



Emergency Management Cook Islands



**Pacific
Community**
Communauté
du Pacifique

INCREASED AVAILABILITY OF RELIABLE DISASTER AND CLIMATE RISK DATA, INFORMATION AND KNOWLEDGE

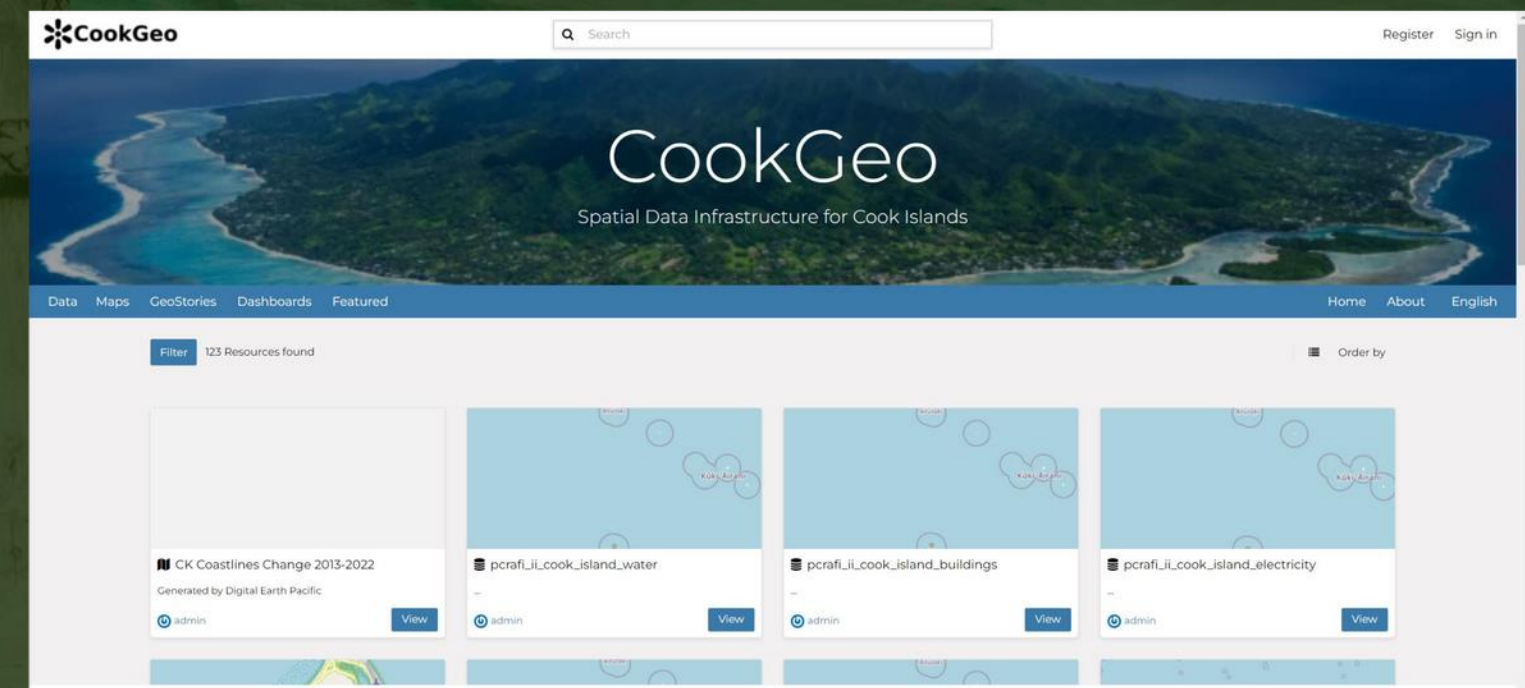
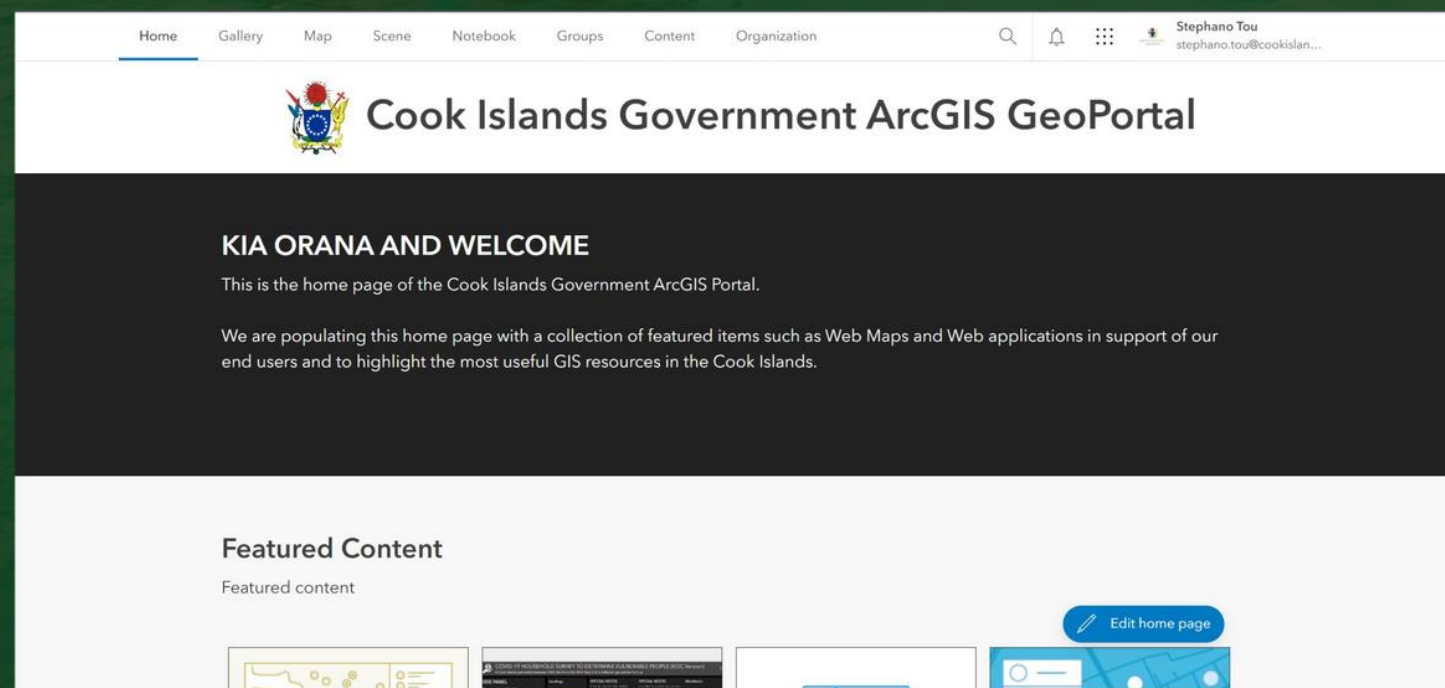
2nd Project Steering Group Meeting for the Building Safety and Resilience in the Pacific Project – Phase II

