Special Report

Investor Risks Looming in the Niger Delta

July 24, 2012
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Synopsis

This special report from the Sustainable Investments Institute (Si2) examines the decades of controversies surrounding oil spills in the ecologically-sensitive and densely-populated Niger Delta. The aggregated spills are among the largest by volume and among the most damaging historically due to cumulative impacts arising from the extended amount of time much of the oil was left in the environment. In addition, the region's resulting problems have received little attention in comparison to spills in developed countries, such as the **BP** spill in the Gulf of Mexico or the **Exxon** Valdez spill in Alaska. However, a recent report from the United Nations Environment Program (UNEP) and media coverage of the BP spill have helped focus attention on the plight of the region. Data from the area point to potentially significant liabilities for multinational oil and gas companies with holdings there and for their shareholders. Shell is especially exposed, as it is the largest and longest-running operator. This report explores potential risks and financial liabilities arising from the spills and options for investors to address these risks.

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I. Executive Summary

Multinational oil and gas operators have been tainted by social and environmental controversies in the Niger Delta for decades. From allegations of human rights abuses arising from the use of security forces to flaring and other environmental and related human health issues, the concerns have raised serious questions of risks and liabilities for their shareholders. A confluence of events has occurred over the past year to make it an especially prudent time for investors to review these risks:

- In August 2011, the United Nations Environment Program (UNEP) released its report on Ogoniland detailing steps that oil and gas companies, as well as the Nigerian government and other stakeholders, should take to start to reverse the environmental damage and address the social injustices resulting from a long legacy of oil spills in the area. The centerpiece of the recommendations is the creation of an initial $1 billion clean-up reserve for Ogoniland to be funded by the government and oil operators to cover the first five years of what UNEP projects will be a 25- to 30-year effort.
- In March 2011, approximately 11,000 villagers from the Bodo community in the Niger Delta filed a lawsuit in a London court against **Royal Dutch Shell**, alleging that oil spills in the region devastated local fisheries and livelihoods of community members. In response, the Nigerian subsidiary of Shell claimed responsibility for oil spills of around 4,000 barrels in the region dating back to 2008, but the case remains contested. Initial estimates of the potential liabilities for Shell in this one case are $400 million.

BP's catastrophic Deepwater Horizon (Macondo) oil spill in the U.S. Gulf of Mexico, with projected costs to BP in excess of $20 billion, provides a backdrop as it continues to remind investors worldwide to not always trust assurances from companies on safety and spill risks. These "low-probability events" can have monumental costs.

While **Royal Dutch Shell** has been the target of campaigns related to spills in the Niger Delta arising from the company's long history and extensive operations in Nigeria, it is not the only oil and gas operator involved there. Shell operates and holds a 30 percent stake in the Shell Petroleum Development Company joint venture (SPDCJV) at the center of the debate over spills in the Niger Delta, while the Nigerian government's Nigeria National Petroleum Corporation (NNPC) owns a 55 percent interest. Elf Petroleum Nigeria, a subsidiary of **Total** (10 percent), and **Eni** through its subsidiary Agip (5 percent) hold the remaining stakes. At the same time, Shell is the operator of the venture and, as such, is principally responsible for addressing operational risks and deficiencies. Meanwhile, **ExxonMobil** is the second largest operator and **Chevron** the fourth biggest (Total with its other holdings is the third largest and Eni the fifth) in the region; each has a legacy of spills too. **ConocoPhillips**, **Petrobras**, **Sinopec** (through its acquisition of Addax Petroleum) and **StatoilHydro** also operate in joint ventures with the NNPC. Shareholders in all of these entities have reason for concern, although company exposure varies greatly.

All of the companies have a significant stake in preserving a license to operate in Nigeria, and all have future plans for the region, especially offshore. Resolution of the legacy spills and agreement on proper regulatory oversight and operating procedures in Nigeria will remain pressing concerns for some time to come. This should put shareholders on alert for developments.

This report reviews the history of controversies in the Niger Delta through a lens examining actual and potential liabilities related to clean-up, remediation, compensation and legal costs for publicly traded oil and gas operators there and, by extension, associated risks to the companies' shareholders. The report reviews existing obligations disclosed by the companies, those acknowledged by operators as potential but unknown in scope or amount, as well as those not recognized by the companies at all but championed by existing and potential plaintiffs. In addition to providing a tour of the horizon of possible finan-

cial minefields for companies and their investors, this report analyzes actions investors can take to get better information on these liabilities and to help companies mitigate similar environmental and social risks going forward.

Major Findings and Recommendations

Inadequate reporting, continued violence and the long-term legacy of the spills, with some neglected for more than 40 years, have inhibited proper assessment of the damage caused and impacts on affected communities. Nevertheless, existing reporting from companies, government agencies, multilateral institutions and civil society organizations has provided sufficient substantive information to confirm certain realities and needs going forward. These have informed the findings and recommendations of this report, which are summarized below.

1. ***Companies should ascertain the need for cleanup, remediation, compensation and related costs for outstanding spill damage attributable to their operations.***

So long as companies withhold data from regulators, investors, community members and other key stakeholders in a calculated decision to attempt to avoid liabilities, the nature of the vast majority of the spill damage in the Niger Delta will remain unknown. Such data should be disclosed if available. Much of the spill damage is tied to neglected, aging equipment, violence, theft and other circumstances, at times beyond the immediate control of the companies operating there, albeit the operators' ultimate responsibility. Despite recent efforts by the United Nations Environment Program (UNEP) and other multilateral institutions, government entities and civil society organizations to study and assess the damage, the reality remains that no one really knows even today the true scope of the problem. Neglecting existing problems is only deferring and increasing future costs for the companies and their shareholders, in addition to harming local communities in Nigeria. This could see the companies face bigger challenges relating to their licenses to operate in the market going forward, a clear threat to future earnings.

2. ***Total liabilities are unknown but all indicators point to significant costs for the companies and their shareholders.***

While data and reports are incomplete and at times unreliable, Si2 culled the best available information from a variety of sources to arrive at ranges of estimates for spill volume and remaining oil pollution in the region. From this, it used several models to predict liabilities associated with spill damage, taking into account the prevalent type of oil in the Niger Delta, topography, population levels of spill areas and other factors. From this exercise, it concluded that total liabilities, excluding punitive damages, could range anywhere from $16 to $51 billion. With punitive damages, the costs could be far higher. For several of the companies analyzed, the potential costs of addressing oil spill damage in the Niger Delta could wipe out a significant portion of annual earnings—more than 40 percent of 2011 net income in some cases. The wide range for the estimated liabilities is broad but is directly correlated to the variables at hand—unknowns related to the lack of information of total spills and severity of them. Looking at how estimates unfolded for the BP Deepwater Horizon accident, however, these uncertainties shouldn't be surprising. Initial press reports pegged liabilities at hundreds of millions, but these soon rose

to close to $20 billion and now likely will exceed $40 billion. These expansive disparities in estimates stemmed from a single spill in recent history that was quickly, at least in relative terms, addressed, unlike the thousands over decades in the Niger Delta.

3. ***Companies are clinging to short-term strategies that are creating much larger, long-term liabilities for their financial statements and shareholders.***

Companies to date have focused on transferring responsibility for spills to third parties, including rebels and others committing acts of sabotage, engaging in acts of violence, committing theft or engaging in related artisanal refining activities. This approach ignores the general legal principle in Nigeria, as well as in most other jurisdictions worldwide, that the operators are primarily responsible for cleanup and remediation, regardless of the root cause. In addition, these arguments fail to acknowledge that companies were not adequately monitoring wells for defects, notifying the proper authorities of potential problems, and cleaning up spills completely when they occurred. In addition, companies in many cases have not fully acknowledged instances of equipment neglect and the lack of proper application of corporate, global policies and internationally recognized good operating practices in Nigeria. These final points were highlighted by the most recent UNEP study released last year.

4. ***Communities are becoming more empowered to act not only in the arenas of public protest but also, and perhaps more importantly, in the courts.***

Communities are becoming more sophisticated in the strategies they pursue to seek remedies for spill damage. Groups in Nigeria have sought remedies in Nigeria, the United Kingdom, the Netherlands and the United States. This trend points to greater potential liabilities, including legal and remediation costs for companies. Coming judgments will shed light on these costs and should be watched closely by investors and other key stakeholders.

5. ***The BP spill has drawn attention to the consequences of spill damage elsewhere in the world including the Niger Delta.***

In the wake of the BP disaster, scores of articles were written about the plight of the Ogoni and other peoples in Nigeria living with the legacy of decades of oil spills that by volume eclipse the size of the BP spill. The articles also raise questions about the rapid, comprehensive response of BP in the Macondo case in contrast to the delayed, fragmented actions offered by multinational oil and gas operators to spills in Nigeria. In this way, the Deepwater Horizon explosion has served as a catalyst to start a larger global debate about oil spills and the rights and expectations of communities living in and around oil and gas infrastructure. The costs associated with BP's cleanup, remediation and compensation serve as a benchmark for potential liabilities for oil spill cases elsewhere. At the same time, the long delays in responding to the need to remediate damage in the Niger Delta have escalated costs and compounded the problems there.

6. ***Poverty and inequality are underlying issues perpetuating the cycles of violence, sabotage and theft.***

Despite having some of the richest reserves of oil and gas in the world and decades of investment in energy development, the vast majority of the inhabitants of the Niger Delta, where the bulk of the development has occurred to date, as well as Nigerians as a whole, live in poverty. Instead of providing the springboard to socio-economic development, oil wealth has exacerbated economic inequalities and left large segments of the population illiterate and without access to education and other basic public services. The situation calls out for investment in local communities and small businesses there so that the opportunities and benefits offered by oil and gas developments are distributed more widely. Companies have a role to play that they can explore more fully.

7. ***Investors should take action to protect their long-term interests, while also helping to promote more sustainable and responsible practices going forward.***

Investors do not need to sell their shares or sit on the sidelines while events surrounding spill liabilities in the Niger Delta unfold; they can take action. By engaging companies and requesting better disclosure, best-in-class policies and assurance of those policies being implemented, as well as board oversight of these issues, investors can help mitigate risks that are likely to erode long-term shareholder value. Shareowners can play a pivotal role in bringing these data to light and mitigating liabilities by taking action in the following areas:

- Demanding **good governance** of these issues, including robust board and senior management oversight.
- Calling for **appropriate policies** that are properly implemented, both requiring and empowering operations staff to devise solutions for clean-up and remediation efforts, and to guide ongoing responses to spills.
- Requesting **better reporting** of spill cases found, clean-up and remediation efforts and potential liabilities arising.
- Seeking **improved metrics** for ongoing reporting and measurement of resulting practices, with third party validation.
- Encouraging **cooperation** with the Nigerian government, local authorities and affected communities. This includes cooperating with UNEP and other multilateral institutions in following recommendations for redressing oil pollution problems.
- Urging greater efforts to promote constructive **corporate social investment** in affected communities to minimize incentives for violence and theft through the promotion of economic development and job creation.

Organization of this Report

This report is divided into eight sections. The second (following this first section, the executive summary) analyzes spill data from the region, while the third follows with an estimate of the total volume of the spills to date. The fourth calculates possible cleanup, remediation, compensation and

legal liability estimates, while the fifth assigns potential responsibilities to individual companies. The sixth looks at the companies' spill policies, reporting and board oversight structures, and the seventh reviews ways companies can promote cooperation to resolve the environmental debacle facing them and the people of the Niger Delta. The final section assesses what investors can do to protect themselves and promote resolution of the problems arising from their activities in the Niger Delta.

Acknowledgements

Si2 received partial funding in support of this research for this report from Walden Asset Management. The conclusions contained are Si2's. Si2 provides impartial information about corporate social responsibliity topics to large institutional investors, including the largest pension funds and college and university endowments in the United States.

II. Available Spill Data

For years, oil spill figures for the Niger Delta have varied widely depending on the sources and have been hotly contested by all stakeholders:

- The Nigerian government has released its own figures periodically, mostly focused on coastal and adjacent wetland areas.
- Shell's subsidiary in Nigeria, SPDC, has been releasing data consistently for the last 15 years. It is the only company to do so—which clearly distinguishes it from other companies in the region—but still leaves unknown the amounts it spilled before this period and during its peak years of production in Ogoniland, as well as estimates for remaining cleanup, remediation, compensation and other potential liabilities. Shell has been drilling in the Niger Delta since the 1930s.
- Multilateral institutions and civil society organizations, with the help of local community groups, have generated estimates of their own. The United Nations Environment Program (UNEP) embarked on a study in 2009, the results of which were released in August 2011 after months of delays.[1] It is the most definitive accounting to date of the spills' scope and damage, although it only covers Ogoniland and does not review spills elsewhere in the Niger Delta.
- Local community members, through testimony, press interviews and public statements, have shed light on the nature and scope of the damage. For example, fisherman, farmers and local businesses have had to shut down or move as a result of spills, and many communities have suffered devastating consequences from losing access to potable drinking water, crops and livelihoods. Such reports characterize the Niger Delta as among the most severely petroleum-polluted ecosystems worldwide.

Government Figures

Drs. Peter C. Nwilo and Olusegun T. Badejo of The Association for Environmental Health and Sciences, an environmental consulting firm based in Amherst, Massachusetts, analyzed data from the Nigerian government to spotlight the largest spills and aggregate an estimated total for Nigeria's coastal areas and adjacent wetlands.[2] While not a comprehensive assessment of the entire Niger Delta or Ogoniland, it is an important piece of the complicated puzzle.

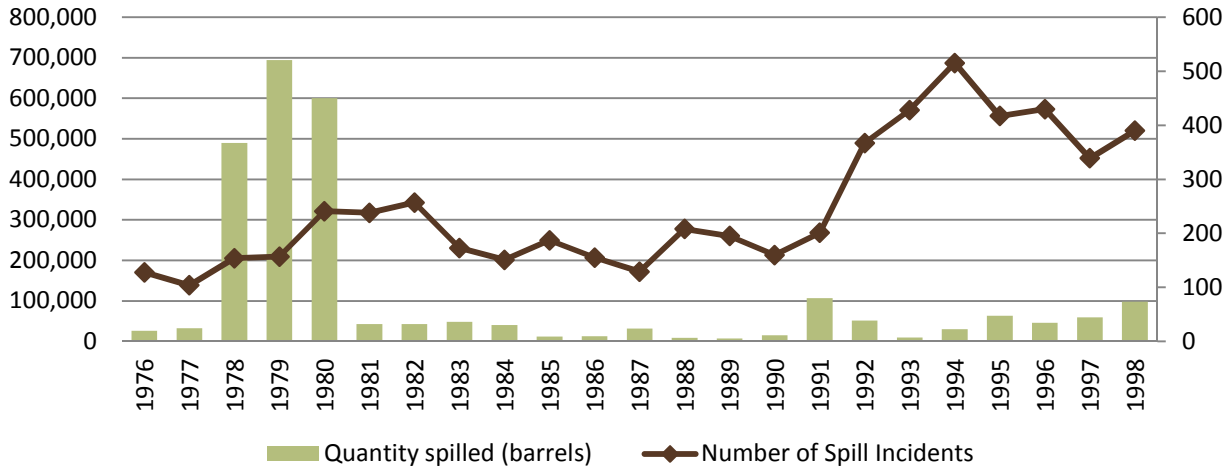
1976 to 1996: Nwilo and Badejo drew on data from Nigeria's Department of Petroleum Resources (DPR), and found that between 1976 and 1996:

- 4,647 spill incidents resulting in the release of 2,369,470 barrels of oil, the equivalent of an average of 232 spills totaling 119,974 barrels per year or 516 barrels per event.
- Of the 2.4 million barrels spilled, 1,820,410 barrels (77 percent) were lost to the environment and 549,060 barrels (23 percent) recovered.
- Of the total spilled, 6 percent of the spill volume was on land, 25 percent in swamps and 69 percent offshore.

[1] United Nations Environment Program (UNEP). (August 2011). *Environmental Assessment of Ogoniland*. Retrieved Aug. 31, 2011, from http://www.unep.org/nigeria/.

[2] Nwilo, Peter C. and Badejo, Olusegun T. for The Association for Environmental Health and Sciences. (2006). *Impacts of Oil spills along the Nigerian coast*. Retrieved Aug. 5, 2011, from http://www.fig.net/pub/accra/papers/ts16/ts16_06_egberongbe_etal.pdf.

Figure 1: Coastal Nigeria Oil Spill Data



- The heaviest recorded yearly total was 694,117 barrels in 1979, with the following year coming in a close second with 600,511 barrels. *(See Figure 1, above.)* The trend over the period was for spill incidents to increase but volumes per incident to decrease dramatically.

1997 to 2001: The authors also culled spill information for the period from 1997 to 2001 and found a total of 2,097 spill incidents documented by DPR or an average of 419 per year, nearly double the average per year for the previous 20-year period studied. Taking the aggregate for the two periods, from 1976-2001, the authors found a total of 6,744 spills or almost 270 per year on average. More recent estimates from the Nigerian National Oil Spill Detection and Response Agency (NOSDRA) point to an escalation of spill events, with 2,400 oil spills between 2006 and 2010 from sabotage, bunkering and poor infrastructure or an average of 480 per year, although without spill volume data it is difficult to evaluate if the overall problem is worsening.[3]

The top individual spill incidents from the earlier DPR data from 1976-2001 involve, not surprisingly, the largest foreign operators. Shell accounts for the top incident from a 1978 spill of more than half a million barrels, followed by two legacy Chevron operations (Texaco and GOCON), ExxonMobil and another Shell spill. (See Table 1.)

Table 1: Top Spill Incidents in Nigeria (1976-2001)

Year	Operator	Location/Operation	Amount (barrels)
1978	Shell Petroleum Development Corp. (SPDC)	Rivers/Forcados Terminal	580,000
1980	Texaco	Rivers/Funiwa-5	400,000
1978	Gulf Oil Company of Nigeria (GOCON)	Delta/Escravos	300,000
1998	Mobil	Akwa Ibom/Idoho Field	40,000
2001	Shell Petroleum Development Corp. (SPDC)	Rivers/Ogbodo	26,500

Sources: Nwilo, Peter C. and Badejo, Olusegun T. for The Association for Environmental Health and Sciences. (2006). *Impacts of Oil spills along the Nigerian coast*. Retrieved Aug. 5, 2011, from http://www.fig.net/pub/accra/papers/ts16/ts16_06_egberongbe_etal.pdf; Environmental Rights Action and Friends of the Earth. (2005). *The Shell Report, Continuing abuses in Nigeria – 10 years after Ken Saro Wiwa*. Retrieved on July 8, 2011, from http://www.liberationafrique.org/IMG/pdf/shellreport.pdf; and United Nations Development Program. (2006). *Niger Delta Human Development Report*. Retrieved June 5, 2011, from http://hdr.undp.org/en/reports/nationalreports/africa/nigeria/nigeria_hdr_report.pdf.

[3] U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved June 12, 2012 from http://www.eia.gov/countries/cab.cfm?fips=NI.

