



NIKKI SMITH – SENIOR DIGITAL SPECIALIST - INTERNATIONAL

*From West Africa to Central Asia!*

Sustainable Digital Solutions for  
Geological Surveys



British  
Geological  
Survey

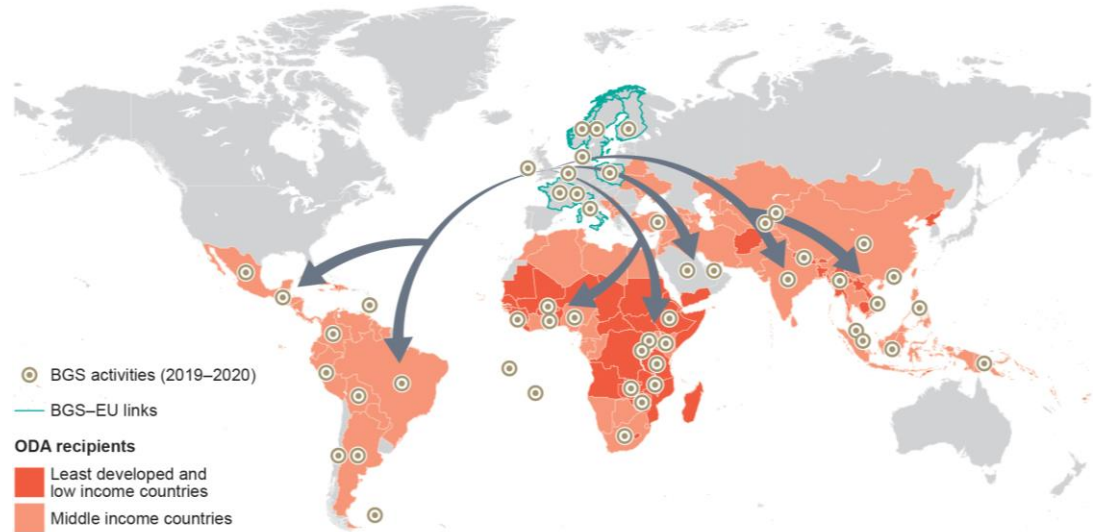
# British Geological Survey (BGS)

- UK's National Geological Survey founded in 1835
- Part of United Kingdom Research and Innovation (UKRI)
- Funded by UK government and external income
- It is the UK's premier provider of objective and authoritative geoscientific data, information and knowledge to help society to:
  - use its natural resources responsibly
  - manage environmental change
  - be resilient to environmental hazards



# BGS International Work

- International work since 1947.
- Direct work for international governments
- FCDO funded geoscience projects
- Advice to governments
- Digital transformation projects with overseas geological surveys
- National baseline geological surveys
- Disaster Risk Reduction projects
- Private Sector commissioned work

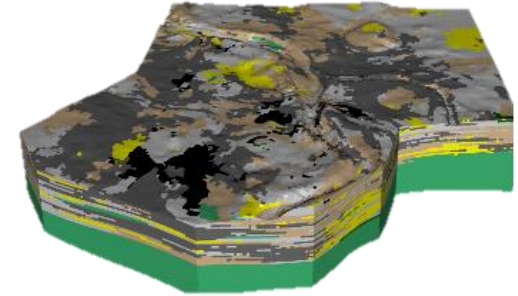




# Recent major International programmes

## Geoscience for sustainable futures 2018-2022

- Delivered ‘development science’ with direct benefits realised in country
- Focused on Global Geological Risk, Resource Management in eastern Africa, Resilience of Asian cities
- New International Geoscience Research and Development programme started 2022



Hanoi Urban Geology: Delivering benefits for city planning



## Partnerships for Development 2017 – 2021

- Funded by UK Foreign and Commonwealth Office
- Partnerships with geological survey organisations (GSOs)
- Building capacity to acquire & manage geological data for stronger extractives governance

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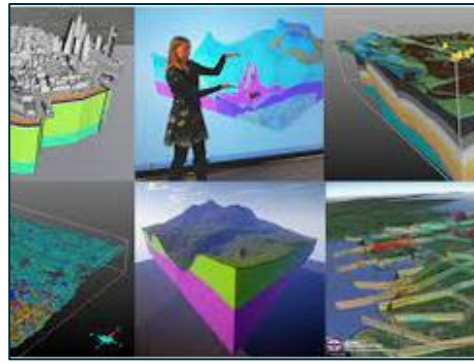
# Why Geology?



