

Lemon into Lemonade: Revisiting the Niger Delta Creek Refineries: Fundamentals, Technology and Actors

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Abstract : *Though crude, the paper sees in the Niger Delta Creek Refineries as giant step of self determination innovation, opportunity rather than criminality. Likened to the first flight technology, the paper opined its operation be legalized; modeled after Small Scale Community Refineries with appropriate regulatory agencies as supervisors. Further, the paper calls for deeper investigation of possible correlation between long exposure to petroleum pollutants, and crime and violent behaviors making reference to lead and CO2 pollution on man and super sized crabs (Carolina). It suggests long petroleum pollutants exposure may cause possible physical neurological changes that may have genetic implications. Finally, the paper sees the creek boys as victims, indicted our leadership and multinational firms with potential liability for all ills caused and associated with "illegal refineries." However, it recommends retraining of TASK force personnel, Community Refineries as viable investment opportunity that can transform the Niger Delta into an industrial hub in the African continent for modular refineries and associated marine technology. A much desired home grown technology and consequently step for sustainable development.*

Keyword: *Pollution, Politically Correct, Small-Community Refineries, Justice, "Bourgeois-cage", "Social Vulnerability", "living Disaster", "Neurochemical fluctuation"*

I. Introduction

Scanty research trailing any link of criminality violence and petroleum pollution in the Niger Delta, medically is obvious. However, it is fact that crime and violence have been linked to environmental poisoning [1] while CO2 pollution has been tipped culprit for supersized predator crabs with strange behavior [2]. Who is to blame, the Creek boy or the multinationals? Who is the victim, the boys or multinationals? This paper, indicting our leadership, suggests the boys are victims, their "creek-refineries" are "creative products" thus assets rather than problem, an epitome of a "fascinating Nigeria"[3] and opportunity to "Harness Nigeria's Greatness,"[4]. Figures, Tables, media news, personal observations and existing literatures were useful. The style is simple essay, not too technical. Recommendations not limited to but include: Community-Refineries with communities as key actors, review of Management Strategy to including re-training of the Joint Task Force (JTF), Cross-functional Research (pollution driven neurochemical changes or pathology), Remediation and Awareness Campaign. Finally, it sees no end to the menace. However, it suggest as not only politically correct solution but important legalizing the creek refineries as Small-Community Refineries from socio-economic point.

The Fundamentals

Today is midnight hour! The dawn of sustainable home-made solutions: solutions meeting the technological needs of our petroleum industry bottom-top, and stopping the huge capital flight. Over 10years, the Niger Delta (hereafter called the Delta) has been known to be very volatile and unsafe place. It is axiom the Delta people are calm and stranger-friendly [FIG1] endowed with resources ranging from forest, friendly weather to clean flowing rivers with fishes and sea foods through fertile lands to crude and gas. Not until recently 1990s in the wake of agitation for resource control that there was change and the people were seen as violent people.

Since 1950s when oil was discovered in commercial quantity in this region, noting significant has been done to care for the welfare and mental wellbeing of the Delta people [FIG2] Rather systematic impoverishment of the people through steady and rising pollution and increased exploitation of their resources. Deprivation delivers desperation to survive (Sam Adeyemi, 2013). Desperation leads to selfishness and sometimes inventions and or innovations [FIG.3, FIG 4, FIG.5 and FIG.6]. Although, today's technological wonders started small and crude, in Nigeria this early stages seem not to be recognized, sometimes for political reason. Technology transfer is said to have saved Nigerians billion [TABLE1]yet the records have not corresponding

impact on the lives of the man on the street or villages as would petroleum refining technology transfer. Many local “tech-buds” are usually not encouraged; so many inventors and great scientist have died with their dreams unnoticed [FIG.7, FIG.5].

Between 2000 and 2013 the Niger Delta has witness “disaster never seen before” [FIG8, FIG9,FIG11,FIG19,FIG.A, TABLE2]. Evidently, this does not exclude “the exploiters” of the Delta resources (i.e. multinationals corporations or JVs).They have shown lip-caution or irresponsibility in their business activities in the Delta region [4]. This is well understood but the fact is that 50years of devastation has gone unnoticed! Unlike 55years ago, socio-economic today ITC knowledge, Social Medias, amongst others, for reporting news events were very limited. Also, most of devastation reporting may have been bought never to be reported! [Monboit 2013]. Nevertheless, today reporting and analysis of these disasters are often limited to the physical and “psychological” trauma only. Often viewed and enumerated in terms the financial compensation and metric units of measurements eg, 1000hecter destroyed farms. Hardly the analysis covers medical and neurological environmental pollution correlation.

Consequently, possibly omitting a group of victims: who may neither be conscious of their state or nor have the capacity to investigate the same. The paper calls this group, “living disaster”. That is Deltans with possible genetic damage caused by long exposure to unguided petroleum activities in host communities. More so, as US researchers have shown strong linkage between environmental pollution and crime, pollution and “supersized” crabs lobster shrimp and oyster defects[5] while few indigenous scientist have also highlighted this possibility(Howard, I.C, Briggs, AO & Onyekwere, B.C. 2012) [FIG3,FIG1].

The paper briefly touches fundamental socio-economic, medical, political and leadership issues under six key headings: Introduction, Talk, Hypothesis, Lessons, Technology Actors and Opportunities, and Conclusion with sub- headings. Five Tables and twenty Figures: odd-number Figures [e.g. FIG 1,3,5,7,..] were Google searched (web address acknowledged) while alphabetic Figures [e.g. Fig. A, B,C,D..] were photographs during African Independent Television news cast or from newspaper. All even numbers and alphanumeric figures [Fig2, 4, 6, 8.] are authors’ credit. Finally, the paper is particular about these “illegal refineries” and associated technologies called “madness” [FIG.4, FIG5, FIG.9, FIG.10, FIG12, and FIG.15].

I. The Talk

1.1The Madness: The issue of the Delta illegal refineries and socially unacceptable behaviors of the Delta youths has been at the front burner of our daily consciousness as a nation. We readily recall consequent upon which during the reign of Gen. O Obasanjo, Odi community in Bayelsa was almost wiped out (wrongfully [FIG.B]). During Yaradua’s reign the restiveness of the Delta youths led to Amnesty Programme which some stakeholders challenged its legal merit while many do not believe it will proffer long term solution to the Delta Issue. Subsequent sub-headings shall consider “the madness”: symptoms, causes, victims, paradox, and lessons

1.1.1 Symptoms

Nigeria has five mega refineries [FIG.13] and ranks amongst the top 5-producer of Oil and Gas, but “spends” billions in dollars “importing” over 70% of her fuel requirement. None of the multi-billion dollar mega refineries operates above 30% capacity to date! The Billion-dollar refineries are noting but shame and conduit for embezzlement as highlighted in 2011 subsidy probe. While we can at best imagine the pain suffering and exploitation that followed each wave fuel scarcity. It is thus shocking to note that additional four to six new mega refineries are to be built at four billion dollars (over N600bn)! Further, between 2003 and 2009 Nembe revealed a shocking findings: the once lush green mangrove forest Islands clean rivers awaiting development as spots of tourist appeal like Lanzarote(“the Canary Islands of Nigeria”) have all disappeared [FIG1] replaced with lathered, dirty oily trails of lost hope. During my travel at some point you see scary scars of burnt forest with vessels upside down smoldering, diesel stench as one travel through corridors of anxious angry youths. A lost village life! [FIG.A, FIG8.FIG13, FIG15, FIG17]. A reminder of Gulf War!