Nadi, Fiji, Tuesday 09th April 2024

**Presented by Stephano Rampling-
Tou**



- **ESRI ArcGIS online geoportal – A cloud-based online enterprise (100 licenses) government wide platform lead by EMCI which holds our data sets, maps and other products. Allows for different ESRI applications such as ArcGIS Pro, ArcGIS online, Survey123, Field Maps, Instant Apps, Story Maps, plus more. Introduced to the Cook Islands in 2019.**



- **CookGeo – Both online and offline server lead by Infrastructure Cook Islands which contains spatial data. Achieves sovereignty over Cook Islands data sets.**



ARCGIS ONLINE PORTAL


EMCI Disaster Risk Management Dashboard

2021 Population by Puna and Age

Location	Total	<5	10...	15...	20...	25...	30...	35...	40...	45...	50...	55...	60...	65...	70...	75...	80+
Akaso-Betela	668	43	68	42	37	45	41	39	40	35	54	52	39	26	23	19	10
Aveitu-Ruotonga-Atupa	974	67	80	71	65	70	73	55	57	80	76	55	60	38	21	16	28
Kilik-Tupapa-Maraerenga	1,749	131	134	130	108	127	125	121	118	108	129	113	81	75	55	40	29
Matavera	1,018	79	98	66	64	61	66	92	49	78	49	71	42	45	20	27	16
Murienua	794	62	69	60	42	51	56	38	54	61	60	50	37	35	18	18	20
Ngatangia	795	45	57	48	61	48	58	52	47	50	66	49	50	36	29	20	18
Nikao-Panama	1,487	103	144	106	116	95	89	102	107	105	113	89	63	49	46	27	16
Ruaau-Arerenga	1,199	77	92	96	65	86	81	80	88	69	81	85	79	42	32	26	26
Takuvaine	629	59	62	40	27	36	43	37	39	50	49	41	40	34	21	11	13
Tikakavea	1,276	65	115	92	47	58	94	81	86	87	95	108	76	47	51	34	34
Tutakimca-Teotue	274	20	16	25	22	23	17	19	21	19	19	19	20	10	13	5	2
RAROTONGA TOTAL	10,8...	7...	935	796	654	700	743	716	697	742	783	732	571	427	311	242	214