Independent experts report: In 2006, an independent team of experts from Nigeria, the United Kingdom and the United States convened by the Nigerian Conservation Foundation concluded that the Niger Delta was "one of the world's most severely petroleum-impacted ecosystems."[4] The parties reached this conclusion following a Natural Resource Damage Assessment and Restoration scoping visit to the Niger Delta from May 21-29, 2006. The team of experts included participants from Nigeria's Ministry of Environment, World Wildlife Fund (WWF) UK and the International Union for Conservation of Nature (IUCN)'s Commission on Environmental, Economic and Social Policy. The team visited Delta communities and spill-damaged sites in Rivers, Bayelsa and Delta states, met with community and youth leaders, and convened a two-day workshop with leading government and non-governmental experts in Port Harcourt as part of the scoping exercise. The team estimated that nine to 13 million barrels of oil have spilled into the Niger Delta ecosystem over the last 50 years, representing about 50 times the estimated volume spilled in the *Exxon Valdez* oil spill in Alaska in 1989, or one Valdez-sized spill in the Niger Delta each year.

Figure 2

Severe environmental damage, loss of biodiversity and poverty—as the pollution has affected local ecosystems—has "compromised livelihoods and health of the region's impoverished residents," especially among rural communities, the experts concluded. The project members pegged the financial valuation of the environmental damage at "tens of billions of dollars," when "the unique and productive character of the ecosystem as well as comparable valuations on other such ecosystems" are taken into account. The report noted, "In addition to spills, damage from oil and gas operations in the region has included extensive habitat degradation from road building, forest clearing, dredging and filling; pollution from gas flaring and operational discharges, and increased population pressure from immigration to the region."

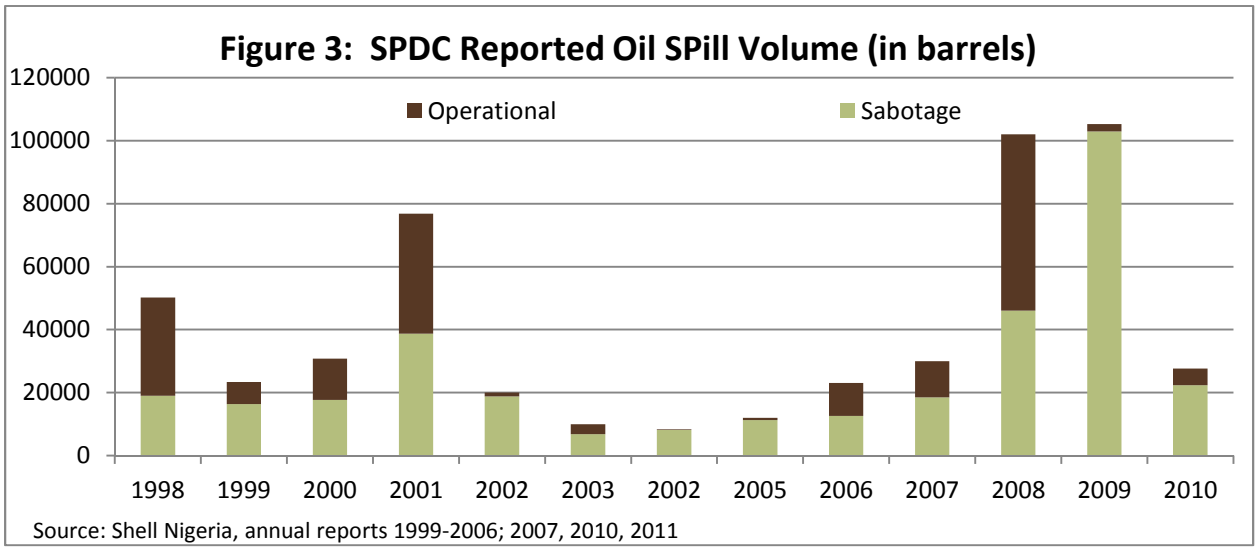
The researchers blamed the degradation on several factors, including the lack of a strategic plan to develop the oil and gas resources, as well as the proximity of oil and gas infrastructure to environmentally sensitive habitats that include "areas vital to fish breeding, sea turtle nesting, mangroves and rainforests." The experts also noted that local communities feel disenfranchised by the oil boom and left out of the hefty economic benefits reaped from oil and gas developments in their communities. This factor has been and continues to be "a significant contributor to the current violence, sabotage of pipelines/installations and instability in the region." In addition, "Oil companies operating in the Delta have not employed best available technology and practices that they use elsewhere in the world—a double standard," given old, leaking pipelines and installations and the practice of dumping waste without proper environmental safeguards—both of which require immediate action.

[4] Federal Ministry of Environment, Abuja; Nigeria Conservation Foundation, Lagos; WWF UK; and CEESP- IUCN Commission on Environmental, Economic, and Social Policy. (May 31, 2006). *Niger Delta Natural Resource Damage Assessment and Restoration Project, Phase 1 – Scoping Report*. Retrieved on December 1, 2011, from http://cmsdata.iucn.org/downloads/niger_delta_natural_resource_damage_assessment_and_restoration_project_recommendation.doc.

Shell's Reporting

SPDC has been reporting spill data consistently for the last 15 years, a disclosure benchmark unmatched by its competitors. However, it also is the source of more than 50 percent of total spills, if one extrapolates based on production in the Niger Delta. From 1998 to 2010, SPDC reported a spill volume of 519,207 barrels; it attributes 338,914 barrels (more than 65 percent) to sabotage, with the remainder blamed on operational problems. On average, SPDC spilled close to 40,000 barrels per year. Volumes spiked in 2009 to 105,300, almost entirely attributable to sabotage according to SPDC. During that year, the company said 103,000 barrels of spillage (close to 98 percent) was caused by sabotage. Other notable years include 1998 and 2001, when operational spills spiked mostly because of aging pipeline infrastructure. Shell's SPDC affiliate also was responsible for two of Nigeria's top spill incidents off all time, the 1978 Rivers/Focados Terminal spill totaling at least 580,000 barrels and the 2001 Rivers/Ogbodo spill amounting to approximately 26,500 barrels. *(See Figure 3 and Table 1 for trends and data sources.)*

On numbers of spills, SPDC reported 1,816 sabotage- and 1,306 operational-related spills from 1998 to 2010, for a total of 3,148 spills or an average of 242 spills per year. SPDC attributes 58 percent of spill incidents to sabotage. However, outside groups dispute the quantities and associated percentages that Shell attributes to sabotage, and Shell under pressure has been prone to making revisions. For example, the spill volume it attributes to operational failure was increased substantially for 2008, and other years' volumes reportedly associated with sabotage have been revised by Shell.



United Nations Development Program (UNDP)

According to the United Nations Development Program (UNDP) *Niger Delta Human Development Report* from 2006, more than 6,800 spills were recorded between 1976 and 2001, with a loss of approximately 3 million barrels of oil, or about 272 spills and 120,000 barrels per year.[5] The UNDP study relied on statistics from Nigeria's Department of Petroleum Resources (NDP) and an amalgamation of anecdotal information. The study pointed to an increase in the incidence of oil spills as the oil industry has expanded; spills have increased as local residents have ratcheted up protests directed at the government and industry through sabotage and other acts of violence. The UNDP estimated that more than 70 percent of the oil spilled has never been recovered and used the same ratio of distribution for spills as Nwilo and Badejo—6 percent on land, 25 percent in swamps and 69 percent offshore.

[5] United Nations Development Program. (2006). *Niger Delta Human Development Report*. Retrieved June 5, 2011, from http://hdr.undp.org/en/reports/nationalreports/africa/nigeria/nigeria_hdr_report.pdf.

The UNDP found the usual negative effects from oil spills, including degradation of forests, depletion of aquatic fauna and pollution of critical groundwater sources. It quoted an impact assessment of the 1983 Oshika oil spill in Rivers State by Powell and White, which confirmed the death of floating and submerged aquatic vegetation, especially water lettuce, as well as crabs, fish and birds.[6] The UNDP also reported the largest ever loss of mangrove forest worldwide as a result of two major spills—the Funiwa oil well blowout in 1980 at a Shell facility, and the Jones Creek oil spillage in 1998 at a Mobil operation. It concluded, "The implication of these findings is frightening, given that human health is tied to the web of food," as "ingestion of hydrocarbon directly or indirectly through contaminated food leads to poisoning." It also cited research from several sources linking ingestion of hydrocarbons through the food chain to cancer.

The UNDP noted lost income related to the spills. It mentioned a particular incident in 2004 involving Chevron's Ewan oilfield near Ubale Kerere, along the coastline in Ondo State, which affected several communities including the Igo, Awoye, Odun-Oyinbo, Ubale Kerere, Ogungbeje and Yoren. It said "fishing grounds were devastated," hurting a main source of income for these communities. As a result, "The incessant oil spills and other negative associations with the oil industry continue to be a source of public agitation and concern."

United Nations Environment Program (UNEP)

The United Nations Environment Program (UNEP) released its much anticipated and delayed report of its environmental assessment of Ogoniland in August 2011 under tremendous pressure from various stakeholders with divergent interests, including civil society organizations, local communities, governmental entities and oil and gas companies.[7] It is the very contentious and complex nature of the history of oil exploration and production in Ogoniland, UNEP says, that "to date has become seemingly intractable in terms of its resolution and future direction." This situation "has put people and politics and the oil industry at loggerheads, rendering a landscape characterized by a lack of trust, paralysis and blame, set against a worsening situation for the communities concerned." Despite "decades of negotiations, initiatives and protests," UNEP says all parties "have ultimately failed to deliver a solution that meets the expectations and responsibilities of all sides." It is for this reason that UNEP was called to produce its report as an independent, impartial arbiter at the behest of the Nigerian government and other interested parties—aiming to break decades of deadlock.

While the report was funded by oil companies, UNEP maintains that the corporate funding structure was instituted precisely because oil extraction prompted the spills and produced substantial benefits for the companies, giving them an obligation to rectify the damage that has occurred—the "polluter pays" argument. UNEP maintains that the funding mechanism in no way impugned its independence or impartiality.

Approach: Against this challenging backdrop of mistrust and violence, UNEP undertook a two-year assessment of the environmental impacts of oil spills in Ogoniland. To preserve independence and impartiality, it says, it conducted the study within a "negotiated" framework for cooperation, "in which all parties were involved and a recognized team of national and international experts then recruited…" The team of experts spent 14 months examining more than 200 locations and 122 kilometers of pipeline, in addition to reviewing more than 5,000 medical records and engaging more than 23,000 people at local community meetings. The UNEP team also took and analyzed more than 4,000 oil samples from 142 groundwater monitoring wells. It is the nature and scope of this original, independent research that

[6] Powell, I. (1995). *Wildlife Study Report for Shell Petroleum Development Company (SPDC) of Nigeria.*
[7] United Nations Environment Program (UNEP). (August 2011). *Environmental Assessment of Ogoniland*. Retrieved on Aug. 27, 2011, from http://www.unep.org/nigeria/.

makes UNEP's report the most comprehensive to date and will prove a useful baseline from which to measure progress going forward.

General findings: UNEP found "that there are, in a significant number of locations, serious threats to human health from contaminated drinking water to concerns over the viability and productivity of ecosystems." This is despite the fact that the oil industry is largely no longer actively drilling in Ogoniland. However, what did shock UNEP researchers was "that pollution has perhaps gone further and penetrated deeper than many may have previously supposed." As UNEP explains, this is attributable to several factors: high rainfall rates in the region, slow clean-up response times, a fragile ecosystem, and the lack of a clay layer beneath topsoil throughout the region.

UNEP explains that Ogoniland's high rainfall rates thwarts clean-up efforts, especially if they are delayed, because it very quickly disperses oil slicks and regularly embeds oil deep into the ecosystem, even quickly seeping into the root zones of many plant species causing plant stress and destruction. "Oil pollution in many intertidal creeks has left mangroves denuded of leaves and stems," UNEP observed, "leaving roots coated in a bitumen-like substance sometimes once centimeter or more thick." UNEP also notes that fires resulting from oil spilled on land kill vegetation and leave a crust over the land, making remediation difficult. At one site studied by the UNEP experts, Ejama-Ebubu in Eleme local government area, UNEP found "heavy contamination present 40 years after an oil spill occurred, despite repeated clean-up attempts." Overall, UNEP found Ogoniland's wetlands "highly degraded" and in need of rehabilitation. For example, UNEP reported that in Bodo West in the Bonny local government area, artisanal refining activities and related spills between 2007 and 2011 have been accompanied by a 10 percent loss of healthy mangrove cover and raise the threat of "irreversible loss of mangrove habitat in this area."

Key Facts & Figures: The Niger Delta and Ogoniland

The Niger Delta region comprises the largest river delta in Africa and the third largest in the world. It spans all nine oil-producing states in Nigeria—Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers states—and 185 local municipalities with a total land area of about 29,000 square miles. The Delta contains 2,700 square miles of the continent's remaining 3,500 square miles of mangrove, and scientists believe some 60 percent of West Africa's fish stocks breed in the rivers and swamps along the coast.

The region also is home to approximately 31 million inhabitants representing 40 ethnic groups, including the Efik, Ibibio, Annang, Oron, Ijaw, Itsekiri, Igbo, Isoko, Kalabari, Urhobo and Yoruba, who speak some 250 different dialects.

The Ogoni people reside in the same region in the southeast of Nigeria and share the oil-related environmental and human rights problems with other indigenous peoples in the area. The Ogoni number close to 1.5 million and reside in a 400-plus square mile homeland referred to as Ogoni or Ogoniland. It is located in Rivers State on the coast of the Gulf of Guinea, east of the city of Port Harcourt, including the local government areas of Eleme, Gokana, Khana and Tai and the six kingdoms of Babbe, Eleme, Gokana, KenKhana, Nyo-Khana and Tai. The Ogoni gave rise to the Movement for the Survival of the Ogoni People (MOSOP), which gained international attention for its campaign against Shell Petroleum Development Corporation (SPDC).

Sources: The U.S. Department of State. (2011). *2010 Country Reports on Human Rights Practices, Nigeria.* Retrieved on Sept. 16, 2011 from http://www.state.gov/g/drl/rls/hrrpt/2010/af/154363.htm; and Ploch, Lauren for the U.S. Congressional Research Service (CRS). (January 2008). *CRS Report to Congress, Nigeria: Current Issues*. Retrieved on June 12, 2011 from http://fpc.state.gov/documents/organization/102651.pdf.

Key concerns: Top concerns UNEP highlighted in its 2011 report are problems with groundwater contamination, air pollution, fisheries and crops.

Groundwater contamination—Further worsening the situation is the lack of a continuous clay layer across Ogoniland and surrounding areas, which means groundwater in Ogoniland and beyond is

quickly exposed to hydrocarbons spilled on the surface. "In 49 cases, UNEP observed hydrocarbons in soil at depths of at least 5 meters," it says, which "has major implications for the type of remediation required." UNEP found, at two-thirds of the contaminated land sites (41 locations) from which it took samples, the soil contamination exceeds the requirements outlined in the government's Standards for the Petroleum Industries in Nigeria (EGASPIN). The spill situation and years of neglect, UNEP finds, has left the Ogoni community exposed to hydrocarbons in outdoor air and drinking water, sometimes at elevated concentrations, as well as through dermal contact with contaminated soil, sediments and surface water. UNEP notes that many Ogonis have been exposed to hydrocarbons for more than 50 years. UNEP researchers found hydrocarbon contamination at 28 wells at 10 communities adjacent to contaminated sites. At seven wells, it says, samples were at least 1,000 times higher than the Nigerian drinking water standard of 3 micrograms per liter. In interviews with members of these local communities, UNEP observers found that the locals were aware of the dangers of the oil pollution but said that "they continue to use the water for drinking, bathing, washing and cooking as they have no alternative."

The most serious case of groundwater contamination is at Nisisioken Ogale, in Eleme local government area, UNEP says, close to a Nigerian National Petroleum Company product pipeline where an eight centimeter layer of refined oil was observed floating on the groundwater serving community wells. Local residents there are drinking water from wells that is contaminated with benzene, a known carcinogen, at levels more than 900 times above the World Health Organization (WHO) guideline. The report states that this contamination warrants emergency action ahead of all other remediation efforts.

Air pollution—UNEP also detected benzene in air samples at concentrations ranging from 0.155 to 48.2 micrograms per cubic meter. While finding benzene in air samples is common in any community using fossil fuels, about 10 percent of the benzene concentrations in Ogoniland were higher than the concentrations WHO and the U.S. Environmental Protection Agency (EPA) say correspond to a one in 10,000 incidence of cancer.

Fish—As mentioned earlier, mangroves in wetlands have been suffering from hydrocarbon pollution, and these areas also serve as spawning grounds for fish and nurseries for young fish. The pollution, UNEP says, has had a severe, detrimental effect on local fish populations' life cycles and on the communities relying on these fish stocks for sustenance and livelihoods. In addition to hydrocarbon pollution, dredging that has occurred in the area has left spaces where invasive species, such as nipa palm, that also tend to be more resistant to oil pollution, are thriving in place of mangroves. This has prompted calls for rehabilitation of these waterways and wetlands. Another side effect of the pollution is that fish populations have left polluted areas, leading fisherman to migrate further upstream or downstream away from their communities to survive. While UNEP found no immediate concerns for human health resulting from consuming fish exposed to hydrocarbons, it did find the local fisheries decimated by hydrocarbon pollution. Fish farming enterprises set up to augment populations, which themselves have become infiltrated by oil spills, also have been lost to pollution.

Crops—Like the mangroves and local fish stocks, crops too have suffered from spill damage. Root crops such as cassava, widely planted in Ogoniland, become quickly damaged and rendered unusable after exposure to oil spills. Even in areas where some remediation has taken place, UNEP says, plants generally showed signs of stress and yields were reportedly lower than in non-impacted areas.

Government neglect—UNEP also uncovered myriad issues involving the government contributing to the proliferation of artisanal refining, oil theft, lack of remediation, and inadequate enforcement of environmental and other oil-sector related laws. Among its findings were overlapping authorities and responsibilities between ministries and a lack of resources within key agencies, resulting in "serious implications for environmental management on the ground, including enforcement." UNEP also noted a dearth of qualified technical experts and resources in the Nigerian government charged with

enforcing environmental and oil industry regulations, which has left it almost entirely reliant on the oil industry for logistical support and enforcement of environmental regulations without proper checks in place. It also has allowed a proliferation of illegal artisanal refining throughout the Niger Delta, further contributing to oil spills and pollution there.

Shell and SPDC—Shell and its Shell Petroleum Development Corporation (SPDC) were a major focal point of UNEP's investigations and findings. The company has been in the region longer than any other firm, has the largest operations there, and has the most legacy operations and equipment in the inland areas of Ogoniland. The study concluded that "the control, maintenance and decommissioning of oilfield infrastructure in Ogoniland are inadequate" and "industry best practices and SPDC's own procedures have not been applied, creating public safety issues."

Remediation was of central concern to UNEP researchers. They note that the "remediation by enhanced natural attenuation (RENA) method, the only remediation method observed by UNEP in Ogoniland, "has not proven to be effective." The report says that SPDC "applies this technique on the land surface layer only, based on the assumption that given the nature of the oil, temperature and an underlying layer of clay, hydrocarbons will not move deeper." However, UNEP challenges this basic premise, saying it cannot be supported because oil pollution has infiltrated deeper than 5 meters and is found in groundwater in many locations. In addition, UNEP found that 10 of the 15 SPDC sites it investigated, which SPDC had declared remediated, still exhibited signs of pollution exceeding the government's and SPDC's own closure standards, with serious groundwater contamination at eight of the sites. UNEP notes that SPDC instituted a new remediation system in January 2010. While the new method is an improvement, according to UNEP it still does not meet the local regulatory requirements or best industry practices.