On land the incidence seem lesser, but evident: trucks in flame, some smoldering and others with petroleum products arrested, or fallen sideways. Also, you see barges; tanks pressure vessels being fabricated in road-side workshops [FIG.10]. Bird-eye view (helicopter) reveals an artistic canvas in grey shade oil paint [FIG.19]. A beautiful art work, you may say, but appallingly a lost habitat with multinationals as worse culprit [TABLE2].

Further evidence include (i)“The court ruled that SPDC should be held responsible for a pipeline leak poisoning farmland in the Niger Delta, as it had failed to take adequate measures to prevent sabotage”[6] (ii) see vast hectares cleared by multinational just to demarcate area acquired for Burning-pit preparation delineated red [FIG.8] (iii) Cleared hectares of forest/habitat around the Burning-pit would have been preserved amongst others to facilitate the conversion of CO₂ from flaring into O₂ which good for the environment.

Other symptoms include conscious distortion of facts terms of impact: while Oil spillage hit headlines is “Gas flaring” not equally environmentally destructive? SPDC claim, “third party interference accounts for around 73% of all oil spill incidents and around 76% of all oil volume spilled from SPDC facilities in the Delta over the last five years (2008-2012),”[7] but gas flaring was silent. Still symptoms: the declaration of multibillion-dollars in profit by these JVs(Joint Venture Oil conglomerates) while their host communities suffer acid rain and decayed infrastructure [FIG2]. They preach “environmental responsibility and sustainability,” celebrates new sites with “negligence..”[8] “..Landslides..” [9] [TABLE.II, FIG9, FIG.11]. Still symptoms: 7.30am news highlights Ogoni youths against Shell (SPDC); 4pm news comes with the killings and kidnapping of operators of multinationals JVs or Security operatives captured or killed in retaliation; next day: JTF parading Delta youths as criminals and economic saboteurs; 9pm news: Landslides and JTF non-compromising stance [FIGA,FIG17]: illegal filling stations, trucks, refineries and products set ablaze, or shocking view of commoners scooping valley fuel created by fallen truck[FIG.D].

As bad as these symptoms may be, it behooves ones thought the philosophical dictum, “every good thing has a bad side, and vice vasa”; the “Stinging Bees comes with honey” and thus can there be lessons to gain? The subsequent paragraphs are the findings after examining these locally made vessels, trucks, refineries, and the impact of creek-fuel on the people’s lives; interviews (informal friendly discussions) with ten “creek-boys” with controlled photography. The purpose is to identify possible causes of these symptoms, search for ingenuity, entrepreneurship and creativity, if any.

1.1.2 Causes (What led to the Madness)?

While some aforementioned symptoms stick as causes, other more can be deduced. The long military regime is gullible. With customary dictatorial disposition, military quickly gave birth to a fraternity of greedy oppressive rulers. Today a monstrous “karbal” (or “Dopant” borrowed from Solid States Physics) committed to influencing the behavior of the larger society using tools for impoverishment: institutionalize corruption and injustices. Simultaneously, protecting and fostering of their immediate interest such as sharing Oil Blocks amongst themselves and becoming super rich.[FIG.8,FIG.13,FIG. 15]. The Oil firms fund elections and win over political leaders with the sole purpose of perpetrating their abuses.

The frustration and abuses occasioned and sustained by the “Cabals brought the “creek boys” to vulnerable point as claimed by two of the ten creek-boys discussed with, Mr. Isekpa and Udoh. Both were high school dropouts but very vocal and humorous. Further in response to why this “illegal and devastating crude refining”, Isekpa said, quoted Philipppian 4vs13,“” I can you do all things..” showing me a framed art work [FIG.23]. While Udoh intruded: “It’s our God given resources. Is it ok hoping on Oil companies’ fake unjust employment and or government hand-overs to live?” The interview identified “I Can Do It!” spirit, networking skills, self-education and practice as their key strength. While injustice sufficiently motivated and energized the competitive and sustainable pipe-cutting,, processing and use of “their God given resources (Philipian1v6)”.The communities so equally polluted and deprived supported their youths by providing hideouts. While major cities suffer fuel scarcity occasioned by these Cabals, these villages in the creeks enjoy cheap fuel by creek-refineries [FIG12].

1.1.3 Victim (Who is mad)?

Nothing can stop an idea whose time has come (Victor Hugo 19th Century French poet). “In 1995, Ken Saro-Wiwa was executed by the Nigerian military for exposing the unseemly details of the relationship between Shell Oil and the junta of General Sani Abacha.”[10] These “sovereign individuals”[11] have waited so long on a system that proved incapable for over half a century to protect and carter for their welfare and educational needs. Exploration and manipulation have destroyed habitats of pests bacteria and viruses [FIG.8,FIG11,FIG19,TABLE 2], blocked or divert natural drainage and created cavities underground leading to flooding, epidemic of new diseases and land slide (Nnimmo Bassey,2013).

Awotona (2013) explains that these individuals are oppressed - economically deprived, socially excluded, and politically powerless. They continue to be ignored, disregarded, and forgotten in the disaster planning process. They are extremely vulnerable to the impact of disasters and have few choices and resources for reducing their vulnerability. While their age-mates and children of cabals left for overseas for study etc., these sovereign individuals determined to survive left their homes (polluted by conglomerates) for the cities. In the cities, they constitute over 30% of slum dwellers hassling selling fuel, oranges etc. Here not too long, some were awoken by their “slum on fire.. destroyed property .. targeted at people who deal on diesel at the waterside” by unknown soldiers[12].

Helpless and frustrated at home front by unlivable environment (pest diseases, land slide, etc.) and in the cities by cabals (politicians and those within the corridors of power) through urban renewal schemes and policies these creek-boys became vulnerable as political tools. Some returned to their villages empty-handed in shame and pain while few evolved into “hazards”: social deviants and public enemies. Recent estimate put

19000youths who could neither sojourn peacefully in their communities nor in cities, returned into the deep Delta creeks!

1.1.3 Paradox

Forced back home from the cities like Abuja, Lagos, Port Harcourt others are demographically single parents, age ranging 19-45years, with children, technical and high school dropouts. Few are university graduates but jobless yet with vocational skills ranging from welding and construction skills to instrumentations and testing skills that were steadily improved upon through self –education and associations in the oil industry.

They made their boats of wood and refineries of drums and pipes. Wooden boats were made of hardwood bent and fasten to streamline shape with nail and zig-saw metal clips. The joint are covered with aluminum sheets then sealed in-out with heated coal tar. Interior is well braced with 100x100 (a.k.a “wallplate”) and 150x75 tie hard woods all treated. Though no special calculation is done to determine buoyancy, but from tradition the local boat building knowledge has been useful for centuries. Some vessels’ construction involve welding, alignment and delicate balancing, and 10mm thick Steel plates, angles sheets, pipes bolts etc. in ways that is obviously complicated, but yet well-coordinated and executed. The steps and final product displayed craftsmanship and skilled people, against popular opinion. Instance multinationals will refuse them employment because they are not employable, lazy without business acumen [FIG.5, FIG.6, FIG.10, FIG.15]. Of the ten interviewed 40% are computer literate; 30%married with children, 70% can read, write and communicate in English at average level.. Paradox!

