IOCs continue to perform far worse than DOCs in terms of absolute emissions, although there are emerging super-polluters among the DOCs – such as Seplat, Aiteo, and Eroton. In this Index, we also isolated the marginal field operators for the first time, and found that their emissions ratio is even worse than the average for all DOCs. All companies therefore clearly have improvements to make in terms of mitigating pollution, and cleaning up the impacts, with a particular focus on the marginal field operators and DOCs, who are relatively new entrants and may benefit from guidance and technical capacity building.

It appears that offshore spills are not monitored, as there are only a few reports, with nominal (or zero) volumes attributed to them. NOSDRA have previously described the logistical costs prevent them from conducting JIVs in these locations. This needs to be addressed, almost half of Nigeria's oil is produced offshore, and it is growing. Cost effective solutions could be deployed, such as satellite detection of oil on water, as pioneered by the likes of Skytruth.⁴⁸ The Federal Government has a system for tracking tankers on water⁴⁹, and this could be combined with the satellite detection techniques to also highlight spills from loading at sea and transshipment.

The challenges of artisanal oil refining are also real, and environmental performance is not purely a technical question. Shell says on its website that more than 90% of its spills in Nigeria are caused by “sabotage”. However, further consideration will be needed on the validity and extent to which third-party interference should be reflected in a company's score in the Index. As mentioned earlier (under Spills by sabotage), the process for investigating and documenting spills is usually a point of controversy. Improving this process should be a priority, as part of broader reforms in environmental regulation of the industry.

Investigating the reasons for the differences in environmental performance in more detail is a key area for further research, and the first step is doing this – and addressing the social questions – is to build trust, by increasing transparency. All oil companies should follow the lead of a select few, who publish an annual account of their oil spills, and other solid and liquid emissions, disaggregated by location, type of loss, volume, reported cause, and with a detailed description of impact. They should do this as a minimum, and start to replicate this for an account of all gas flared at any relevant facilities, disaggregated into similar categories. Doing so would help establish a more accurate record of the true extent of environmental emissions and their causes. These figures could then be audited alongside the independent regulator's record, compared with measurements from remote sensing, and feed into new global emissions inventory reporting mechanisms, such as the EITI, which recently expanded its remit on sustainability reporting.

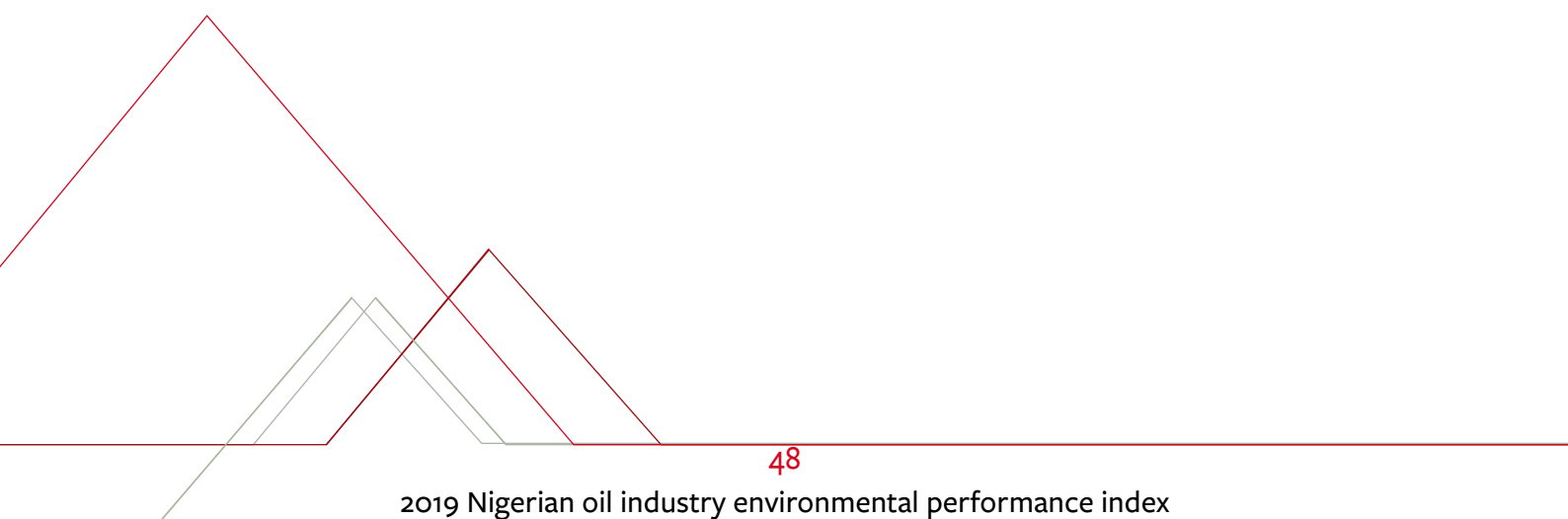
It is only by acknowledging the scale of the problem that companies will dispel the notion that they are fundamentally interested in Nigeria solely for their own benefit. This in turn would help improve their social licence to operate, which in the context of the region – where oil production is frequently shut-in because of local protests relating to the industry, and its environmental performance – should also be of interest to investors. The IOCs also face a global challenge to their licence to operate, with regular protests and public debate across many countries. As such, Nigerian oil's environmental, social and governance issues, not to mention the climate and economic risk associated with investment in non-renewable energy, will be of increasing interest to financial and regulatory institutions.

