Webinar 6
Global Launch Event:
Enabling Digital Environmental Impact Assessment (EIA) in Nigeria
Structure
• Digital IA context
• Basis & approach to the Research
• The Report and its Key Findings
• Case Example & Progress Update: Digital EIA in Nigeria
  - Panellist's Perspectives
  - Q&A
Digital Impact Assessment in Context

Josh Fothergill
Global Digital IA Report (Dec 2021):
**********.fothergilltc.com/digital

IAIA Digital IA webinar series:
2022:
• Digital IA workspaces
• Western Australia Big Data & Systems – Example
• Artificial Intelligence – The IFC’s MALENA
2023:
• Integrated digital design and IA
• DREAMS – Danish collaborative digital EIA – Example

Many papers + much discussion @ IAIA annual conferences since IAIA15 whose theme focussed on Digital IA.
Defining Digital IA...

- Not formally defined in national IA laws / financial institution standards.
- Lots of different views of what is / is not within the scope of Digital IA - based on differing experiences and perspective on practice.
- IAIA Innovation Grant funded a project to help frame the subject, which led to the following broad definition:

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"The use of advances in digital technologies and their applications in the pursuit of enabling more effective IA practice"
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Fothergill & Murphy, 2021
The State of Digital IA Practice identifies **10 Elements** of Digital IA Practice

<table>
<thead>
<tr>
<th>Digital Impact Assessment</th>
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<tbody>
<tr>
<td>Digital Approaches &amp; Technologies enabling progress in Digital IA</td>
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<td>Digital follow-up: monitoring and auditing</td>
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Transformations to Digital IA are progressing across global practice

**North America:**
- Canada, Environmental database management system
- IFC, Artificial Intelligence, and data innovation for social license

**Europe:**
- Iceland, Early example of the potential of digital EIS
- Netherlands, Digital EIS, diagnostic tool country ESIA systems
- Serbia, Envigo digital IA platform

**Asia:**
- China (Hong Kong), Virtual and hybrid reality systems
- Singapore, Autonomous vehicles + automated decision support systems
- Nepal, drones + digital air quality devices

**South America:**
- Chile, Remote sensing and live database EIA follow-up
- Guyana, Imagery + GIS to map coastal ecosystem services, with in-field verification.

**Africa:**
- Kenya, Drones surveys
- Nigeria, Developing digital EIA project + drone surveys
- South Africa, digital screening platform

**Australasia:**
- Australia, digital EIA studies, reports and monitoring system.
Digital IA
Key Areas of Change Requiring Management

- Data
  Access, Integration and Trust

- Quality & Costs
  More effective practices / loss skilled humans in IA?

- Engagement
  Equity, Inclusion + Reach: Digital Divide

- Safety, Privacy + Security
Basis & approach to researching digital EIA in Nigeria

Etia Ndarakake
Report Launch - A Willend Associates Ltd review of digital approaches to EIA in Nigeria, undertaken through research led by our partners at Fothergill Training & Consulting Ltd.

Download your free copy of the report: ***********.paperturn-view.com/?pid=ODc8778619&v=1.1

The study would not have been possible without the collaborative engagement of the Nigeria Government and other participants:

And the financial support of UK Government and Willend:
Report Launch

The study recognises the collaborative engagement of the following organisations that either helped shape the ideas behind the research or contributed during the study itself:
## Context and Basis of the Research Report

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
<th>Problem/Implementation Ideas</th>
</tr>
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<tbody>
<tr>
<td>2020</td>
<td>Concept feasibility Study by University of Uyo for Willend - Waste Facility in Nigeria – Challenges with obtaining data (COVID made situation worse)</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>Scotland's EIA Conference 2021 Session 3: Digital Transformation &amp; EIA</td>
<td>Ideas</td>
</tr>
<tr>
<td></td>
<td>Willend organised a webinar hosted by IEMA - presentation by FMENv and NCEA, over 500 registered from Ghana, Nigeria, Qatar, UK etc</td>
<td>Consolidation of ideas</td>
</tr>
<tr>
<td></td>
<td>Willend engages in FothergillITC global digital IA work (grant funded by IAIA)</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>Willend secures matching grant from UK government for the research EIA for Willend Waste Facility in Nigeria by Earth Pulse Consult</td>
<td>Problem and Implementation ideas</td>
</tr>
<tr>
<td></td>
<td>Challenges with obtaining baseline EIA data</td>
<td></td>
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<tr>
<td></td>
<td>Engagement with FMEnv and Earth Pulse to undertake Pilot Digital EIA concurrently with traditional EIA</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>Willend and Fothergill agreed to collaborate on the Digital EIA research project</td>
<td>Find Solution to Problems</td>
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## Context and Basis of the Research Report

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| 2022 | • Willend secured approval for the research from the senior officials (Minister of Environment and Director General of NOSDRA)  
      • Engagement with research participants  
      • Willend and FothergillTC - define and agree scope of research, research commenced |
| 2023 | Research completed                                                   |
| 2024 | **Willend and Fothergill open to opportunities to collaborate** with key stakeholders / partners in implementing the research report findings |

- **Approvals**
- **Engagement**
- **Participation**

Research Report could be used as Blueprint / Framework for EIA Digitisation in Nigeria
The Report and its Key Findings

Josh Fothergill
Government action on EIA related Digital approaches

- Significant digital archive of EIA documents exists, the result of past ICT related investments.