Youths, like the Nembe-youths, cannot imagine why Port Harcourt-Nembe-Brass road that started since early 1970s till date have not seen a bridge across one Nembe creek. Yet Nembe for decades has being delivering Bonny Light crude and gas: 180000bpd and 1billion barrels in oil reserve, second largest oil field onshore [13]. Yet Abuja was built in less than 30years with resources mostly from the Delta (Nembe). Ogoni youths cannot imagine why conglomerates lie [FIG.11]. Delta youths cannot understand why a northerner will threaten and make-good his threat (Buhari 2010) ,and none including the National Assembly was perturbed . Yet a southerner made similar but contrary assertion and spontaneously the National Assembly called for his head![14].

Who are their heroes? Looking at Isaac Adaka Boro and Odumegu Ojukwu, many grew to knowing these duos and their followers as “sabo” (ie saboteur) and “secessionist”, “war monger.“ The truth is that both saw and felt the icy fingers of corruptions, oppression, and injustice ahead; resisted all with their lives and consequently were blackmailed and or killed!

They cannot understand why Oil locations and Oil Block in the Delta can bear “strange names like T.Y. Danjuma” while no Delta (Ijaw) son or community name is fit for such recognition or ownership (Omobi 2013, Jonathan-Omo2010) [TABLE 3, TABLE 4] . Why N500m was spent to furnish a single home, but the same could afford over 1000 clean water-bore holes? Why multinational firms would give out Local Purchase Order, for example AGO supply, at N100-N120/liter when official pump rate is N150/liter or at rate lower than depot rate. This is an indirect purchase order for “Iacasara”- street word for creek refined “unsafe” (?) fuel.

II. Hypothesis

2.1 Other Possible Guess

“The rise and fall of violent crime during the second half of the 20th century and first years of the 21st were caused,.. not by changes in policing or imprisonment, single parenthood, recession, crack cocaine or the legalization of abortion, but mainly by ... lead”. George Monboit continued that “Lead poisoning in infancy, even at very low levels, impairs the development of those parts of the brain (the anterior cingulate cortex and prefrontal cortex) that regulate behavior and mood. The effect is stronger in boys than in girls”[15]. Nevin (economist), studied the criminal histories of nine countries, and found that in each case he could link significant crime drops with improved IQ with country's campaign to eliminate childhood lead poisoning [16]. Another Research carried out by Justin Ries, UNC Aquarium Research Center, published in the Journal Geology in 2009 found crustaceans grew larger more rapidly as CO2 pollution increased. “While these crustaceans bulk up as they absorb CO2, high levels of carbon cause oysters to grow slower.. this could lead to a multimillion problem as mega crabs threaten the oyster industry. Also strange is their behavior at lower CO2 concentration: the mega crabs munch double of oyster they would with higher CO2.”[17] In trying to explain this Dodd (PhD research candidate UNC) was quoted: the situation “is more complicated than you’d be led to believe”[18]. Heat and noise are known to cause illness with physical conditions like swelling (heat edema). Uwerwvu cited neurologic disorder among painters [19]. Equally, a change was identified predicated on noise level far above tolerable standard [20] In China, study points to significant negative correlations between blood chromium ... premature births, and reduced birth weights and birth lengths associated with exposure to e-waste.

In analogy, one can guess to explain the creek-boys dramatic behavioral change with possible neurochemical or developmental change. The paper opined a tangible but hidden transformation far beyond

skin-deep may have occurred that little is known about! A change due to very long and persistent exposure to loads of mixed environmental “impurities”[FIG.18] at pollution levels. A change with capacity to influence ones rationalizing ability: strange hormones, growth etc. This transformation, herein called “living disaster”, may have occurred gradually and may have been coded to be genetically transferable. If words, thoughts and belief can cause physical change (faith healing of physical diseases), and reports of Co2,e-Waste, lead, heat and noise causing impairments of types and supersized predator crabs, stifled oyster, only constitute anthology of urgent and vital rethink of the proposition that creek-boys have changed more than we today assume.

The summation: long hazardous contact may accounts for seeming mental instability and assumed low IQ of the creek-boys, a real physical change may have occurred that may be genetically transferable.” 59 years of exposure! Further while social vulnerabilities amounts to arming the creek-boys with “cutlasses,” it is reasonable to emphasize that it is not the creek-boys who goes on rampage with the “cutlasses” that are really mad, but cabals and JVs declaring multibillion dollars in profits who initiated, heighten, sustained the social vulnerabilities (or stressors) that consequently turned the creek-boys into what they are today!

III. Lessons

3.1 Few lessons can be enumerated, viz:

- He who fights and kills a mad man is worse than the mad man
- The battle is between the corrupt JVs and government veiled leaders benefiting from Nigeria’s unrighteous economic monopoly, on one side, and the creek-boys and commoners on the other side.
- There is one thing stronger than all the armies in the world, and that is an idea whose time has come[21]
- Adversity makes men, and prosperity makes monsters.[22]
- Idleness is the heaviest of all oppressions.[23]
- The creek-boys rather than being idle have initiated a Project: the need to transform the current poor performing business model in the petroleum refining and products supply business to be more competitive and profitable. A Project that will bring the monopolistic petroleum refining and importation business-as-usual to public rethink.
- Small-Community Refineries legalization need to captured in Petroleum industry Bill (FIG.6, FIG16).
- Small-Community Refineries can carter for the fuel needs of immediate locality (LGAs) while the mega refineries can cater for export.
- Small-Community Refineries can buy crude at local rates (eg.N30/barrel), while the mega refineries buy at international rate: true subsidy.
- Small -Community Refineries require startup capital of 0.5-1.0% the cost of a mega refinery (US\$1bn or N160bn each new refineries), with 80% local content.
- Dangote proposed new Refinery is costing US\$18000 (N3.2m) per refining capacity of 1bpd.[24]
- Creek Refineries is at N3.2m per refining capacity of 20bpd.
- With Small-Community Refineries legalized, the communities shall have better sense of ownership and participation and shall provide security for their infrastructures, saving Nigeria and JVs billions spent and lost through JTF and theft, correspondingly.
- Managing the Business-Change is the greatest challenge before policy makers and industry leaders.
- “Practice makes perfect”: not before long Nigeria (the Delta) can become the giant of Africa not only in supplying fuel, but also as a hub of Small-Community Refineries and marine technologies.
- Where government/leadership fails, the followership natural respond to feel gap.
- Previous efforts to combat oil theft and illegal refining of crude oil have been unsuccessful because the communities were not carried along in the campaign.[25]

IV. Technology , Actors And Opportunity(ies)

4.1 Technological Evolution

As with all technological innovation, FIG 21, the technological advancement of “creek-refineries” is credible, if supported [FIG.5 to FIG.16 to FIG.13]. We recall like fun “primitive” flight started, it was very risky and unthinkable that man could fly, not to mention landing on the Moon and living there. Today’s success was because the government, the people and the private sector were sincere and determined to take the risk with wisdom, and eventually, landing on the moon opened visa of opportunities never before imagined: e.g. satellite communication that will soon hatch a new global society: Information Age Society!