48. Skytruth. (2023). First-Hand Accounts, Satellite Imagery Point to Oil's Dreadful Impacts on Gulf of Guinea. Online: <https://skytruth.org/2023/04/first-hand-accounts-satellite-imagery-point-to-oils-dreadful-impacts-on-gulf-of-guinea/>

49. Reuters. (2019). Nigeria deploys satellite tech to track oil smugglers. 30th April. Online: <https://www.reuters.com/article/us-nigeria-oil-theft-idUSKCN1S61KG>

5.4 Next steps

If an effective just energy transition is going to be secured, addressing environmental pollution in the Niger Delta must be a priority. Hydrocarbon resources have been extracted for close to 70 years, despoiling this crucial wetland ecosystem, and there are rough waters ahead. As is often said, it is an “environmental emergency”, calling for leadership on presidential-level policy, strengthened regulators and legislation, industry-wide compliance with best practice, with full and informed participation of host communities. SDN will engage constructively with all those willing to find a solution to these challenges. We are also going to continue refining the methodology and welcome constructive feedback on the data and analysis in this report. We are organising a series of public and private events to launch this report, and look forward to hearing from all interested parties on how change can be enacted.



Appendices

Appendix 1: Company scores

The table below contains information on individual indicator scores and ranks by company. These relate to Index A in the database, which is also the version discussed in section 4 of this report. It includes all companies which produced oil in 2019.