Recommendations: Despite the challenges, UNEP envisages the possibility of meaningful environmental restoration of Ogoniland, although it says the process may take 25 to 30 years. It sets priorities for certain types of remediation, including eight emergency measures:

1. "Ensure that all drinking water wells where hydrocarbons were detected are marked and that people are informed of the danger."
2. "Provide adequate sources of [potable] drinking water to those households whose drinking water supply is impacted."
3. Record people in Nsisioken Ogale who have been consuming water with benzene in excess of 900 times the WHO guidelines on a medical registry so that their health statuses can be monitored regularly in forthcoming years. (UNEP recommends further research in this area.)
4. "Initiate a survey of all drinking water wells around those wells where hydrocarbons were observed and arrange measures as appropriate based on the results.
5. "Post signs around all the sites identified as having contamination exceeding intervention values warning the community not to walk through or engage in any other activities on these sites."
6. "Post signs in areas where hydrocarbons were observed on surface water warning people not to fish, swim or bathe in these areas."
7. "Inform all families whose rainwater samples tested positive for hydrocarbons and advise them not to consume the water."
8. "Mount a public awareness campaign to warn the individuals who are undertaking artisanal refining" that these activities "are damaging to their health."

UNEP acknowledges that many decisions on best approaches to intervention will be complicated and often will need to be tailored to specific sites. This includes efforts to treat sediment and groundwater, as well as to restore mangroves. It also sees a clear need for monitoring programs, including devising metrics on water, air and soil quality, and reporting to stakeholders on progress.

UNEP makes several recommendations for reorganizing regulatory oversight in Nigeria of environmental affairs and the oil industry. It proposes that the Nigerian government transfer oversight of EGASPIN legislation from DPR to the Federal Ministry of Environment, with the concurrent transfer of staff or, as needed, recruiting and training new staff. It suggests that the Nigerian government launch a comprehensive review of existing legislation on contaminated site clean-up, taking pointers from examples of international developments in regulation where community consultation is incorporated to determine remediation closure levels so that decisions on new legislation are seen as both transparent and inclusive.

In addition, UNEP urges the Nigerian government to create an Ogoniland Environmental Restoration Authority with dedicated staff to oversee implementation of UNEP's recommendations and a center for excellence to promote sharing good practices. It too suggests a fixed initial lifespan of a decade for the authority and a dedicated budget drawn from a new Ogoniland Environmental Restoration Fund capitalized through an initial cash injection of $1 billion from the oil industry and Nigerian government. UNEP underscores that its $1 billion budget for the fund is an initial estimate and only covers the first five years of remediation efforts. Observers should note that it does not include funds to compensate local inhabitants for lost livelihoods, ill health effects or other negative consequences from the years of oil spills and resulting environmental degradation. However, there are some elements that help communities and their inhabitants adapt and acquire skills with the aim of creating a sustainable future for the region.

Beyond helping to fund the restoration authority and its efforts, UNEP also has suggestions for the oil industry. It urges the industry to collaborate to review and overhaul the SPDC's procedures for oil spill clean-up and remediation. It says that the SPDC in particular needs to conduct a review of its assets in Ogoniland and issue a decommissioning plan in consultation with local communities. Should the SPDC JV or other firm decide to engage in new exploration or production activities in Ogoniland, UNEP warns, the parties should treat the region as a greenfield site of "high environmental and social sensitivity" and apply the "latest technologies and environmental guidelines, such as re-evaluating pipeline routes to minimize environmental damage," as well as allocate "a percentage of all project costs for environmental and sustainable development initiatives in Ogoniland." UNEP also recommends that the SPDC work closely with Nigerian regulators on clarifying target values for determining the ending of remediation efforts.

UNEP also has recommendations for the Ogoniland community and emphasizes that the area's inhabitants should "take full advantage of the employment, skills development and other opportunities that will be created by the clean-up operation…"

Table 2: UNEP's Initial Cost Estimate for the First Five Years of Restoration in Ogoniland

Item	Cost
Emergency measures (80 percent for providing alternative drinking water to communities with contaminated water supply)	$63,750,000
Clean-up of land contamination	$611,466,100
Clean-up of benzene and MTBE contamination in Nsisioken Ogale	$50,000,000
Clean-up of sediments	$20,000,000
Restoration of artisanal refining sites	$99,452,700
Mangrove restoration and rehabilitation	$25,500,000
Surveillance and monitoring	$21,468,000
Ogoniland restoration authority operating expenses	$44,000,000
Center for excellence in restoration	$18,600,000
Alternative employment initiatives for those engaged in artisanal refining	$10,000,000
Third-party verification and international expert support	$48,211,840
Total	**$1,012,448,640**

United Nations Environment Program (UNEP). (August 2011). *Environmental Assessment of Ogoniland*. Retrieved on Aug. 27, 2011, from http://www.unep.org/nigeria/.

It also warns that community members "should avoid protracted negotiations over access by oil spill response teams as this means that responses to spills are delayed, resulting in a far greater environmental impact." It also calls on community members to "take a proactive stand against individuals or groups who engage in illegal activities such as bunkering and artisanal refining."

Shell response: Shell quickly responded to the UNEP report.[8] It notes that it withdrew from Ogoniland in 1993 "in the face of several attacks against its staff," and it points to "the unique challenges and complexities of Ogoniland which is not representative of conditions in the rest of the Niger Delta," including its limited access to the area since its exit. Nonetheless, it says that it "hopes the UNEP report will be a catalyst for cooperation to address the challenges in Ogoniland and the wider Niger Delta and welcomes President Goodluck Jonathan's initiative to set up a Presidential Committee to coordinate required actions by all parties." It underscores that it is "working with the industry committee, which will support the Presidential Committee to define the next steps towards implementing the recommendations in the [UNEP] report."

Shell addresses point by point each of the three recommendations UNEP made in its report regarding Shell's legacy operations in Ogoniland. In reaction to UNEP's request that SPDC "fully review and overhaul procedures for oil spill clean-up and remediation as well as improve contracting and supervision," Shell notes that it already has carried out a preliminary review of its procedures. It says its RENA procedure, criticized in the report, remains a "proven and internationally recognized method to remediate spill sites, which is widely used in many countries." It explains its one shortcoming in certain circumstances was its neglect to "go deep enough" in its preliminary clean-up assessments, which it acknowledges "may have impacted the overall effectiveness of remediation in those areas." It promises to "revisit the sites in Ogoniland investigated by UNEP to determine whether clean-up and remediation have been adequate, and take action as required." It also pledges to "review a sample of other remediated sites more widely across the Delta to check that adequate remediation has indeed been carried out" and "to ensure effective supervision of contractors and their full compliance with regulatory and contractual requirements." It notes that earlier in 2011 it had issued contract tenders to invite internationally respected organizations such as the British Standards Institute (BSI) and Det Norske Veritas (DNV) to provide independent review and assurance of SPDC's oil spill response and management practices.

In response to UNEP's suggestion that Shell "conduct a comprehensive review of SPDC assets in Ogoniland and develop a decommissioning program and integrity management plan for the assets," Shell says SPDC "remains committed" to these tasks. However, it says, SPDC "will require support from communities and from the government, given the unique challenges regarding access since 1993," when it exited the area. It emphasizes that its completion of decommissioning has not been possible due to the limited access and violence in the area. It notes that in cases where it gained access in 2009 and 2010, it secured more than 100 non-producing wells and made them "more difficult to tamper with." It says this was only with the cooperation of local, state and federal governments and the Ogoni communities.

In answering UNEP's request that it "work with Nigerian regulators to clarify the legislation governing remedial intervention and target values," it promises that it will "continue to engage with the relevant government regulators on the Environmental Guidelines and Standards for Petroleum Industry in Nigeria (EGASPIN)." At the same time, it highlights that it "manages its remediation process on a risk based approach consistent with international best practice." However, environmental groups continue to maintain that Shell has not adequately responded to this criticism, and the critics say Shell continues to deploy operating practices in the region inferior to those it implements in developed markets, a contention that has local groups also asking questions.

[8] See http://www.shell.com.ng/home/content/nga/environment_society/our_response/.

Operating Practices

While companies might not have been the direct cause of all spills, there is ample evidence of apparent negligence, and the UNEP report punctuates this point. In support, a 2010 report published by Friends of the Earth in the Netherlands further explains how operating practices have contributed to the severity of the damage to communities and ecosystems, in spite of requirements for companies to act more responsibly. The report from Friends of the Earth in the Netherlands notes that Nigerian law requires oil companies to comply with internationally recognized American Petroleum Institute (API) and American Society of Mechanical Engineers (ASME) standards for all petroleum production and transportation operations.[9] These requirements include taking prompt action to initiate clean-up of spills within 24 hours of their inception. In contrast, the report found that Shell Nigeria has and continues to operate well below internationally recognized standards to prevent and control pipeline oil spills, and thus is out of compliance with Nigerian law. It points to deficiencies on the part of Shell in implementing good oil field practices with regard to pipeline integrity management:

- Delays in beginning an asset integrity review of its operations and a backlog in Shell Nigeria's asset integrity program;
- Lack of independent oversight of its asset reviews and pipeline management practices;
- Need for special measures in Nigeria in recognition of the operating environment's "high consequence" attributes, including fragile ecosystems and high population levels;
- Need to monitor pipelines for third-party interference;
- Allowing a high number of spills from its operations;
- Inadequate reporting;
- Deficiencies in oil spill response capabilities.

The report also claims Shell has often left its infrastructure in disrepair, causing many of the problems.

But what may raise eyebrows the most is Shell's acknowledgement that its own reviews of the integrity of its assets in Nigeria were delayed and lacking, concerning wells, pipelines, flow lines and production facilities. Shell said one of the primary purposes of these reviews was to assess existing infrastructure to identify weaknesses and "bridge existing gaps" between present practices and conditions and Shell's operating standards.[10] Shell states that the delay in the review to ensure its Nigeria operations were in compliance with generally accepted international standards for good oil field practice stemmed in part from the security environment. Shell underscores this challenge today, stating on its Shell Nigeria website that:

> SPDC remains committed to developing an asset integrity management plan for Ogoniland but effective implementation will require support from communities and from the government, given the unique challenges regarding access since 1993. Decommissioning of the facilities that are not in service in Ogoniland had not been possible due to the limited access SPDC has had in the past.[11]

However, Shell's critics say these amount to nothing more than the stock excuses Shell has been using for years.

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[9] Steiner, Richard for Friends of the Earth Netherlands. (November 2010). *Double Standard: Shell Practices in Nigeria Compared with International Standards*. Retrieved on December 1, 2011, from http://www.foei.org/en/resources/publications/pdfs/2010/double-standard-shell-practices-in-nigeria-compared-with-international-standards/view.

[10] Shell Petroleum Development Corporation (SPDC). (2004). *Shell Nigeria Annual Report 2004*. Retrieved on December 1, 2011 from http://www.shell.com.ng.

[11] See http://www.shell.com.ng/home/content/nga/environment_society/our_response/.

UNEP's landmark report, the most comprehensive assessment of spill damage in Ogoniland, along with previous news accounts and earlier research from UNDP and other organizations, lay responsibility at the doorsteps of the oil and gas operators. These reports highlight the action of SPDC, in Ogoniland and elsewhere in the Niger Delta region, and the environmental degradation and socio-economic ill effects related to the spills. However, the reports also point to mitigating circumstances. As indicated earlier, Nigeria's security situation poses challenges to any company doing business there, especially in the Niger Delta region, and illegal activities, including oil bunkering and other types of theft, clearly are to blame too. The violence and lack of access to the area complicated and often delayed spill responses by Shell and other companies, although it appears that in many of the same cases the companies did not do everything they could as quickly as possible. The UNEP and others find the government negligent in enforcing its own environmental and other laws related to the oil industry, as well as stamping out artisanal oil refining operations, which are exacerbating the already bad situation. Further, Shell estimates that sabotage, theft and other illegal oil-related activities account for more than 75 percent of all oil spill incidents and more than 70 percent of all oil spilled. Finally, the government's parastatal is a joint venture partner in all of the operations.

There is no magic number that identifies total liabilities related to the environmental damage, detrimental human health effects and lost livelihoods related to the spills to date, and it remains a moving target in many other terms. First, spills continue and are likely to occur in the future. Second, there are still many variables given the still unknown total scope of the damage and the many years over which it occurred. Shell, for example, began exploring and developing oil assets in Nigeria in the 1930s, and the industry began to grow quickly in the 1950s, 60s and 70s. Even when only looking over the past decade, UNEP's very comprehensive report does not capture the full extent of the human health effects, given inadequate medical records, and lack of a clear and full assessment of financial claims from local communities for lost livelihoods. UNEP's suggestion of an approximately $1 billion fund only covers clean-up costs and some training for local community members over the next five years. This is the first phase of an effort it estimates will take 25 to 30 years to complete. If UNEP's recommendations are accepted, further study of the spill areas, local environs and medical records of the local populace are likely to identify considerable additional liabilities.

III. Calculating Estimates for Total Spill Amounts

As noted earlier, the great difficulty in assessing total spill amounts is the lack of reliable data and underreporting of spills over the last 50 years in the Niger Delta. At the root of the underreporting is a combination of factors—delays in reporting beyond 48 hours from the inception of the incident; lack of regulatory oversight and enforcement; and late starts in clean-up activities, as well as incomplete clean-up and remediation efforts, to name a few. A handful of initiatives using various sampling methods have attempted to estimate the total spill volume to date, including:

- Analysis from 2001 by Nwilo and Bodejo, based largely on government data, yielding an average of 117,000 barrels spilled per year or a total of 5.85 million barrels. This equates to 15,912 tons per year or 795,600 tons total. The analysis also finds an average of 272 spills per year or 13,600 spills total for the five decades of oil production under question.
- The IUCN/CEESP 2006 estimate of 180,000 to 260,000 barrels per year or 9 to 13 million barrels. This is the equivalent of 24,480 to 35,360 tons per year or 1.224 to 1.768 million tons per year. It also estimates an average number of spills of 186 per year or 9,300 for the five decades under inspection.
- The 2006 UNDP report, which also relies heavily on government data and confirmed estimates found by Nwilo and Bodejo and offer the same spill estimates.
- SPDC data, which only covers SPDC's spill estimates from 1998 through 2010, reports 39,939 barrels of oil spilled per year or almost 2 million barrels over 50 years or 5,432 tons per year or 272,000 tons over 50 years. SPDC figures amount to an average of 242 spills per year or 12,100 in total over five decades.

The more recent 2011 UNEP report does an excellent job of assessing land area for contamination and pointing to instances where levels of hydrocarbons exceed international norms for human health and the environment. But it does not offer estimates for oil remaining in the environment or the types of oil, let alone a breakdown of these types of oil by location type.

Shortcomings: The clearest limitation of the studies and information reviewed above is that none has hard data on the five decades of oil spill volumes under discussion in addressing the long-running and cumulative environmental and social impacts linked to oil and gas operations in the Niger Delta. Leaving the SPDC data and recent UNEP report aside, the other reports attempt to draw from government data from 1976 to 2001 or slightly later. They use evaluations of a limited sample of sites to extrapolate the total volume of oil spilled in the Niger Delta over the five decades since oil production began there.

As mentioned earlier, many civil society organizations believe the government data underreport totals. There is ample evidence to validate these claims, as noted above in the UNEP and other reports. With many spills going unreported for more than 48 hours, and making allowances for evaporation of oil and for its seepage far deeper and wider into the environment, it becomes difficult to arrive at an accurate estimate. Some of this oil has indeed been removed and remediated,

Table 3: Estimates for Oil Spilled in the Niger Delta 1960 – 2010

Source		Per Year (tons)	Total Volume (tons)	Total No. of Spills
Nwilo and Bodejo (2001)		15,912	795,600	13,600
IUCN/CEESP (2006)*		29,920	1,496,000	9,300
UNDP (2006)		15,912	795,600	13,600
Average		**20,581**	**1,029,067**	**12,267**
SPDC (1998-2010)	No.	5,432	272,000	12,100
	% of Avg.	26%	26%	99%
*Amount listed is an average of the range presented by the report.				

albeit not to the satisfaction of local communities and environmental groups in all instances or in compliance with regulatory requirements. Finally, what has not been removed has been allowed to do damage to the environment and the communities living in these areas for an amount of time unprecedented elsewhere in the world.

Consensus view: Gaps between the different estimates are large. This report has examined the three most comprehensive extant analyses of spill damage to identify a consensus or middle view for the total volume and number of spills in the Niger Delta from 1960 to 2010. The simple average of these varying estimates is a spill volume of 20,581 tons per year and 1,029,067 tons total over the 50-year period. On spill incidents, which will factor into some of the financial modeling explored in the next section of the report, the average for the three estimates is 12,267. *(See Table 3.)* As the table shows, SDPC's reported volume and number of spills, covering 1998 to 2010, is equivalent to about one-quarter of the volume and almost all of the total number of spills.

IV. Cleanup, Remediation, Compensation and Legal Liability Estimates

The myriad factors influencing the costs of cleaning up and remediating an oil spill, in addition to compensating community members affected by it, makes estimating a final price extremely difficult for any one spill, let alone for the cumulative effects of decades of multiple incidents in the Niger Delta. Si2 has taken the spill volume data presented in the previous section and applied it to a widely used model for calculating spill cleanup, remediation and compensation costs for communities, albeit not a useful tool for estimating total liabilities, especially in cases like the Niger Delta with spills that have been long neglected. Si2 also reviewed the UNEP calculation—similarly limited in not looking at total legal liabilities and only looking at initial cleanup and remediation costs for Ogoniland—to expand its initial estimates for the rest of the Niger Delta.

Using Spill Estimates

A paper presented by Dagmar Schmidt Etkin at the International Oil Spill Conference in 1999 offers one of the most comprehensive, and still one of the most widely cited, assessments of costs for investors to ponder. Location, topography, oil type, spill amounts, local regulations, ecological sensitivity, weather, seasonality and socio-economic factors are but just a few of the factors influencing cost listed by Etkin.[12] To make sense of the murky landscape and the plethora of data available, Etkin sought to develop a model to determine per-unit clean-up costs by analyzing data in the Oil Spill Intelligence Report (OSIR) International Oil Spill Database, a 38-year record of over 8,600 oil spills worldwide at the time of writing the report. The paper lists the most influential factors to be geography, proximity to shoreline and ecological sensitive areas, oil type, clean-up strategy required and overall spill amount.

Table 4: Average Clean-up Costs Per Ton Spilled by Region

Region	1997 U.S. $	2012 U.S. $*
Canada	$6,146.90	$8,785.36
USA with Valdez	$73,156.15	$104,557.23
USA without Valdez	$24,450.96	$34,946.13
South America	$2,158.48	$3,084.97
Europe	$8,595.52	$12,285.01
Africa	$1,078.00	$1,540.71
Russia	$2,929.51	$4,186.95
Asia (minus Russia)	$15,006.22	$21,447.39
Australia	$2,441.42	$3,489.36

Primary source: Etkin, Dagmar Schmidt for the International Oil Spill Conference (Paper #168) and Cutter Information Corp. (1999). "Estimating Clean-up Costs for Oil Spills." Retrieved Nov. 21, 2011, from http://www.environmental-research.com/erc_papers/ERC_paper_1.pdf.
*Calculation to convert 1997 U.S. dollars in Etkin study to 2012 dollars is based on the Consumer Price Index.