Like we have the lyric of the three basic economic societies of human history (Hunting and Gathering, Agricultural, and Industrial Societies, with emerging Information Age Society -Davidson and Rees-Mogg ,1999) , and lyric of war in the Enugu War Museum [FIG.7] we can also have Petroleum Museum in the

Delta hosting the lyrics of indigenous petroleum refining technology(ies) including the Products preserved and displayed.

4.2 The Proposed Small-Community Refinery SME's Attribute

Lauren Write (2011) noted "people come in with an idea or drive to fix something but it's not about fixing, it's that the community knows what is best for them and giving them the resources to achieve those things." We must learn to creep, walk before we run! "Creek refineries" are response to globalization by the commoners to whom nationhood seems to be giving way to "individual sovereignty"(Davidson and Rees-Mogg 1999) and commoners cannot rely on the "corporate mothers" or government. The creek-refinery "has makeshift equipment and it is easy to be installed. If you destroy one refinery; in a few hours, another one is set up"[26].

The proposed Small-Community Refinery fits into the classification of sustainable SMEs because:

- Low capital investment (relative to mega refineries).
- Skills required are internally consistent with capacities of the locals.
- Product quality will be improved to acceptable safe standards: current quality enjoys the patronage of conglomerates like Raynoid Construction Company [FIG5, FIG.12].
- Very Large market and sustainable.
- Potentially expandable (diverse: fertilizers, plastics, etc).
- If legalized, the risks are controllable, first no JTF attacks.
- Recession proof business: products are necessity - very inelastic.
- Clean, quiet and environmentally friendly operations: (FIG.6, FIG.28).
- Something the locals (participants) will enjoy doing.
- Compatible with normal life schedule.
- A business that is not fad (i.e. not hot today gone next year).
- Properly managed, no or little liability- unlike medical products and services.
- Low competition- the market is very large, and expendable to accommodate new entrants.
- This business can generate 10-times its initial capital outlay within 3-years: satisfying the 10-Berger Rule.
- Bankable Project
- Stake holders shall include Traditional Rulers, Youths, Research and Disaster Management institutes and Department of Petroleum Resources (Government).
- They can serve as "seed" for Industrial parks and associated revenue.
- Starting small but with great future

4.3 Joint Task Force

Mr Mutiu Sumonu, the Managing Director of SPDC, urged the Joint Task Force (JTF) to step-up its activities in the fight against oil theft...but even if the entire Nigerian army is sent into the creeks it is not going to solve the problem.[27]

Oil firms spends much to stepping-up JTF's activities, but failed to support the creek-boys to be more responsible in their operations! I mean support legalizing their operation (clean Small Community Refineries Bill), providing technical support and responsible leadership: stop gas flaring, stop SPDC's pollutions![28] (Howard, I, C and et al 2012). Current strategy, at best, is suppressive and never curative. As noble as the JTF intent may be, to achieve an excellent and sustainable result, the JTF members require retraining because the battle is none conventional. They must be well equipped with cross-functional capabilities and skills of psychologist to understanding deeper why: brother can axe his sibling(s) and takes pride in it while sister would stabs her sibling(s), mother and takes pride in it! Why the coldblooded murder of twelve serving police officers, yet remained at crime scene waiting arrest? Finding explanation far beyond what one would normally be led to believe as the cause. Perhaps, "knot is lost or gained"-i.e. unique hormones, brain matter retarded etc.-influencing their behavior that may be treatable not with the barrel of the gun but medically.[FIG3,FIG9, FIG17,FIG18]

Their approach should be proactive, coming from post-disaster management front. Partnership and training should focus on how best to handle post-disaster events, particular as social products of social vulnerabilities. They should explore the unique challenges of the perpetrators whose activities they try to stop, who arguable are "raped" victims with far more than mental and physical anguish: of "...destruction of values and social support system with political impunity and reckless maiming and killing."[29] [FIG.A,FIG.17]. By setting ablaze vessels and trucks the already fragile environment is pushed further into extinction while we miss the "...silver linings in every storm.." This is unethical [30]

4.4 Government

“From the law books and government’s perspective, oil theft, in all its ramifications, borders on criminality and economic sabotage but here in the local communities, the perception is different altogether.. previous efforts to combat oil theft and illegal refining of crude oil have been unsuccessful so far, because the communities were not carried along in the campaign [27].We all stand before history..” (Saro-Wiwa 1995), individuals and governments have the privilege to chose where they stand: light or darkness, oppression or liberation? Undoubtedly, the “creek boys” have broken the camel’s back of tech-transfer - after 50years of the failure and trillions in capital flight! They have gotten the fundamental know-how on crude refining in term of processing, fabricating components/tools and installing.

Nigeria makes N34bn daily from Niger Delta! The multinationals loses about half, yet both cannot make fuel available and cheap for its people even to light lanterns [FIG.12]. Like drug war world over, the battle over illegal refineries and related crime cannot be won by the barrel of the gun. This paper find interesting Rick Nevin (the economist) “.new neurochemical theory for fluctuations in the crime rate..” that links environmental poisoning with crime rate. Also, Ries (UNC’s) findings that link CO2 pollution with supersized crab and stifled oyster. And others that have linked environmental pollution (Lead poisoning) with low IQ and impaired brain growth in children thus accounting for the disparity between black and white Americans (Monboit 2013)

The peaceful way out include:

- Legalize and monitor the establishment, operation and remittance of taxes of Small Community Refinery.
- Support R&D and collaborative effort between universities and operators of Small Community Refineries.
- Support local Center of Excellence for collaboration and training with others in the area of disaster and post disaster management including the Center for Rebuilding Sustainable Communities after Disasters, University of Massachusetts, Boston.
- .FIG16 gives an overall vision of proposed improved version of “creek refinery” (Small- Community Refinery) requiring approximately 1000-2500square meters space.

V. Conclusion

Content and impact of “crude” or the flared gas required deeper understanding from genetic and neurodevelopmental change stand point: 50years exposure is no has being steadily released into the Delta? The creek-boys’ activities definitely not pleasant but give insights to pragmatic strides towards self-reliant. It demonstrates no matter how little, if we all can contribute, we can do a lot! The “creek refineries” are grassroots movement for technological, socio-economic and political emancipation. Legalizing Small-Community Refinery is one sure way to eliminating some conditions of social vulnerability [Fig.18] ,simultaneously opening a vista of opportunity for oil-tech leadership and spill-off industries in the Delta. Multinationals are intrinsically abusive, so is government. Little wonder JFK advised: think what you can do for America (government).. not what America (government) will do for you; and Regan(1981): government don’t provide solution., government is the problem. The world may see the creek boys differently, but this paper sees a cup “ half-full” of modern tech-drums, pipes, vessels and distilled fuels satisfying the needs of both multinationals and commoners, sustainably. It sees the dark scared fingers experienced in fishing, to represents the price of doggedness resilience and creative spirit of a people with history of success story through human struggle.

