



The Sustainable Restoration of Ogoniland, Nigeria

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Content

1. UNEP's Mission.
2. Brief Details of Ogoniland.
3. Background to the Conflict.
4. UN Environment's Role..
5. Key Findings & Recommendations.
6. Progress.



UNEP's Mission

1. UN Environment's assistance was requested by the President of Nigeria in 2006.
2. Requested to conduct assessment of environmental impacts associated with oil-field activities in Ogoniland, Niger Delta.
3. Provide scientific data and make recommendations for sustainable environmental remediation of Ogoniland.
4. Contribute to peace building.



Ogoniland

1. Ogoniland is located within Rivers State, Nigeria.
2. Kingdom of 1,000 km²
3. Population of approximately one million.
4. Comprises 4 local government areas.
5. Oil exploration and production operations:
 - began 1950s
 - ceased 1993





Ogoniland

- Oil facilities at 1993 closing:
 - 12 oilfields
 - 116 wells drilled
 - 5 flow stations
 - Flow station capacity of 200,000 barrels per day
 - But production was at only 20,000 bpd (some 10%).
- Today:
 - Zero production, only crude oil and product pipelines passing through Ogoniland.

Sampling Fieldwork

1. 200+ spill sites inspected – risk based exercise completed;
2. Detailed land and groundwater investigations at 69 priority sites;
3. Water samples from 142 groundwater monitoring wells;
4. Soil from some 800 auger-holes;
5. Sediment samples collected at 37 locations
6. Air quality testing at 29 villages, 2 reference sites
7. More than 4,000 samples analyzed for multiple parameters.



Analyses

Process

1. Samples collected following internationally-accepted procedures.
2. Proper chain of custody.
3. Dispatched for analysis to accredited (ISO 17025) laboratories in Europe.



Analyses

1. Primarily looking for hydrocarbons the most important:
 1. BTEX (benzene, toluene, ethylbenzene and xylenes).
 2. PAHs (polycyclic aromatic hydrocarbons).
2. Measured as total petroleum hydrocarbons (TPH).
3. Air quality: volatile organic compounds (VOCs) and particulate matter.



Community Involvement

1. More than 250 formal community meetings organized.
2. Attendance > 23,000 people.
3. Input of local knowledge of oil spill sites.
4. UNEP Community Liaison Assistants based in each LGA



Key Findings



Findings

1. Contamination in Ogoniland and surrounding creeks is severely impacting all parts of environment.
2. Concerns over viability, productivity of ecosystems.
3. Serious health risks to thousands of community members.
4. Restoration: 25-30 years.



Soil Contamination

1. Pollution by petroleum hydrocarbons is extensive in soil, sediments and swampland.
2. Mostly from crude oil (refined product at 3 locations).
3. Importantly, areas which appear unaffected on surface often found to be heavily contaminated underground.
4. In 49 cases, hydrocarbons in soil at depths of at least 5 m





Groundwater

1. At 41 sites, pollution has reached groundwater and exceeds Nigerian standards (600 ug/l)
2. Most serious case is Nisisioken Ogale:
 - 8 cm layer of refined oil floating on groundwater which serves wells.
 - Water in wells contains benzene at over 900 time WHO standard.
 - Benzene: C_6H_6 , colourless, very flammable, sweet smell (typical in service stations) – highly carcinogenic.
 - Source: local refinery.

Public health

Ogoni community exposed to petroleum hydrocarbons via:

1. Air;
2. Polluted drinking water;
3. Bathing, swimming in contaminated water;
4. Walking, touching contaminated soil;
5. Accidental ingestion.



Oil Bunkering (Artisanal Refining)

1. Refining (cooking) of crude oil in makeshift facilities using illegally bunkered oil;
2. Ongoing and growing problems throughout Ogoniland and broader Niger Delta;
3. Leaves severe and disproportionate environmental footprint & health impacts;
4. Solutions need to be found or remediation efforts cannot succeed.