	Weighted score							Performance Ranking						
Company	Oil spill volume	Oil spill count	Oil spill removal	Gas Flare	Emissions ratio	Transparency	Total score	Oil spill volume	Oil spill count	Oil spill removal	Gas flare	Emissions ratio	Transparency	Total
Moni Pulo	0.25	0.15	0.1	0.2	0.25	0	0.95	1	1	1	2	2	4	1
NDPR	0.25	0.15	0.1	0.2	0.25	0	0.95	1	1	1	3	3	4	2
Green Energy	0.25	0.15	0.1	0.2	0.25	0	0.95	1	1	1	5	11	4	3
Newcross	0.25	0.15	0.1	0.2	0.25	0	0.94	1	1	1	13	8	4	4
Anni	0.25	0.15	0.1	0.2	0.25	0	0.94	1	1	1	16	9	4	5
Platform	0.25	0.149	0.1	0.2	0.24	0	0.94	1	20	1	6	20	4	6
Belema	0.25	0.15	0.1	0.2	0.24	0	0.94	1	1	1	11	19	4	7
Universal	0.25	0.15	0.1	0.2	0.24	0	0.94	1	1	1	7	21	4	8
Pillar	0.25	0.15	0.1	0.2	0.24	0	0.94	1	1	1	9	25	4	9
Sterling Oil	0.25	0.149	0.1	0.19	0.25	0	0.94	1	20	1	25	13	4	10
Elcrest	0.25	0.15	0.1	0.19	0.24	0	0.94	1	1	1	23	22	4	11
Addax	0.25	0.15	0.1	0.18	0.24	0	0.92	1	1	1	30	24	4	12
Midwestern	0.25	0.148	0.08	0.2	0.25	0	0.92	25	23	24	14	12	4	13
Sapetro	0.25	0.15	0.1	0.18	0.23	0	0.92	1	1	1	29	28	4	14
Continental	0.25	0.15	0.1	0.18	0.23	0	0.91	1	1	1	31	29	4	15
Network	0.25	0.15	0.1	0.2	0.21	0	0.9	1	1	1	20	31	4	16
Seplat	0.25	0.141	0.04	0.19	0.24	0.03	0.9	24	28	27	27	18	3	17
Chevron	0.25	0.136	0.09	0.17	0.25	0	0.89	28	31	23	34	6	4	18
Chorus Energy	0.25	0.15	0.1	0.2	0.19	0	0.89	1	1	1	8	33	4	19
First Hydrocarbon	0.24	0.135	0.08	0.2	0.24	0	0.89	31	32	25	12	23	4	20
Energia	0.25	0.15	0.1	0.19	0.19	0	0.88	1	1	1	28	32	4	21
ERL	0.25	0.147	0.01	0.2	0.25	0	0.85	26	24	33	1	1	4	22
Heritage	0.18	0.135	0.09	0.2	0.25	0	0.85	33	32	22	17	10	4	23
Pan Ocean	0.25	0.147	0	0.2	0.24	0	0.84	22	24	34	4	17	4	24
Excel	0.25	0.15	0.1	0.2	0.14	0	0.84	1	1	1	15	34	4	25
Neconde	0.25	0.149	0	0.19	0.25	0	0.84	27	20	34	21	14	4	26
Dubri	0.25	0.15	0.1	0.2	0.13	0	0.83	1	1	1	10	35	4	27
Total	0.25	0.147	0.01	0.18	0.25	0	0.83	29	24	32	33	5	4	28
Brittania-U	0.25	0.15	0.1	0.19	0.11	0	0.81	1	1	1	24	36	4	29
Eroton	0.17	0.121	0.07	0.19	0.24	0	0.79	34	35	26	26	16	4	30
ND Western	0.21	0.138	0.01	0.2	0.24	0	0.79	32	30	31	19	26	4	31
ExxonMobil	0.25	0.126	0	0.09	0.25	0	0.71	23	34	34	36	15	4	32
Alteo	0.1	0.141	0.01	0.2	0.25	0	0.7	36	28	30	18	7	4	33
Summit Oil	0.25	0.15	0.1	0.19	0	0	0.69	1	1	1	22	37	4	34
NAOC	0.15	0.004	0.04	0.17	0.24	0.05	0.65	35	36	28	35	27	1	35
NNPC	0.24	0.143	0	0	0.22	0	0.61	30	27	34	37	30	4	36
Shell	0	0	0.03	0.18	0.25	0.05	0.5	37	37	29	32	4	1	37

Appendix 2: Oil and gas industry feedback

Introduction

SDN aims to work constructively with all stakeholders committed to reducing the environmental impact of the Nigerian oil and gas industry. As such, we sought in particular to engage with the companies included in the Index as part of our research and publication process, and NOSDRA, as the key regulator. This annex summarises feedback from their representatives and our response to this feedback, including how we hope to develop future versions of the Index.

Oil and gas company feedback: Summary

Prior to finalising the analysis in the 2019 and 2020 Indexes, we wrote to companies with copies of the draft findings, inviting them to provide their response at a discussion event in Abuja. This took place in November 2023, where we validated findings in both the 2019 and 2020 Indexes. We then shared copies of the draft Indexes, and gave three weeks for further written comments.