Finally, criminality and violent acts have been linked to environmental pollution by renowned research centers. Thus it emphasizes change in approach by the JTF, demanding a collaborative research with centers of excellence. Research, amongst others, to identify possible neurodevelopmental and reproductive changes that may negatively correlates with petroleum pollutants. More so, with crime, violence and the rising cases of child bearing difficulty amongst young couples in the Delta. No doubt, it is for such a people—heroic yet humble, revolutionary but religious—that the Government should vows to transform, not losing sight of what good they too can offer: no matter how little.

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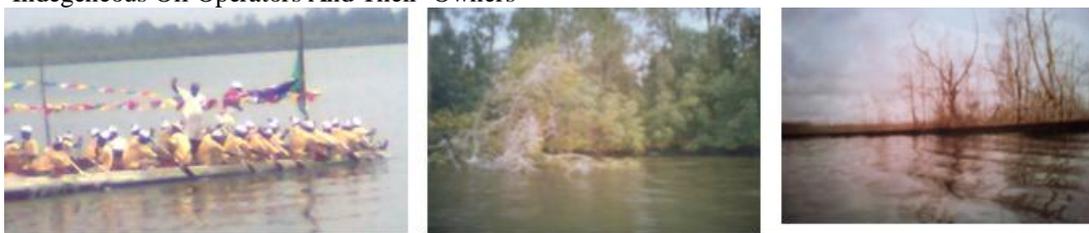


Figure1: FRIENDLY PEOLPE AND HOW WE DIE TOO SOON



Figure2: TRAIL OF NEGLECT: HEALTH CENTER INTERIOR, NEMBE. AND LANDING JETTY IN SOUTHERN IJAW, BAYELSA STATE

TABLE 1: TECHNOLOGY TRANSFER AGREEMENS BETWEEN NIGERIAN ENTERPRENUERS AND THEIR TECHNICAL PARTNERS ABROAD (BETWEEN MAY 2011 TO MARCH 2012) SAVED THE NATION OVER N16BN. COURTESY: PROF. I.O.B. EWA, MAY 2012

WWW.FMI.GOV.NG/WP-CONTENT/UPLOADS/2011/10/HONOURABLE-MINISTER-OF-SCIENCE-TECHNOLOGY.PDF

Month	Amount
May	1,849,019,410.00
June	1,080,928,099.69
July	534,022,883.95
August	89,833,505.00
September	5,327,473,283.00
October	Nil
November	321,780,013.76
December	163,159,506.00
January 2012	1,864,468,535.24
February 2012	1,662,425,488.00
March 2012	3,864,437,788.34
Total	16,757,548,512.98

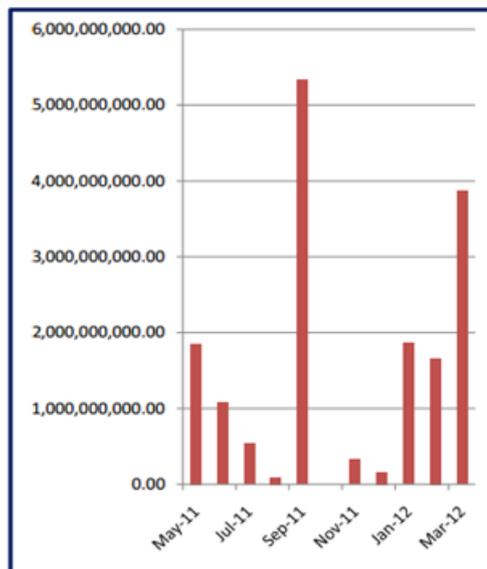


Figure3: FLARE HEAT FOR DRYING AND BAKING FOOD ITEMS



Figure 4: CREEK REFINERY: FIRE CONTROL

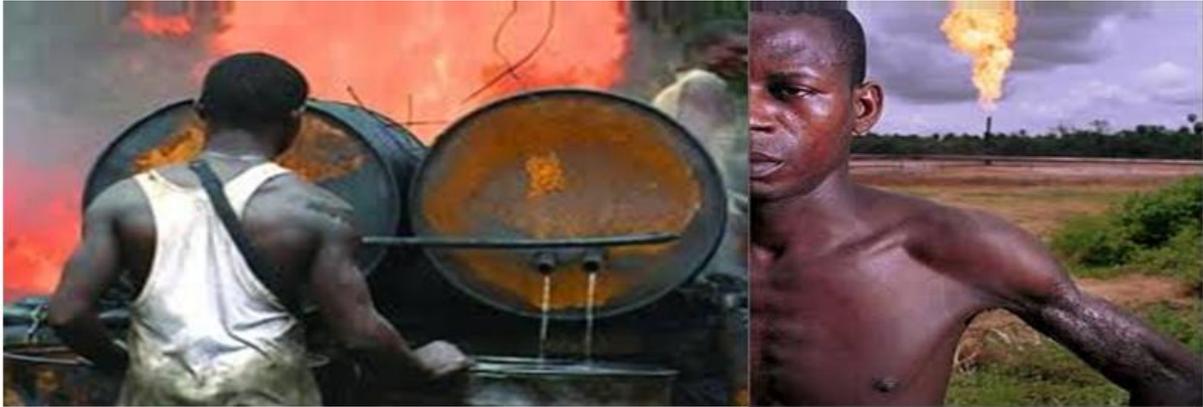


Figure5: CREEK REFINERY REFINED KEROSENE -SCARS AND INNOVATION

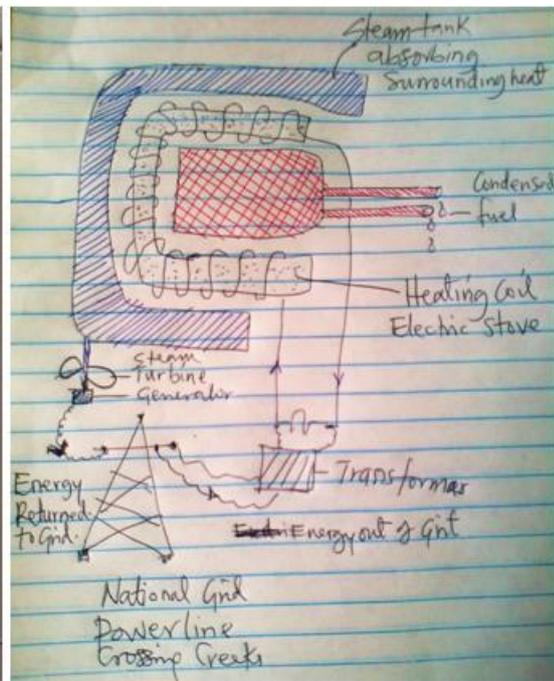


Figure 6: ART AND THOUGHTS OF A CREEK-BOY: PAINS AND PROPOSED ENVIRONMENT FRIENDLY REFINARY .



Figure7: DREAM KILLED: BIAFRA MADE AMOUR TANK-



Figure8: ENVIRONMENTAL IRRESPONSIBILITY- AGIP BURING-PIT



Figure9: IMPROVISED CRUDE RESERVOIR :Thoughtful.



