



Project Document

Environmental Survey of Ogoniland



Prepared by

United Nations Environment Programme

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Environmental Survey of Ogoniland

1.0 Background

Oil exploration and production activities in Ogoniland (Nigeria) have been ongoing since 1950s. Shell International (SI), through the local company Shell Petroleum Development Corporation (SPDC) has been the operator of the Ogoni oil field. The oil field operations have caused significant environmental contamination, some due to routine activities and some due to accidents. The people in the Ogoniland also did not see enough social/community benefits from the oil exploration and production in their region. This has resulted in a public unrest which eventually resulted in SPDC having to cease their operations in the area in 1993. The oil fields, with all their installations, have since then remained dormant. However, environmental contamination from the previous operations remains unremediated or partially remediated. Also there were incidents of additional oil spills due to lack of maintenance of oil field facilities and sabotage. On the whole, there is widespread environmental contamination in the area, most important being the hydrocarbon contamination of soil and groundwater. There are also residual secondary impacts on agriculture, fisheries and probably public health from air pollution due to oilfield fires and flaring. Though SPDC has undertaken some assessment and clean up of specific areas of contamination in the past (and also currently), no comprehensive assessment of contamination covering all issues of environmental damage has ever been undertaken in Ogoniland.

In July 2006, the United Nations Environment Programme (UNEP) received a formal request from the Government of Nigeria for “*Supervision of Remediation of the Clean up of Oil Contamination in Ogoniland*”. In order to understand the context of the request and expectations from the Government, UNEP Executive Director sent a high level mission to Nigeria. The mission met and had extensive discussions with various stakeholders including the President of Nigeria, SPDC Management and local government officials.

During the discussions, the following points were noted:

- The request to UNEP is being made as a part of an overall peace and reconciliation process in Ogoniland.
- In 2005, a Presidential Initiative on Ogoni-Shell reconciliation was established and Father Mathew Hassan Kukah, a respected religious and human rights leader was made the facilitator of the process. The initiative had three objectives:
 - to achieve internal peace and stability within the various groups in Ogoni,
 - to initiate assessment and clean up of the environmental issues,



- to initiate developmental activities in Ogoni as part of the River State Sustainable Development Programme.
- to facilitate negotiation between the parties (Ogoni/Shell/Fed Government) towards the possible return of oil production in the area.
- There has been significant progress toward the achievement of the first objective since there have been limited instances of violence in Ogoni in the last six months.
- The local communities have agreed that they would support an international agency, such as UNEP, to step-in and undertake a comprehensive assessment of the environmental situation and supervise clean up and remediation. It is in this context that UNEP's support is being requested.
- Shell has agreed to pay for all the costs associated with assessment, clean up and remediation.

Following the initial scouting mission, a technical mission was sent to the River State to meet with the local government and stakeholders to explain to them the scope of the assessment and obtain their reaction. The team also undertook an aerial reconnaissance over the entire area and ground-truthing visits to selected areas. The team also visited the SPDC office to collect various documents and maps related to Ogoniland oil fields.

This project document is prepared based on the inputs received during the field visits.

2.0 Problem Statement

The Ogoniland oil fields, which are the subject of the current assessment, are contained within about 900 square kilometres in area (the actual field and facilities associated being much smaller than this area). The surface area has typical delta features (flat ground, lush low growth vegetation, shallow water table and numerous creeks). Oil exploration has been ongoing since 1958 and Shell has drilled more than 100 wells and constructed number of flow lines, manifolds and flow stations. In addition to the production facilities, a number of oil export trunk lines pass through the area. A summary of the SPDC facilities in Ogoniland is presented in Table.

Summary of Oilfield Operations in Ogoniland	
TOTAL FIELDS	12
TOTAL WELLS DRILLED	116
TOTAL FLOW STATIONS	5
TOTAL FLOW STATION CAPACITY	185,000 barrels per day (bpd)



