

Challenge:	Governance Hacks 20201
Team Name:	Team FLOEWS
Proposed Solution:	FLOEWS-Disaster Risk Governance
Team Composition:	Abubakar Bashir (Male), Nusaiba Adamu Misa (Female), Adam Abba Abubakar (Male), Ibrahim Abubakar Kuchili (Male).

Day 1 - 17th June, 2021 Breakthrough

- Team FLOEWS are on AfricaHacks [Discord server](#).
- Team FLOEWS have accepted the Hackathon Code of Conduct
- Team FLOEWS have joined Dr Nevin's GovernanceHacks Hackathon Channel.
- Team FLOEWS has created a solid Team name "Team FLOEWS" on the AfricaHacks platform
- *Be sure to Join the team formation workshop if you don't have a team*
 - Team FLOEWS have joined Discord: group chat has been created & initiated, and all team members were successfully added to the channel, while roles are been defined already to each team member which includes both project/product manager, frontend/backend dev, UI/UX designer etc.
 - GitHub repo has been set for Team FLOEWS project working on Disaster Risk Governance, here is the link to the GitHub Repo:
<https://github.com/Bash-Bashmax/GovernanceHacks2021-FLOEWS-Disaster-Risk-Governance>
- GitHub Repo was named GovernanceHacks2021-FLOEWS-Disaster Risk Governance with an access link:
<https://github.com/Bash-Bashmax/GovernanceHacks2021-FLOEWS-Disaster-Risk-Governance> as instructed
 - Project Management Tool has been setup using ClickUp, here is the link:
<https://sharing.clickup.com/l/h/4-3476595-1/8843c15027e0f18>
- Team FLOEWS product manager should will be attending the Product Management session per the schedule date.
- **Define Problem team wishes solve**
 - **Why does my solution/project need to exist in this world?**
With about 4.6 billion people globally, 121 million Nigerians between, assets worth \$Trillions living across the largest and populous urban & rural corridors of the world, all are vulnerable to different form of natural disaster. While, most of this individuals, communities, economies & governments are living within the coverage natural disaster zones are ignorant, living with less or no in-depth knowledge about impending risk nor do they have a socially inclusive access to any early warning system & guidance, overall, above all disaster risk governance is not in-place

nor taken into account by the government of the day so as to help mitigate the disaster while making such vulnerable populations be resilient to the disaster.

Natural Disaster remains a persisting hazards or catastrophe that affect Nigeria and the world in a whole with a frequency of about 85%, alone it has accounted for about 93 % of all death related to natural disaster out which 65% of the vulnerable are the under-served, the marginalized etc (GFDRR).

Natural disaster has been a major devastator with no or limited resiliency for centuries. Over the period 1995-2015, natural disaster (flood, drought, heatwave, landslide & epidemic) has accounted for 88% of all documented natural disasters, affecting 2.3 billion people, killing 9million+ and causing US\$5.9 Trillion in damages and economic losses. They remain the most frequent natural disaster that affect the world with a frequency of about 71%, alone they have accounted for about 81 % of all deaths related to natural disaster.

Natural disaster affects the vulnerable population group especially the under-served and the marginalized in different ways. Social & gender inequalities increase vulnerable populations vulnerability because the current status quo and cultural norms which limits them from access to a socially inclusive natural disaster management & early warning information, guidance and resources. This makes it more difficult for them to be resilient and recover from disasters.

As the adversity of climate change kept persisting across different geographies, so as the exposure of vulnerable population, assets and biodiversity, while such adversity will continue increasing and only few or no % of those vulnerable individuals, communities or economies have a clear nor in-depth knowledge about the impending risk involved in it nor were they consulted during the disaster policy planning and decision-making process. Since climate change and its adversity can't be stopped overnight, and most of this vulnerable individuals, communities & governments lacks access early waring information nor guidance to guide them on how to better understand the impending disaster threat, monitor & forecast it occurrence, prepare themselves early and even respond to such emergency, nor even to fasten their recovery after the disaster strikes and how to be resilient against its next occurrence. Then it became very important for such disaster vulnerable individuals, communities, government and their utility & infrastructural assets to have an inclusive means of helping themselves thrive, by knowing exactly when the disaster is going to strike, its magnitude and expected devastation through a two-way citizen engagement process so as to survive the disaster while reducing losses of all type, level of exposure & vulnerability.

- **Why are we building it?**

FLOEWS-Disaster Risk Governance is an all-round (end-to-end) solution that provide as a democratized and socially inclusive the way in which the authorities, public servants, media, private sector, and civil society coordinate in communities, and on regional and national levels in order to manage and reduce disaster and climate-related risks.

FLOEWS-Disaster Risk Governance helps monitors & forecast natural disaster imminence, thereby, disseminating the forecast as an early warning intelligence as an actionable insight to the vulnerable individuals, communities & governments, why? for early preparedness, awareness, emergency response, speedy recovery & strengthening resiliency. Towards making

the actionable decision making critical enough to the reduction in devastation among lives, valuable assets & economic losses estimated in \$billion, through:

- Helping public safety agencies gain a better understanding of where to focus effort to prevent, protect against, and mitigate the effect of the complex threats and hazards...
- Equipping Government agencies with data-driven insights to better respond to and recover from the threats that pose the greatest risk keeping communities safe

The proposed solution will be digitizing & disrupting impending natural disaster, thereby, dematerializing the conventional huge traditional system into small, which reduces the material size & cost, thereby, demonetizing the system to be cheap, affordable & even free, which automatically democratizes the system to open, accessible, gender-inclusive across vulnerable individuals, communities and Government (decision makers).