Figure10: IGENUITY& CREATIVITY: BUILDING AND DREGER CONSTRUCTIONS



Figure11: SPDC Ogoniland POLLUTION DECADES AFTER “CLEANUP”



Figure 12: CREEK FUEL GIVES LIGTH



Figure13: NIGERIA FAILED MULTIBILLION DOLLAR MEGA REFINARY



Figure15: VESSEL CONVEYING CRUDE AND REFINED PRODUCTS



FIG.16: PROPOSED MODEL SMALL-COMMUNITY REFINARY



Figure17 : JTF ENVIRONMETAL DESTRUCTION VESSEL WITH PRODUCT ABLAZE

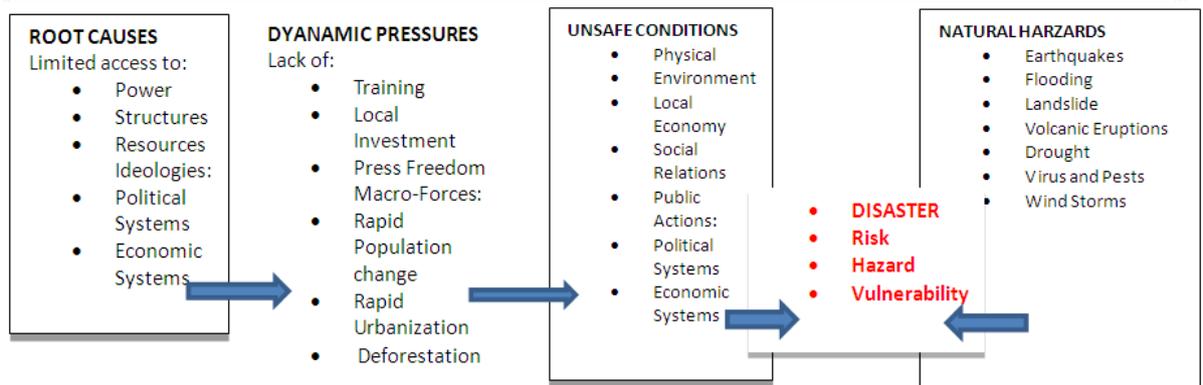


Figure 18: VULNERABILTIY PROGRESSION



Figure 19: OIL ON CANVAS



Figure21: EVOLUTION OF TECHNOLOGY OF FLIGHT



Figure B: ODI - FEDERAL GOVT. SIGNALS GUILT



Figure C: POVERTY or MADNESS

Table 3: Productions And New Site For “Exploitation”

Project	Capacity ('000 bbl/d)	Est. Startup	Sector	Operator
Agbami ¹	100	1811-1814	Deepwater	Chevron
Ebok (phase 2)	35	1812	Offshore	Afren
Gbaran Ubie ²	70	1812+	Onshore	Shell
Ehra North (phase 2)	50	1813+	Deepwater	ExxonMobil
Oberan	tbd	1813+	Deepwater	Eni (Agip)
Ofon (phase 2) ³	90	1814	Offshore	Total
Aje	tbd	1814	Deepwater	Yinka Folawyo Petroleum
Bonga North, Northwest	50-150	1814+	Deepwater	Shell
Bonga Southwest and Aparo	140	1814+	Deepwater	Shell
Egina	150-180	1814+	Deepwater	Total
Bosi	135	1815	Deepwater	ExxonMobil
Nsiko	100	1815+	Deepwater	Chevron
Uge	110	1816	Deepwater	ExxonMobil
Nkarika	tbd	1819	Offshore	Total
Etan/Zabazaba	110	tbd	Deepwater	Eni (Agip)
Okan	35	tbd	Offshore	Chevron

¹Expansion of existing Agbami field- drilling activities expected to continue through 1814 (Chevron).
Upcoming oil projects in Nigeria

**Table 2: Showing Frequency Of Occurrence Of Oil Spills Between 2003 And August 2009
Culled From Dpr Oil Spill Log Book**

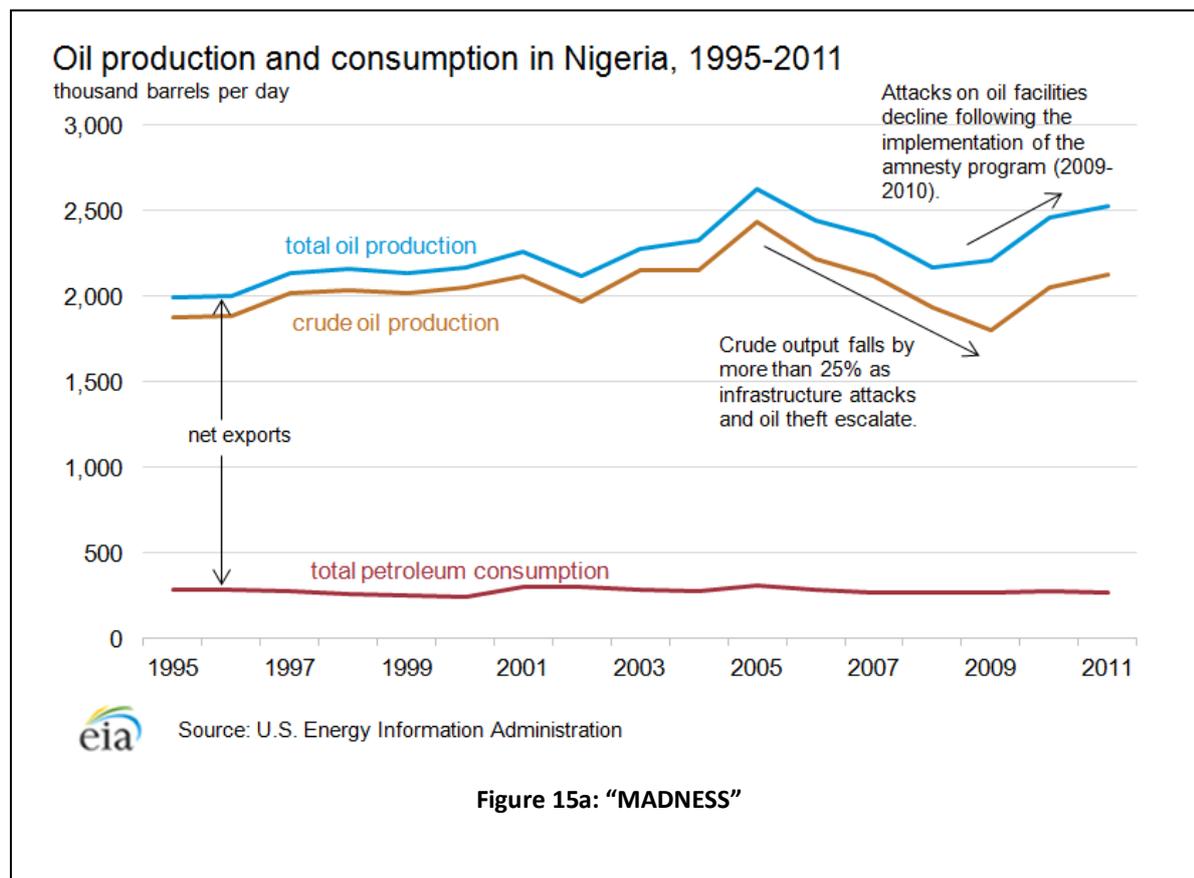
YEAR	NO SPILL	QTY OF SPILL INTO WATER (IN BARRELS)	2003 TO 2009 SPILLAGE DUE TO		
			DESCRIPTION	NO	%
2003	212		(A)SABOTAGE AND HACKSAW	1158	41.39%
2004	225		(B)UNKNOWN CAUSES AND NATURAL DESASTER	342	12.22%
2005	299		(C) OIL FIRM	1298	46.39%
2006	366				
2007	557				
2008	654				
Jan-Aug	432				
2009			FINDING:		
TOTAL	274	219116.01	OIL FIRMS(C) SPILL MORE OIL THAN THE CREEK-BOYS(A). THUS CAUSES MORE DAMAGE TO THE NIGER DELTA ECOLOGY THAN THE CCREEK-BOYS Top 10 richest Oil Blocks with over 200000bpd production are owned by northerners or companies they fronted		