Activities related to oil exploration and production, such as seismic survey, drilling, production and transport, have a range of environmental and social impacts even during normal operations. The impacts range from change in land use, disruption in local hydrology, bisecting ecosystems, air pollution from gas flares (in the past) and pollution of soil and ground water. These impacts can be aggravated by environmental accidents such as oil spills and blow outs. In situations, such as those in Ogoniland, where security constraints prevent the operators from maintaining the full integrity of the oil field facilities, the frequency and intensity of such environmental incidents will increase. The geographic extent of the pollution is often increased if security issues prevent the operator from accessing the spill site in time, with the required equipment to contain the spill and initiate clean up action. Considering the possibility of environmental incidents arising from deliberate acts of sabotage, extensive contamination of soil and water is to be expected. With frequent rains and a high water table, the oil contamination could have been carried further down the delta through the creeks contaminating surface water and river sediments. The contamination of soil, surface water and ground water in turn would have adverse socio-economics impacts on agriculture and fisheries. It is also possible that the environmental contaminants reach the population through one of the pathways (air, water, food) causing adverse health impacts. The air pollution caused by flares, fire from blowouts and evaporation of volatile hydrocarbons from spills all have additional impacts on health and property.

The aerial reconnaissance and ground-truthing visits, although confined to a few sites and quite limited in scope, confirmed the above observations. There are a number of locations where soil contamination is visible. The water table is almost at surface and direct leaching of hydrocarbons to surface water and oil sheens in water bodies are seen at some distance from the expected source. Oil fires are seen at one location resulting in air, water and soil pollution. Site visits and interviews also confirmed the inadequate nature of the clean up activities, which were previously undertaken at some contaminated sites. Impacts on fisheries, agriculture and public health, if any, are not immediately visible. The extent of these impacts need to be investigated through considerable analytical work.

The proposed comprehensive environmental study of Ogoniland shall therefore cover the following aspects:

- Soil contamination from oil spills
- Groundwater contamination from oil spills
- Surface water and sediment contamination in the creeks.
- Adverse impacts on ecosystems (flora and fauna) due of oil field infrastructure and activities

In addition, the study will explore to a lesser extent the following:



- Potential changes to surface hydrology due to oil field infrastructure
- Potential changes in agricultural productivity and fisheries due to contamination of soil, surface water and groundwater
- Possible impacts to public health and property due oil field fires

A more comprehensive matrix of the issues to be covered is presented in Appendix I.

From a technical point of view, assessment of environmental contamination similar to that in Ogoniland is not unique. Expertise, equipments and protocols for such studies are well developed. However there are a number of features that make Ogoniland somewhat unique:

1. **The extent of the contamination:** There are multiple sites of contamination within the Ogoniland area
2. **Time period of contamination:** Oil field activities are ongoing since 1950s. Some major contamination from the 1967-70 Nigerian civil war period remains to this day. Much of the pollution has dispersed and there is substantial overgrowth.
3. **Cause of contamination:** Causes range from routine operations, accidental spills and sabotage
4. **Clean up history:** Efforts were made many times in the past to clean up segments of the contaminated sites with limited success.
5. **Environmental issues other than soil/water pollution:** There is a range of other environmental and social issues associated with oil spill in Ogoniland
6. **Political Context:** The work will be undertaken in a very complex political context. A successful project will have peace building dividends.

As result of the above, a site specific methodology has to be developed for this assessment.

3.0 UNEP's Approach

Keeping in view the specific technical nature of the problem but also being mindful of the overall political and social context in which this project is being undertaken, UNEP plans to approach this environmental survey with a view to produce outputs which;

1. Undertake a comprehensive assessment of all environmental, issues associated with the oilfield related activities in Ogoniland, including the quantification of impacts
2. Provide useful guidance data to undertake remediation of contaminated soil and groundwater in the Ogoniland



3. Provide specific recommendations regarding the scope, modalities and means of remediation of soil and groundwater contamination
4. Technical evaluation of alternative technologies which could be employed to undertake such remediation
5. Provide recommendations for responding to future environmental contamination from oil field operations
6. Provide recommendations for sustainable environmental management of Ogoniland
7. Enhance local capacity for better environmental management and promote awareness of sound environmental management and sustainable development
8. Be part of the peace dividend and promote ongoing peace building efforts

The technical approach to the problem will be as follows.

3.1 Background Research

Undertaking the environmental study of Ogoniland will require that a very substantial amount of background research on all aspects related to the project (technical, sociological and legal) be undertaken. This work could start as soon as possible and will continue throughout the duration of the field assessment phase. Background research will be based on published work, old maps, interviews, additional investigation as appropriate and other potential lines of research. This will also be an ongoing process throughout the period of UNEP's project.