Population by Percentage



* Official source of information: Cook Islands Statistics Office - Census 2021

EMCI Map

Population by Puna

Population by Island

Vulnerabilities

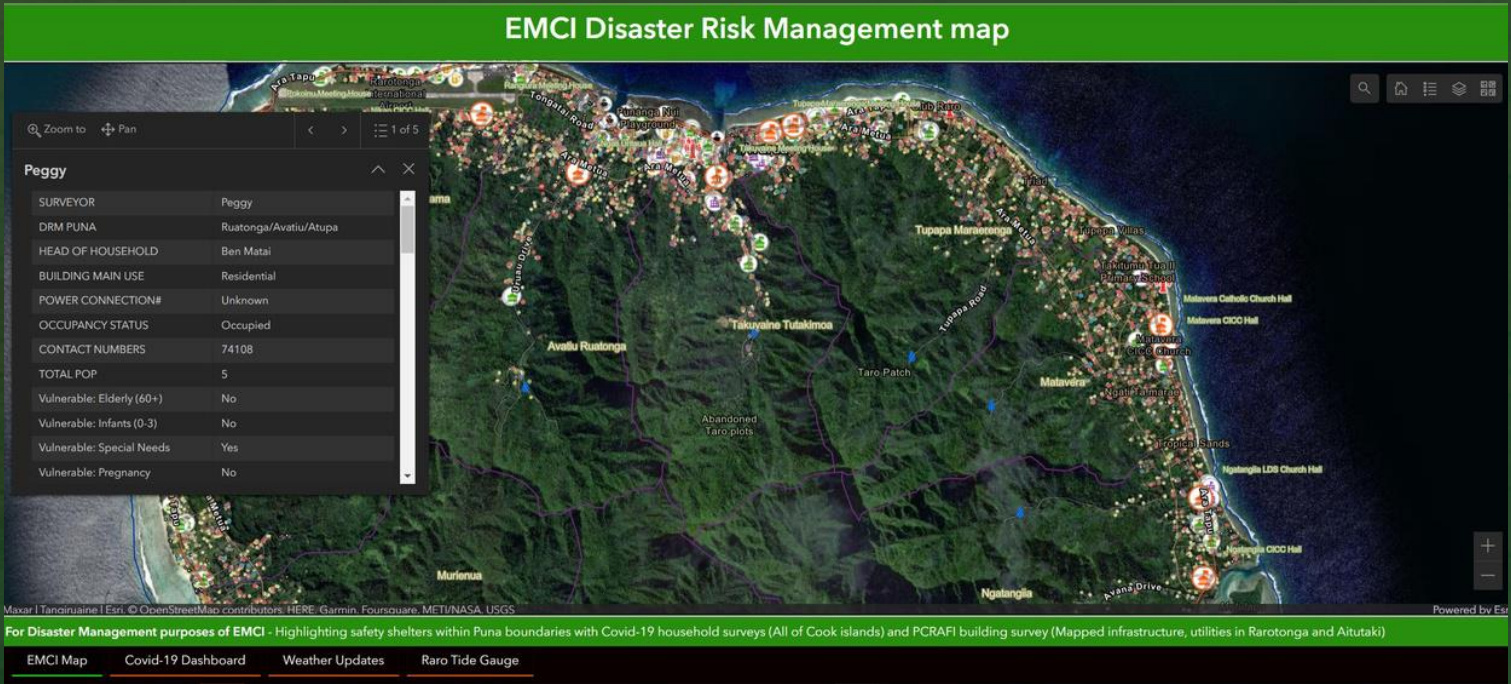