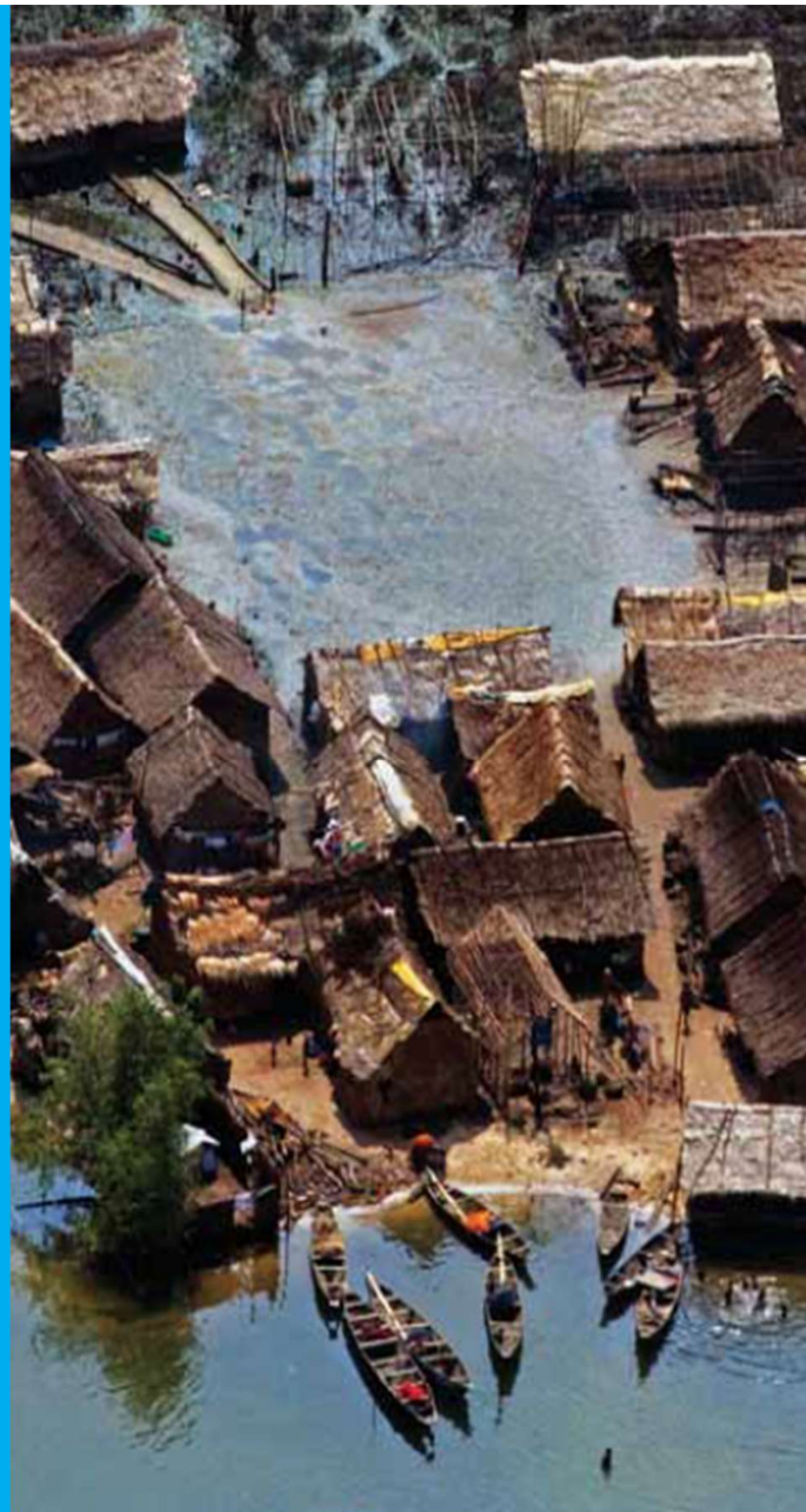


Key Recommendations



Recommendations

- **Emergency Measures:**
 - Provision of potable water to impacted communities.
- **Operational Recommendations:**
 - IOCs to produce an Asset Integrity Management Plan for Ogoniland plus a comprehensive decommissioning plan.
 - Launch a campaign to bring to an end illegal oil-related activities - a joint initiative between the Government of Nigeria, the oil companies, Rivers State and local community authorities.
 - Enhance the RENA clean-up approach – heavily contaminated soil to go to treatment centers.





Recommendations

- **Mangrove Restoration:**
 - Bringing the ongoing illegal oil activities to an end;
 - Study of the hydrological regime to determine whether there are changes which could impact the restoration process – such as road construction, changes in elevation etc.
 - Reviewing the state of degradation of the various sections and prioritizing areas for intervention.
 - Review and select most appropriate mangrove restoration techniques.



Recommendations

- **Public Health:**
 - Register residents in impacted communities;
 - Undertake extensive medical examinations;
 - Establish a public health registry for the entire Ogoniland population in order to track health trends and take proactive action.