- EIA Portal Phase 1: Online Registration of a developer’s EIA.

- GIS investment – building upon skills and interest of existing EIA officers.

- Planning - Further EIA Portal developments: Sect 57(1) archive, management of live steps throughout the EIA process.

- Digital approaches more integrated in staffing and approach.

- Greater application of digital data + GIS systems to coalesce oil spills data.
Developers & Consultants: Digital EIA Progress

- Considerable increase over last decade in adoption of digital technologies to drive efficiency:
  - **Drones**: improving efficiency, accessible areas, consultant H+S (but some challenges)
  - **GIS**: where digital data sets already exist / are generated by the project
  - **Digital over paper-copy reports**: submission of EIA Report via online Portal is tangible next step

- Feeling of "unmet potential" due to limitations in availability of digital environmental data, and lack of coordinated progress across data holders.

- Use of satellite derived data is beginning to gain pace, but more opportunities exist and application and exploration via university research appears ahead of practice.

- There is appetite and active exploration of far greater Digital EIA approaches for developments – see Etia’s Case study.
Barriers exist to rapid broad scale Digital EIA

- **Commitment to Digitisation of EIA** - direction for success vs incremental steps.

- **Lack of Digital environmental and community Data** – considerable limitations exist on what environmental data is gathered, stored and available digitally.

- **Capacity challenges skills + systems** – within Government the need for ICT skills not previously recognized and EIA recruitment not caught up, thus current approach is build-up from within staff.

- **Co-ordination across Government bodies and systems** – Linked to digital data is the multiple organisations and limited coordination on environmental data between + across levels of Government.

- **Learning from previous investments** - budget to upgrade / replace, risks in contracting 3rd party ICT support.

- **Moving from adopting Digital Technology to Digital Systems** – Government and Practice making clear progress with specific digital EIA technology advances, but meeting ambitions will require more systematic change.

- **FUNDING…** - Budgets are limited and multiple linked focussed investments are required, additional sources are likely to be needed to untap the potential.
Significant Ambitions and Appetite for Digital EIA
Characterizing Nigeria’s Digital EIA

- Nigerian EIA practice is recognized as a leader in the adoption and deployment of digital EIA approaches, both locally and internationally.

- Advancing digital EIA approaches is achieved through collaborative partnerships with the joint aim of enhancing environmental performance and the delivery of sustainable development.

- Government understanding of digital approaches and the use of technology in EIA is ahead of that commonly held by proponents and their consultants.

- FMEnv has a strategy to further upgrade its approach, legislation, officers and equipment / technology to enable it to effectively adopt and deploy digital approaches across the EIA process.

- Future EIA related capacity building activities take account of how digital systems can play in supporting the delivery of more effective and efficient EIA.
Progressing Digital IA requires collaboration

Our study identified multiple potential partners that could enable the FMEnv to advance the potential for digital EIA approaches in Nigeria.
Opportunities beyond FMEnv’s EIA Portal
Enabling a Nigerian Digital EIA Strategy
Case Example & Progress Update: Applying digital approaches to EIA in Nigeria

Etia Ndarake
Case Example & Progress Update: Digital EIA in Nigeria

Nigerian EIA Process Flowchart

Map of Nigeria / Case example location
***********.worldatlas.com/maps/nigeria
**Case Example & Progress Update: Digital EIA in Nigeria**

**Willend Integrated Waste Management Facility, located in Akwa Ibom State**

Digital approaches considered on the Proposed Project

**Digital Impact Assessment**

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### Case Example: Digital EIA in Nigeria

#### Willend Integrated Waste Facility - EIA Digitisation Approach

| Data collection | • Drones for aerial surveys, land use, cumulative impacts  
|                 | • Air quality sampling |
| Data reporting / presentation | • Geospatial data created on Mangomap (temporary) included sample collection points, parameters (temperature, humidity, surface water, ground water, soil, air quality, noise)  
|                           | • Mangomap link shared with FMEnv and EIA technical review panel  
|                           |   ******mangomap.com/wacuc0/maps/133338(Environmental-Sample-Points?preview=true# NO LONGER ACTIVE  
|                           | • Online shared drive for review of EIA report, drone footage with EIA Consultant  
|                           | • EIA report to be hosted on project website (ArcGIS Story Map being considered) |
| Data analysis | • Sentiment analysis IFC Malena software |
Drone aerial photographs during EIA baseline data collection / site verification
FothergillITC introduced Willend to IFC and subsequently Willend facilitated the **Signing of Agreement** between FMEnv and IFC for deployment of MALENA-Machine Learning Environment Sustainability Governance Analyst (software).