Geography: Etkin's model begins with geography. First, Etkin established a baseline estimate for average clean-up costs by region taking into account several complex factors, including geographical, political, legal and economic factors. Those estimates appear in table 6, along with a conversion from the 1997 dollars quoted in the study to the 2010 equivalent in dollars using the U.S. Consumer Price Index. One spill incident, from the *Exxon Valdez* in Prince William Sound, Alaska, skews the study's average clean-up estimates for the United States to $73,156 per metric ton using the 1997 dollars baseline. Without this single incident in the mix, the average for the United States drops substantially to $24,451 per metric ton, although still leaving the United States with the highest average clean-up costs in the world. The paper explains that the regulatory environment in the United States, with regard to the 1990 Oil Pollution Act and the threat of criminal and civil litigation, provide the primary reasons for the noto-

[12] Etkin, Dagmar Schmidt for the International Oil Spill Conference (Paper #168) and Cutter Information Corp. (1999). "Estimating Clean-up Costs for Oil Spills." Retrieved Nov. 21, 2011, from http://www.environmental-research.com/erc_papers/ERC_paper_1.pdf.

riously higher costs for clean-up in the country. But it also says that social sensitivity to environmental issues in the United States and elsewhere plays a role. In addition, the model takes into account the location of a region's oil resources, especially if they are in areas difficult to reach by spill response equipment, vulnerable to particularly bad storms, or in or near areas of acute ecological sensitivity.

Shoreline impact: Whether oil spills hit shorelines is the second underlying factor Etkin examines. The type of shoreline (beach vs. marshland), proximity to inhabited areas and economic activity all influence costs. Overall, Etkin divided shoreline impact into three categories—minimal, moderate and major. In doing so, the study finds that the average cost per ton for clean-up has a wide range depending on shoreline impacts. *(See table 5.)*

Oil type: The type of oil spilled is another important factor in determining clean-up costs. As a rule, the more persistent and viscous the oil, the more widespread the contamination and the more difficult the removal, as lighter crude and refined oils evaporate and disperse with greater ease than heavier oils, while heavier crude, fuel oils, and emulsions are difficult to remove using dispersants, skimmers, and pumps, resulting in considerably higher clean-up costs from manual methods. *(See Table 6.)*

Clean-up strategy: Response times and appropriateness of methods deployed can substantially affect clean-up costs, especially when shoreline and ecological or economically sensitive areas are at risk. A quick response that mitigates damage upfront is much less costly than a late response misdirecting resources. The extent to which spills can be kept offshore and dispersed quickly, appreciably decreases clean-up costs.[13] *(See Table 7.)*

Table 5: Average Clean-up Costs Per Ton Spilled by Shoreline Impact

Impact	1997 U.S. $	2012 U.S. $*
Minimal	$3,637.62	$5,199.01
Moderate	$4,513.18	$6,450.39
Major	$25,111.85	$35,890.70

Primary source: Etkin, Dagmar Schmidt for the International Oil Spill Conference (Paper #168) and Cutter Information Corp. (1999). "Estimating Clean-up Costs for Oil Spills." Retrieved Nov. 21, 2011, from http://www.environmental-research.com/erc_papers/ERC_paper_1.pdf.
*Calculation to convert 1997 U.S. dollars in Etkin study to 2012 dollars is based on the Consumer Price Index.

Table 6: Average Clean-up Costs Per Ton Spilled by Oil Type

Oil Type	1997 U.S. $	2012 U.S. $*
Gasoline and other non-persistent refined fuels	$3,575.02	$5,109.54
Light crude	$4,093.22	$5,850.17
Lighter fuels	$14,934.52	$21,344.92
Heavy fuels	$15,152.95	$21,657.11
Heavy crude	$16,491.97	$23,570.88

Primary source: Etkin, Dagmar Schmidt for the International Oil Spill Conference (Paper #168) and Cutter Information Corp. (1999). "Estimating Clean-up Costs for Oil Spills." Retrieved Nov. 21, 2011, from http://www.environmental-research.com/erc_papers/ERC_paper_1.pdf.
*Calculation to convert 1997 U.S. dollars in Etkin study to 2012 dollars is based on the Consumer Price Index.

Table 7: Average Clean-up Costs Per Ton Spilled by Clean-up Strategy

Strategy	1997 U.S. $	2012 U.S. $*
Dispersants only	$2,137.38	$3,054.82
Dispersants primary	$2,501.94	$3,575.86
Dispersants secondary	$13,926.78	$19,904.62
Mechanical/manual only	$12,527.34	$17,904.50

Primary source: Etkin, Dagmar Schmidt for the International Oil Spill Conference (Paper #168) and Cutter Information Corp. (1999). "Estimating Clean-up Costs for Oil Spills." Retrieved Nov. 21, 2011, from http://www.environmental-research.com/erc_papers/ERC_paper_1.pdf.
*Calculation to convert 1997 U.S. dollars in Etkin study to 2012dollars is based on the Consumer Price Index.

[13] Etkin refers to three other papers in explaining the cost calculations based on clean-up strategies. Also see Allen, A.A., and R.J. Ferek. 1993. Advantages and disadvantages of burning spilled oil. Proceedings of the 1993 International Oil Spill Conference: pp. 765-72; Etkin, D.S. 1998a. Factors in the Dispersant Use Decision-Making Process: Historical Overview and Look to the

Spill amount: There also appears to be a correlation between the size of the spill and the per unit costs of cleaning up the spill. Economies of scale apply here, with larger spills costing less per ton to clean-up, according to Etkin's research. The weighted difference is outlined below.

Historical trends: Costs per ton on an inflation-adjusted basis have been escalating over the decades, although some reprieve was seen from 1995-1998 in comparison to earlier periods. Much of it, according to Etkin, can be attributed to changing political and social pressures to increase environmental responsibility. However, Etkin does not offer an adjustment for this trend in the paper's model.

Model: Etkin outlines a shorthand calculation for financial analysts to estimate per ton costs based on the type of spill. In piecing together the research outlined above, Etkin offers the model outlined below for estimating per ton costs for clean-up:

- **Geography—**Take the estimate from the geographic table listed above based on the location of the spill.
- **Shoreline impact—**Assess the extent of shoreline exposure to the spill and subtract 67 percent for spills with little or no effect on shorelines, subtract 59 percent for those with only moderate consequences, and add 127 percent for those with severe impacts.
- **Oil type—**In the third step, the model subtracts 67 percent for non-persistent refined forms of petroleum and 62 percent for light crude, but it adds 38 percent for light fuels, 40 percent for heavy fuels and 52 percent for heavy crude.
- **Clean-up strategy—**With the third figure calculated, the model next subtracts 73 percent for cases only requiring dispersants and 68 percent for those primarily relying on dispersants for clean-up, but it adds 61 percent where there is more reliance on mechanical or manual techniques and dispersants as a secondary strategy and 79 percent for those situation only using mechanical or manual techniques.
- **Spill size—**In the final step, the model adds 80 percent to costs for spills less than 30 tons and subtracts 86 percent for those in excess of this amount. Those falling in the gap remain neutral.

Following these five steps, the model attempts to predict per ton costs.[14]

With estimates ranging from as little as $1,078 to more than $70,000 per ton of oil spilled (in 1997 dollars), one clear lesson from Etkin's research is that the variables highlighted contribute significantly to cost. The paper, published in 1999, also dates the research. Etkin's model predicts that heightening environmental and social sensitivity to the ill effects of spills would further escalate costs. These increases in sensitivity and costs are likely to be most pronounced in regions where they were lowest from the outset, especially in Africa. Compound these factors with legal efforts to gain voices and remuneration for victims and communities in developed nations where local judicial systems are not functioning effectively has likely added costs and risks for companies in Africa and other developing regions of the

Future. Proceedings of the 21st Arctic and Marine Oilspill (AMOP) Technical Seminar: pp. 281– 304; and Moller, T., H.D. Parker, and J.A. Nichols. 1987. Comparative costs of oil spill clean-up techniques. Proceedings of the 1987 International Oil Spill Conference: pp. 123–127.

[14] Etkin also makes reference to British Oil Spill Control Association (BOSCA). 1993. BOSCA Guide to Suppliers. Response Marketing Group, London, UK.; Etkin, D.S. 1998b. Financial Costs of Oil Spills in the United States. Oil Spill Intelligence Report, Cutter Information Corp., Arlington, Massachusetts, USA, 346 pp.; Etkin, D.S. 1998c. Financial Costs of Oil Spills Worldwide. Oil Spill Intelligence Report, Cutter Information Corp., Arlington, Massachusetts, USA, 375 pp.; Franken, P. 1991. University of Arizona, Department of Economics, Tucson, Arizona, USA, unpublished study; 7. Moller, T., H.D. Parker, and J.A. Nichols. 1987. Comparative costs of oil spill clean-up techniques. Proceedings of the 1987 International Oil Spill Conference: pp. 123–127; and Snedecor, G.W., and W.G. Cochran. 1967. Statistical Methods. Iowa State University Press, Ames, Iowa, USA. 593 pp.

world. Still, Etkin's model draws from a vast array of data and in this way is one of the better predictors of spill costs.

Testing the model: The following analysis uses the BP U.S. Gulf of Mexico spill (also frequently referred to as the Deepwater Horizon or Macondo Blowout spill). It is the most widely reported significant spill in recent history with disclosures from regulatory authorities and the companies at fault to use as markers. The BP test is set next to the estimate for the Niger Delta to give readers a perspective on the Niger Delta case and to offer at least two illustrations of the model being used to calculate an estimate.

Table 8: Estimates Using Etkin Model

Aspect (per ton except where noted)	U.S. Gulf of Mexico (2010-12)	Niger Delta (1960-2012)
Geography	$104,557.23	$1,540.71
Shoreline Impact	$237,344.91	$3,497.41
Oil Type	$327,535.98	$4,826.43
Clean-up Strategy	$304,608.46	$8,639.31
Scale	$42,645.18	$15,550.75
Spill Size (tons)	666,400	1,029,067
Total (US$)	**$28.4 billion**	**$16.0 billion**

Based on Si2 assessment using Etkin's model.

Adjustments for the U.S. Gulf—For this estimate, the average per ton cost for the United States—$104,557.23—was used, and it was then increased by 127 percent for the shoreline impacts of this particular spill. This estimate was augmented by another 38 percent premium for oil type, given the light, sweet nature of Louisiana, Gulf of Mexico crude, but taking into account some of the heavier elements found that complicated clean-up . With dispersants and burning comprising a large portion of the initial clean-up efforts, but a heavy, labor-intensive manual strategy adopted through skimming and shoreline protection activities later on, this analysis subtracts seven percent from the per ton costs. Finally, 86 percent is subtracted given the economies of scale for the size of the spill, leaving an estimated cost of $42,645.18 per ton, far less than the per ton cost of the Valdez disaster, even on an inflation adjusted basis, and a bit less than the average cost for a U.S. spill. According to the *Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling*, the total volume spilled during the disaster equaled 4.9 million barrels or 666,400 tons.[15] Using Etkin's model, this leaves us with a total cost of $28.4 billion. (See Table 8.)

BP's actual figures to date—The model seems to overestimate costs according to BP's spending to date ($22 billion), but it underestimates the total if BP's present accounting write-off figure is used ($37 billion). On March 2, 2012, BP and the Plaintiffs' Steering Committee, which acts on behalf of individual and business plaintiffs in the Multi-District Litigation proceedings pending in the Federal District Court in New Orleans, announced that they had reached a settlement to resolve the substantial majority of economic loss and medical claims stemming from the Deepwater Horizon accident and oil spill. The settlement helped BP avoid an imminent, lengthy trial, at least for now, as it is still contingent on approval by the courts and notification of class members. As part of the settlement, BP agreed to pay approximately $7.8 billion, which includes $2.3 billion from an earlier commitment to help resolve economic loss claims from the seafood industry, from the $20 billion government-ordered trust it funded last year. The settlement also includes an advertising budget to continue BP spots promoting tourism in destinations along the U.S. Gulf of Mexico coastline. At the same time, it dictates that, to the extent permissible by law, BP will assign the plaintiffs a portion of any compensation it receives from Transocean and Halliburton "for damages not recoverable from BP." BP still holds both Transocean, the own-

[15] See http://www.oilspillcommission.gov/sites/default/files/documents/DEEPWATER_ReporttothePresident_FINAL.pdf.

er of the rig that exploded in the accident, and Halliburton, which cemented the faulty well, partially culpable for the incident.[16]

As of March 2012, BP says it has spent more than $22 billion toward meeting its commitments related to the Gulf spill, including payments of $8.1 billion to individuals, businesses and government entities and approximately $14 billion in operational responses to the spill, including cleanup and remediation activities. BP added that the settlement would not increase the $37.2 billion accounting charge it already has taken related to the spill, as the settlement will be paid directly from the $20 billion trust that was part of its original write off and accounting note to investors. BP confirmed its guidance on liabilities linked to the Macondo case a month later when it announced a definitive settlement with the Plaintiffs' Steering Committee.[17] While BP says it has up to $3.5 billion left in the trust to address claims, it cannot confirm at this time whether that will be enough to satisfy outstanding claims. For example, the proposed settlement does not include claims against BP made by the United States Department of Justice or other federal agencies, including those filed under the Clean Water Act and for Natural Resource Damages under the Oil Pollution Act and encompassing billions in fines, or by the states and local governments. The settlement also excludes securities and shareholder claims pending against BP, as well as claims based solely on the deepwater drilling moratorium and related permitting process.

Arriving at an estimate for the Niger Delta—As reviewed earlier, this report forms a consensus view of the total amount of oil spilled in the Niger Delta, as well as the number of spill incidents, based on data and analyses from three other assessments. These were a spill volume of 20,581 tons per year or a total of 1,029,067 tons total for the time period. On spill incidents, which will factor into some of the financial modeling done later, this report arrives at a total estimated 12,267 spills during the five decades under review. As noted earlier, these data have their own limitations. In addition, the Etkin model outlined above will underestimate clean-up costs because of several factors that include the:

- Great length of time oil was left in the environment, whether through pure negligence, lack of knowledge of third party conduct such as incidents of sabotage or violence, or inaccessibility of sites due to violence. In essence, the Niger Delta is more like a long-neglected waste dump than the fresh spill sites analyzed by the model and needs to be adjusted accordingly.
- Unique biodiversity of the Niger Delta region, including the sensitive mangroves and wetlands prevalent in the area.
- Changes in attitudes in the region toward increased environmental and social responsibility.
- Use of courts in developed countries to gain awards for victims and communities.

Bearing these shortcomings in mind, we turn to the Etkin model for a baseline per-ton cost using 2010 U.S. dollars, which produces the following values:

- **Geography—**the base amount for Africa of $1,540.71 per ton.
- **Shoreline impact—**adds 127 percent, given the major shoreline impacts to reach $3,497.41 per ton and the wetlands involved in the spill mitigation efforts needed.
- **Oil type—**given the light, sweet nature of Niger Delta crude but taking into account some of the heavier elements found in the region, a middle ground 38 percent premium was assessed, leaving a total estimate of $4,826.43.

[16] BP. (March 3, 2012). "BP announces settlement with PSC, subject to final written agreement, to resolve economic loss and medical claims from Deepwater Horizon accident and oil spill." Retrieved on March 3, 2012, from http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7073667.

[17] BP. (April 18, 2012). "BP and PSC Reach Definitive Settlement Agreements and Seek Preliminary Court Approval." Retrieved on April 30, 2012, from http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7074324.

- **Clean-up strategy—**given the years the oil has remained in the environment and the inability, largely, at this point to use dispersants, a 79 percent premium is assessed to take account of the vast manual and mechanical resources needed to engage in clean-up activities, yielding a per ton cost of $8,639.31.
- **Spill size—**finally, while the spill volume is large, the Niger Delta situation is a collection of many small spills—likely more than 12,267 in all or an average of 84 tons per spill—spanning a large geographic area, largely onshore and in wetlands, and thereby greatly diminishing any economies of scale. Many of these individual spills are smaller than the volume of 30 tons used as a benchmark by the Etkin model. This would have the effect of increasing per ton estimates by 80 percent, leaving a final estimate of $15,550.75 per ton.

With at least 1,029,067 tons of spilled oil in the region, total clean-up costs according to the model total $16 billion. This estimate does not take into account that a significant percentage of this oil has evaporated over the time period in question and a portion has been cleaned up by the operating companies over the years. However, even if two-thirds of the oil has been adequately remediated, the $16 billion is still plausible, because of the significant amount of time the remaining oil has been left in the environment and the depths it has been allowed to seep to, greatly increasing the damage it has done. In addition, the spill volume used in this model is likely to be an underestimate of the true total volume in light of inadequate reporting systems and lax regulatory oversight. The timescale issue and other factors are explored further in the models reviewed next.

Other models: Another frequently cited model, and one with perhaps direct implications for the freshwater resources of the Niger Delta, is the U.S. Environmental Protection Agency (EPA) Basic Oil Spill Cost Estimation Model (BOSCEM).[18] It was developed to provide the EPA Oil Program with a methodology for estimating oil spill costs, including response costs and environmental and socioeconomic damage, for actual or hypothetical spills. Like Etkin's model, it is based on extensive analysis of oil spill data, including Etkin's research. It also includes habitat analysis from the Natural Resource Damage Assessment (NRDA) and other environmental damage estimation methods, such as Washington State's Damage Compensation Schedule, Florida's Pollutant Discharge Natural Resource Damage Assessment Compensation Schedule, and data from the U.S. Army Corps of Engineers. Unlike Etkin's model, it is far more U.S.-specific in so far as it uses U.S. data to make predictions. However, it has several unique features that could be applied to the Niger Delta situation. The model incorporates spill amount; oil type; response methodology and effectiveness; impacted medium; location-specific socioeconomic value; freshwater vulnerability; habitat/wildlife sensitivity; and location type. It

Table 9:
EPA BOSCEM Response Cost Modifiers for Location Medium Type Categories

Category	Cost Modifier Value[2]
Wetland	1.6
Mudflat	1.4
Tundra	1.3
Open Water/Shore	1.0*
Forest	0.8
Taiga	0.9
Grassland	0.7
Soil/Sand	0.6
Pavement/Rock	0.5

[1] Category description in Table 2.
[2] Based on tendency for oil spread or deep penetration in area sensitive to impact of response equipment/personnel (higher values).
*Default value.
Source: Etkin, Dagmar Schmidt for Environmental Research Consulting. (2004). "Modeling Oil Spill Response and Damage Costs." Retrieved on Nov. 24, 2011, from http://www.epa.gov/oem/docs/oil/fss/fss04/etkin2_04.pdf.

[18] Etkin, Dagmar Schmidt for Environmental Research Consulting. (2004). "Modeling Oil Spill Response and Damage Costs." Retrieved on Nov. 24, 2011, from http://www.epa.gov/oem/docs/oil/fss/fss04/etkin2_04.pdf.

also breaks down costs into three categories: response, socioeconomic damage, and environmental damage. In addition, much of the spill data collected to build and test the model was based on pipeline and inland spills, as opposed to offshore spills, which is useful for looking at similar spills within Ogoniland and inland in the Niger Delta.

One particularly interesting feature of the model is how it modifies costs based on terrain. As noted in Table 9, wetlands have a higher cost modifier, a factor of 1.6, than other types of terrains. As discussed earlier, wetland and mangrove restoration is one of the key complicating factors in the clean-up efforts in the Niger Delta. The 1.6 value is much higher than the base 1.0 value attributed to open waterways and shorelines and could indicate substantially higher clean-up costs for many spill areas in the Niger Delta.