Weather Updates

Raro Tide Gauge

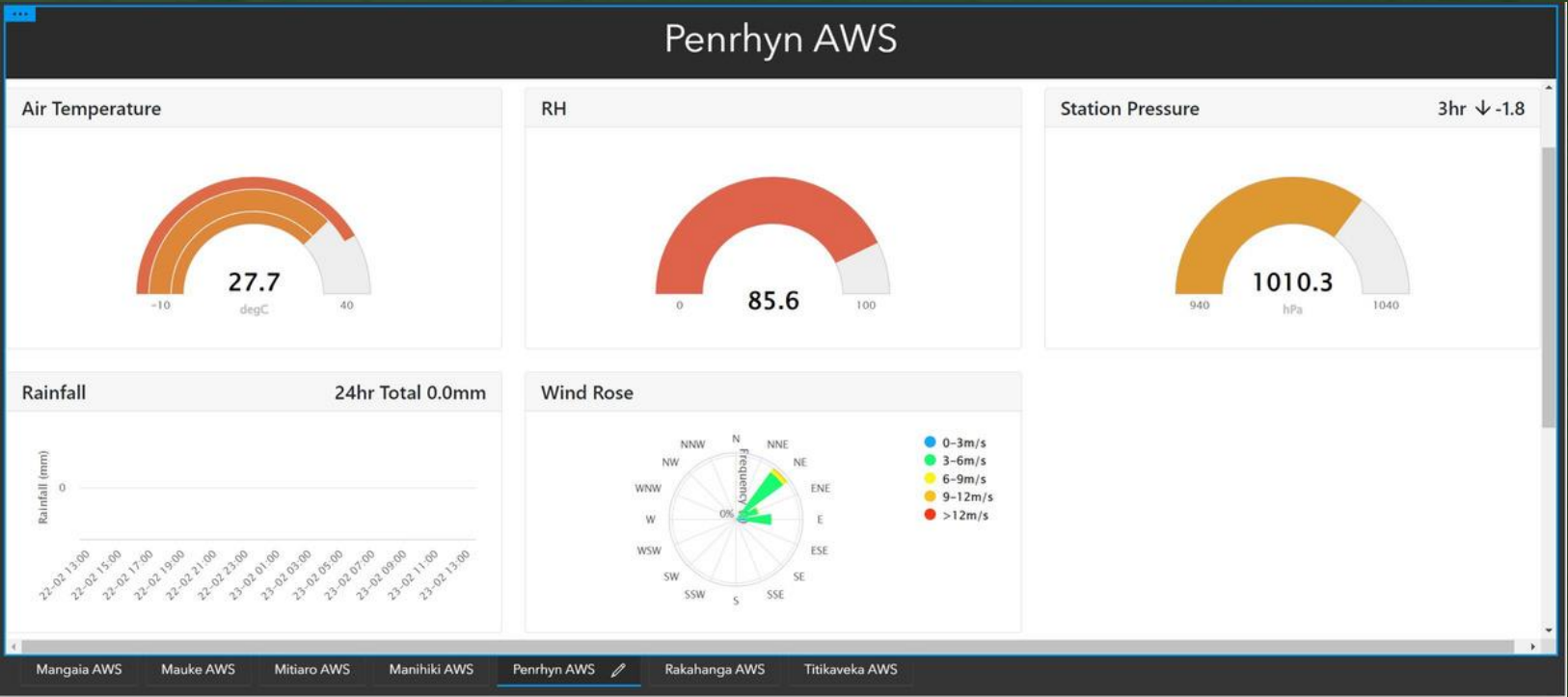




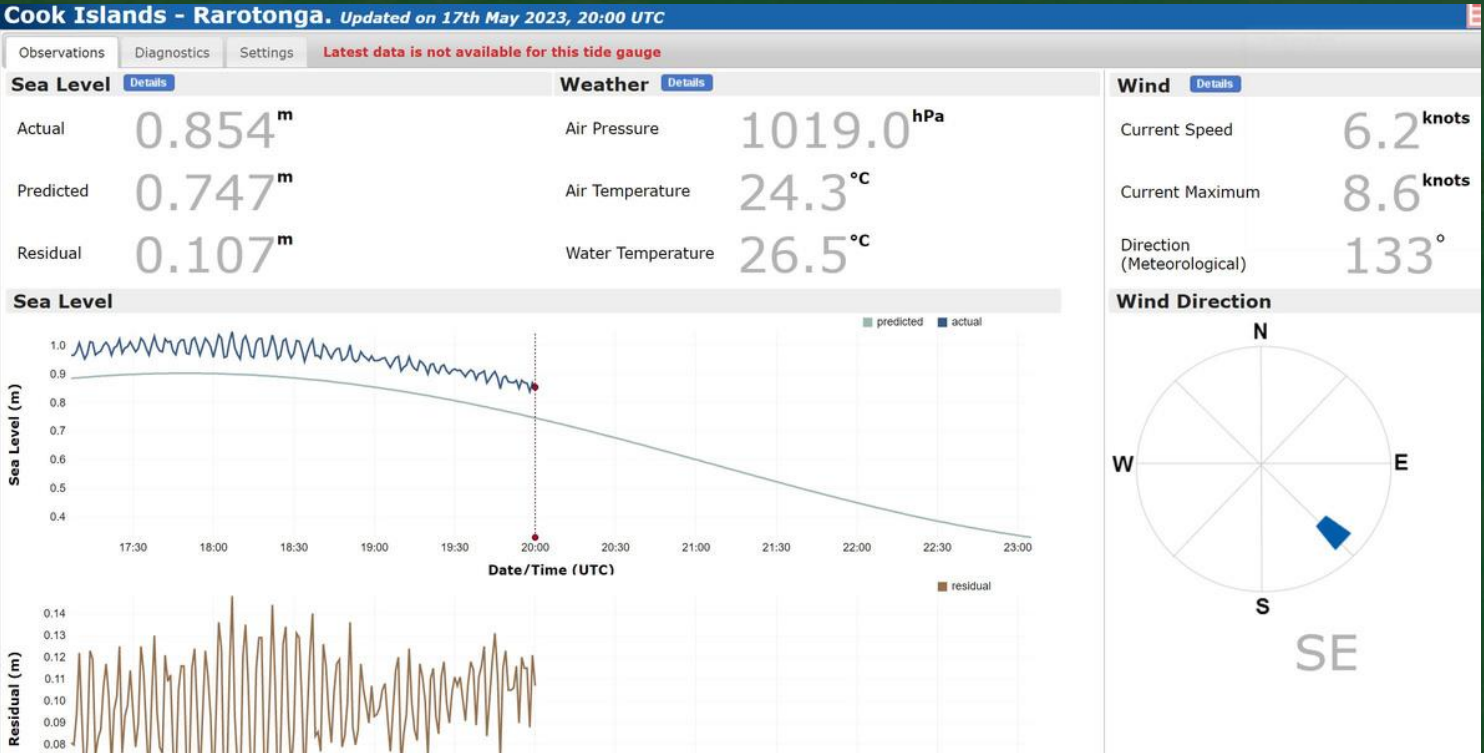
EXAMPLE OF ARCGIS DRM DASHBOARD



EMCI DRM MAP



CI AWS DASHBOARD



