

# Scientific Expert Witnessing In Environmental Litigation

... Focus on Geoforensic And Related Scientific Evidences



By

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## DEDICATION

This book is dedicated to my most admired organization - *the Division of Environmental Policy Implementation – DEPI, of the United Nations Environment Programme – (UNEP)* ; to a most respected lawyer – *Sir Lucius Nwosu (SAN)* ; to my role model -Everest Nwankwo ; to my mentor - Darren Matkin ; to my highly esteemed institutions and centers of excellence – *International School of Havana (ISH), the Department of Geology, University of Calabar, Nigeria, Institute of Geosciences & Space Technology, Rivers State University of Science and Technology, Port Harcourt, Nigeria* ; and to the numerous rural Niger Delta fishing and farming settlements and communities who for years have suffered the menace of oil and other related environmental pollution and degradation. I also dedicate this work to all scientists and engineers who will find themselves rendering environmental litigation support services alongside lawyers and judges in the courts. Finally, I give this book to all crusaders and vanguards of environmental justice and sustainability.

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## LIST OF ACRONYMS, ABBREVIATIONS & DEFINITIONS

<b>BOD:</b>	Biological/Biochemical Oxygen Demand
<b>Cap:</b>	Chapter
<b>Cd:</b>	Cadmium
<b>Co:</b>	Cobalt
<b>COD:</b>	Chemical Oxygen Demand
<b>Cu:</b>	Copper
<b>DO:</b>	Dissolved Oxygen
<b>ESA:</b>	Environmental Sensitive Area
<b>EIA:</b>	Environmental Impact Assessment
<b>ESPECTS:</b>	Short Term Certificate Programme in Environmental Studies
<b>FBI:</b>	Federal Bureau for Investigation
<b>Fe:</b>	Iron
<b>FMENV:</b>	Federal Ministry of Environment
<b>FEPA:</b>	Federal Environmental Protection Agency
<b>Hg:</b>	Mercury
<b>Http:</b>	Hyper text transfer protocol
<b>ISBN :</b>	International Standard Book Number
<b>ISSN :</b>	International Standard Serial Number
<b>LFN:</b>	Laws of the Federation, Nigeria
<b>Mn:</b>	Manganese
<b>NWLR:</b>	Nigerian Weekly Law Report
<b>pH:</b>	Potential Hydrogen ion
<b>SAN:</b>	Senior Advocate of Nigeria
<b>SPM:</b>	Suspended Particulate Matter
<b>TDS:</b>	Total Dissolved Solids
<b>TSS:</b>	Total Suspended Solids
<b>THC:</b>	Total Hydrocarbon Content
<b>TOC:</b>	Total Organic Carbon
<b>UNEP:</b>	United Nations Environment Programme
<b>WWW:</b>	World Wide Web
<b>Zn:</b>	Zinc

## **DEFINITIONS**

### **GEOSCIENTIFIC EVIDENCE**

Geoscientific evidences are various data or information tendered by a geoscientist, such as a geologist, geophysicist, geochemist, a hydro-geologist or sedimentologist. Such evidences may be on the state, condition and quality of an ecosystem, such as land (soil) and its groundwater resources following for example, a speculated, suspected or confirmed incident of land pollution or water pollution. It is usually tendered as an evidence of fact to show proof of, or disproof, to a particular notion during a case investigation or litigation.

**EXPERT WITNESS:**An expert witness is a person with particular expertise in a specialized /scientific field gained by virtue of skill, training or experience, such that the judge will allow the person to qualify as an expert, who then will be allowed to testify or lead evidence in court or at a deposition on scientific matters, and to give opinion or testimony relevant to issues in a case and upon which the opinion may be helpful to the jury in understanding and determining the fact .

### **ENVIRONMENTAL LITIGATION:**

A law suit or case brought or instituted in a country's court following any damage to any environmental component ( air, land, water and their resources ) for which the applicant (plaintiff/appellant) seeks redress either for compensation or remediation of the damaged environment in order to return it to its original un-contaminated/un-polluted quality.

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## FOREWORD

Nigeria, as a member of the international community, has laboured extensively to ensure the protection of her environment, especially since the 1972 milestone, United Nations Conference on the Human Environment which paved the way for the establishment of the United Nations Environment Programme, UNEP. Since then, Nigeria has established several regulatory bodies as necessary pre-requisites for the successful monitoring and implementation of environmental policies and programmes.

It is, however, important to note that economic and political conditions prevailing in the world, and indeed Nigeria, today are not favourable for concrete and decisive actions to protect the environment. The low level of regulatory activities in developing countries continues to deteriorate, and as a result, key environmental issues are often neglected or accorded little attention. Meanwhile, degradation of the environment and the exhaustion of living resources constitute a series of threats to the future prosperity, well-being of mankind, and peace and stability in adversely impacted host and transit communities. As these threats spiral and grow, they effect, to a significant extent, local, national and international peace and security. This is why all over the world, there is growing concern that corporate and regulatory assessments are needed on the environmental impacts resulting from today's intensification of economic activities. This is more so, especially with respect to the widening range of oil and gas activities which form the bedrock of Nigeria's economic growth. Excellence in both regulatory and corporate assessments, enable the appreciation of the opportunity costs of development projects to both the environment and the welfare of the people of the project communities. In this regard, it is necessary to ensure stakeholder harmony, by mobilising the whole realm of political, socio-economic, technical and scientific strategies on projects and related environmental issues. These should be evolved within the framework of economic security, food security, environmental security and political security to ensure equitable justice, project acceptability and peace.