Based on the comments made during these engagements, we would like to draw attention to a number of points. These relate to the ways in which company representatives suggested the Index could be improved. Particular comments raised by industry representatives related to:

- Concerns that the Index does not sufficiently recognise the challenges that the industry faces with respect to third party interference (namely oil theft)
- The view that NOSDRA's Oil Spill Monitor database is not updated with details submitted following the response to a spill, meaning that the official data on oil spill recovery is not up-to-date.
- The potential to change the weighting of Index scores, particularly those related to oil spill recovery and transparency.

We agree that these are important issues, and provide responses below. We believe the reaction and engagement of company representatives shows that this Index continues to provide a useful basis for discussion, and we thank them for their inputs. We are committed to improving this work, and to developing an Index of the highest possible quality, and we will aim to incorporate many of the points raised in future versions of the Index. We would also note that there is a limit to the extent to which the Index can account for every factor which could be useful in assessing environmental performance, especially when not all the relevant data is publicly available. We have highlighted this throughout this research where relevant.

We have incorporated a number of changes in the text of the published report based on comments made by oil industry representatives. Other key points raised by them on the Index relate to:

Third-party interference

As noted in the report, the artisanal oil industry and third-party interference are major concerns for the oil industry, regulators, and local communities in the Niger Delta. Company representatives were concerned that the Index methodology did not sufficiently acknowledge the challenge of third-party oil spills. For example, staff from one company said that an operator producing oil solely onshore, in an oil theft hotspot, would face different challenges from a company operating solely offshore. Another company representative highlighted that the Nigerian industry compares poorly with other regions, but that this would not be the case if third-party spills were removed from calculations.

We acknowledge the significant role that third party interference can play in oil spills, and included a new chapter in the 2019 Index so we could include the data analysis on this phenomenon.

However, as noted in the report, further consideration will be needed on the validity and extent to which third-party interference should be reflected in a company's score in the Index. This is for two main reasons. Firstly, the process of attributing a cause for a spill is highly disputed, with the JIV team often disagreeing with community members on the cause, especially over whether it was sabotage or operational failure (see box 3 for a case study). Secondly, it is often argued by observers that oil and gas companies push for a spill to be recorded as sabotage so that they avoid liability, and do not have to pay compensation for damages. This is part of a broader narrative that argues companies are not liable for such spills, because it is criminal elements that are attacking their infrastructure. This is enabled by the Nigerian legal system, which does not use the “no fault liability” principle, unlike most other countries. If it was applied to oil and gas companies, they would be held responsible for all oil spills from their infrastructure. The argument would be that they can introduce measures to make the infrastructure safer – such as conducting better maintenance, replacing old pipelines liable to corrosion, and burying pipelines below ground, rather than above ground, in and around settlements.

Data Sources

As noted in the Index, identifying and assessing oil spills is a complex task. The environmental emissions attributed to each company in this report are the total emissions estimated or recorded by the pollution monitoring tools of NOSDRA. We have not altered this data beyond standardising it for use in our database. Minor changes made as part of this are highlighted in the database published.

Several companies suggested that the government data – whether on emissions or production – is not complete. They suggested that we instead approach companies and request a copy of their data for analysis. We tried this previously, and received no responses. Therefore, we did not do it for the 2019 or 2020 Indexes. Furthermore, even if all companies provided their data, there is no way for SDN to verify if it is accurate. Therefore, we will always defer to the Nigerian government's official record for future reports.

Companies wished to also clarify the source of data for oil spill removal volumes. These can vary depending on the point in the assessment process at which they are recorded. The source for these volumes in the Index is the “Quantity recovered” column of data in the Oil Spill Monitor. This may refer to the relevant field, which has the same title on two NOSDRA forms used to assess oil spills and their clean-up. These are available on NOSDRA's website: Form B: Risk Based Assessment of Oil Spill Incidence and Form C: Site Clean-up/Remediation Assessment Form.