LIVE COOK ISLANDS TIDE GAUGES



GPS COORDINATES, CENSUS STATS, PCRAFI DATA



2023 Vision

Census Data

PCRAFI Data

**GPS
Coordinates**

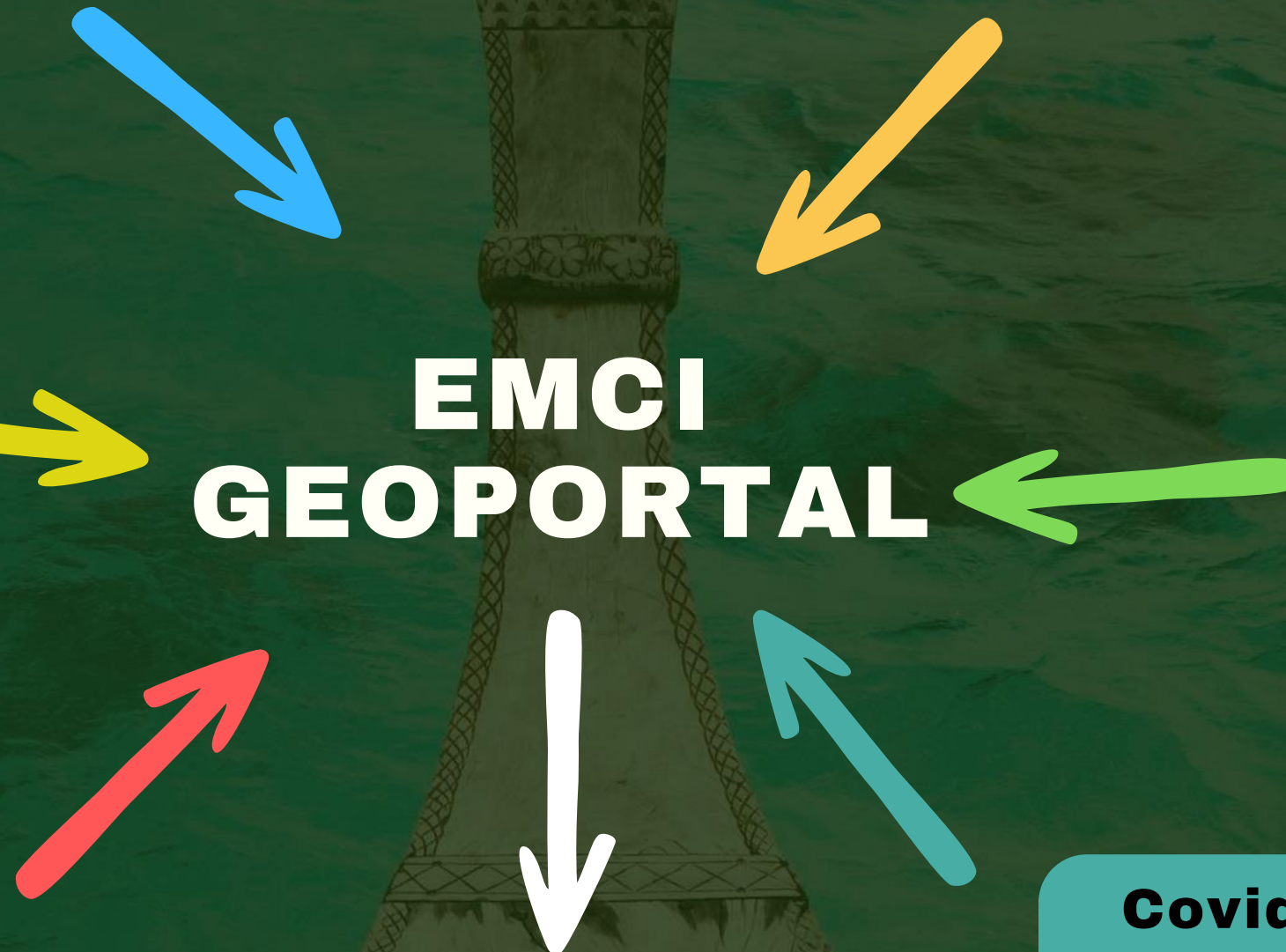
**LiDAR
Technology**