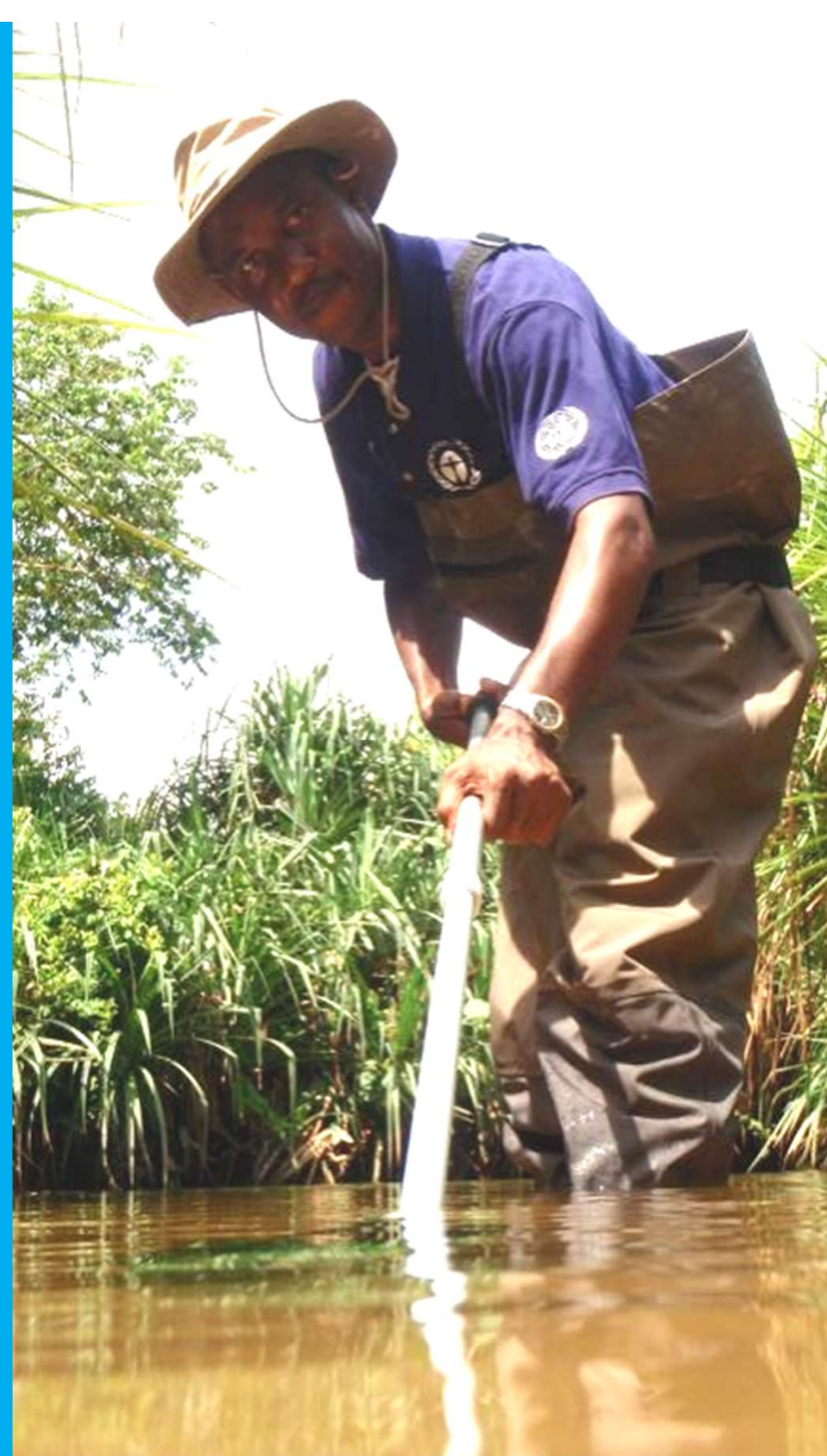


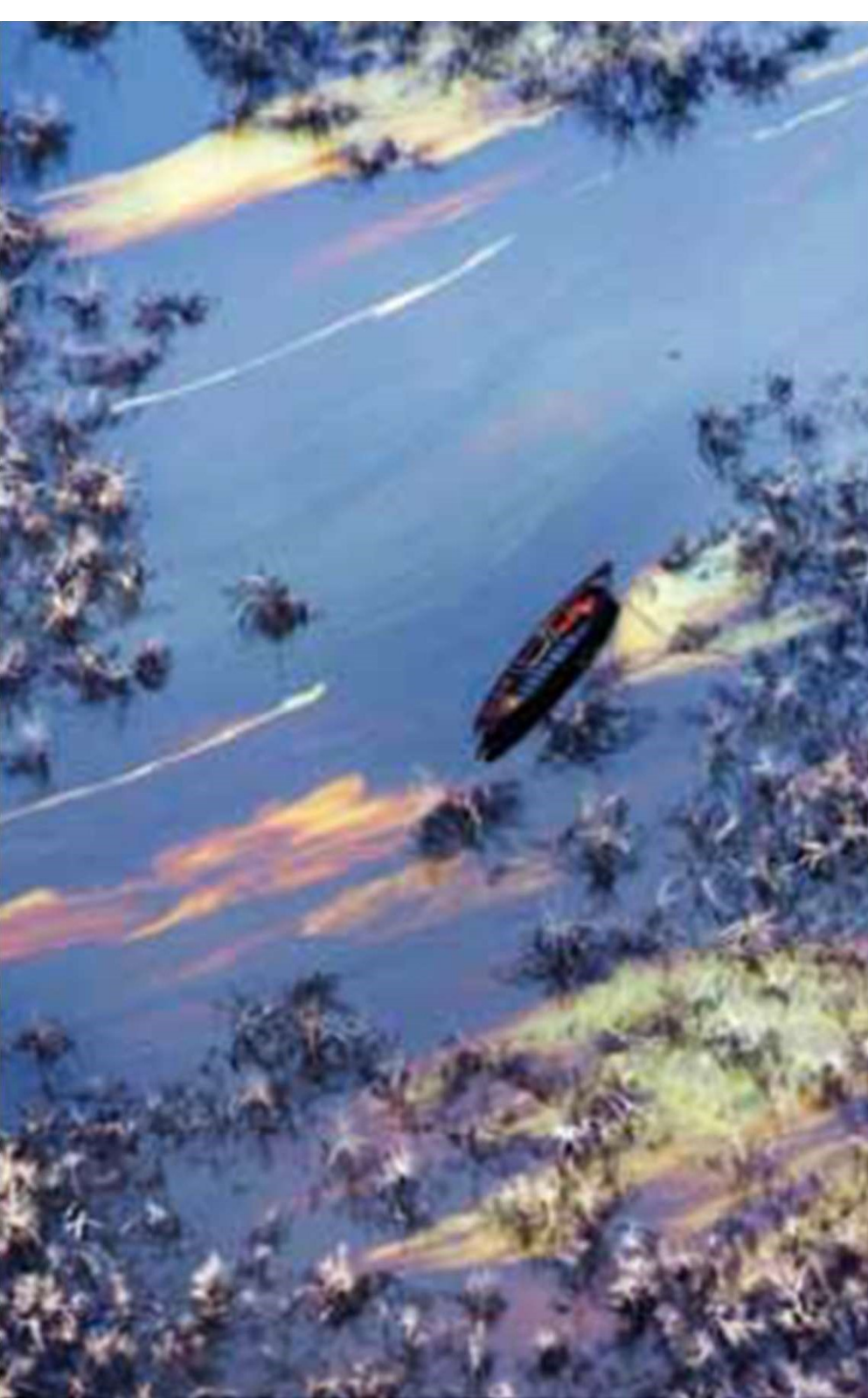
Recommendations

- **Institutional:**
 - Create new entity to oversee Ogoni clean-up (HYPREP) under MoE.
 - Establish Ogoni Restoration Fund from oil industry operators - of US\$ 1billion over 5 years to be paid by JV partners.
 - Funds to be managed by Board of Trustees;
 - Operational oversight by Governing Council, Chaired by Minister of Environment.
 - Clean-up timeline 25-30 years.

Recommendations

- **Preventive Surveillance:**
 - Weekly scouting visits by air, boat and foot to all infrastructure looking for new spills.
- **Monthly Environmental monitoring of water bodies:**
 - To zone-off areas where fishing and recreational activities are suspended;
 - Track improvements in environmental quality as remediation activities are undertaken.





Progress

- To date, HYPREP is several years behind programme – limited progress made.
- UNEP re-engaged 2 years ago – after 8-year absence for capacity building and training.
- Now embarking upon a longer-term agreement with GoN to help drive the HYPREP process.
- HYPREP being re-structured – procedures amended.

Progress

- New Acting PC in place – institutional review on going.
- UNEP to promote greater transparency and accountability and engagement with local community.
- Trust being re-built.
- There is a long way to go and many obstacles ahead – but there is growing optimism.



Thank you



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