Table 10: EPA BOSCEM Socioeconomic & Cultural Value Rankings

Value Ranking	Spill Impact Site(s) Description	Examples	Cost Modifier Value
Extreme	Predominated by areas with high socioeconomic value that may potentially experience a large degree of *long-term* impact if oiled.	Subsistence/ commercial fishing, aquaculture areas	2.0
Very High	Predominated by areas with high socioeconomic value that may potentially experience some *long-term* impact if oiled.	National park/reserves for ecotourism/nature viewing; historic areas	1.7
High	Predominated by areas with medium socioeconomic value that may potentially experience some *long-term* impact if oiled.	Recreational areas, sport fishing, farm/ranchland	1.0
Moderate	Predominated by areas with medium socioeconomic value that may potentially experience *short-term* impact if oiling occurs.	Residential areas; urban/suburban parks; roadsides	0.7*
Minimal	Predominated by areas with a small amount of socioeconomic value that may potentially experience *short-term* impact if oiled.	Light industrial areas; commercial zones; urban areas	0.3
None	Predominated by areas already moderately to highly polluted or contaminated or of little socioeconomic or cultural import that would experience little short- or long-term impact if oiled.	Heavy industrial areas; designated dump sites	0.1

Note: Long-term impacts are those impacts that are expected to last *months to years* after the spill or be relatively irreversible. Short-term impacts are those impacts that are expected to last *days to weeks* after the spill occurs and are generally considered to be reasonably reversible.
Source: Etkin, Dagmar Schmidt for Environmental Research Consulting. (2004). "Modeling Oil Spill Response and Damage Costs." Retrieved on Nov. 24, 2011, from http://www.epa.gov/oem/docs/oil/fss/fss04/etkin2_04.pdf.

Another point of interest in the model is its assessment of socioeconomic and cultural value factors in assessing spill costs. As noted in Table 10, areas of subsistence and commercial fishing and aquaculture—all activities described in the areas polluted in Ogoniland and the Niger Delta—that have seen long-term exposure to hydrocarbons have some of the highest cost factors associated with them—a 2.0, in comparison with the base value of 0.7 for moderate rankings, including residential areas, urban and suburban parks, and roadsides. As reviewed in the testimonials in news articles and reports summarized earlier, not only have livelihoods been affected over many years, but the spills themselves have forced local fishing and aquaculture activities to relocate in order to survive.

Considering other factors: As noted by the models developed by the EPA, spill liability estimates could increase for the Niger Delta by a factor of 3.2 given the ecological sensitivity of the areas and the high population levels surrounding them (1.6 times 2, using both factors). In recognition of what has evapo-

rated and is inconsequential, as well as the areas that have been adequately cleaned and remediated, cleanup, remediation and compensation costs could run to in excess of $51.2 billion. However, a valid argument from the companies and other observers is a portion of the oil spilled has evaporated to the point that it is no longer consequential and some has been removed and remediated through company efforts over the decades. At the same time, arriving at a percentage of the total volume that can be considered not applicable for future cleanup and remediation efforts is difficult due to inadequate reporting, and there is still the matter of oil spills that have gone unreported and undetected. Notwithstanding these obstacles, using the premise that:

- Two-thirds of the oil has been adequately remediated, leaves $5.3 billion in expenses. Using the 3.2 multiplier to account for other factors brings the total back to $17.1 billion, which is greater than the $16 billion initial estimate. Again, this does not account for court costs and other potential legal liabilities related to punitive damages. It also does not take into account the oil spilled that was never measured or accounted for in the government's official figures or those released by Shell and other entities.
- Half of the oil has been satisfactorily mitigated, brings the initial estimate down to $8 billion. However, again, using the 3.2 multiplier brings this amount back up to $25.6 billion.
- One third of the oil has been sufficiently dealt with, leaves $10.7 billion, which with the 3.2 multiplier tallies up to $34.2 billion.

The UNEP report—In addition, the UNEP report clearly demonstrates that some of the oil spilled as long as four decades ago remains in the environment, and the resulting damage has been severe. The report's own estimates of $1 billion in clean-up and remediation costs for five years of a 25 to 30 year effort in Ogoniland alone, which represents only 14 percent of the total surface area of the Niger Delta, points to liabilities for the entire delta of anywhere from the $1 billion initial estimate to more than $42 billion, if the initial $1 billion is extrapolated for the total land area and multiplied by six to cover equal investments over a 30-year time period. This estimate falls within the band of others noted above.

Range of estimates and future research: The range we conclude with—from $16 to $51 billion—is wide, but so are the variables at play as noted earlier. While a source of significant concern for shareholders, it also needs to be placed in context. It is true that the tonnage of oil that needs to be recovered is overestimated by the analysis in certain respects. After all, as mentioned earlier, some of the oil has been reclaimed and much has been dispersed into the environment to levels no longer detectable or not relevant for human health or environmental concerns. However, the volume estimated is based on patchy and inadequate measurements by the Nigerian government and some companies, which are likely to have greatly underestimated the amount of oil originally spilled. At the same time, the recent UNEP report clearly finds earlier clean-up efforts lacking, with hydrocarbons remaining in the environment and in drinking water more than 40 years after spills occurred. Like a long-neglected ailment, the cost of treatment greatly escalates with the number of years the problem is left neglected.

In the case of the Niger Delta, years of inadequate compensation for community members for impacts on health and livelihoods has created embedded liabilities for the companies and other stakeholders involved. The BP case shows how models can underestimate clean-up costs by not taking into account escalating costs that arise when residents call for more corporate environmental and social responsibility. Especially complex scenarios like those presented in the Niger Delta intensify underestimates. The types of terrain affected by the Niger Delta spills may require higher projections since wetlands form a significant portion of the areas affected and these have relatively higher socioeconomic and cultural values that may not be wholly taken into account.

The estimate offered in this paper is an attempt at a best guess from the available data. Clearly much additional research is needed to arrive at a more definitive total, including a reassessment of the Etkin model using more recent data and adaption of it to scenarios where oil spills have been long-neglected. This could involve the possible application of cost models from long-neglected toxic waste sites and estimates per square kilometer for clean-up costs, as opposed to tons of oil to be remediated. Future estimates could benefit from greater disclosure from the Nigerian government and its parastatal and partner companies involved. This issue and others confronting investors is discussed further in the recommendations presented in the next section.

As mentioned earlier, the wide range for the estimated liabilities is broad but is directly correlated to the variables at hand—unknowns related to the lack of information of total spills and severity of them. Looking at how estimates unfolded for the BP Deepwater Horizon accident, however, these uncertainties shouldn't be surprising. Initial press reports pegged liabilities at hundreds of millions, but these soon rose to close to $20 billion and now likely will exceed $40 billion. These expansive disparities in estimates stemmed from a single spill in recent history that was quickly, at least in relative terms, addressed, unlike the thousands over decades in the Niger Delta. For example, a BBC article from May 4, 2010, more than two weeks after the initial explosion thought $15 billion was the upper liability price tag for the accident, including compensation costs.[19] Insurance adjusters were still pegging estimates closer to $1 to $2 billion. The true costs proved to be much higher.

The other outstanding cost factor not analyzed is additional liabilities arising from punitive damages sought by plaintiffs—the victims of the spill damage. These could be far ranging and are examined further in the next section.

Lawsuits

Lawyers and civil society organizations working on behalf of communities in Nigeria have attempted to assign responsibility to companies and calculate monetary damages related to the spills, to redress the damage inflicted. Because it is the biggest company and has been there the longest, Shell has been at the center of major lawsuits related to oil spills in the Niger Delta. The plaintiffs have been active in Nigeria and elsewhere where the companies do business, leveraging unique aspects of country laws to try to secure judicial remedies against Shell and others. This includes filings in the Netherlands, United Kingdom and United States. One pending in the United States contends that Shell aided and abetted human rights abuses. All such cases carry implications for Shell, other companies and their shareholders in the years ahead.

United Kingdom: The *Telegraph* reported in May 2011 that the Bodo community in the Niger Delta filed a class-action lawsuit earlier in the year in the High Court in London against Royal Dutch Shell and SPDC for a leak believed to be from Shell's Bodo-Bonny trans-Nigeria oil pipeline that dumped crude oil into the Bodo creek for about four months in 2008. The leak allegedly damaged more than 20 square kilometers of local creeks and inlets on which Bodo and as many as 30 other smaller settlements depend for food, water and fuel, affecting more than 69,000 inhabitants.

Shell maintains that it did not know of the problem for several months and acted as soon as it was aware of the issue. However, Nenibarini Zabbey, a researcher at Nigeria's Center for Environment, Human Rights and Development, told UPI that Shell officials arrived in the area in 2009 with meager food aid that the Bodo community found "insulting."[20] The leak was not fixed until February 2009, and a sub-

[19] BBC News. (May 4, 2010). "BP shares hit seven-month low after oil spill." Retrieved from http://www.bbc.co.uk/news/10095811 on June 15, 2012.
[20] Mason, Rowena for *The Telegraph*. (May 2, 2011). "Shell sued over oil spill in Niger Delta." Retrieved from http://www.telegraph.co.uk/finance/newsbysector/energy/8486732/Shell-sued-over-oil-spill-in-Niger-Delta.html on Aug. 8, 2011.

sequent leak occurred later that year, according to the Bodo community. Neither has been fully cleaned up, the plaintiffs say. The suit contends that the community has seen anywhere from 9 to 13 million barrels of oil spilled from Shell pipelines over the past decade—more than double the volume of BP's Gulf of Mexico leak. Shell declined to comment on the lawsuit or the Bodo spill at the time, but a spokesman told *The Telegraph* that, in general, "the great majority of spills in the Niger Delta are the result of third party interference, mainly sabotage, theft of equipment or leaks caused by thieves drilling into pipelines or opening up wellheads to steal oil. On average, such third party interference has accounted for more than 75 percent of all oil spill incidents and more than 70 percent of all oil spilled from Shell facilities in the Delta over the last five years." The spokesman disclosed that in 2010 it spilled 3,500 tons of oil into the Niger Delta, down significantly from the 14,000 tons in 2009, when military violence in the region was at a peak.

Nonetheless, Shell acquiesced in August 2011 and SPDC agreed to admit liability for the two spills, leaving it with a potential settlement of more than $400 million by some estimates, according to *The Financial Times.* As part of its tentative agreement with the plaintiffs, Shell would pay damages to the approximately 69,000 Bodo people affected by the damage to their livelihoods caused by the leaks. Martyn Day, of law firm Leigh Day, which represents the Bodo complainants, told *The Financial Times* that he was pleased Shell had admitted liability and agreed to concede to the English jurisdiction and court system for what he deemed one of the "most devastating oil spills the world has ever seen" and largely ignored for far too long. Leigh Day sought compensation for the victims in England, because of the availability of judicial remedies for such claims, as opposed to the Nigerian courts, where cases can languish for years without any resolution. A European Court of Justice ruling in 2005 has made it easier for groups of litigants to launch legal action in the courts of European countries and gives claimants the right to sue in the defendant's home country, according to Day. The total compensation will depend on how long it will take to clean up the contamination—up to 20 years according to some estimates—and the extent this will continue to disrupt the lives of the Bodo and their ability to fish and engage in other economic activity, according to experts interviewed by *The Guardian*.[21] However, the case is still pending, and a final settlement has yet to be reached.

United States: In October 2011, *The New York Times* reported that the U.S. Supreme Court agreed to hear a pair of cases on whether corporations and political groups may be sued in American courts for complicity in human rights abuses abroad.[22] One of the cases—*Kiobel v. Royal Dutch Petroleum*—was brought by 12 Nigerians, who allege that oil companies affiliated with Shell had aided and abetted the Nigerian government in torture and executions in the Ogoni region of the country in the early 1990s. The plaintiffs sued under the Alien Tort Claims Act, a 1789 law that allows federal district courts to hear "any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States."

This type of use of the Alien Tort statute has been hotly contested in U.S. courts since the 1980s. A 2004 Supreme Court decision, *Sosa v. Álvarez-Machain*, said some claims under the law may be permitted, as long as they involved violations of international norms with "definite content and acceptance among civilized nations" and in consideration of "whether international law extends the scope of liability for a violation of a given norm to the perpetrator being sued, if the defendant is a private actor such as a corporation or individual." Some lower courts have taken this to mean that corporations cannot be prosecuted under the law, and it is this very point that is under scrutiny in the U.S. Supreme Court.

[21] Vidal, John for *The Guardian*. (Aug. 3, 2011). "Shell accepts liability for two oil spills in Nigeria." Retrieved from http://www.guardian.co.uk/environment/2011/aug/03/shell-liability-oil-spills-nigeria on Aug. 27, 2011.
[22] Liptak, Adam for *The New York Times.* (Oct. 17, 2011). "Supreme Court to Hear 2 Human Rights Cases." Retrieved on Oct. 18, 2011 from http://www.nytimes.com/2011/10/18/business/supreme-court-to-hear-2-human-rights-cases.html?_r=2.

In a major setback for the plaintiffs in *Kiobel v. Royal Dutch Petroleum*, the Second Circuit held in September 2010 that "corporate liability is not a discernible—much less universally recognized—norm of customary international law that we may apply pursuant to ATS (Alien Tort Statue)," according to the *New York Law Journal*. The court's ruling clearly states that corporations cannot be sued for violating human rights under ATCA. But the decision runs contrary to previous findings of the Eleventh Circuit Court of Appeals. Clarity on the issue is not likely to come soon, however. Kiobel petitioned the Supreme Court for review of the Second Circuit's decision, which was granted on October 17, 2011. Oral arguments were held on February 28, 2012, but the Supreme Court issued an order on March 5, 2012, that it would hold additional arguments on the case in October before issuing a decision.[23] In the interim, it is asking both parties in the case to submit briefs on whether and under what circumstances the Alien Tort Statute "allows courts to recognize a cause of action for violations of the law of nations occurring within the territory of a sovereign other than the United States." The briefs are not due until June 29, 2012. If the plaintiffs win the case it could open the door to additional liabilities for Shell related to its subsidiary's operations in the Niger Delta. The Court heard oral arguments in February 2012 and a decision is expected later in the year.

[23] U.S. Supreme Court. (February 28, 2012). Oral arguments in *Kiobel v. Royal Dutch Petroleum.* Retrieved on March 1, 2012 from http://www.supremecourt.gov/oral_arguments/argument_transcripts/10-1491.pdf; and U.S. Supreme Court. (March 5, 2012). Court Order in *Kiobel v. Royal Dutch Petroleum*. Retrieved on June 15, 2012 from http://www.supremecourt.gov/orders/courtorders/030512zr.pdf.

V. Company Liabilities

This section uses the spill and liability analysis from the previous section to examine potential liabilities for multinational oil and gas operators in the Niger Delta. The first portion of this section looks at each company's operations in Nigeria to explain the size, scope and nature of these. The next looks at liabilities in light of each company's operations and history in the region.

Operations

An important aspect of calculating potential liabilities is the size, scope and nature of a company's operations in Nigeria. All major multinational oil companies in Nigeria do business in joint venture with the NNPC through production sharing contracts, but most are the ultimate operators of the ventures and, therefore, liable for spill cleanup, remediation and compensation costs, as well as any other related legal expenses.

Shell: The largest of the publicly traded multinational oil and gas operators has been and continues to be **Royal Dutch Shell**, which has the longest history among the multinational energy companies, having drilled in Nigeria since 1936—more than eight decades. Shell operates in Nigeria primarily through a wholly-owned subsidiary called the Shell Petroleum Development Corporation of Nigeria Ltd. or "SPDC." SPDC in turn is the operating entity of the largest joint venture with NNPC—the SPDC JV or joint venture—in which Shell holds a 30 percent stake. The Nigerian government's NNPC owns a 55 percent interest, while Elf Petroleum Nigeria, a subsidiary of **Total**, holds 10 percent and **Eni,** through its subsidiary Agip, retains the remaining 5 percent. SPDC JV is the largest joint venture in Nigeria in terms of production volume. SPDC's operations in the Niger Delta are spread over 30,000 square kilometers and include a network of more than 6,000 kilometers of flow lines and pipelines, 90 oil fields, 1,000 producing wells, 72 flow stations, 10 gas plants and two major oil export terminals at Bonny and Forcados.

SPDC operating control—It is important to note that Shell still operates the joint venture, even though it is the minority owner. This carries consequences for the liability attached to Shell for the joint venture's spills in the Niger Delta. The Nigerian government's parastatal company, Nigerian National Petroleum Corporation (NNPC), through its majority 55 percent interest in SPDC JV exerts considerable influence in the management of the company. However, Shell's Joint Operating Agreement (JOA) with NNPC, Agip and Elf gives it operating responsibility for the joint venture (exercised by its wholly-owned subsidiary SPDC), including budget approval and supervision. Revenues, taxes and royalties are allocated among the partners in proportion to ownership interests.

Other operating entities—Shell also owns:

- **Shell Nigeria Exploration & Production Company (SNEPCo)**, which operates and has a 55 percent interest in the offshore Bonga field, Nigeria's first deep-water project. The Bonga facility has the capacity to produce more than 200,000 barrels per day of oil and 150 million standard cubic feet of gas per day.
- A 26 percent stake in Nigeria Liquefied Natural Gas (NLNG) through **Shell Nigeria Gas**, the only international oil and gas company to set up a gas distribution business in Nigeria to supply industry customers.

Shell has contended with considerable disruption to its operations, as the bulk of its wells are onshore in the Niger Delta, where much of the violence, sabotage and theft, in addition to artisanal refining activities, have taken place. As the oldest operator, it has some of the oldest equipment, which has been a source of reputational damage in recent decades. In its 2011 annual report and 20-F filing with the U.S. Securities and Exchange Commission (SEC) Shell reports production of 262,000 barrels per day of oil and natural gas liquids, as well as 707 million standard cubic feet per day of natural gas in Nigeria, for a total

of 384,000 barrels of oil per day equivalent.[24] The EIA pegs its total capacity of oil and natural gas liquids at 1.2 to 1.3 million barrels per day.[25]

ExxonMobil: Like Shell, ExxonMobil is engaged in exploration and production activities through production sharing contracts with the national oil company, the Nigerian National Petroleum Corporation (NNPC), whereby NNPC holds the underlying Oil Prospecting License (OPL) and any resulting Oil Mining Lease (OML). ExxonMobil has three major subsidiary companies in Nigeria:

- **Mobil Producing Nigeria Unlimited (MPN)—**a subsidiary of Exxon Mobil Corporation and the second largest oil producer in Nigeria. It began doing business in Nigeria in 1955 as Mobil Exploration Nigeria and changed its name in 1969. It commenced production of crude oil in 1970 from the Idoho field, located off the coast of Akwa Ibom State. Mobil Producing Nigeria is the operator of the joint venture with the NNPC and holds a 40 percent participating interest. MPN is the only major oil company operating completely offshore with no onshore production. It holds more than 800,000 acres in shallow water offshore southeastern Nigeria and has 90 offshore platforms with 283 flow lines tapping 353 wells with a production capacity of about 720,000 barrels of crude, condensate and natural gas liquid (NGL) a day. MPN also is involved in the East Area Project, which is designed to gather gas from all MPN fields, compress it, extract NGL and inject lean gas for additional recovery, as well as the Yoho Field Development Project—a shallow water development. In addition, ExxonMobil through MPN has a production sharing contract, including a 56.25 percent equity interest, with the NNPC in the development of the Erha major deepwater oil and gas discovery, a 20 percent interest in the offshore Bolia development, as well as a 20 percent stake in the Bonga filed with NNPC, operated by Shell.
- **Esso Exploration and Production Nigeria Limited (EEPNL)—**includes upstream operations, exploration, development, production and gas commercialization. It holds stakes in six deepwater blocks covering 3.2 million acres, which gives it the second largest deepwater offshore acreage position in Nigeria. EEPNL is the operator of and the holder of 56 percent interest in the Erha project, a deepwater license. Shell Nigeria Exploration and Production Company (SNEPCO) holds the remaining interest in Erha. EEPNL has a 20 percent participating interest in the Bonga project operated by SNEPCO, and also holds interests in Bonga Southwest and Bolia. EEPNL has a 47.5 percent stake in the Chota project operated by ConocoPhillips and a 30 percent interest in the Usan project operated with Total.
- **Mobil Oil Nigeria PLC (MON)—**includes marketing of fuels and the manufacture and marketing of lubricants, in addition to other downstream operations. It is a publicly traded company listed on the Nigerian Stock Exchange. MON operates more than 200 retail outlets located in all 36 states of Nigeria.[26]

In its 2011 10-K filing, ExxonMobil discloses production of 858,000 barrels of crude oil equivalent per day, 192,000 barrels of natural gas liquids in crude oil equivalent per day, as well as 853 million standard cubic feet of natural gas production daily in all of Africa. This production is spread across Angola, Chad and Equatorial Guinea, as well as Nigeria.[27] While it does not disclose its Nigeria production, the EIA says ExxonMobil's fields have the capacity to produce approximately 700,000 barrels per day of crude oil

[24] See http://reports.shell.com/annual-report/2011/businessreview/upstream/production.php?cat=m.
[25] U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved June 12, 2012 from http://www.eia.gov/countries/cab.cfm?fips=NI.
[26] See http://www.exxonmobil.com/Nigeria-English/HR/HR_Homepage.aspx.
[27] See http://ir.exxonmobil.com/phoenix.zhtml?c=115024&p=irol-SECText&TEXT=aHR0cDovL2lyLmludC53ZXN0bGF3YnVzaW5lc3MuY29tL2RvY3VtZW50L3YxLzAwMDExOTMxMjUtMTItMDc4MTAyL3htbA%3d%3d.

equivalent. Unlike Shell, most of ExxonMobil's production has been offshore, although some shut-in production onshore has resulted in disruptions, it says.[28] As noted above, ExxonMobil pegs its capacity at more than 720,000 barrels per day in Nigeria, but it doesn't say what its production was for 2011.