Energy transition



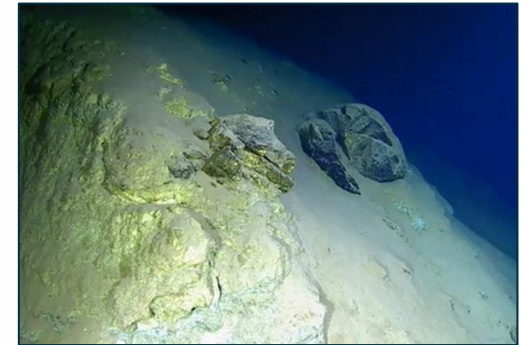
Hydrogeology and Groundwater



Urban Geology and planning



Geological hazard prediction and mitigation



Marine geology



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The data held by a geological survey is a key asset, and access to, and delivery of this data is crucial!



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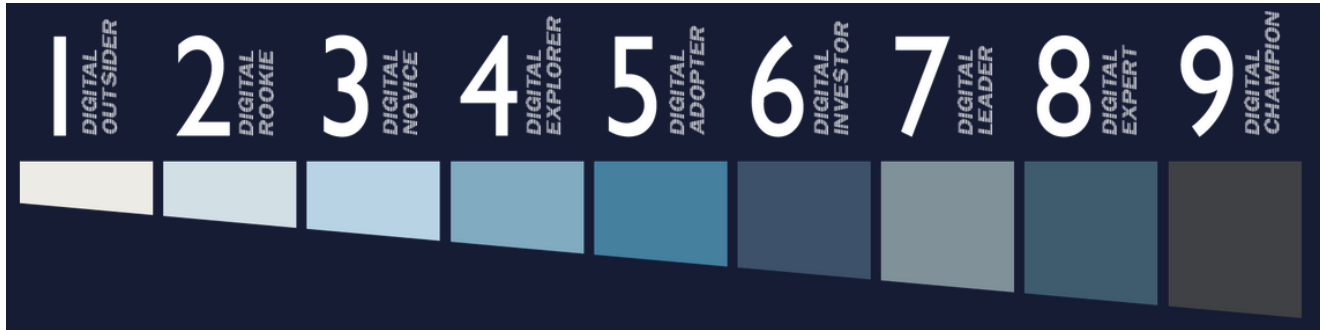
## BGS Informatics Overseas

- BGS has been providing Digital solutions for overseas organisations for decades.
- Were they sustainable for our partners and for BGS?
- Need long term sustainable solutions for partners
- BGS needs to be able to sustain input to these solutions
- How do we ensure sustainability? And what do we mean by it?



# Digital Readiness Levels

A way to work with an organisation to determine their current level of digital readiness which will help in the co-design of appropriate solutions





# How can we make the solutions sustainable for our partners?

- Ensure that BGS make informed decisions on the types of Digital solution to be suggested
  - Consider length of the project and level of investment available
  - Long term maintenance (use of open source can mitigate some of this)
  - Staff roles required and are these staff available
- Provide
  - Knowledge Exchange
  - Peer to peer working
  - Enable a sense of ‘ownership’ of the digital transformation process
- Provide organisations with the knowledge, skills, tools, advice and support to empower them to make and sustain the changes that THEY want to make.

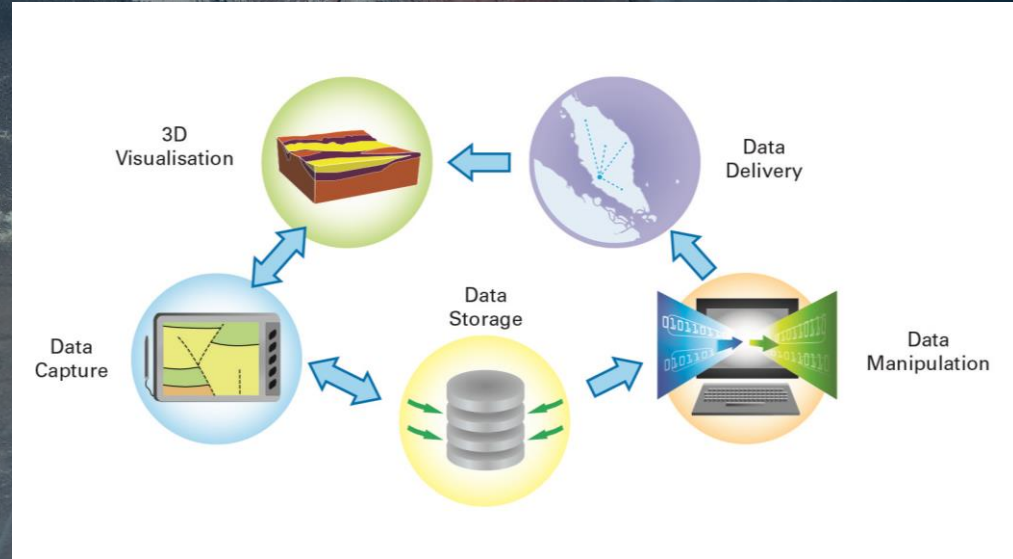
# Sustainability of change

- Geological survey staff are key to the success of any change
  - Strengthening of existing skills
  - Co-design of systems and processes
  - Training and peer to peer partnership work
- Work with the junior staff to become the champions of change.
- This all ensures that knowledge is held within the geological survey ensuring that the solutions are sustainable for the long term.