**EMCI
GEOPORTAL**

**Mapped
Infrastructure**

**Covid Household
survey Data**

**Hazard risk
analysis**

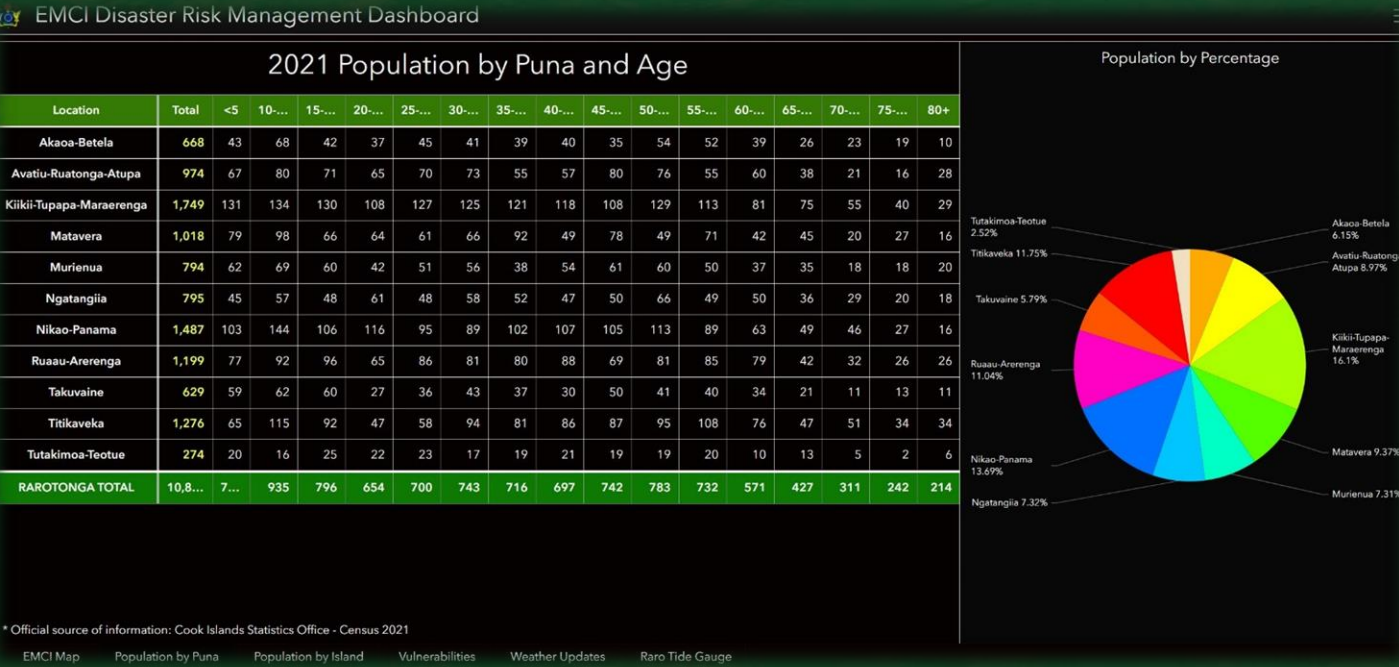
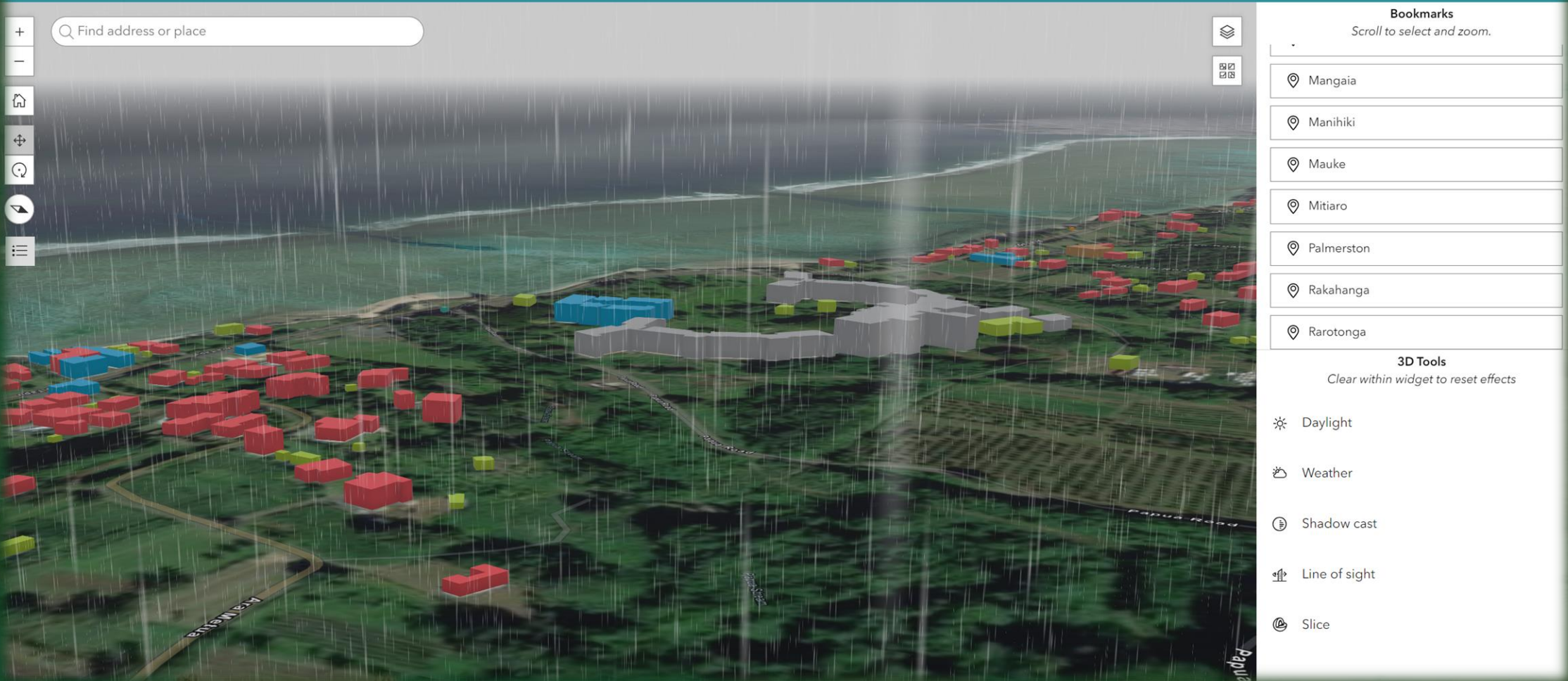