3.2 Remote Sensing Analyses

Remote sensing will be an integral part of this project and will be applied in all aspects of the work starting from contaminated land assessment, ground water contamination, impact on flora, impact on hydrology and also for identification of sites for technology trials and final treatment. Appropriate satellite images (both current and historic) will be procured for this purpose, including programming the satellites to obtain specific snapshots of the area, when needed. Detailed map of every site visited will be produced based on high resolution satellite images. Based on ground observations, these maps will then be annotated.

3.3 Soil and Ground Water Assessment

Soil and groundwater contamination assessment will be done in the following phases.

- **Visual Inspection of Contamination:** All well heads, well pads, pipeline routes, manifolds and gathering stations will be visited by a team. A checklist will be developed, in consultation with SPDC to look at the visual integrity of the facilities and if there are



indications of soil and ground water contamination (or potential for). Sites will be photographed and GPS referenced for records.

- **Initial Assessment of Contaminated Sites:** Based on the scouting visits, all sites needing detailed assessment will be identified. It is proposed to gather additional specific information on these sites (well history, site history, geological information, access issues and land use) and prepare plans for detailed site assessment, including high resolution satellite image based maps of every sites selected for additional investigations.
- **Securing the Sites:** In locations where the current status of the well and surface facilities are in such a situation as to pose a safety risk to the assessment team, these facilities will have to be made safe. Specialised assistance facilitated by SPDC will be needed to achieve the same.
- **Detailed Site Assessment:** For the identified sites, detailed site assessments (soil and water sampling) will be undertaken so as to understand the extent of contamination (soil and water), both depth and concentration levels. In addition, information will be gathered on pathways and receptors associated with the specific sites for qualitative risk assessment. Reference samples will be collected from areas not affected by contamination. The sites to be assessed may in cases be remote from the oil field facilities due to the possible transport of contamination through water or soil.
- **Geological Investigations:** In order to fully understand the risks associated with the contamination, it is necessary to study the shallow geology upto the first impermeable layer. Geologically investigations, involving collection of cores, will be undertaken to study the shallow geology in representative areas in Ogoniland. Additional information on soil properties, such as porosity, compaction, moisture content and oxygen will be collected where appropriate. Additional parameters such as soil compaction, porosity, moisture and oxygen content will also be collected to assist with both remediation and agriculture work.

3.4 Remediation Pilots & Technology Trials¹

In order to demonstrate practical improvements to the community and develop viable recommendations for restoration of the environmental quality, it is important that internationally known solution to problems of contaminated land and ground water (eg. Thermal desorption) are tested in the local context. Few pilot sites will be selected during the course of the assessment to demonstrate clean up and undertake trial of new technology. Remediation pilots/technology trials for

¹ It has been agreed between UNEP and SPDC that technology trials will not be undertaken as part of this project. However, clean up of some of the contaminated sites could be initiated during the assessment project itself as technology demonstrators and confidence building measure. The location, technology and costing of such exercise will be subject to a separate document.



remediation of soil/sediments will be undertaken during the project on the following;

High Technology: Incineration, Thermal Desorption, Hydrowashing etc

Intermediate Technology: Ex Situ Biotreatments

Low Technology: In-situ Land farming, enhanced natural attenuation

In addition remediation pilots/trials will also be undertaken for the following treatment for ground water;

High Technology: Pump and treat technologies

Intermediate Technology: Reed beds, Oil traps, absorbent booms

Low technology: Enhanced natural attenuation

Site Selection for Setting up Treatment Units: It is to be anticipated that in-situ treatment will have to be undertaken for both soil and ground water at a number of locations. However, it is also expected that there may be scope for consolidating the high tech interventions on contaminated soil (e.g. thermal desorption) in one central location. A proper site selection exercise for such a facility, including geological investigations and environmental impact assessment will be an integral part of this exercise. A conceptual layout design will be developed as an output from this exercise. If feasible within the timeframe of this exercise, some pilot remediation will be undertaken at this selected site.

3.5 Other Environmental Issues

In addition to contaminated land issues, the following issues will be studied as part of this exercise.

Air Pollution Related Issues: In case of events of oilwell fires during the project period. UNEP will arrange for a spot monitoring of the air pollution impacts associated with such fires. Spot measurements of air quality in areas not impacted will also be taken as reference.