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# Digital Workflow Blueprint





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# Ghana Geodata project

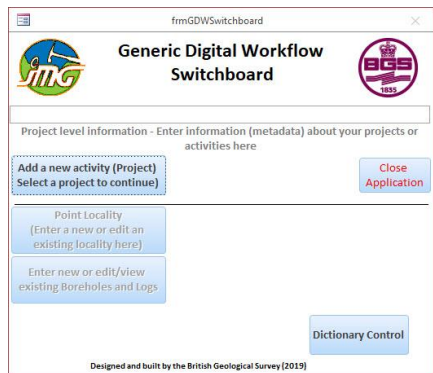
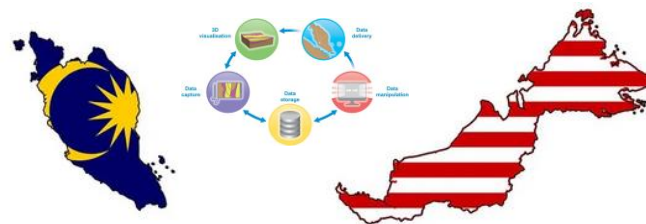


- Geology
- GEOMAP\_1000\_2009
- GeoPhysics
- GIS\_Data
- Misc
- Publications
- Source\_Data
- Training

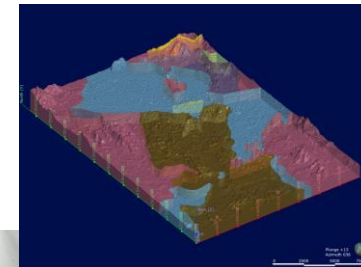
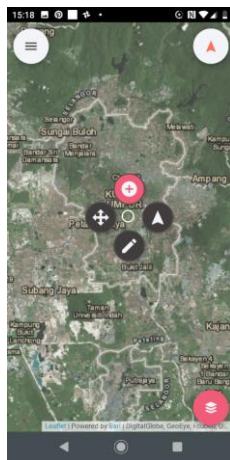
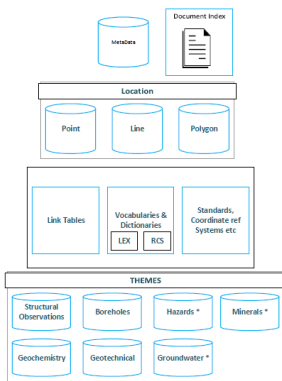


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# Malaysia - 3D Geological model Kuala Lumpur



# QGIS



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# Kyrgyzstan – Geodata and Multi-hazards



Legacy Data

Data & Asset Register

Central Server & Databases

Data Sharing

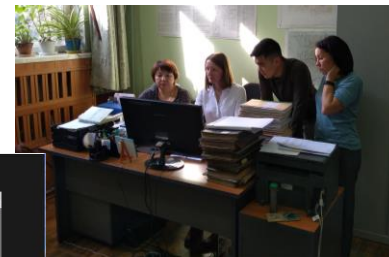
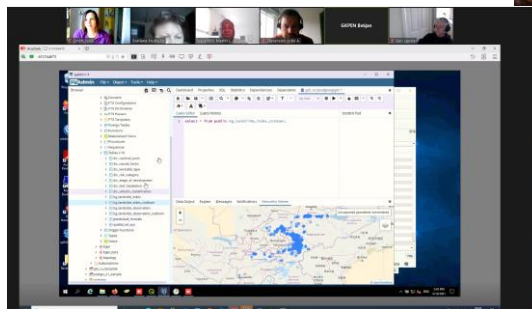
Geoscience Data Index

Training and Workshops



PostgreSQL

QGIS





## What have we learnt?

- Digital transformation is complex and costs money – but we all knew that !!

BUT

- Sustainability for digital solutions is possible it just needs to be the right solutions at the right time with the support and strengthening of the staff involved!

**Long-term sustainable partnerships are key to developing good relationships & knowledge exchange that benefits both partners**



THANK YOU

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