2024 DEVELOPMENTS



Cook Islands 3D Buildings Viewer (beta)



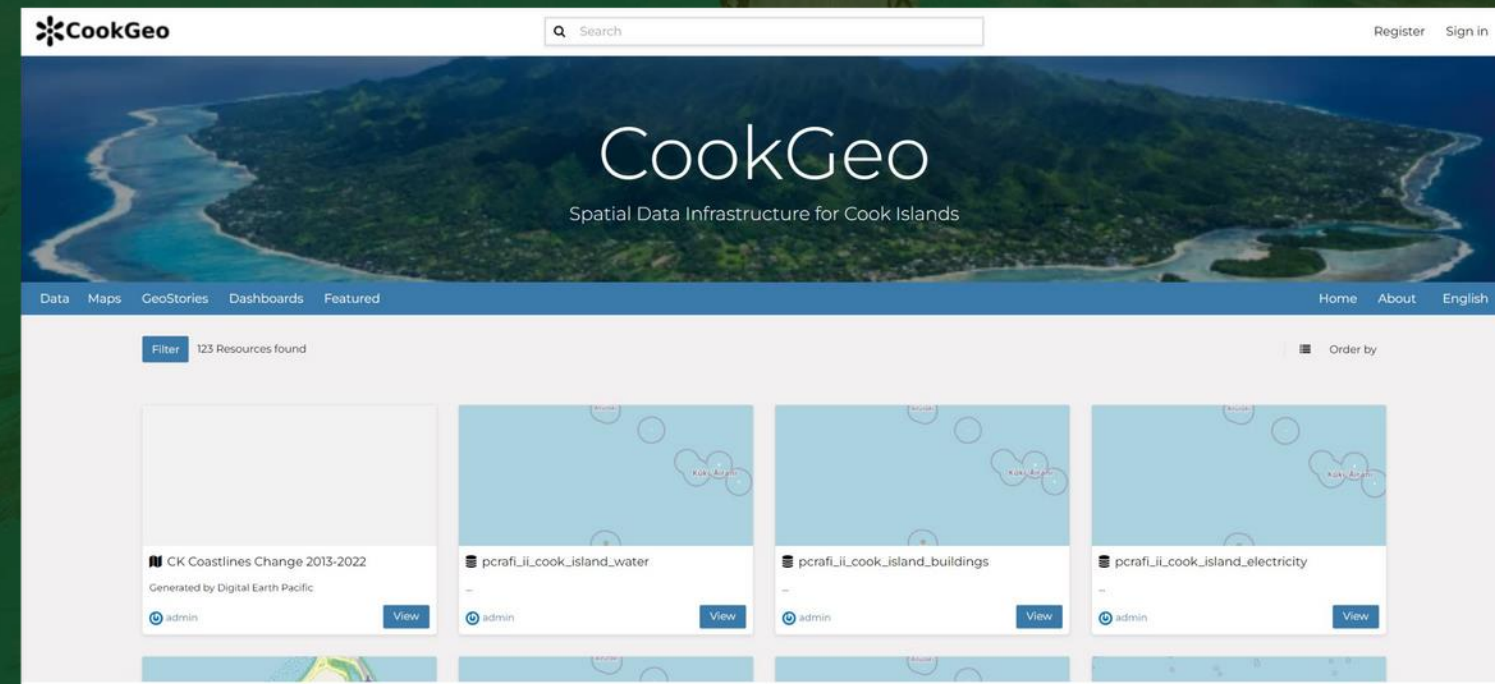
3D Models with Flooding analysis to integrate into Dashboards