Total: Total has done business in Nigeria since 1962. In its 2011 21-F filing with the SEC, Total says its production in Nigeria in 2011 was 179,000 barrels of oil equivalent per day of liquids and 534 million cubic feet per day of natural gas for a total of 287,000 barrels of oil equivalent per day. Eight of the 44 licenses in which Total holds an interest are in production. Of these, Total is the operator of five and holds a non-operating interest in the other three:

- **Operating** licenses 58 (40 percent interest), 99/Amenam-Kpono (30.4 percent), 100 (40 percent), 102 (40 percent) and 130 (24 percent).
- **Non-operating** licenses 102/Ekanga (40 percent), Shell Petroleum Development Corp. "SPDC" (10 percent), and 118/Bonga (12.5 percent).[29]

The EIA reports that Total's smaller share of production compared to Shell and ExxonMobil, has been unaffected in recent years from disruptions related to violence, theft and sabotage.[30]

Chevron: Chevron began doing business in Nigeria in 1913 when Texaco products were first marketed there. In 1963, American Overseas Petroleum Ltd., which later became Texaco Overseas (Nigeria) Petroleum Co., discovered oil at the Koluama Field, offshore Nigeria, marking a nearly 50 year history of oil and gas development there. In that same year, Chevron Nigeria Limited (CNL) started drilling near the Escravos River and discovered the Okan Field.

Close behind Shell, ExxonMobil and Total in production, Chevron holds a 40 percent interest in 13 concessions predominantly in the onshore and near-offshore region of the Niger Delta, where it operates under a joint-venture arrangement with the Nigerian National Petroleum Corporation, which owns a 60 percent interest in these operations. Chevron also owns varying interests in four operated and six non-operated deepwater blocks. In 2011, the company's net oil-equivalent production in Nigeria averaged 260,000 barrels per day, composed of 236,000 barrels of liquids and 142 million cubic feet of natural gas. Its average daily production in Nigeria accounted for 9.7 percent of its total average daily production worldwide in 2011. Its share of local production in Nigeria is the fourth largest among the multinational oil and gas operators there.

Chevron also owns and operates the Escravos Gas Plant (EGP), where construction continued in 2011 on Phase 3B of the project, which is designed to gather 120 million cubic feet of natural gas per day from eight offshore fields and to compress and transport the natural gas to onshore facilities. Chevron expects to complete Phase 3B in 2016.

As part of its NPDC joint venture, Chevron has a 40 percent stake in and operates the Sonam Field Development, which includes facilities to produce natural gas from the Sonam natural gas field in the Escravos area. The project is designed to use EGP to deliver 215 million cubic feet of natural gas per day to the domestic market, and produce an average of 30,000 barrels of liquids per day. Chevron expects production to begin in 2016.

Chevron has a 75 percent stake in and operates a gas-to-liquids facility at Escravos that is being developed with NPDC. The 33,000-barrel-per-day facility is designed to process 325 million cubic feet per day

[28] U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved June 12, 2012 from http://www.eia.gov/countries/cab.cfm?fips=NI.
[29] See http://www.total.com/MEDIAS/MEDIAS_INFOS/5256/FR/Form-20-F-2011-V1.pdf.
[30] See U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved June 12, 2012 from http://www.eia.gov/countries/cab.cfm?fips=NI.

of natural gas supplied from the Phase 3A expansion of EGP. At the end of 2011, work on the project was more than 80 percent complete, and Chevron plans to start production in 2013. At its opening, Chevron expects to have invested $8.4 billion in the facility.

Chevron holds a 40 percent-owned and operated interest in the Onshore Asset Gas Management project with NPDC that is designed to restore approximately 125 million cubic feet per day of natural gas production from certain onshore fields that have been shut since 2003 due to civil unrest. Construction activities continued through 2011, and Chevron plans to start production later this year.

Chevron is the largest shareholder, with a 37 percent interest, in the West African Gas Pipeline Company Limited affiliate, which constructed, owns and operates the 421-mile West African Gas Pipeline. The pipeline supplies Nigerian natural gas to customers in Benin, Ghana and Togo for industrial applications and power generation and has the capacity to transport 170 million cubic feet per day.

In deepwater exploration, Chevron has stakes in two oil platforms: a 20 percent non-operating stake in OPL 214 and a 27 percent non-operating interest in OPL 223. Its partners are drilling exploration wells on the blocks.

In shallow water exploration, it has operating stakes in two oil mining leases: OML 86 and OML 88. In November 2011, the company began drilling a well in OML 86, but there was a release of natural gas that led to a fire at the well site in January 2012. Chevron says it is drilling a relief well and conducting an investigation into the fire.

Chevron's six non-operated deepwater blocks presently in production are:

- A 67.3 percent interest in the Agbami Field with two blocks—OML 127 and OML 128.
- A 30 percent interest in the deepwater Usan project and block OML 138.
- Minority interests in blocks in the Aparo Field—OML 132 and OML 140—as well as the Bonga SW Field—OML 118.[31]

In its analysis, the EIA says that Chevron has between 600,000 and 700,000 barrels of oil equivalent per day of production capacity, some of which has been shut-in since January 2005, namely the Escravos Field.[32]

Eni: Eni has been present in Nigeria since 1962. In 2011, Eni's oil and gas production averaged 154,000 barrels of oil equivalent per day and was situated mainly in the shoreline areas and offshore from the Niger Delta. In 2011, Eni purchased from GEC Petroleum Development Co. (GDPC) a 49 percent interest in Block OPL 2009 in addition to the awarding from the Nigerian Government of a 50 percent interest in Block OPL 245 as well as a related license and operatorship. At the same time, it divested of a 5 percent interest in blocks OML 26 and OML 42, as well as of a 40 percent interest in blocks OML 120 and 121.

Eni is operator of onshore Oil Mining Leases (OML) 60, 61, 62 and 63 (20 percent in each) and offshore OML 125 (85 percent), OMLs 120-121 (40 percent). It holds interests in OML 118 (12.5 percent), as well as in OML 119 and 116 Service contracts.

As partners of SPDC JV, Eni holds a 5 percent interest in 28 onshore blocks and a 12.86 percent interest in 5 conventional offshore blocks.

[31] See http://investor.chevron.com/phoenix.zhtml?c=130102&p=irol-SECText&TEXT=aHR0cDovL2lyLmludC53ZXN0bGF3YnVzaW5lc3MuY29tL2RvY3VtZW50L3YxLzAwMDA5NTAxMjMtMTItMDAyOTc2L3htbA%3d%3d.

[32] See U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved June 12, 2012 from http://www.eia.gov/countries/cab.cfm?fips=NI.

In the exploration phase, Eni is operator of offshore Oil Prospecting Leases (OPL) 244 (60 percent), OML 134 (85 percent) and onshore OPL 282 (90 percent) and OPL 135 (48 percent). Eni holds a 12.5 percent interest in OML 135.

Eni has production sharing agreements with the NNPC in two blocks, where Eni acts as contractor for the state-owned company. In blocks OMLs 60, 61, 62 and 63, Eni retains a 20 percent stake in each and feeds production from these blocks to the Bonny liquefaction plant in the Eastern Niger Delta, in which it holds a 10.4 percent interest through Nigeria LNG Ltd. Eni also owns a 17 percent stake in Brass LNG Ltd. Co., which is constructing a natural gas liquefaction plant near the existing Brass River terminal, 100 kilometers west of Bonny, with a planned opening date in 2017. Incidents near the Brass River terminal have shut-in varying volumes of production since December 2006.

Eni also has a 5 percent interest in the Forcados/Yokri oil and gas field, which is under development as part of the integrated associated gas gathering project aimed at supplying gas to the domestic market through Escravos-Lagos pipeline system.[33]

Other companies: ConocoPhillips, **Petrobras**, **Sinopec** (through its recent acquisition of Addax Petroleum) and **StatoilHydro** operate in joint ventures with the NNPC, although with much smaller operations and reserves.

Using the spill volume and liability analysis above, Si2 apportioned potential liability to the largest operators in the Niger Delta and the adjacent offshore areas. The top operators are Shell, ExxonMobil, Total, Chevron and Eni. Liabilities for each, as well as vital global and Nigerian data are summarized in the table below. An explanation for the liability estimates attributed to each follow in this section.

Liability Estimates

Much of the information needed to offer a clear and precise assessment of the implications for companies and their shareholders of the long-term costs of operating in the Niger Delta is unavailable or undisclosed. Nevertheless a picture is emerging of clear potential liabilities of companies with former and present operations there. These include:

- Continuing needs to **assess spill damage**, including funding for environmental surveys and development of remediation plans.
- Funds to conduct **clean-up operations**.
- Following up with efforts to **remediate** environmental damage resulting from the spills, including much-needed work to restore mangroves and wetlands.
- Costs to monitor and attend to **health issues** related to local community members' long-term exposure to hydrocarbons, especially in groundwater.
- Paying awards to community members to compensate for **lost livelihoods** related to depleted fish populations and destruction of arable land, as well as for adverse health effects associated with the spills.
- **Fines** from regulatory authorities.
- **Legal, public relations** and **management costs** associated with defending and settling cases associated with the spills.
- **Reputational damage** resulting from the controversies surrounding the spills, which hurts brands and retail sales, and potentially limits oil operators' licenses to operate in Nigeria.

[33] See http://www.eni.com/en_IT/attachments/publications/reports/reports-2011/EniAnnualReport_20F_2011.pdf.

- Improving **environmental management** and **spill damage systems** and associated **assessment** and **clean-up protocols**, deemed at present by UNEP and others to be well below international norms, to produce better results and limit risks going forward.

Si2 reviewed the top multinational operators in the Niger Delta. Table 11 summarizes each company's global revenues, net income, global oil and gas production, and global spill volume, as well as its Nigeria spill volume and an estimate of its liabilities in Nigeria based on the data in this report. Liability estimates are presented in ranges and only assess potential cleanup, remediation and compensation costs, not additional legal liabilities tied to punitive damages. The potential percentage of 2011 net income also is displayed to place the figures in the context of the company's size.

Operator as responsible party: In assigning liabilities Si2 assessed the operator only. Therefore, in the case of the SPDC JV, Shell is assessed all liabilities for that operation's spills. However, readers should note that Shell will likely want to share the pain with its partners should the liabilities come to fruition, a development that will likely meet pushback and need to be watched closely.

Other key factors: The estimates also take into account that these top companies also are not culpable or responsible for all of the spills, albeit the vast majority of them. The estimates take into account each company's production volume, location of operations, history of doing business in Nigeria, spill reports and pending lawsuits.

Table 11: Company Data and Liability Estimates

	Shell	ExxonMobil	Total	Chevron	Eni
Revenues	$470.2 billion	$467.0 billion	$166.6 billion	$244.4 billion	$110.5 billion
Net Income	$31.2 billion	$42.2 billion	$12.3 billion	$26.9 billion	$7.8 billion
Global Production (barrels of oil equivalent/day)	1.173 million	4.506 million	2.346 million	2.673 million	1.523 million
Nigeria Oil and Gas Production (barrels of oil equivalent/day)	384,000	350,000*	287,000	260,000	154,000
Global Oil Spill Volume (barrels)	41,300	18,000	11,032	12,139	22,571
Nigeria Oil Spill Volume (barrels)	21,000	ND	ND	ND	ND
Drilling in Nigeria since (year)	1936	1955	1962	1963	1962
Potential Liabilities, Nigeria	**$4-$13 billion**	**$3-7 billion**	**$2-5 billion**	**$2-6 billion**	**$1-3 billion**
% of Net Income	**13-42%**	**7-17%**	**16-41%**	**7-22%**	**13-38%**

Sources: Company 2011 10-K and 20-F filings and website disclosures, including sustainability reports. Liability estimates are based on the spill and liability computations in the previous section of this report, as well as the production figures discussed in this section.
*estimated based on figures for the rest of Africa and reporting from the EIA.

Shell: Starting with what is more concrete and moving toward liabilities with greater variables and unknowns, Shell's potential liabilities include the following:

- A potential settlement with the Bodo plaintiffs of $400 million or more.
- Funding of clean-up and remediation activities under the UNEP recommended plan in Ogoniland that will likely total more than $1 billion for Shell's portion of SPDC's liabilities under the plan over the next 25 to 30 years. This estimate takes UNEP's recommended budget for the first five

years and extrapolates over the total years of likely clean-up activity, while apportioning responsibilities based on ownership in SPDC.

- Past and ongoing clean-up, remediation and compensation costs based on the estimates in this report. From the data SPDC makes available, its average annual spill volume over the past five years has been 58,000 barrels. Other data sources point to higher volumes including some of the largest spills in Nigeria's history. In fact, government data indicates that SPDC is responsible for more than half of the spill incidents and volumes occurring in the Niger Delta over the past five decades, and, as SPDC acknowledges, it still has a backlog of clean-up, remediation and repair activities to undertake. Therefore, outside of Ogoniland, these liabilities are likely to outstrip $5 billion.
- More than half of Shell's global spill volume is attributed to operations in Nigeria, and historically it has accounted for more than a quarter of the spill volume in the country.
- Shell has a disproportionate amount of its drilling and pipeline operations on or near shore in the Niger Delta, where most of the spills have taken place, whereas other companies have most operations offshore.
- Future litigation based on negligence on the part of SPDC.

Weighing these factors, this report estimates liabilities of $4 to$13 billion for Shell. This also lays the responsibility for liabilities related to the SPDCJV entirely with Shell. In addition, Shell's lawsuits and spill data are discussed earlier in this report and are used in arriving at this estimate.

ExxonMobil: The nature of its largely offshore operations has shielded ExxonMobil from the theft and sabotage activities Shell has experienced in recent decades, but it has not been entirely immune to spill controversies. A legacy operation from Mobil still held through an operating subsidiary, Mobil Producing Nigeria Unlimited, recorded one of the largest spills along the coastal regions in the Niger Delta in 1998, releasing 40,000 barrels from the Idoho Field in the Akwa Ibom state. Information on clean-up and remediation activities regarding this spill is not available.

More recently, ExxonMobil confirmed spills from its Qua Iboe oil fields in the Akwa Ibom state in the Niger Delta. Several communities and local fisherman in the area complained about pollution and lost livelihoods as a result and requested more robust clean-up and remediation activities and compensation. Chairman of the Akwa Ibom State Fishermen Association, Mr. Ayadi, told Nigeria's Leadership news outlet on July 1, 2010, "My men who have been out of job since the first spill occurred many months ago are now faced with a bleak future; what are we going to do now, as we can no longer enter water for our daily fishing activities, all we need is help." Also reacting to the oil spill, Comrade Ekong Nelson, Chairman Maritime Workers Union in Akwa Ibom, said that his members were complaining that ExxonMobil was not responsive to their complaints surrounding the spill. ExxonMobil issued the following statement regarding the spill: "Mobil Producing Nigeria Unlimited (MPN), operator of the Nigerian National Petroleum Corporation (NNPC)/MPN Joint Venture, confirmed that a discharge occurred at Yoho production platform. Regulatory authorities were notified and the discharge was dispersed and evaporated." ExxonMobil has declined to disclose the volume of crude involved in the spill incident, although officials of National Oil Spills Detection and Response Agency (NOSDRA) said that the oil firm reported a discharge of less than two barrels. NOSDRA said they had not verified the company's estimates.[34]

ExxonMobil later issued a statement to the Business & Human Rights Center in response to the article:

[34] Tolani Dada, Bernard for *Leadership*. (July 1, 2010). "Fishing Communities Lament Oil Spill in Akwa Ibom." Retrieved on July 20, 2011, from http://allafrica.com/stories/201007010680.html.

> It is important to keep the actual size and scope of oil spills in context when reporting about potential impacts or damage claims. On 1 May a leak did occur in one of Mobil Producing Nigeria's (MPN's) offshore pipelines more than 20 kilometers offshore. MPN immediately isolated and depressurized the line, shut in production and notified regulatory authorities. Less than 300 barrels escaped and was treated with regulatory approved dispersants. Unfortunately, some oil did reach the shoreline and was cleaned up in full cooperation with the community, as well as state and federal regulatory authorities. On 19 June there was a very minor discharge at MPN's Yoho platform while a tanker was loading which resulted in the escape of 1.5 barrels. Regulatory authorities were promptly notified and the discharge was treated and dispersed.[35]

Despite the apparent small volumes involved in the latest incident, it appeared to raise concerns from Nigerian regulatory authorities relating to spill risks from ExxonMobil's operations. Reuters reported on June 15, 2010, that Nigeria's Environment Minister John Odey "summoned" ExxonMobil to a meeting with NOSDRA officials to discuss what the government said were a series of spills far offshore, where militant attacks and sabotage are infrequent. "We are concerned about the operations of Exxon Mobil because once it is offshore, any spillage could of course affect the shoreline and it could go far beyond their areas of operation," Odey told reporters after the meeting. "Exxon Mobil needs to show more caution in terms of the management of oil spills," he said. Nigeria's NOSDRA said the last spill, on May 1, occurred at an Exxon platform some 20 to 25 miles offshore that feeds the Qua Iboe oil export terminal, and previous spills had taken place in December 2009 and February 2010. ExxonMobil reportedly had declared force majeure in May on Qua Iboe oil shipments due to what it said was damage to a pipeline. ExxonMobil general manager for safety, health and environment in Nigeria, Aniefiok Etuk, told reporters, "Yes, we had a spill...but some of the things said and shown are not correct. Perhaps there is a communication gap and we will work towards bridging this gap."[36]

Concerns regarding the 1998 Idoho Field spill of 40,000 barrels or 5,440 tons and the other spills in the Akwa Ibom state and other areas linger. Clearly, additional information on clean-up and remediation activities regarding these spills would be helpful in completing an analysis. Taking these factors into account, given the legacy spills reported, this report estimates ExxonMobil's potential liabilities lie between $3 billion and $7 billion.

