

T2T

Establishing a tool for providing a sound evidence base for Natural Capital Assessment in Montserrat: The Montserrat Data Management Project



Territory to Territory Partnership

Review table

Name	Reviewed by	Date
Version 1	Tara Pelembe;	20/03/2018
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Establishing a tool for providing a sound evidence base for Natural Capital Assessment in Montserrat: The Montserrat Data Management Project

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CONTENTS

Background:	4
Overall project Goal.....	4
Project Objectives.....	4
Project Governance	4
Implementation of project objectives.....	5
Objective 1: Set up metadata catalogue for Montserrat as a means of bringing together evidence to underpin decision-making	5
Objective 2: Establish a data management policy for Montserrat to provide a comprehensive framework for long term data management on-island.....	6
Objective 3: Provide on-island training and awareness raising to encourage buy-in and support for data management.....	7
Objective 4: Provide specialist training to key staff and promote the Territory to Territory Partnership approach	7
Key successes	8
Challenges	9
Impact	9
Recommendations.....	9

BACKGROUND:

- Through a Territory to Territory Partnership between the Government of Montserrat (GoM) and the Falkland Islands Government (FIG)¹, facilitated by the UK Government's Joint Nature Conservation Committee (JNCC), a draft data management plan for Montserrat was developed through a [workshop held in Montserrat in November 2016](#).
- Following on from the workshop, a 'Phase I' data management project was implemented by SAERI under a Memorandum of Agreement with JNCC.
- SAERI then worked in partnership with the Government of Montserrat, to provide technical advice and support to the GOM project manager who was responsible to lead on the project implementation on island.

OVERALL PROJECT GOAL

- The overall project goal was to establish a data management process and system as a tool for providing sound evidence base for Natural Capital Assessment in Montserrat.

PROJECT OBJECTIVES

The objectives identified to achieve the project's goal were as follows:

- Set up a metadata catalogue for Montserrat as a means of bringing together evidence to underpin decision making.
- Establish a data management policy for Montserrat to provide a comprehensive framework for long term data management on island.
- Provide on-island training and awareness raising to encourage buy-in and support for data management.
- Provide specialist training to key staff
- Promote the Territory to Territory Partnership approach.

PROJECT GOVERNANCE

Brief description of structure

- **Project Board:** Responsible for oversight of the delivery and implementation of the project: GOM Director Department of Agriculture (Melissa O'Garro); SAERI (Tara Pelembe); JNCC (Amanda Gregory);
- **Project Manager:** Responsible for the delivery of the project (reports to the Board) with support from the project technician
- **Technical advice:** 'call down' advice and training support for the project manager and technician as required.
- **Project Stakeholder Group:** Dissemination of information about the project, project progress, updates on the development of work, feedback and suggestions, develop support and buy-in. Project Manager to coordinate and chair the group.

¹ Represented by SAERI – the South Atlantic Environmental Research Institute.