Impact on Agriculture: This study will be based on remote sensing analyses (of vegetation cover and land use) and statistical analyses of agriculture productivity. This broad picture will be supplemented by ground truthing to verify the conclusions and understand any specific changes related to soil quality and hydrology. Plant samples will be collected from the contaminated sites for analysis. Levels of polluted materials will be compared with uncontaminated plants.

The agriculture study will also be undertaken with view to produce a broad picture on the issue rather than site specific impacts and remediation measures. Productivity of field crops will be evaluated in the impacted sites as compared with the uncontaminated sites.



Impact on Fisheries: The fisheries study will be based on statistical analyses of fish catch to be supplemented with limited ground truthing on water and sediment quality analyses. Here also the objective will be to present a broad picture on the issue rather than attempting to gather site specific impacts and remediation measures. Fish samples will be collected for analyses of possible food chain contamination.

Impact on Public Health: The public health study will be undertaken based on statistical analyses on the mortality and morbidity statistics to be supplemented with limited interviews with medical personnel and community members. The objective will be to present a broad picture on the issue rather than attempting to prescribe specific solutions to individual affected people.

3.6 Sustainable Development Initiatives²

Promoting long term peace and sustainable development of Ogoniland needs that the study not only focuses on the historical pollution associated with oil field operations but also look at the overall environmental context in which future oil field operations will be undertaken. The following additional environmental initiatives will be undertaken in Ogoniland as part of the project. In order that these activities themselves are sustainable and the conclusions are owned and acted upon, this work will be undertaken with participation from UNDP and Government of Nigeria.

Environmental Baseline: All environmental data collected during the project period will be presented in a format readily usable by decision makers to assist sustainable resource management in Ogoniland. However this will be done with no additional cost to the project.

4.0 Project Implementation Arrangements

The project will be implemented directly by UN, including both UNEP and UNDP. UNEP will provide the technical lead to the project and UNDP will provide administrative/logistic support to the project. In addition, the project will try to work with UNDP to synchronize other developmental activities in the region which improve the peace building context and thus provide improved acceptance for UNEP to operate.

A technical committee will be formed consisting of members from UN (UNEP/UNDP), SPDC, Federal Government of Nigeria and River State Government. The project team will report regularly (no less than once a month) to the technical committee. Technical committee members may make suggestions to

² It has been agreed by all parties that this is a desirable part of the project. However it was agreed by UNEP to keep the costing of such exercise outside this project budget. Activities will be undertaken on an opportunistic basic using the availability of experts in the area.



the UNEP team on any aspect of the project implementation and UNEP will consider each of the suggestions and respond formally to the committee. The technical committee will be headed by the Project Manager of the Ogoni Environmental Survey Project.

The technical committee will report periodically (no less than once every quarter) to the Implementation committee. The Head of the Implementation (Rev. Father Kukah) will report regularly to H.E. The President of the Federal Republic of Nigeria.

5.0 Project Team

As mentioned, previously, the project will be fully implemented by UN and the team will consist of staff/consultants from UNEP. The project will be led from UNEP Post Conflict and Disaster Management Branch in Geneva where all technical/financial management will be co-ordinated. The project will have liaison offices in Nairobi (political/communication and technical backstopping) and Abuja (UNDP). The main project implementation office and logistics base will be in Port Harcourt, where the project implementation manager will be based. In addition the project will have four community liaison offices each located within the local government authority offices.

5.1 Local Content in the Project Team

Efforts will be made to maximize the local content in the project team in order to maximize social return to the Ogoni People, to benefit from local knowledge, to increase local capacity and to minimize cost. However ensuring the high technical quality of the work and integrity of the process will be the overriding criterion in choosing the project team. Currently the following positions are expected to be filled by the local community;

- Community Liaison officers (4 positions)
- Communication Assistants (4 Positions)
- Technical Assistants (10 positions)
- Drivers (10 positions)

Technical experts will be scouted from all over Nigeria (including Ogoniland) to undertake various environmental studies. The number of such people needed/available is as yet unspecified.

A large number of people from Ogoniland (e.g. School teachers, health visitors) will be involved in the awareness campaigns. However, this is not considered to be an employment opportunity but a capacity building opportunity.

In addition to individual staff and experts, UNEP will enter into a number of memorandums of understanding (MOUs) with local institutions in Ogoniland (e.g.



Polytechnic) and Port Harcourt (University) to undertake specific aspects of the work including studies on agriculture, fisheries and public health.