Form B is supposed to be submitted within two weeks of a spill, while Form C is to be completed after any clean-up has taken place. As such, if the “Quantity recovered” column in the OSM refers to Form B, it may be that more oil has since been removed from the spill site than what is recorded in the data (and used for our Index). However, it is not clear in the data to which form the figure on oil removed for a given incident refers. In any case, there is only one column including this information and so these are the figures we have used for our calculations. The alternative would be not to include any oil removal figure at all, which would penalise company performance unreasonably. And if the “Quantity recovered” column does refer to Form C, this is presumably the final amount of oil which has been removed. As such, we do not think that a company’s performance suffers unfairly from this issue.

Companies were concerned that NOSDRA does not update the OSM regularly with details on removal submitted in these forms. As a result, they claim that their actual recovery levels are higher than the data suggests. Companies have shared their own records with SDN to back these claims, and it seems to be a real problem that needs to be addressed. From our perspective, this requires further discussion with NOSDRA and companies to evaluate the upload process, and identify improvements to fix these delays. We cannot start a parallel process to assess recovery reports on a spill-by-spill, company-by-company basis. But we can join in the discussions to identify and plan improvements in the processes of the regulator.

Companies also highlighted the fact that with the current scoring system, a company that did not spill any oil will have a 100% oil spill recovery score, and thus get more points for the overall scoring system. The alternative is to award these companies a 0% score for recovery, but this would unfairly penalise companies that avoided spilling oil, and who actually have higher environmental performance. This is a tricky situation to address – and we plan to explore whether we can include a split measure, i.e. can a company that does not have any oil spills (or recovery) be given a special score, then those that do spill and recover be scored slightly differently? This will complicate scoring in the Index, but we welcome these suggestions to also enrich the quality of the analysis.

Operatorship

Linked to data sources, the issue of operatorship came up in our engagements. One company – First Hydrocarbon - disputed that they were not the operator of the single OML that they hold equity, which is contrary to what is noted in the official government database, NOGIAR. They subsequently provided documents that support the claim that they are not the operator, and so we will change this in future versions of the Index. This highlights that other companies may also not be operators, despite being listed as such in official government data. Again, this highlights a challenge we face with the Index – we must use official data, but at the same time, it is full of inaccuracies that we have to cross check. Validation and engagement helps us to identify any other inaccuracies in the official government data that we may have missed, and we encourage all companies to continue applying this level of attention to detail, and contribute further errors we need to address.

Transparency and other indicators

During engagements on the 2018 Index, companies felt that the Index would be strengthened by taking into account public and other commitments to transparency on environmental issues. For example, some companies wished to highlight that they produce and publish their own data on environmental emissions in Nigeria.

This is important, and we have introduced a new score in the Index to rank company performance on transparency. This is based on whether a company 1. Publishes its own oil spill data 2. Publishes its own gas flare data, and 3. Publishes environmental procedures, such as for oil spill response.

Only a few companies, mostly IOCs, benefit from the inclusion of this score at present. We call on all oil companies, international and domestic, to do the same. In general, we strongly believe in mutual accountability, which is why we have published all of our own data and calculations relating to the EPI. We welcome further constructive critique on this work.