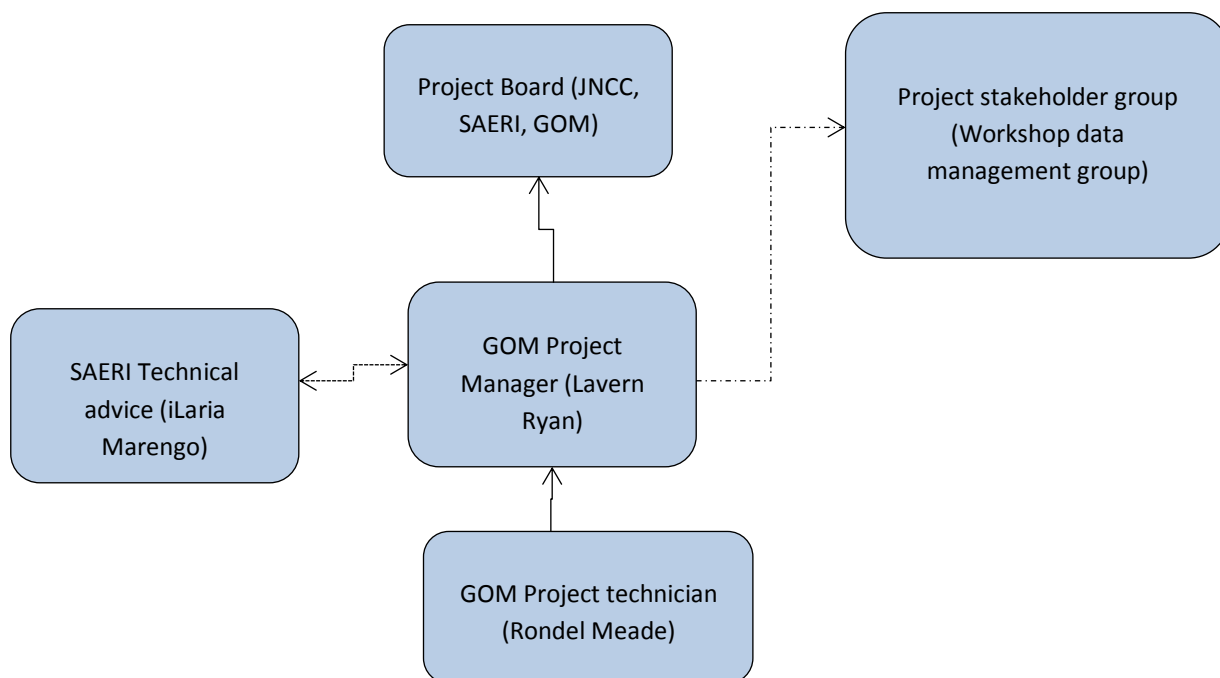


Figure 1: Diagram to show project governance structure

IMPLEMENTATION OF PROJECT OBJECTIVES

OBJECTIVE 1: SET UP METADATA CATALOGUE FOR MONTserrat AS A MEANS OF BRINGING TOGETHER EVIDENCE TO UNDERPIN DECISION-MAKING

The GoM project manager and technician received international and on-island training around the fundamental concepts of data management and the creation and development of a metadata catalogue. The aim was to provide the basis for fully understanding the various aspects and components of data management and the techniques for documenting data and allowing their discovery from one unique repository (the metadata catalogue).

By the end of the two weeks spent in the Falklands, a hundred and eight metadata records were created for corresponding datasets that sit within the Ministry of Agriculture, Trade, Land, Housing and Environment (MATLHE), and these have been made available to the wider public through the new [Government of Montserrat Metadata Online Catalogue](#) that was launched on the 21st March 2018.



Figure 2: Metadata catalogue launch Programme



Figure 3: Metadata catalogue online page

OBJECTIVE 2: ESTABLISH A DATA MANAGEMENT POLICY FOR MONTSERRAT TO PROVIDE A COMPREHENSIVE FRAMEWORK FOR LONG TERM DATA MANAGEMENT ON-ISLAND

The data policy that has been developed for the Falkland Islands was shared with the GoM as an example and potential model for the development of a government data policy which would provide a comprehensive framework for long-term data management on the island.

The GoM reviewed the data policy, and shared it with the data management group, which is established as part of the governance structure. A draft of the GoM data policy has been discussed at a data management steering group meeting in March 2018 with a view to formalising the policy later in 2018.

OBJECTIVE 3: PROVIDE ON-ISLAND TRAINING AND AWARENESS RAISING TO ENCOURAGE BUY-IN AND SUPPORT FOR DATA MANAGEMENT.

The GOM project manager and technician contacted personally all of the data holders in MATLHE with the intention of harvesting the metadata records. As part of this process, one-one discussions around the importance of data management were held. There was -support for the creation of the metadata catalogue, whose launch provided a platform for future promotion of the data management system, its concept idea and its best practice. The project also identified future [recommendations](#) for continued improvement of data management in the Government of Montserrat.