**Scope of the collaboration**

- Beta test IFC’s AI-powered solution MALENA on the FMEnv archive of historical Nigerian ESIA reports.
- Extract insights and benchmark data from the historical ESIA documents.
- Identify ways to make the FMEnv’s review of reports faster and more efficient, enabling more comprehensive reviews and quicker project approvals.

**Progress Update: Collaboration with IFC on Artificial Intelligence (AI)**

IFC MALENA software public version to be launched on 31 January 2024

Photograph of some attendees at the MALENA Design Thinking Workshop on December 6th, 2023, World Bank office, Abuja, Nigeria
MALENA ANALYSIS OF WILLEND PROPOSED WASTE FACILITY ESIA REPORT (DRAFT)

E&S Insights screen

Company Name: Integrated Waste Management Project at Mkpanak

E&S Sentiment

Positive: 696  
Negative: 210  
High Risk: 7

Top Topics

<table>
<thead>
<tr>
<th>Name</th>
<th>Pos(+)</th>
<th>Neg(-)</th>
<th>%Neg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Efficiency</td>
<td>0</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Contribution to Health Impacts Upon a Community</td>
<td>1</td>
<td>8</td>
<td>89%</td>
</tr>
<tr>
<td>Water Pollution</td>
<td>1</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Impacts to IUCN Vulnerable (VU), Endangered (EN) and Critically Endangered (CR) Species and Habitats</td>
<td>1</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Impacts to Water Sources</td>
<td>16</td>
<td>42</td>
<td>72%</td>
</tr>
<tr>
<td>Air Pollution</td>
<td>7</td>
<td>14</td>
<td>67%</td>
</tr>
<tr>
<td>Occupational Health</td>
<td>10</td>
<td>19</td>
<td>66%</td>
</tr>
</tbody>
</table>

Performance Standards

<table>
<thead>
<tr>
<th>Name</th>
<th>Pos(+)</th>
<th>Neg(-)</th>
<th>%Neg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity conservation</td>
<td>13</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Community Health, Safety &amp; Security</td>
<td>30</td>
<td>8</td>
<td>21%</td>
</tr>
<tr>
<td>E&amp;S Risk Management</td>
<td>273</td>
<td>25</td>
<td>9%</td>
</tr>
<tr>
<td>Indigenous Peoples</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Labor &amp; Working Conditions</td>
<td>115</td>
<td>36</td>
<td>24%</td>
</tr>
<tr>
<td>Land Acquisition &amp; Resettlement</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Top 15 Risk Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Waste</td>
<td>139</td>
</tr>
<tr>
<td>Community</td>
<td>44</td>
</tr>
<tr>
<td>Impacts</td>
<td>31</td>
</tr>
<tr>
<td>Mitigation</td>
<td>27</td>
</tr>
<tr>
<td>Impacts</td>
<td>24</td>
</tr>
<tr>
<td>Emergency</td>
<td>22</td>
</tr>
<tr>
<td>Safety</td>
<td>19</td>
</tr>
<tr>
<td>Compliance</td>
<td>18</td>
</tr>
<tr>
<td>Waste Disposal</td>
<td>16</td>
</tr>
<tr>
<td>Contamination</td>
<td>115</td>
</tr>
<tr>
<td>Environmental</td>
<td>95</td>
</tr>
<tr>
<td>Risk</td>
<td>29</td>
</tr>
<tr>
<td>Improvement</td>
<td>19</td>
</tr>
<tr>
<td>Management</td>
<td>18</td>
</tr>
<tr>
<td>Waste</td>
<td>17</td>
</tr>
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</table>
Loss of vegetation, and migration of wildlife species

The proposed IWMP area has been left fallow without significant activities for some time. Consequently, trees, shrubs and herbs cover parts of the proposed project area. The vegetation of the site will be removed (lost) to give way to the office and ancillary facilities. The vegetation covers also serve as habitats for wildlife species such as birds, rodents, reptiles, etc. The removal of the vegetation will lead to the loss of the habitats, expose the wildlife to poaching.
Progress Update: What Next

- Continue to facilitate the MALENA Beta testing between IFC and FMEnv
- Willend Research Report to be presented at IAIA 2024 Conference in Dublin
- EIA report to be hosted
- Willend and FothergillTC open to opportunities to collaborate
Digital EIA Perspectives from key Participants in the research study

1. Dr Abbas Suleiman - Director Environmental Assessment Department - FMEnv

2. Mrs Margaret Adesida - Director GIS / ICT Department - NORSDA

3. Dr Andrews Aboje - EIA Consultant
Q&A - Discussion

Global Launch - Enabling Digital Environmental Impact Assessment (EIA) in Nigeria

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