Total: Total's potential liabilities are almost entirely linked to its 10 percent interest in SPDC and, therefore, accounted for under estimates for Shell. However, Total has a long history of doing business in the Niger Delta and has a growing portfolio in Nigeria, as well as legacy spills reviewed earlier. Given these factors, Si2 assigns a potential liability estimate of $2 to $5 billion.

Chevron: Chevron's legacy Texaco and Gulf Oil operations in Nigeria were sources of two of the country's largest coastal spills in its history. As noted earlier, Texaco's 1980 Funiwa-5 spill in 1980 in the Rivers state released roughly 400,000 barrels of oil into the environment, while Gulf Oil's Escravos facility in the Delta state unleashed 300,000 barrels of oil. Friends of the Earth Nigeria, the Women Resource Development Center and Justice in Nigeria Now report that the people of Obe-Nla in the Ilaje Local Government Area of Ondo State have threatened to shut down Chevron's local operations, as the company has failed to follow through with community and welfare programs it has promised, despite extensive environmental pollution in the area. In the Ugborodo community, which is in the sightline of Chevron's Escravos terminal, villagers have conducted peaceful protests recently regarding the number of jobs for local community members. This resulted in the shooting of protesters by local security forces. Community members of neighboring Itsekiri have similar complaints about Chevron.[37] While many of these

[35] See http://www.business-humanrights.org/Documents/Oilpollution/Nigeria/ExxonMobiloilspills.
[36] Eboh, Camillus for *Reuters*. (June 15, 2010). "Nigeria cautions Exxon Mobil on offshore oil spills." Retrieved on July 20, 2011, from http://www.reuters.com/article/2010/06/15/nigeria-exxon-idUSLDE65E22C20100615.
[37] See http://truecostofchevron.com/2010-alternative-annual-report.pdf.

complaints involve flaring as well, UNEP reported finding heavy contamination present in groundwater 40 years after an oil spill occurred, leaving concerns about both spills. It is unclear how much of this oil was recovered and the extent to which damage was remediated and communities affected compensated for these two spills.

Lawsuits—Chevron has not been subject to lawsuits linked to spills in Nigeria as yet, but it was subject to a suit related to human rights issues. In May 1999, victims of alleged human rights abuses associated with Chevron's operations in the Niger Delta filed a suit against Chevron in the federal court in San Francisco. The case, *Bowoto v. Chevron*, was based on allegations surrounding the shooting of protestors at Chevron's Parabe offshore platform and the destruction of two villages by soldiers allegedly hired by Chevron. Plaintiffs filed the suit under the Alien Tort Claims Act. In November 2008 a jury found in favor of the defendants on all charges, but the plaintiffs have filed a notice of appeal to the Ninth Circuit Court of Appeals and are seeking a new trial. As mentioned earlier, the U.S. Supreme Court will hear another human rights suit with Nigerian plaintiffs also based on the Alien Tort Claims Act, which will have implications for Chevron.

Aside from the potential liabilities surrounding the human rights suit, lingering community complaints regarding legacy spills in excess of 95,200 tons in the Delta should raise concerns for shareholders. Given the size of the spills and populations of the communities affected by the spills, Chevron could face liabilities in excess of $2 billion and possibly as high as $6 billion, reflecting claims in the Bodo case against Shell.

Eni: In common with Total, Eni's potential liabilities are also almost entirely linked to its 5 percent interest in SPDC and, given the spill remediation models used in this report, are estimated anywhere from $1 to $3 billion. Eni acknowledges in its sustainability report that it has had to implement improvements to its asset integrity program, a process begun in 2010, including better use of corrosion inhibitors and active protection systems, optimization of maintenance activities and awareness to improve spill performance.

In a separate but related issue, Snamprogetti SpA, the holding company of Snamprogetti Netherlands BV, was a wholly owned subsidiary of Eni until February 2006, when an agreement was entered into for the sale of Snamprogetti to Saipem SpA. Snamprogetti was merged into Saipem as of October 1, 2008, and Eni holds a 43 percent interest in Saipem. In connection with the sale of Snamprogetti to Saipem, Eni agreed to indemnify Saipem for a variety of matters, including potential losses and charges resulting from the investigations into the TSKJ Consortium companies, in which Snamprogetti Netherlands BV holds a 25 percent stake. (The remaining equity is held in equal shares of 25 percent by KBR, Technip, and JGC.) Beginning in 1994 the TSKJ Consortium was involved in the construction of natural gas liquefaction facilities at Bonny Island in Nigeria and was the subject of several investigations about alleged improper payments made by the TSKJ Consortium to certain Nigerian public officials. In an agreement struck with Nigerian Authorities on December 10, 2010, Snamprogetti Netherlands BV agreed on a settlement of a legal action against the TSKJ Consortium entailing the payment of a criminal fine amounting to $30 million and the reimbursement of $2.5 million for the legal expenditures of the Federal Government of Nigeria. In return, the Federal Government of Nigeria agreed not to prosecute any criminal and civil action, in any jurisdiction, against any part of the Snamprogetti group of companies. In addition, Snamprogetti Netherlands BV signed a deferred prosecution agreement with the U.S. Department of Justice in July 2010 whereby the Department filed a deed which could lead to criminal proceedings against Snamprogetti Netherlands BV for having violated certain provisions of the Foreign Corrupt Practices Act, if it fails to comply with regulations in future. It also agreed to pay a fine of $240 million. A trial is pending related to the matter in Italy.

VI. Spill Policies, Reporting and Board Oversight

Si2 reviewed each company's overall size, operations and production volume in Nigeria, as well as their reporting on spill data, spill policies, board oversight of environmental issues, environmental management systems, and sustainability reporting practices. This information is intended to aid in assessing each company's environmental policies and practices, particularly those related to oil spills in the Niger Delta. Si2 culled data for the largest producers in Nigeria—Royal Dutch Shell, ExxonMobil, Chevron, Total and Eni.

Overall, Si2 found:

- **Shell** continues to lead with production in Nigeria and likely spill volume, but is the only one of the top producers there to disclose spill volume for Nigeria as a separate market.
- **Shell**, **ExxonMobil** and **Chevron** have board committees charged with explicit oversight of environmental issues, including spills. **Total** and **Eni** do not have these governance features.
- All of the companies have environmental management systems and global spill policies, which raises the question of whether they are adequate and are being effectively implemented and monitored. It is possible that while the systems and policies are adequate on paper, they are not being implemented and monitored properly either globally or in Nigeria. This should concern investors and be taken up with each of the companies.
- All of the companies issued sustainability reports in the past year, but only **Eni** and **Shell** disclosed a Global Reporting Initiative (GRI) reporting level. Both scored a top "A-plus" GRI grade and had third parties attest to their reporting levels.

The table below summarizes Si2's findings.

Table 12: Company Sustainability Oversight, Policies and Reporting

	Shell	ExxonMobil	Chevron	Total	Eni
Board Oversight of Environment	Yes	Yes	Yes	No	No
Environmental Management Systems	Yes	Yes	Yes	Yes	Yes
Spill Policies	Yes	Yes	Yes	Yes	Yes
Sustainability Report	Yes	Yes	Yes	Yes	Yes
GRI Report (level if applicable)	A+	Undeclared	Undeclared	Undeclared	A+

Sources: Company proxy and 10-K filings and sustainability disclosure.

VII. Promoting Cooperation

Solving the problems in the Niger Delta related to spills will never be accomplished without cooperation. This issue is discussed earlier in this report in the context of the findings from the most recent UNEP report and its recommendations. This section examines the individual actors and dynamics at play in the Niger Delta with the specific purpose of seeing how corporate social investment could play a greater role in helping stem violence, theft and other problems contributing to the oil spills and environmental damage in the region.

The government: The Nigerian government formed the Nigerian National Petroleum Company (NNPC) in 1977 to oversee regulation of the Nigerian oil industry, with secondary responsibilities for upstream and downstream developments. This emphasis changed in 1988, when the Nigerian government began driving the bulk of the development of its oil and gas sector through joint ventures with the NNPC. More recently, the government has considered transforming NNPC into a more profit-driven company and privatizing it, with the aim of attracting further private, foreign investment. The future of the NNPC is being debated in Nigeria's National Assembly as part of passage of a proposed Petroleum Industry Bill, which also includes some streamlining of regulatory approval for new projects.

On April 16, 2011, President Goodluck Jonathan of the ruling People's Democratic Party (PDP), who had assumed the presidency in May 2010 following his predecessor's death, won election to a four-year term, along with Vice President Mohammed Namadi Sambo, also of the PDP. According to the U.S. Department of State, independent election observers considered the April elections "to be generally credible, orderly, and a substantial improvement over the flawed 2007 elections."[38] Notwithstanding the improvements in fairness, reports of fraud and irregularities, including vote rigging and buying, underage voting, ballot stuffing, and political violence persisted, and supporters of the opposing candidate for the presidency Muhammadu Buhari of the Congress for Progressive Change (CPC) candidate, challenged the outcome of the election and postelection violence erupted in the north and in the Middle Belt States. The April elections also yielded major changes in the National Assembly, as only about one-third of the incumbents in both houses were reelected, and opposition parties gained many seats.

Nigeria's history has been fraught with struggles for power over oil revenues, ethnic rivalries and outside manipulation. In the wake of the major oil discoveries in Nigeria during the 1970s, the Northern provinces, with the backing of the military, sought to consolidate wealth and influence, including the bulk of the oil wealth, which was held in the southern states of Bayelsa, Delta and Rivers in the Niger River Delta. The tensions plunged the country into decades of economic and political instability with violence and systemic human rights abuses that continue today.

In 2010, President Goodluck Jonathan enacted the Nigerian Content Development Act (NCD), which seeks to increase the involvement of Nigerian companies in all aspects of the oil and gas industry. Multinational oil and gas operators in Nigeria now must offer opportunities for Nigerian companies to bid on contracts for goods and services valued at more than $1 million. They also must award preferential access to contracts to Nigerian companies, as long as the local company is capable and its price is not more than 10 percent above the lowest qualifying bid. The NCD aims to help share a greater portion of the economic benefits of oil production with local communities and residents in and near where it is produced, which might help quell some of the local violence, sabotage and theft over time.

Continued violence: This historical context is important to understand in assessing liabilities from oil and gas spills in the Niger Delta, as the oil companies have long asserted that spills were caused by the

[38] U.S. Department of States. (2012). *Country Reports on Human Rights Practices for 2011, Nigeria*. Retrieved on June 25, 2012, from http://www.state.gov/j/drl/rls/hrrpt/humanrightsreport/index.htm?dynamic_load_id=186229.

volatile security environment in which they have been operating over the last half century. Evidence of these adverse operating conditions remains plentiful. The U.S. Department of State in its 2010 *Country Reports on Human Rights Practices* cites "politically motivated and extrajudicial killings by security forces, including summary executions…societal violence…ethnic, regional, and religious discrimination and violence…vigilante killings…and abductions by militant groups," among the human rights issues confronting Nigerians. While not at its height, the State Department says, "By year's end killings and kidnappings by militant groups began to increase…" It also points to "a significant increase in abductions, some of which may have been politically motivated," including a long-held practice of targeting international oil workers and perceived high-value hostages, especially in the Niger Delta and particularly in Part Harcourt. Some of these were perpetrated with the help of local, corrupt police forces.

While a 2009 government amnesty program helped stem some of the violence and abductions in the oil sector, security issues persist. The U.S. State Department notes that since 2006, "Militant groups have used violence, including kidnapping oil company workers, t**o** demand greater control of the region's resources…. Kidnapping for ransom, armed robberies, gang wars, and fighting connected to the theft of crude oil, known as illegal oil bunkering, continued during the year and contributed to the region's general insecurity and lack of economic vitality."

2009 amnesty—The 2009 government amnesty program processed approximately 20,000 former militants. It offered unconditional absolution for militants in the Niger Delta in exchange for cash payments and vocational training programs. The EIA reports that the program has "led to decreased attacks and some companies have been able to repair damaged oil infrastructure." However, the lack of progress in job creation and economic development, has cut into the program's effectiveness.[39] In addition, the U.S. State Department says many former militant may have used stipends from the rehabilitation program to purchase additional weapons, fueling further violence. Complicating the situation, the EIA notes that a joint task force formed in 2003 to restore order in the Niger Delta, comprised of military, police

Illegal Bunkering

Long prevalent in the Niger Delta, illegal oil bunkering takes many forms and has grown in sophistication recently. Some bunkering takes place today with the cooption of oil company staff to gain access to facilities or to help operate equipment at wellheads. Bunkerers in the Niger Delta tap directly into pipelines away from oil company facilities and connect from the pipes to barges that are hidden in small creeks with mangrove forest cover, which also are ecologically sensitive areas. While the Nigerian government publicly recognizes the seriousness of the problem, bunkerers frequently bribe police and military officials to turn a blind eye to their activities. The government has never announced a proactive, comprehensive strategy to root out the practice and officials make only a handful of seizures each year. While local vandalism and violence complicate matters for the bunkerers, since one cannot steal from a non-operating entity or from one that is hard to reach, the chaos also can offer cover.

A 2008 report by Stephen Davis, Rubbery Figures for Oil Theft in the Niger Delta, estimates that Nigeria loses anywhere from 70,000 to close to half a million barrels of oil worth up to $5 billion each year from illegal bunkering.* Davis derives the estimates by subtracting the total amount of oil delivered from the total expected production from each well head. The report notes that bunkering is "rife" in Port Harcourt, Warri, Okrika, Bonny, Akassa and Soku, which are major loading points for oil exports. Bunkering also is common in more remote inland swamp areas such as Jones Creek and Cawthorne Channel, and pipeline vandalism occurs even further afield. Bunkerers are able to sell oil illegally in international markets, while they also sell some condensate and refined petroleum locally at below-market prices.

*Davis, Stephen. (October 2008). Rubbery Figures for Oil Theft in the Niger Delta. Retrieved July 29, 2011, from http://www.legaloil.com/Documents/Library/Legal%20Oil%20Information%20Paper%20No%204%20Rubbery%20Figures%202008.pdf.

[39] U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved Sept. 15, 2011, from http://www.eia.gov/countries/cab.cfm?fips=NI.

and security forces, faced allegations of numerous wrongful killings throughout 2010.

Disruptions in the oil sector—The EIA reports similar challenges related to realizing full production and profits from reserves because of Nigeria's difficult security environment: "Local groups seeking a share of the oil wealth often attack the oil infrastructure and staff, forcing companies to declare *force majeure* on oil shipments….At the same time, oil theft, commonly referred to as bunkering *(see box)*, leads to pipeline damage that is often severe, causing loss of production, pollution, and forcing companies to shut-in production." It adds, "The industry has been blamed for pollution that has damaged air, soil and water leading to losses in arable land and decreasing fish stocks."[40]

The EIA notes that pipeline vandalism, kidnappings and militant takeovers of oil facilities in the Niger Delta have been rising since 2005. It and the U.S. State Department, among other sources, point to the Movement for the Emancipation of the Niger Delta (MEND) as the principal group attacking oil infrastructure for political objectives—namely a wholesale redistribution of oil wealth. "Security concerns have led some oil services firms to pull out of the country and oil workers unions to threaten strikes over security issues," the EIA says. While most of the attacks occur in the Niger Delta, theft of oil shipments, kidnappings of oil workers for ransom and other acts of piracy are also common in the Gulf of Guinea, leading to the same labor problems and company pull-outs that are occurring onshore.

Some of this illegal activity has resulted in spills. While some groups believe the illegal activities are justifiable, nobody disputes that the spills have caused considerable environmental damage. According to the Nigerian National Oil Spill Detection and Response Agency (NOSDRA), some 2,400 oil spills were reported between 2006 and 2010 from sabotage, bunkering and poor infrastructure.

Disruptions in the sector have clearly reduced the country's oil production capacity. The EIA estimates Nigeria's oil production capacity to have been close to 2.9 million barrels per day at the end of 2010, but the country's daily crude oil production only ranged between 1.7 million and 2.1 million barrels.

Recent accounts from Nigeria: Descriptions of the Niger Delta from recent news reports help give a human dimension to the spill numbers and a sense of the problems victims of the spills are facing. By all accounts, the spills are incessant and in many cases still need remediation years after the initial incidents. Personal accounts also speak of neglect of equipment maintenance, and other issues that include theft, sabotage and violence. The ecologically sensitive wetlands where the spills have taken place have complex clean-up needs. In addition to compromising the region's biodiversity, the spills have hampered economic activity and limited basic subsistence living opportunities for local residents who rely on the affected fish, shellfish and crops. Although the region is suffering from the damage done to date, local environmental groups and external experts still hope for restoration. Many areas remain unspoiled and others can be remediated if they receive help.

In a June 2010 article in *The New York Times*, Adam Nossiter described oil spewing "from rusted and aging pipes, unchecked by what analysts say is ineffectual or collusive regulation, and abetted by deficient maintenance and sabotage." Among the environmental degradation observed by Nossiter were "lifeless" swamps and "black crude on Gio Creek." In this case, locals said, Shell is to blame. Community members told Nossiter that one of Shell's pipes burst in the swamp and mangroves nearby and was not shuttered for two months. "Now nothing living moves in a black-and-brown world once teeming with shrimp and crab."[41]

[41] Nossiter, Adam for *The New York Times.* (June 17, 2010). "Far From Gulf, a Spill Scourge 5 Decades Old." Retrieved from http://www.nytimes.com/2010/06/17/world/africa/17nigeria.html on Sept. 15, 2011.

Just across the state line in AkwaIbom, Nossiter found a similar scene: "The fishermen curse their oil-blackened nets, doubly useless in a barren sea buffeted by a spill from an offshore ExxonMobil pipe in May that lasted for weeks." In the wake, he said, "Small children swim in the polluted estuary here," and "fishermen take their skiffs out ever farther." One fisherman, Pius Doron, told Nossiter, "There's nothing we can catch here." Mixed with stories of widespread pollution and lost livelihoods are those of violence. "Soldiers guarding an Exxon Mobil site beat women who were demonstrating last month, according to witnesses—but mostly resentful resignation," Nossiter reports.

The images behind these quotes reflect a larger problem, one recounted by other journalists consistently over the last decade. A May 2010 article by John Vidal appearing in *The Observer*, for instance, describes an outing by a news crew to the edge of the oil spill near the Nigerian village of Otuegwe. "We waded into the warm tropical water and began swimming, cameras and notebooks held above our heads," said Vidal. "We could smell the oil long before we saw it—the stench of garage forecourts and rotting vegetation hanging thickly in the air. The farther we travelled, the more nauseous it became. Soon we were swimming in pools of light Nigerian crude, the best-quality oil in the world. One of the many hundreds of 40-year-old pipelines that crisscross the Niger delta had corroded and spewed oil for several months."[42] Vidal described in his account "forest and farmland…covered in a sheen of greasy oil…drinking wells…polluted and people…distraught." Like Nossiter, Vidal found first-hand accounts of livelihoods lost. He quoted Chief Promise, village leader of Otuegwe, "We lost our nets, huts and fishing pots….This is where we fished and farmed. We have lost our forest. We told Shell of the spill within days, but they did nothing for six months." To add to problems for the area, within days, rebels damaged Shell's nearby Trans Niger pipeline, which released thousands of barrels of oil, producing "a large oil slick…floating on Lake Adibawa in Bayelsa state and another in Ogoniland." The accounts underscore food security concerns for the many affected communities in the Niger Delta.