**Table 3 Nigeria Top 10 Richest Oil Blocks And Owner
Culled From 20 Owners Of Richest Oil Blocks In Nigeria,
<http://www.nairaland.com/1014099/injustice-20-owners-richest-oil> June20, 2013**

RANK	OIL FIELD	L O C A T I O N	VALUE X US\$1bn	AFTE R TAX	BPD X 1000	OWNER
1	Akpo condensate	A	1			
2	OML 110/ OBE	T	500	20bn		Alhaji Mai Daribe
3	OPL 246	I			300	General Theophilus Danjuma
4	NOML 112 and OML 117	O				Colonel Sanni Bello, inlaw to Abdusalami Abuaka
5	OML 115, OLDWOK Field and EBOK field	N				Alhaji Mohammed Indimi, inalw IBB
6	OML 215	I				Alhaji Saleh Mohammed Gambo
7	OML 108	G				Alhaji Aminu Dantata
8	OML II3	E				Alhaji W.I folawiyo
9	ASUOKPU/UMUTU marginal oil fields	R D			300 US\$30m	Prince Nasiru Ado Bayero, cousin Lamido
10	Intel	E				Atiku, Yaradua and Ado Bayero
11	OML 112 and OML 117, OML 67	L T				Colonel Sanni Bello, Rilwanu Lukman
12	OPL 245	A				Dan Etete

Table 4. Indegenous Oil Operators And Their Owners
Culled From List Of Owners Of Nigerian Oil Block Released, Daily Report, Online Magazine
<http://myondostate.com/w3/list-of-owners-of-nigerian-oil-blocks-released/>

S/No	Name of Operator	LicenCe	Year of Award	Names of Directors/shareholders
1	Alfred James Petroleum	OPL 302	1991	Adewunmi Sijuade, Goke Sijuade, Adedeji Sijuade, Olayinka Sijude, Adeyemi Osiyemi and Femisola Awosika, with A.O Adeyinka as Chairman
2	Soglas Nigeria Limited	OPL 226	1991	Oscar P. Udoji, P.E Udoji, E.E. Nwosu, with J.O. Udoji as Chairman
3	NorthEast Petroleum	OPL 215, 840 & 902	1991	Kommer Complex Limited, Nwokema Ngozi Mbu, Abubakar Jubril and Ashiru B. Aliu, A. Ayankoya with Saleh Jambo as Chairman
4	Optimum Petroleum	OPL 310	1992	R.D. Adelu, Yusuf N'jie and O.A. Aremu with Ibrahim Bunu as Chairman
5	Sunlink Petroleum	OPL 238 & OPL 311	1993	Olaniyi Olumide, Hayford Alile, Samuel Bolarinde, Richard Adelu, Martins Olisa, John Brunner and Emmanuel Ojei
6	Express Petroleum	OPL 108 & 227	1995	Ahmade Rufai, Tajudeen Dantata, Dalhatu Gwarzo, Lawan Omar with Aminu Alhassan Dantata as Chairman
7	Dubril Oil Co. Nigeria	OPL 96	1987	B.N. Itsueli, C.A. Itsueli, O.O. Itsueli, A.E. Ihuegbu with U.J. Itsueli as Chairman.
8	Amni Int. Petroleum	OPL 112 & 117	1998 & 1999	E.C Edozien, Tunde Afolabi with Sanni Bello as Chairman
9	Atlas Petroleum Int. Nig Ltd	OPL 109	1996	Umaru Ndanusa, Ikechukwu Joseph, Mohammadu Murtala with Arthur Eze as Chairman
10	Consolidated Oil	OPL 103, 458, 136	1993, 1998 & 2006	O. Adenuga and Ebi Omatsola with Mike Adenuga as Chairman
11	Oriental Energy Resources	OPL 115	1999	Usman Danburan, Jibril Mohammed Indimi with Senior Mohammed