IMPORTANCE & RELEVANCE

COOKGEO PORTAL

ALLOWS FOR IN COUNTRY STORAGE FOR ACCESS DURING DISASTERS. DATA SOVEREIGNTY IS NOW A KEY PILLAR FOR COOK ISLANDS GOVERNMENT AND COOKGEO WILL HELP TO ACHIEVE THIS. INFRASTRUCTURE COOK ISLANDS BEING THE LEAD AGENCY FOR SPATIAL INFORMATION, COOKGEO NOW SUPPORTS THEIR EFFORTS AND ALLOWS EMCI AND OTHER AGENCIES TO HAVE BACKUP DATA SETS.





CURRENT SITUATION

ARCGIS ONLINE

Working very well and has opened up the data sharing aspect within the Cook Islands Government and enhanced inter agency relationship to build the Cook Islands GIS user group.

COOKGEO

Still being developed, website currently accessible. Working with SPC to assist with Technical difficulties.



SYSTEM NEEDS/REQUIREMENTS

Open source and different formats

Interoperability with other systems

Further development and enhancement of centralized data systems to streamline access and management

Finalize Standardization of Data: Ensure data sets are standardized to facilitate interoperability and ease of use (*Draft CK GIS Standards Developed*)

Strengthen Security Measures: Implement robust security measures to safeguard sensitive data

Link Portals for improved efficiency and accessibility

Accessibility for both government and non-government entities

Improvements in hardware and software infrastructure

User-friendly interface for easy access and analysis



MAIN CHALLENGES

ARCGIS ONLINE

- Financial Constraints
- Limited expertise and Lack of regional/free capacity building for Esri products.

COOKGEO

- Most agencies are using ArcGIS, easier to use ArcGIS online portal.
- Data uploaded to CookGeo is a platform where you uploaded and available to access. Some agencies just want somewhere to store information but have sovereignty
- Hosting the server in country has highlighted the need to improve our hardware and internet infrastructure to be effective.



STRATEGIES TO ADDRESS CHALLENGES

ARCGIS

- **Financial constraints:** Paid through various projects, however looking at options to distribute costs with all government agencies or government ICT to cover subscription costs. Possible donor sponsorship.
- **Capacity Building:** More countries in the region are now using ArcGIS, we suggest that countries join our efforts to propose that SPC and other agencies include Esri/ArcGIS in GIS training packages.

COOKGEO

Currently Working with SPC to assist in developing the server and website to eliminate technical issues. A login for specific private data to be integrated and separated from publicly accessible data.



SUPPORT NEEDED

ARCGIS

- **ArcGIS Geoportal: infrastructure is already set up. We would like to encourage Esri GIS trainings on data collection, creating maps, dashboards etc. for other government agencies.**
- **Regional collaborations and standardization**
- **Sustainable funding source or strategy to support subscription costs**

COOKGEO

- **Technical training and expertise to maintain and develop the server and website in country**
- **Infrastructure Hardware – Servers and High end PCs for other Ministries/Agencies to improve and share data**



CONCLUSION

ARCGIS

Working well and has fostered great collaboration opportunities within the Cook Islands Government and allows collaboration with other ESRI users externally while also withstanding our information sharing guidelines. Spatial Information Policy is now in place and LiDAR has now been processed and ready for enhanced GIS products using ESRI tools. EMCI Now recognized by ESRI for Special Achievement Award in July, 2024 at International ESRI conference in San Diego, US

COOKGEO

Considering we have existing ArcGIS portal in place with immediate effect to import to maps, it makes it difficult to encourage agencies to use unless they are using open sourced software. Further development is set to take place to minimize the issues.



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**" D I V E R S I T Y I S H A V I N G A S E A T A T T H E T A B L E ,
I n c l u s i o n i s h a v i n g a v o i c e ,
a n d B e l o n g i n g i s h a v i n g t h a t v o i c e b e h e a r d " .**

MEITAKI MAATA