Otavie, a Bayelsa member of parliament, told *The Observer* that the spills were caused by "rusty pipes, some of which are 40 years old," and his account is backed by Williams Mkpa, a community leader in Ibeno: "Oil companies do not value our life; they want us to all die. In the past two years, we have experienced 10 oil spills and fishermen can no longer sustain their families. It is not tolerable." Just one month earlier, in April 2010, Shell acknowledged a 2009 spill of 14,000 tons through two incidents—one from a wellhead at its Odidi field caused by damage Shell said came from thieves and one from the Trans Escravos pipeline resulting from militant bombing. In a subsequent interview, Shell told *The Financial Times* that it has been dealing with an average of 169 oil spills per year, slightly fewer than the 175 average for the 2005-09 period in the Niger Delta. In 2010, the company recorded 32 operational spills in the Niger Delta, down from 37 in 2009. As of August 2011, when the article went to press, Shell said it had 13 spills in the Niger Delta linked to illegal activity for the year.[43]

In another incident on May 1, 2010, an ExxonMobil pipeline in the state of AkwaIbom spilled more than a million gallons into the delta over seven days before the leak was stopped. "Local people demonstrated against the company but say they were attacked by security guards," and "community leaders are now demanding $1 billion in compensation for the illness and loss of livelihood they suffered," *The Financial Times* said.[44]

Local leaders, according to Vidal's interviews, say a spill the same size as BP's 2011 accident in the Gulf of Mexico happens every year in the Niger Delta. They say this occurs because companies improperly

[42] Vidal, John for *The Observer*. (May 30, 2010). "Nigeria's agony dwarfs the Gulf oil spill. The U.S. and Europe ignore it." Retrieved from http://www.guardian.co.uk/world/2010/may/30/oil-spills-nigeria-niger-delta-shell on Sept. 7, 2011.
[43] Pfeifer, Sylvia and Croft, Jane for *The Financial Times*. (Aug. 3, 2011). "Shell's Nigeria pay-out could top £250m." Retrieved on Aug. 22, 2011, from http://www.ft.com/intl/cms/s/0/4209f536-bde8-11e0-ab9f-00144feabdc0.html#axzz1beKTZ4co.
[44] Ibid.

install and operate the wells, and because the Nigerian government inadequately enforces regulations. While the companies dispute these claims, community groups and environmental organizations point to the companies' corroding pipelines and storage tanks, as well as semi-derelict pumping stations and old wellheads, as the primary sources for the spills. Ben Ikari, a member of the Ogoni people, told Vidal, "The oil companies just ignore it. The lawmakers do not care and people must live with pollution daily. The situation is now worse than it was 30 years ago. Nothing is changing." Ikari is dumbfounded why so much effort can go into a U.S. Gulf Coast recovery, while similar spills are neglected in Nigeria, even though the oil is largely being pumped by the same companies and going to the same place, if not other developed markets. "We see frantic efforts being made to stop the spill in the US," Nnimo Bassey, Nigerian head of Friends of the Earth International, told Vidal. "But in Nigeria, oil companies largely ignore their spills, cover them up and destroy people's livelihood and environments. The Gulf spill can be seen as a metaphor for what is happening daily in the oilfields of Nigeria and other parts of Africa."

A long-term issue: News reports like Nossiter's account for *The New York Times* and Vidal's for *The Observer* are not new or unique. Si2 found numerous news stories from the last two decades offering descriptions similar to these of recent spills and comparisons to Valdez-like amounts spilled each year. For example, an article in the United Kingdom's *Independent* in 2006 also quoted annual spill levels of up to 1.5 million tons of oil over 50 years. This is the equivalent of an *Exxon Valdez* tanker disaster each year, according to contemporary reports from a panel of independent experts comprised of representatives from the World Wildlife Fund UK, the World Conservation Union, the federal ministry of Abuja and the Nigeria Conservation Foundation.[45] At the time, the article said, the leaking crude, much of it from outdated equipment and pipes, was costing Nigeria $10 million a day. Similar to other accounts, it pointed to lost livelihoods for local fishermen and farmers, as well as widespread environmental degradation.

Company responses: As noted above, companies say most spills are caused by theft, vandalism and sabotage, not neglect of maintenance or shoddy equipment. Shell says that 98 percent of all its oil spills are caused by vandalism, theft or sabotage by militants and only a minimal amount by deteriorating infrastructure. Shell told Vidal that it had 132 spills in Nigeria in 2010, better than its long-running average of 175.[46] It points to vandalism of safety valves, more than 300 incidents of illegal tapping of its oil sources and terrorism as the true root causes of the spills. Shell and other oil companies working in Nigeria blame sabotage oil bandits like the Movement for the Emancipation of the Niger Delta for many spills. They also point to other obstacles. "Sometimes communities do not give us access to clean-up the pollution because they can make more money from compensation," said a spokesman for Shell. "We have a full-time oil spill response team. Last year we replaced 197 miles of pipeline and are using every known way to clean-up pollution, including microbes. We are committed to cleaning up any spill as fast as possible as soon as and for whatever reason they occur." Similarly, a spokesman for ExxonMobil in Lagos, Nigel A. Cookey-Gam, told *The New York Times* that the company's offshore spill in 2011 leaked only about 8,400 gallons and that "this was effectively cleaned up."

Corporate Social Investment

Lurking beneath the low levels of domestic Nigerian oil consumption noted above, and the high level of oil theft and violence, is a much larger problem—Nigeria's inability to eradicate widespread poverty despite its vast oil and gas resources. A 2006 report from the United Nations Development Program (UNDP) notes that poverty remains widespread and "appalling." Despite efforts from development

[45] Brown, Jonathan for *The Independent*. (October 26, 2006). "Niger Delta bears brunt after 50 Years of oil spills." Retrieved from http://www.independent.co.uk/news/world/africa/niger-delta-bears-brunt-after-50-years-of-oil-spills-421634.html on Sept. 14, 2011.

[46] Nossiter, Adam for *The New York Times.* (June 17, 2010). "Far From Gulf, a Spill Scourge 5 Decades Old." Retrieved from http://www.nytimes.com/2010/06/17/world/africa/17nigeria.html on Sept. 15, 2011.

agencies, the Nigerian government and private sector organizations, including oil companies, socio-economic development has stagnated in Nigeria.[47] The report reviews the UNDP's Human Development Index (HDI) score, "a measure of well-being encompassing the longevity of life, knowledge and a decent standard of living." The score has a range from 0 to 1, with 1 being the ideal. The report notes that the score for the Niger Delta region is a very low 0.564, albeit a bit higher than Nigeria's overall score of 0.453—but much lower than any other large oil producing states *(see Table 13).*

Table 13: 2010 UN Human Development Index Scores for Selected Oil Producing Countries

Nigeria	0.453
Niger Delta	0.564
Indonesia	0.697
Kuwait	0.844
Libya	0.799
Saudi Arabia	0.800
United Arab Emirates	0.849
Venezuela	0.772

What has further puzzled multilateral institutions and the oil companies in Nigeria is how little, infrastructure and community investments made by the companies, have helped alleviate poverty in the oil producing areas that would logically benefit most. The UNDP found that the local government areas without oil facilities fare better on the UNDP poverty index than those with oil facilities. It concludes that this is a result of an unequal distribution of oil revenues and coordination with government programs and development efforts. There are some clear root causes and areas where cooperation is lacking such as education, job training and small business development. A majority of the region's population is underemployed and lacks the technical skills to gain employment in the oil and gas industry. Local entrepreneurs also lack skills and capital to become potential contractors to the oil and gas industry. If addressed, the industry could be a source of jobs, income and economic activity that could help lift prospects for many.

"Behind the Delta's poor performance on human development is a complex brew of economic, social, political and environmental factors," the UNDP says. "Social instability, poor local governance, competition for economic resources and environmental degradation have taken a toll," it adds. "The general neglect of infrastructure, often rationalized by the difficulty of the Delta's terrain, has worsened people's access to fundamental services such as electricity, safe drinking water, roads and health facilities that are taken for granted in many other parts of Nigeria." Added to the mix is an oil industry operating in a delicately balanced environment and in communities with extreme economic deprivation, producing a recipe for violence and widespread environmental degradation. The UNDP concludes, "The Delta today is a place of frustrated expectations and deep-rooted mistrust," tricky territory for any company and a treacherous backdrop for settling spill claims. The UNDP recommends that "all levels of government and the NDDC, the oil companies, the organized private sector, civil society organizations and development agencies should form partnerships around plans for sustainable development and the attainment of the Millennium Development Goals (MDGs)," a point taken up in the recommendations for investors in this report.

Company programs: Although clearly more can be done, major multinational operators in Nigeria have been trying to address some of these issues through their corporate social investment and philanthropic programs. Their present efforts are described below.

Shell—Shell's 2010 sustainability report points to a wide array of socio-economic benefits from its operations in Nigeria, including:

- $31 billion in revenues from SPDC JV to Nigerian government from 2006 to 2010 (approximately 5 percent of total revenues).

[47] United Nations Development Program. (2006). *Niger Delta Human Development Report*. Retrieved June 5, 2011, from http://hdr.undp.org/en/reports/nationalreports/africa/nigeria/nigeria_hdr_report.pdf.

- $3.5 billion in royalties and taxes paid to the Nigerian government in 2010.
- $947 million in contracts awarded from SPDC and SNEPCo to Nigerian companies in 2010.
- 6,000 direct and 35,000 indirect jobs created by SPDC and SNEPCo in Nigeria, 90 percent of which are held by Nigerian nationals.
- $161.1 million in funds from SPDC and SNEPCo allocated to the Niger Delta Development Commission in 2010 (Shell share $59.8 million).
- $71.4 million contribution in 2010 from SPDC and SNEPCo to community development projects (Shell share $22.9 million).[48]

ExxonMobil—To aid supplier development, ExxonMobil supports a partner, Vital Voices, which conducts supplier diversity pilot programs in, among other countries, Nigeria, with the aim of increasing business opportunities for local women.

Chevron—Chevron Nigeria reaches out to communities in Nigeria to improve health through workplace and community-based HIV/AIDS, malaria and tuberculosis programs. Chevron Nigeria also has disbursed more than $56.7 million since 2005 to regional development committees for a wide range of projects, including building bridges, constructing solar-powered water facilities, equipping hospitals with medical supplies and leading youth workshops. In addition, Chevron and its Agbami deepwater partners have created the merit-based Agbami Medical Professionals Scholarship to address Nigeria's need for skilled health professionals. Chevron gave $5 million to students of medicine, dentistry, nursing and laboratory sciences from the Delta, Ondo, Bayelsa, Rivers, Lagos, Imo, Akwa Ibom, Abia, Cross River and Edo states over the past two years. The partners also spent $6 million to build and equip 20 laboratories across Nigeria.49

Total—Total's 2010 sustainability report notes that its businesses invested $11 million in training personnel in Nigeria in 2010. Beyond these, Total also says it spent more than $15 million throughout the year on education and training, agriculture, economic development and public health initiatives. "Some of the money went to fund 8,000 education grants, from the primary through higher education levels," Total says. "In addition, 260 people received microcredit loans, whose real effectiveness is borne out by their nearly 77 percent repayment rate." It also says that it engaged a third party through a French research program called "Businesses and Emerging Economy Development", headed by Cécile Renouard and sponsored by the ESSEC Iréné Institute, which assesses its corporate social responsibility performance in the Niger Delta.

(Si2 could not find information on **Eni**'s corporate social investment programs in Nigeria, and Eni declined to respond to inquiries regarding these programs.)

[48] Royal Dutch Shell PLC. (2011). *Sustainability Report: Royal Dutch Shell PLC Sustainability Report 2010*. Retrieved Aug. 1, 2011 from http://sustainabilityreport.shell.com/2010/servicepages/downloads/files/all_shell_sr10.pdf.
[49] Ibid.

VIII. Investor Responsibility

Investors in Shell and other companies with operations in the Niger Delta have clear exposure to the risks related to spill damage. The quandary for investors in pricing these risks is the lack of information available on the total spill amounts and comprehensive assessments of associated damage done as a result. However, shareowners can play a key role in bringing these data to light, and it is important for shareholders to do so not only because of the legacy issues at stake. Each operator's social license to operate is at issue, which the companies need to continue operating in Nigeria and to realize the value of their assets.

While the debate on spill liabilities in the Niger Delta is continuously evolving, shareholders do not have to stay on the sidelines and refrain from contributing to solutions. Clearly, investors who own stock in Shell and other companies with operations in the Niger Delta have a stake in the risks related to spill damage. The quandary for investors in pricing these risks is the lack of information on the total spill amounts and comprehensive assessments of associated damage, as well as the many uncontrollable variables that include potential lawsuits. Shareowners can play a pivotal role in bringing these data to light and mitigating liabilities by taking action in the following areas:

- Demanding **good governance** of these issues, including robust board and senior management oversight.
- Calling for **appropriate policies** that are properly implemented, both requiring and empowering operations staff to devise solutions for clean-up and remediation efforts, and to guide ongoing responses to spills.
- Requesting **better reporting** of spill cases found, clean-up and remediation efforts and potential liabilities arising.
- Seeking **improved metrics** for ongoing reporting and measurement of resulting practices, with third party validation.
- Encouraging **cooperation** with the Nigerian government, local authorities and affected communities. This includes cooperating with UNEP and other multilateral institutions in following recommendations for redressing oil pollution problems.
- Urging greater efforts to promote constructive **corporate social investment** in affected communities to minimize incentives for violence and theft through the promotion of economic development and job creation.

Governance: Good management of spill risks in Nigeria starts with the right governance, management, policies and reporting structures overseen by the main board of the parent company. Insistence that companies maintain board oversight of environmental and human rights issues, and in particular spills and related liabilities, is essential. Shareholders can also look for management structures that instill clear responsibility and incentives throughout the chain of command on these issues, within a broader framework of effective global policies. From a policy perspective, UNEP asked Shell to "fully review and overhaul procedures for oil spill clean-up and remediation as well as improve contracting and supervision." All oil companies operating in Nigeria should undertake this task and ensure procedures in Nigeria meet international norms that are properly implemented worldwide and independently monitored , not only in special circumstances or when a controversy comes to light.

Reporting: Good governance and policies are insufficient unless supplemented with regular reporting and independent verification. This includes producing an annual sustainability report using the Global Reporting Initiative (GRI) guidelines at the highest reporting level. Shell, under the most criticism in the Niger Delta spill debate, is a leader in this area, producing an A+ level GRI report each year and offering

extensive information on spill policies, procedures, management and events, along with information on ongoing efforts to remediate spill damage and prevent future spills.[50] Shell offers extensive reporting on its Nigeria operations and is the only firm operating there to offer monthly spill data and information on remediation efforts on its website. It has been reporting internal spill estimates for Nigeria publicly for 15 years.[51] Shareholder should encourage others to follow.

However, where Shell falls short is disclosing all spills and gaining greater trust in the accuracy of their figures. Outstanding spill damage needs to be addressed and potential financial liabilities attached to these spills need to be disclosed. This would require quantifying the damage to the environment and human health it finds during its remediation and evaluation efforts. Much more information is needed for investors to evaluate potential financial risks and liabilities going forward. As with all such contentious information, independent verification would help in giving investors assurances that the data are accurate.

Risk assessments: In light of the recommendations of UNEP's report, pending lawsuits, as well as the continuing security and other risks of doing business in Nigeria, shareholders should ascertain how these variables translate into potential financial risks for companies. They should request reports on previous spill volumes and the related environmental damage, human health effects and remediation efforts to date. They should also require disclosure of any previous reviews on the integrity of a company's equipment and assets, and plans for their replacement. Companies could present this information in a public report to stakeholders with estimates of financial liabilities that cross the threshold of a reasonable materiality standard. UNEP also recommended that Shell "conduct a comprehensive review of SPDC assets in Ogoniland and develop a decommissioning program and integrity management plan for the assets." While this may not be applicable to all oil operators in Nigeria, Shell's partners in SPDC JV — Agip and Total—should back this recommendation. Shareholders can ensure this happens by putting pressure on management and boards of directors through their corporate engagement initiatives.

Cooperation: UNEP also recommended that Shell "work with Nigerian regulators to clarify the legislation governing remedial intervention and target values." Certainly this is something all oil and gas operators should do. Shareholders can prompt companies to engage the government and other stakeholders. But cooperation with stakeholder groups, including other oil and gas operators, should go well beyond crafting a sustainable legal framework for remediation intervention. It can set standards for sharing good practices and information on field findings and leverage resources for the best outcomes in Ogoniland and throughout the Niger Delta.

Social investment: In its sustainability report and other public documents on its website, Shell dedicates space for a review of its corporate social investment efforts. Sustainable investors are wary of such projects and their contribution to true sustainability, as they may represent little more than the philanthropic interests of corporate management or simply marketing exercises. Shell's efforts appear to be geared to community development and training projects, but these have not been subject to independent evaluation. The UNEP, UNDP and other reports on the region point to widespread poverty and socio-economic underdevelopment as some of the root causes of violence. Security is undermined by oil bunkering, illegal artisanal refining and other forms of oil theft, which in turn contribute to spills, environmental degradation and human health problems. Engaging the problem head on by investing in communities, especially in job training that would spur local employment and small business growth,

[50] See http://sustainabilityreport.shell.com/2010/servicepages/downloads/files/all_shell_sr10.pdf.
[51] See http://www.shell.com.ng/home/content/nga/environment_society/respecting_the_environment/oil_spills/monthly_data.html .

would help make Nigeria a more hospitable and sustainable place to do business. Shareowners can play their part by inquiring about company efforts and encouraging good practices in this area.

Looking ahead: The largest operators continue to expand in Nigeria, as detailed in Table 14, which shows major projects under development. The table illustrates the stakes all of the companies have in maintaining good relations with the government, local communities and other stakeholders in Nigeria as they seek to continue to make investments in major oil and gas developments in the years ahead. The same top players analyzed in this report for potential spill liabilities and sustainability practices are those with the largest projects coming on stream in the next five years. Therefore, they are the same companies that have the most need to maintain a license to operate in Nigeria. Their shareholders should learn lessons from the past to ensure that mistakes are rectified, so that future impacts on affected communities are more positive. This will lead to improved outcomes for shareholders.

Table 14:
Major Oil and Gas Projects Under Development in Nigeria

Operator	Project	Capacity (barrels/day)	Year Online
Total	Engina	200,000	2014
Total	Usan	180,000	2012
SPDC (Shell)	Bonga North and Northwest	150,000	2014
SPDC (Shell)	Bonga Southwest and Aparo	140,000	2014
ExxonMobil	Bosi	135,000	2015
ExxonMobil	Uge	110,000	2016
Chevron	Agbami 2 expansion	100,000	2011-2014
Chevron	Nsiko	100,000	2015
SPDC (Shell)	Gbaran Ubie Phase 1	70,000	2012
ExxonMobil	Ehra North Phase 2	50,000	2013

Source: U.S. Energy Information Administration (EIA). (August 2011). Country Fact Sheet, Nigeria. Retrieved Sept. 15, 2011 from http://www.eia.gov/countries/cab.cfm?fips=NI.