Subject to the approval of the Federal Government, UNEP would like to actively collaborate with the National Oil Spill Detection and Response Agency (NOSDRA) during this project so that their capacity to assess and respond to environmental emergencies is enhanced. Laboratory space in the Port Harcourt Office of the National Oil Spill Detection and Response Agency (NOSDRA) would be made available for the use of UNEP to stock and operate its laboratory equipment during the course of the clean-up exercise. This will ensure that they can undertake similar activities in other parts of Nigeria as well as handle similar issues in future.

An overriding framework agreement will be signed between UNEP, The Government of Nigeria and Shell Petroleum Development Corporation Nigeria, Limited.

6.0 Health, Safety and Security Issues

Health, Safety and Security (HS&S) of the project team will be the highest priority of the project team. Due to the nature of the project, the type of locations and activities, one has to expect and be prepared for HS&S related incidents.

The fact that the SPDC withdrew from the oilfield without a standard facilities decommissioning exercise make the existing facilities vulnerable. Undertaking field work close to these facilities could trigger accidents. It is therefore important that these facilities are made secure prior to the detailed site assessment. Such activities will also assist UNEP in ensuring that modern technology could be used for assessment thereby reducing the time needed to complete the assessment.

A security risk assessment (SRA) will be undertaken in association with UN Department of Safety and Security. This SRA will be supplemented with a security management framework analysis to decide upon the operational profile to be adopted by the team to ensure optimal security.

The work will be conducted within the UN Methods of Operations under Security Situations (MOSS) standards. All staff involved will be trained on MOSS requirements, including radio communication. All vehicles and premises will be inspected for MOSS compliance and adequate measures put in place to ensure compliance.

A detailed health and safety risk assessment will be prepared prior to the commencement of the work. This will be supplemented with site specific health and safety plans. All health and safety aspects of the work will be undertaken to international best practices. Guidance from SPDC will be sought in precautions to be taken while working close to the facilities. All equipment used will be compliant to working in the various safety zones as appropriate in the oil industry.



In addition, due inspection will be undertaken on presence of flammable/toxic gases prior to initiating work at site. All staff working on the project will be provided with training on health and safety aspects. In addition, staff will be equipped with adequate personal protective equipment (PPE).

Each field team will have a health, safety and security advisor embedded into the team. The HS&S advisor will ensure that all the required HS&S precautions are taken at all times.

Road traffic is considered by the project team to be the factor having the highest possible risk. Efforts will be taken to minimize incidents by training of drivers, in vehicle controls (speed controls, GPS tracking, other security features) and proper journey management system.

An emergency response plan will be prepared as part of the exercise. All staff will be familiarized with the plan and the plan will be exercised periodically.

7.0 Community Relationships

Ensuring good community relations will be key to the success of the project (working with the Presidential Facilitator office to strengthen the linkage between the technical activities and the peace building process). To this end the following efforts will be taken

7.1 Community Liaison Offices: There will be one Community Liaison Office (CLO) in every local government area (one each in Eleme, Tai, Gokana and Khana). The office will be staffed with a community liaison officer (who will be from the community) and communications assistant. The CLO will be the nodal point for all information exchange between the UN project and the community. Community Liaison Officer will proactively engage all the sections of the society (Local Government Authority, Traditional Leaders, Religious Leaders, Women Groups, Youths and Academics, MOSOP, KAGOTE ??) to provide them with information about the project. Prior to the initiation of field work, the community liaison officers will visit each of the sites to be visited by the teams to inform the community of the visit and obtain the required permissions.

7.2 Employment Opportunities: The environmental survey phase of the work is not expected to generate large number of employment opportunities for the community. Up to 10 graduates from the community will be trained in environmental site assessment. In addition, whenever a suitable candidate with technical expertise is available from the community preferential treatment will be given to them. In addition a limited number of community members will be recruited and trained for incorporation into the project team for other functions (such as drivers).

The second phase of the project (clean up) will have substantial opportunities for employment generation.



7.3 Capacity Building: The project will offer substantial capacity building opportunities for environmental management in Ogoniland. This will include Government Officials, University, Polytechnic and school teachers in addition to other members of the community as appropriate.

7.4 Environmental Awareness Campaigns: The project will undertake concurrent environmental awareness campaign at the grassroots levels giving substantial visibility to the project and promoting goodwill to the UN.