OBJECTIVE 4: PROVIDE SPECIALIST TRAINING TO KEY STAFF AND PROMOTE THE TERRITORY TO TERRITORY PARTNERSHIP APPROACH

SAERI provided technical support and advice to the project manager and project technician, which involved a one-week data management training course in the Falkland Islands, delivered by the data manager of the Information Management System (IMS)-GIS data centre. Additionally SAERI facilitated a week of meetings with the Falkland Islands Government (FIG) officers to further progress the Territory to Territory discussions and knowledge sharing and transfer such as the idea of celebrating the International GIS Day in the Falklands. In fact, Montserrat holds a very successful International GIS Day annually which serves to raise the profile of GIS on island, and this model was promoted to the FIG officers who showed an interest in organising a similar event in the Falklands. After the two weeks in the Falklands, the project manager and technician went to the UK to pay a visit to other organisations working with data in Montserrat i.e. Environment Systems in Aberystwyth and Eftec in London.



Figure 4: Lavern Ryan (project manager) and Rondel Meade (project technician) from GOM visiting SAERI offices in the Falklands with iLaria Marengo (SAERI-IMS-GIS Data Centre data manager) (Feb 2018).



Figure 5: Lavern Ryan (project manager), Rondel Meade (project technician) from GOM and iLaria Marengo (SAERI-IMS-GIS Data Centre data manager) after the launch of the metadata catalogue in Montserrat (Mar 2018).

KEY SUCCESSES

- The metadata catalogue is one of the key successful outcomes of this project. For the first time there is a **comprehensive record of the datasets** within the Ministry that is **available online**. This catalogue provides a firm **foundation for improving awareness and collaboration around data** in the future, helping to avoid data duplication and investing funding on projects with similar outcomes.
 - The aim is to **extend the catalogue** to the other ministries so that all government data are documented and included in metadata database.
- With the **Project Management** and **technical expertise** being built and **based on the island**, any **lessons learnt, models developed and goals achieved are retained locally**. Since GoM officers have been actively learning and directly responsible for the project implementation and delivery there is a long-term legacy that is left by the project.
- The development of the first Territory to Territory Partnership was established. **Working in collaboration, sharing experiences** and **transferring skills** both ways between the Falkland Islands and Montserrat has forged a good, long-term relationship between the project participants on both islands. Although the latitudes and landscapes are very different, working with limited resources is similar, and the solutions that have been developed in this resource-limited context reflect the positive way in which the two territories tackle their problems.

CHALLENGES

- The main challenges of the project related to delays to delivery due to Hurricane Irma. However while this pushed back the original timeline, the project was still able to be delivered with the 2017/18 financial year.
- Transporting hardware to the island has also been a challenge, and while all hardware (laptops and server) are now on island, with the laptops up and running, the server is yet to be connected. It is planned that this will happen in the next month or so, which will be after the formal conclusion of the project.
- The lack of the connectivity and set up of the server with an online portal resulted in the hosting of the metadata catalogue temporarily on a SAERI webhost. However, the online metadata database will find its home on the GOM server as soon as it is configured. This will be after the formal conclusion of the project.

IMPACT

- Awareness of the importance of data and well-managed data has been raised across the whole of the Government of Montserrat and provided an understanding of current strengths and limitations.
- Cross-departmental working within GoM has been facilitated which has led to a wider interest in the metadata catalogue beyond the ministry.
- Government efficiency will be improved by:
 - Reducing staff time required to respond to requests around presence/absence of data
 - Avoiding duplication of effort/research by making all parties aware of what data currently exists.
 - Easily identifying data gaps to be able to effectively identify and address research gaps
- Increases the potential to undertake more analysis of existing data.
- Provides a mechanism for feeding into better evidence-based decision-making.
- Raised the profile and understanding of the role and importance of the GIS Unit in the Ministry and across Government as a whole.
- Within a month after the end of the project, there has been a direct request for data from Harvard University.
- GoM is now keen on formalising the data policy.