References

- [1]. Shankar Vedantam: Research linking Lead Exposure, Criminal Activity, Washington Post, Online, July 8, 2007
- [2]. <http://www.washingtonpost.com/wp-dyn/content/article/2007/07/07/AR2007070701073.html?hpid=topnews>
- [3]. Mr. Edem Duke Ozaki, Hon. Minister of Culture and Tourism: 90 Minutes with Africa Independent Television(AIT), AIT, Abuja, June 2013
- [4]. Mrs. Sarah Ochekepe, Hon. Minister of Water Resources: 90 Minutes with Africa Independent Television(AIT), AIT, Abuja, June 2013
- [5]. UNEP: Environmental Assessment of Ogoniland report, Disasters and Conflicts, UNEPA, Online, June 10 2013
- [6]. <http://www.unep.org/disastersandconflicts/CountryOperations/Nigeria/EnvironmentalAssessmentofOgonilandreport/tabid/54419/Default.aspx>
- [7]. Darryl I. Fears: Crabs, Supersized By Carbon Pollution, May Upset Chesapeake's Balance, Health Science Journal, Washingtonpost, Online, April 7, 2013
- [8]. www.washingtonpost.com/2013-04-07/national/38354088_1_blue-crabs-oysters-carbon-pollution
- [9]. CKN NIGERIA: Dutch Court Orders Shell To Pay Compensation For Oil Spillage In Nigeria, CKNNigeria Online, 31 January 2013
- [10]. <http://www.cknnigeria.com/2013/01/dutch-court-orders-shell-to-pay.html>
- [11]. Brief Notes: Shell In Nigeria Environmental Performance- Oil Spill, Shell Companies In Nigeria(Online) April 2013
- [12]. <http://www.shell.com.ng/aboutshell/media-centre/annual-reports-and-publications.html>
- [13]. SweetCrude :Agip Spillage: Agip accused of negligence over pipeline leaks, Sweet Crude Report, Online Journal, April 4th, 2013. <http://sweetcrudereports.com/2013/04/04/agip-accused-of-negligence-over-pipeline-leaks/>
- [14]. News Agency of Nigeria: EXPERT ATTRIBUTES BAYELSA LANDSLIDE TO CLIMATE CHANGE, OIL EXPLORATION, News Agency of Nigeria online magazine March 06, 2013
- [15]. <http://www.wanngronline.com/section/4/expert-attributes-bayelsa-landslide-to-climate-change-oil-exploration>
- [16]. Paul Charles Griffin: Anthology: A Lot To Live Up To, The Brooklyn Rail (Online), June 2013
- [17]. <http://www.brooklynrail.org/2009/05/books/a-lot-to-live-up-to-by-paul-griffin>
- [17]. James Dale Davidson and William Rees-Mogg. The Sovereign Individual, Simon and Schutter New York, New York, ISBN 0-68483272-0 1999
- [18]. Loveday Ogaga Onokwakpor: SOLDIERS SET ELECHI BEACH SLUM ON FIRE IN PORT HARCOURT, NaijaSpleen, Online Journal, July 16, 2012
- [19]. <http://naijaspleen.wordpress.com/2012/07/16/soldiers-set-elechi-beach-slum-on-fire-in-port-harcourt/>
- [20]. HRM KING. Edmund M. Daukoru (PhD, FIC, CON): South-South Monarchs Forum: South-South Monarchs, Online Forum, May 2013 <http://south-southnmonarchs.org/leaders/25-the-project/47-the-chairman?showall=1>
- [21]. Amaibi Omobi : 2015: Ex-Militants threaten Showdown, The Hard Truth Associates, Port Harcourt, May 16 2013, p.16, 1 (18).
- [22]. George Monboit: Yes, Lead Poisoning Could really be A Cause Of Violent Crime, The Guardian(Online) June 2013,
- [23]. <http://www.guardian.co.uk/commentisfree/2013/jan/07/violent-crime-lead-poisoning-british-export>
George Monboit :Ibid
- [24]. Environmental Leader: Supersized Crabs Bulking up On Carbon Pollution, Science World Report, The Washington Post, Online Journal, April 9, 2013 <http://www.environmentalleader.com/2013/04/09/supersized-crabs-bulking-up-on-carbon-pollution/>
- [25]. Darryl I Fears: Crabs, Supersized By Carbon Pollution, May Upset Chesapeake's Balance Health & Science Online Publication, Washington Post, April 07, 2013 www.washingtonpost.com/2013-04-07/national/38354088_1_blue-crabs-oyster-carbon-pollution
- [26]. Uwerevu Eric O: Hafards Evaluation In Engineering Construction Company, Journal of Nigerian Environmental Society, Vol 7. No 1 2012
- [27]. Howard, I, C and et al.: Noise Pollution Levels In A Crude Oil Production Facility in the Niger Delta, Nigeria Journal of Nigerian Environmental Society, Journal of Nigerian Environmental Society Vol 1 No 1 2012 p46
- [28]. Kevin Stilley: Victor Hugo Select-Quotes, KevinStilley, Online, November 19, 2012 <http://www.kevinstilley.com/victor-hugo-select-quotes/>
- [29]. Kevin Stilley: ibid
- [30]. Kevin Stilley: ibid
- [31]. PUNCH : Dangote to build \$8bn oil refinery in Nigeria, PUNCH (ONLINE), April 17, 2013
- [32]. www.punching.com/NEWS/DANGOTE-TO-BUILD-OIL-REFINERY-IN-NIGERIA
- [33]. Nathan Nwakamma: How To Check Oil Theft, Illegal Refineries In the Niger Delta, News Agency of Nigeria, Online April 25, 2013
- [34]. www.thenationonline.net/new/news/how-to-check-oil-theft-illegal-refineries-in-the-niger-delta/
- [35]. Ntahan Nwakamma: ibid
- [36]. Premium Times: Shell Threaten Shutdown, Alleges Crude oil Theft Increasing Astronomically Under Jonathan, Premium times (Online) March 4, 2013
- [37]. <http://premiumtimesng.com/news/122932-shell-threatens-shutdown-alleges-crude-oil-theft-increasing-astronomically-under-jonathan.html>
- [38]. Uzoekwa, SA, and Ohenhen, RE: Physicochemical properties, Heavy metal and Biological Assessment of A crude Oil Affected Soil in the Niger Delta Region of Nigeria., Journal of Nigerian Environmental Society (Journal of Nigerian Environmental Society, Vol 7 No1, 2012
- [39]. Amaibi Omobi : 2015: Ex-Militants threaten Showdown, The Hard Truth Associates, Port Harcourt, May 16 2013, p.16 Vol 1 No 18.
- [40]. Finomo Julia Awajusuk: Ethical Perspectives on Environmental Sustainability: A case of the Niger Delta Journal of Niger Delta Journal of Nigeria Environmental Society, Journal of Nigerian Environmental Society Journal of Nigerian Environmental Society, Vol. 7 No.1 2012 p154

Further Reading

- James Dale Davidson and Lord William Rees-Mogg: The Sovereign Individual, Mastering The Transition To Information Age, Simon and Schuster New York, New York, 1999
- The Small Business Economy for Data Year 2006, A Report To The President, SBA Office of Advocacy, 2007
- Uwerevu, Eric O.: Hazards Evaluation In Engineering Construction Company (JNES) Vol & No 1 2012 p174
- Gordon T. Amangabara and et al: Comparative Analysis of Access to Water Supply In Three Communities in Rivers State Journal of Nigerian Environmental Society, Vol 17 No 1 2012 p110
- Howard, I, C and et al.: Noise Pollution Levels In A Crude Oil Production Facility in the Niger Delta, Nigeria Journal of Nigerian Environmental Society (JNES) Vol 1 No 1 2012 p46

Websites Credited With Pictures

- Biarfra War Tank:
www.google.com.ng/#hl=en&rlz=1C2RNLH_enUS521US521&scient=psy-ab&q=pictures+of+biafra+made+local+weapon&oq=pictures+of+biafra+made+local+weapon&gs_l=serp.12...62819.71291.1.73903.17.17.0.0.0.12.2340.8173.3-14j2j9-1.17.0...0.0...1c.1.14.psy-ab.apayW2892nQ&pbx=1&bav=on.2.or.r_qf.&fp=c6efd3ae92ccf4e9&biw=1366&bih=667
- Refinery:
www.google.com.ng/search?q=pictures+illegal+oil+refineries+niger+delta&hl=en&rlz=1C2RNLH_enUS521US521&tbm=isch&tbo=u&source=univ&sa=X&ei=jVKaUbeJM4zXPJrPgKAM&ved=0CEQQsAQ&biw=1366&bih=667
- www.starstryder.com
- Causes of Community – Oil Companies Crisis:
[/www.arpejournal.com/ARPEvolume9number1/Hamilton.pdf](http://www.arpejournal.com/ARPEvolume9number1/Hamilton.pdf)
- Eia: www.eia.gov/countries/cab.cfm?fips=NI
- Global Advocates www.firstfifth.org/about-first-fifth-advocates/
- Early flight: www.en.wikipedia.org/wiki/Early_flying_machines,
- Social Vulnerability: www.en.wikipedia.org/wiki/Social_vulnerability#History_of_the_concept.
- Health and e-Waste: <http://www.sciencedirect.com/science/article/pii/S2214109X13701013>