7.5 Community Participation in Assessments: The project team will be continuously seeking community input into the project implementation. The information sought will range from location of the current/past spills, clean up undertaken, locations of wells, where there are indications of pollution. In addition, environmental surveys in the areas of agriculture, fisheries and public health will have extensive consultations with community.

7.6 Supporting Initiatives from UNDP: UNDP country offices routinely initiate projects aimed at improving human development indicators and achieve millennium development goals in the community. It may be possible for UNDP Nigeria to initiate some of these activities in the Ogoni area. These initiatives will have no financial implication on this project.

8.0 Communication

In order to keep the community fully in the picture about the progress of the work, a number of communication and awareness raising products will be developed. This will include,

- Posters explaining the project and contact points
- Brochures explaining the projects
- Radio Programmes
- TV programmes
- Websites
- Presentation in schools
- Presentation in other community meetings

9.0 Information Management

The study will produce large quantities of primary data (chemical analyses, photographs, reports) and proper organization of the data will be a major task. Therefore, in order to ensure efficient access to information and traceability of study conclusions back to field data, a comprehensive information management system will be established as part of the project. An information management protocol will be developed so that various data collected can be assigned suitable hierarchy of confidentiality. Information will be presented in geographical information system format navigable both by traditional GIS systems (e.g.,



Arcgis/Arcinfo) or Google Earth. Secured websites will be established to exchange data between the field office and Geneva as well as between UNEP, SPDC and Shell International.

10. Reporting

The project will produce multiple reports, including

- Monthly progress reports showing technical, financial and Health and Safety Performance
- Quarterly technical reports
- Final report

All reports will be available in both hard copy and electronic in public domain, including on the dedicated website.

11.0 Outputs

The study will produce the following outputs;

1. A compilation of the inspection checklist of all oil field facilities in Ogoniland giving their current status focusing on environmental issues
2. A detailed contamination assessment (soil/ground water) around every contamination hotspot, including 3-D computer aided design (CAD) diagrams
3. Detailed recommendations for each of the sites providing information about what technologies will be appropriate for clean up
4. A comprehensive remediation document for the entire Ogoniland oilfield providing information on the total volume of contaminated soil needing treatment at a centralized location, including recommendations for siting such a facility and the appropriate technology to be employed
5. A series of reports on other environmental segments impacted by the oil field operations including recommendations for clean up
6. An environmental baseline report for Ogoniland, including recommendations for promoting sustainable environmental management
7. Awareness campaign materials (TV/Radio/Newspaper articles, posters, school presentations)
8. An environmental databank comprising all publicly accessible data collected by UNEP and its partners through the course of the project



All reports will be available in both hard copy and electronic in public domain, including on the dedicated website.

12.0 Timeline for Project Implementation

Technically the most challenging part of the work will be detailed assessment of land contamination, which, depending upon the number of sites to be assessed, could take many months and new sites may come to light as old site assessments are completed. Other elements of the work are more predictable. This is of course considering that the work will not be impeded by security related incidents.

On the other hand, there is political pressure to complete the project as soon as possible so that the clean up activity will start which will both demonstrate to the community that the environmental surveys will lead to concrete action as well as generate jobs, both leading to consolidation of the ongoing peace building efforts.

The timeline for the project is provided in Figure 2. In case the site assessment phase takes more time than planned, the alternative plan will be to already initiate the clean up at the already assessed sites, without waiting for the final results at all sites.

13.0 Budget

A budget estimate for the project is USD 9589180.

14.0 Risks Associated with the Project

- **Technical:** The pollution in this area is a result of over 3 decades of oil field operations. Consequently no accurate information of the spill location is available. Soil of the area is sandy loam with high water table with high lateral movement, causing the oil contamination to migrate both vertically and horizontally. Also since the operator (SPDC) left the oil field in 1993, there is substantial overgrowth of natural vegetation in impacted areas. All the above make identifying the location of the spill and extend of contamination technically very challenging. It is likely that as the team start work in the field new and new contaminated sites may be identified, often overgrown with vegetation (or even housing).
- **Safety Risks:** As mentioned previously SPDC withdrew from the field without a proper decommissioning exercise thereby a number of wells and facilities continue to pose safety risk. It is important that these facilities are made secure prior to undertaking detailed assessment in the area.
- **Security:** The security situation in the Niger Delta area is of great concern with attacks on security forces and kidnapping of oil workers reported periodically. The Ogoniland itself has been relatively free of such violence. Security will also impact the ability to mobilize qualified experts to the region and in the event there is any security incident, including criminal activity, it will have impact on project schedule. Also if the UN Department



of Safety and Security changes the security phase of Ogoniland, it will have significant time/cost implications.