Improved the connectivity between the GIS unit and the Statistics Department. As part of the project's legacy, to ensure the continued impact of the project, some recommendations are outlined below.

RECOMMENDATIONS

The project raised some critical data management challenges and some recommendations to address these have been developed following the activities and outputs from this project.

- **Phase II:** It is recommended that there is a Phase II of the project which rolls out the metadata catalogue to other ministries, which means that the current metadata harvesting process will be expanded to other government offices with the intent of documenting the majority of the datasets held by the Government of Montserrat and by those organisations which work in collaboration with the government.
- **Publicly available data gateway and WebGIS:** open access to (non-sensitive) data enables research and innovation. Interactive maps are very user-friendly tools to communicate information to people, also to those who do not have experience in GIS and mapping. It is recommended that the work progresses to develop a data gateway and a WebGIS services so that the collected and analysed

spatial data can be viewed by a much wider public through an online portal. Open source webGIS services are available (e.g. SAERI is using them and can offer technical support) and as efficient as commercial products.

- **Open Source:** currently GOM run its GIS project using ESRI, a commercial program which has annual expensive fees (USD 11,000 dollars). Nevertheless, there is an alternative to ESRI and it is Quantum GIS (QGIS), an open source platform for free GIS analytical and mapping tools. QGIS movement has been up and running since more than a decade and it has a very active community of developers and a continuously growing group of users. It provides some of the same functions and tools that ESRI ArcGIS does. Moving towards open source GIS is a very common decision for many public authorities in the UK and the rest of the world. With increasing cuts to the budget of the public sector, having GIS tools at zero cost is a considerable saving. Marrying the open source movement means investing in training courses in how to use QGIS and related tools (see following recommendation point) such as PostgreSQL database, webGIS services and Linux Operating System. It is worth noting the advantages of Linux: it is less vulnerable and prone to viruses hence it provides a much more secure system environment; it is flexible and offers thousands of utilities, hence the server can be tuned to meet what it is needed; it has a rock-solid support for a mix of computer architectures, hence it is a good news is if there is a small budget for hardware acquisition; finally the total cost of owning and maintaining a Linux server is lower compared to a Windows server, in terms of licensing fees, software/hardware purchase and maintenance costs, system support services and administrative costs.
- **Training Courses:** The lack of skills and knowledge in Linux, PostgreSQL and QGIS can be filled through training courses. The initial cost of training should be seen as a long-term investment and will pay off relatively soon. Courses could be provided at the newly launched Mid Atlantic Environmental Research Institute (MAERI). The courses will be accredited so that trainees can see the time invested in learning new skills internationally recognised, also by Universities. It is recommended that the project technician gets further education (e.g. Master course, Diploma) to enhance his knowledge and experience in practical GIS and data management.
- **Extend the data documentation to all other ministries:** in order to ensure that the data management process initiated with the T2T partnership has a positive impact on the management of all the data collected in Montserrat, it is important that the process of harvesting metadata is extended to other ministries.
- **Fisheries database:** To consolidate the fisheries data, it would be useful to further develop the fisheries database to increase accessibility and functionality. Fisheries data should be included in the metadata catalogue online and the database/datasets should be added to the central data repository maintained at the GIS Unit.
- **Cloud server:** a part from storing GoM data into the central data repository, it is necessary to invest in a cloud server. Due to the natural hazards that can affect the island, it is paramount to ensure that the data are secured and copied off-island. Nowadays, remote storage servers are very common and, in the case of Montserrat, such a facility is an appropriate solution to take care of the government data. SAERI is already using a remote server for storing data of the Falkland Islands and it could provide support to set up a remote server for Montserrat. Before implementation of this approach will have to be discussed in detail with GoM IT to ensure that security concerns are fully addressed.
- **Data management policy:** The draft data management policy will need to be taken through the GoM Policy process in the future until it reaches the stage that it is formally adopted.