Stakeholder engagement

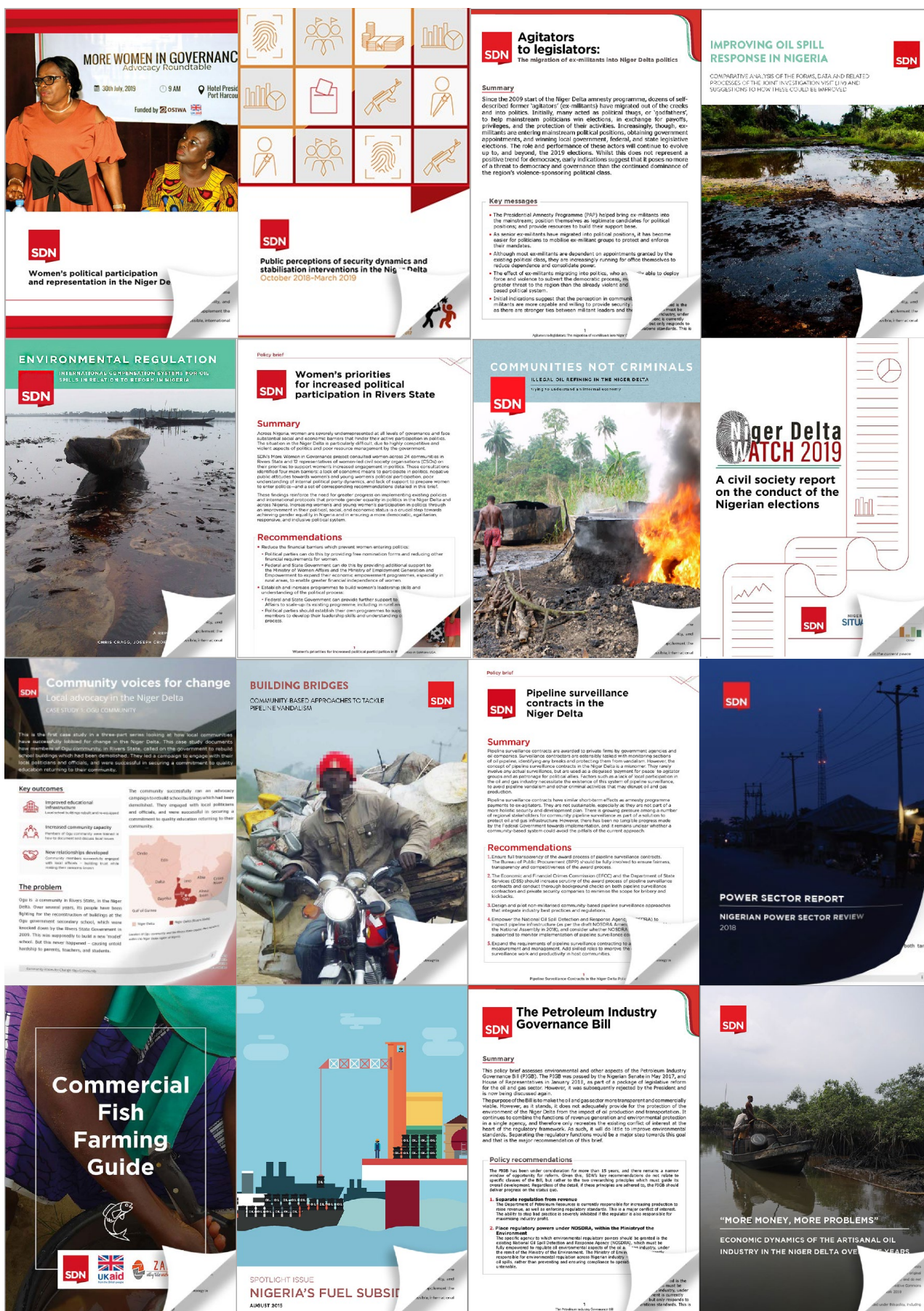
Companies noted that there is a wide range of stakeholders involved in work to prevent and respond to environmental emissions in the Niger Delta, including government, civil society and local communities, and that all these groups should be involved in work to address the issues raised in this report.

We agree, and we consult regularly with these and other stakeholders in our work. Drafts of this research were reviewed by staff from NOSDRA and oil companies themselves, as well as an independent consultant.

Future engagement

We would like to reiterate our thanks for the feedback on this research from all parties, and the improvements we have been able to make as a result. Note that the research and analysis do not necessarily reflect the views or policies of any organisation which provided input.

We welcome further feedback.



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More than six million litres of oil were spilled in the Niger Delta in 2019, which in addition to a legacy of unresolved historic incidents means it remains an ecological disaster zone.

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SDN

2019 Nigerian oil industry environmental
performance index