However, it is to be noted that , in view of the increasing level of awareness pertaining to issues of the environment, Nigerian courts are today experiencing a monumental increase in environmental litigation cases. As a result, the problem of determining the type and quality of evidence, or who should tender or lead such evidence, may be quite a challenging issue. Directly deriving from the above issues, the author provides in this publication, an in-depth exposure into varying aspects of scientific expert witnessing in Environmental litigation. The book is essentially a focus on aspects of geoforensic and related scientific evidences. The extensive nature of the content and wide- ranging case examples make the publication a guide book for both public and private sector decision makers and implementers, including scientists, lawyers, managers and the civil society. As an editor and training consultant on environment and development, Patricks Chinemerem provides us with a volume that is both illuminating and very instructive. I recommend the publication to all environmental scientists and technocrats, legal persons and all those whose management decision and judgement will ensure a safe, peaceful and sustainable development of our cherished environment.

**Port Harcourt, 1st March, 2009.**

**Francis T. Beka** , (*Ph.D, FACRS, MCOMEG, KSM*)

## PREFACE

The human society is getting more concerned about environmental issues. The level of awareness pertaining to the environment is also increasing. At the same time, more and more groups, organizations, individuals, governments and the entire world are getting more concerned about environmental safety, protection and the rights of future generation to a safe and sustainable environment. In view of all these, the Nigerian courts may experience a rise in environmental litigation cases, especially those arising from oil and gas and related or associated industrial pollution incidents. It therefore, becomes imperative, that to seek and to obtain genuine and timely judgment that could ensure good compensation to affected parties, and of course quality remediation and restoration of affected environments, cannot be overlooked. The ultimate goal of these legal actions is and will be, for the human and natural environment to remain and be kept safe for their natural use for the present and future generations.

The big questions, however, are: In all these proceedings, what pieces of evidence can be brought to support the actions with specific focus on quality and quantity? Who is in a position to tender or lead such evidences?. Finally, who institutes an environmental litigation It is important to note that the evidences available in a case play active roles which include: Helping in the determination of the parties to the case, determining the jurisdiction of the court, witnesses to the case, duration of the case, relief to be granted or punishment to be imposed. The problem of determining the quantum, quality and type of evidence that could be led or considered valid in the prosecution of an environmental litigation, and that of who should lead or tender such evidence, is becoming a challenging issue. For instance, in the determination of judgment, the lack of reliable and substantial evidence have either caused a long delay in cases determination, or have caused the wrong judgment to be delivered. Thus, the polluter may escape the legal consequences of his action or inadequate punishment imposed on him. Hence, scientific expert witnessing using applicable and relevant geoscientific evidences and other associated scientific pieces of evidence becomes very relevant to the determination of environmental litigation in all oil pollution cases and associated industrial pollution cases. The evidence tendered and the procedures followed will help to determine the outcome of the case.

The quest and desire to undertake the writing of this book was borne out of a desire to find out what evidence in terms of quantum, quality and type that could be considered valid to be tendered for an environmental litigation arising from oil and gas and other industrial pollution. I do hope that that this book will proffer some basic but necessary answers and solutions to vital questions like: Who should lead evidence ? What evidence could be led ? What procedures should be applied in tendering such evidence ? Where was the evidence collected ? When was the evidence taken ? How was the evidence derived? What was used in the collection of the evidence? etc. Generally, this book will give an insight to the validity of evidences (in this case, scientific & geoscientific evidences).

## **ABOUT THE AUTHOR:**

Chinemerem Patricks is a consultant groundwater management geologist as well as a Training, Research and Development (TRD) consultant on Environment and Safety. He holds a B.Sc. (Hons) degree in Geology from the Department of Geology, University of Calabar, Nigeria, as well as an M.Phil. degree in Environmental Management from the Institute of Geosciences and Space Technology (IGST) of the Rivers State University of Science and Technology (RSUST), Nigeria. The author has extensive international exposure and experiences in Europe and America. Notable ones include his training at the ENI Corporate University, San Donato, Milan - Italy and the International School of Havana, Miramar, Havana - Cuba. He also attended The United Nations Institute for Training and Research (UNITAR)- Geneva, where he successfully completed, passed and obtained the prestigious UNITAR Certificate in International Environmental Law ( IEL) in 2010.



He is a member of the Nigerian Mining and Geosciences Society (NMGS), a vibrant conference speaker and an emerging corporate litigation support service advisor. The author has written other books like: *“The Solid Mineral Resources of Kogi State for the Small Scale Operator”* published in 1999 and *“That Question”* published in 1997.

Patricks Chinemerem is the pioneer/founding Group Managing Editor of LA TIERRA Environmental Bulletin (ISSN1597-2011) and the ESPECTS programme Training Coordinator with ANPEZ Center for Environment and Development , Port Harcourt , Nigeria.