- **Financial:** The project area is huge (900 sq kilometres) with up to 100 oil wells and multiple oil field related facilities (pipelines, manifolds, flowstations etc). There are over 100 known contaminated sites. The assessment exercise therefore will be one of the biggest of its kind in the region. Financial costs could escalate due to the cost of obtaining qualified people (see above point on security), logistics related to access and security precautions, amount of sampling to be undertaken and the need to complete the work within time. In addition any delays in project implementation due to political or security reasons would cause the cost to escalate.



Appendix I
Potential Environmental Issues and Impacts in Ogoniland

Oil Field Activity	Environmental Issues									
	Landuse/ Vegetation	Soil	Agriculture	Fisheries	Air	Hydrology	Water Quality	Public Health	Animal Husbandry	Built up Property
Infrastructure Development	X	X	X	X	X	X	X		X	X
Seismic Operations	X		X							X
Drilling	X	X	X	X	X	X	X			X
Pipelines	X		X			X			X	X
Oil Field Accidents	X	X	X	X	X		X	X	X	X



Appendix II: Workplan for The Environmental Survey of Ogoniland

SI #	Project Activity	2006						2007												2008			
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
1	Background Research	■	■																				
2	Internal Consultations		■	■	■																		
3	Scouting Visit				■																		
4	Technical Visit					■																	
5	Project Development				■	■	■	■															
6	Financial Closure							■															
7	Project Set up																						
	Team Identification and Recruitment							■	■	■	■												
	Tie up with implementation partners					■	■	■															
	Office Set up								■	■	■	■											
	Procurements								■	■	■	■	■	■									
8	Project Implementation																						
	Kick Off								■														
	Reconnaissance Visits								■	■	■												
	Detailed Site Survey										■	■	■	■	■	■	■	■	■	■	■	■	
	Other Environmental Issues											■	■	■	■	■	■	■	■	■	■	■	
	Environmental Baseline of Ogoniland											■	■	■	■	■	■	■	■	■	■	■	
	Awareness and Capacity Building									■	■	■	■	■	■	■	■	■	■	■	■	■	
9	Implementation Committee meetings										■				■				■			■	
10	Technical Outputs											■	■	■	■	■	■	■	■	■	■	■	
11	Follow up Plans																					■	■

■	Completed Activity
■	Ongoing Activity
■	Planned Activity



Project Summary Sheet

Name of Project : Environmental Survey of Ogoniland
Duration : 15 Months
Location : Ogoniland, Rivers State, Federal Republic of Nigeria

Project Summary : Assessment of the environmental contamination in Ogoniland consequent to the oil exploration and production operations in the last 50 years. Study will cover contamination of soil and ground water, potential impacts on vegetation, agriculture and fisheries. Study will also cover air pollution and public health impacts.

Approval of Project Document: The project document was approved by the Presidential Implementation Committee at its meeting in Abuja on 15th January 2007.

Project Budget : USD 9589180

Approval of Budget : The project budget was agreed between SPDC and UNEP in February 2007.

Implementation Strategy: Study will be undertaken by UNEP, in association with UNDP. A number of national institutions will be involved with the National Oil Spill Detection and Response Agency being one of the key counterparts.

Project Funding : The budget of the project has been discussed and agreed between UNEP and SPDC. The entire funding for the project will be provided by SPDC.

Financing Arrangement: SPDC will amend its existing MOU with UNDP, Nigeria to channel the required funding to the project.

Oversight arrangements: The project team will report to the Presidential Implementation Committee.

A large, stylized handwritten signature in black ink, appearing to read 'Alberic Kacou', written over a horizontal dashed line.

Alberic Kacou
Resident Representative
UNDP
Abuja

A handwritten signature in black ink, appearing to read 'Chief (Mrs) Helene Eusene', written over a horizontal dashed line.

Chief (Mrs) Helene Eusene
Minister for Environment,
Housing & Urban Development
Abuja

A handwritten signature in black ink, appearing to read 'Sekou Toure', written over a horizontal dashed line.

Sekou Toure
Regional Director, Africa
UNEP
Nairobi