○ **Who needs our solution?**

- Governmental Ministries & Agencies: LGA, NEMA, SEMA, Ministry of Environment, Water Resources, Agriculture, Inland waterways, UBRBDA, NIHSA.
- NGO & Humanitarian Organizations: World Bank, UN, UNOOSA, UN-SPIDER, GFDRR, UNISDR, WHO, UNOCHOA, UNDP, Direct Relief etc.
- Enterprises/Business: Oil & Gas industry, Telco's, Insurance Insurers, Urban & Regional Planners, Real Estate & Estate Developers, logistic & Supply Chain managers, Risk & assets assessor & analyst, Engineering & construction, Surveying & Geo-Informatics, large-scale commercial farmers etc.
- Research & Academia Education.
- Software Developers and ICT industry.
- Millennials & Digital Age.
- Last Mile Users: Subsistence farmers, low class urban, rural farmstead, isolated hamlet inhabitants, the marginalized such as: women, children, disabled & aged.

2ND BREAKTHROUGH

Date:

Day 2 – 18th, June, 2021

- Brainstorm solutions to problems:

Answer:

We've spent hours brainstorming several approach & novel sustainable methodologies to creating solutions to the problem, and our hard work has paid for we have reach a consensus on the most desirable solution we felt fit to solve the problem "Kudos". The solution is a combination of both rethinking the traditional method of solving the problem before while inventing a branding new approach to solving the problem using disruptive/exponential sets of technologies.

We further made the solution to be both problem & user centric, in such a way that both of the will be out into appropriate consideration towards solving the problems. Value proposition were outlined, customer/user/beneficiaries were already segmented and the most corresponding channel of the accessing such values/solutions have been mapped to one another.

Among the channels for accessing the solution are:

- FLOEWS-Disaster Risk Governance On-Premises Deployment (On Existing IT Infrastructure).
- FLOEWS-Disaster Risk Governance SaaS.
- Open/Access Data Services.
- API.
- Web/Mobile application.
- Social Media.
- Email/SMS/USSD/IVR/Chatbot.
- Print media.
- Peer-to-Peer etc.
- Connected via a mesh network using IoT based ducklings and mobile phone based meshed networked.
- Cell Tower Broadcast.

Paper based mock-ups/drawings and illustration of the entire approach was drawn and shared among team members.

- Choose a solution and outline features you want to develop (MVP)

Answer:

As stated above, if time permits, we will be greedily developing solution (MVP) as the following:

- FLOEWS-Disaster Risk Governance SaaS platform.
- FLOEWS-Disaster Risk Governance Open/Access data services for Academia & Research Institutions.

- We will develop a dedicated FLOEWS-Disaster Risk Governance API for developers and data engineers and consumers to utilize while building on top of our platform.
- We will be developing a Web/Mobile application with features capable for monitoring and forecasting impending natural disaster, disseminating early warnings and intelligence via multi-channel gateway, ensuring early preparedness and readiness among vulnerable populations, guiding their recovery process while strengthening their resiliency. The features will be a turn-key bundle featuring map-based webapp, a common operating picture, an operational dashboard, a real-time disaster reporting module (crowdsourced) etc.
- A Multi-Channel early warning dissemination channel via app notification, Email/SMS/ IVR/Chatbot etc.
- Print media/infographics inform of a risk maps and vulnerability assessment.
- Designed an IoT Mesh network using simulators and Raspberry-Pi & ESP 11/LORA wireless module to be used as a dissemination gateway vulnerable population and first responders in disaster affected areas with a damaged or less penetration mobile/internet connectivity

- **Competitive analysis:**

Answer:

Competitors: - What solutions exist that are similar?

We don't have direct competition in Nigeria rather we have international competition such as:

1. Deltares in the Netherlands
2. Ambiental in the UK.
3. Flood
4. list in the UK etc.

Unique Selling Points: - How is your solution different?

1. Our Proposed solution will be dematerializing the conventional huge traditional system into small, which reduces the material size & cost, thereby, democratizing the system to be cheap, affordable & even free, which automatically democratizes the system to open, accessible across disaster vulnerable individuals, communities and economies via the most corresponding multichannel gateway such as On premises deployment, cloud/web/mobile, web services, open/shared data, Social Media, SMS/IVR/USSD/Chatbot, Print Media, Peer-to-Peer, off-grid-Mesh Network etc.
2. Socially Inclusive.
3. Hyperspectral accuracy.
4. Leverage Unique & Untapped data source from wireless signal thereby creating a Hyper-Local weather intelligence.

5. Cheap and affordable to governments and its citizens/customer segments.
6. Requires no installation, maintenance and core data
7. Can be replicable & tailored across geographies.

- Create medium fidelity prototype i.e., Whiteboard sketch, Canva <https://www.canva.com> , Figma <https://figma.com> : Note All UI mock-ups can be implemented using your favourite framework(optional) – e.g., Laravel, Django, Dotnet Core, React, Vue, Flutter, Swift, etc.

Answer:

Our Mock-up were implemented using React Native for cross-platform mobile apps.

We further QML & QT & Python to for GIS-Based Apps.

Our Geo-Big Data utilizes GBDX and ArcGIS Catalog & T-SQL for MSSQL Server 2019.

Our Mapping Script using Python/R.

- Update project management

Answer:

Our Project Management Repo and Gant Chart on GitHub/ClickUp have been update already so as to keep al team members abreast, conscious of time and devised roles.

- Keep track of major issues faced/challenges

Answer:

- Time Constraint.
- Working remotely.
- Cost of internet data.
- Primary data acquisition.

- Update and submit document with design selection process, summary of solution, competitive analysis and snapshots or link of prototype
- Team formed: WE have formed our Team already, “Team FLOEWS”.