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## Plan Overview

*A Data Management Plan created using DMPonline*

**Title:** A Temporal Assessment of Antimicrobial Resistance in the Environment (TARE)

**Creator:** Abdoulie Faal

**Affiliation:** University College Dublin

**Template:** Health Research Board DMP Template

### Project abstract:

The TARE project aims to assess the temporal development of antimicrobial resistance (AMR) and faecal pollution relative to human activity in a lake environment. TARE will increase our scientific understanding of the historical and current levels of faecal pollution, and concurrently, AMR in an anthropogenically impacted surface-water body. TARE will also identify the trends, drivers and mediating factors which lead to AMR development. The results obtained from this investigation will provide a critical evidence-base for informing current and future policy relating to environmental pollution and human health. Project outputs are expected to provide previously unknown insight into both the development and extent of AMR in the aquatic environment in response to human activities over the last ~80 years. These outputs will be used to aid in implementing impactful mitigation strategies to reduce the public health burden of this global challenge.

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# A Temporal Assessment of Antimicrobial Resistance in the Environment (TARE)

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## Data description and collection or re-use of existing data

### How will new data be collected or produced and/or how will existing data be re-used?

New data will be collected from experiments in a lab notebook and in excel where it can be analysed.

ITRAX data will be collected using the ITRAX software and downloaded and opened on excel.

Existing census data will be stored on excel after being received from the central statistics office (CSO) and analysed to see the correlation with other data measurements.

### What data (for example the kind, formats, and volumes), will be collected or produced?

The project will generate the following types of data:

Census data downloaded from the CSO in xls format which will date back to the year 1940

Quantitative lab measurements for each of the 108 subsamples for the variables - antimicrobial resistance, grain size, geochemical analysis (carbon, nitrogen, total organic carbon and C:N ratios) that will be stored as xls files.

This data will be analysed to look at correlations among variables to help better understand the influence of agricultural and anthropogenic pollution on the evolution of antimicrobial resistance in the environment.

## Documentation and data quality

### What metadata and documentation (for example the methodology of data collection and way of organising data) will accompany data?

Data will be stored in the TARE project data folder and copies saved on google drive. New file versions will be saved and numbered when changes are made to easily allow a way back if mistakes are made and preventing the duplication of work.

### What data quality control measures will be used?

Laboratory experiments examining the antimicrobial resistance of the core samples will be repeated in triplicate to ensure the results are consistent.

All laboratory equipment used for data collection will be calibrated.

Data analysis will be peer reviewed to ensure no mistakes were made in the calculation processes.

## Storage and backup during the research process

### How will data and metadata be stored and backed up during the research process?

the data will be saved in the TARE folder on my laptop which is saved on the Microsoft drive as well as being saved to a shared folder on google drive to share data with other collaborators.

### How will data security and protection of sensitive data be taken care of during the research?

There is currently no sensitive data in this study but if there was in the future i would ensure not to share the raw sensitive data with the public and follow GDPR.

## **Legal and ethical requirements, codes of conduct**

### **If personal data are processed, how will compliance with legislation on personal data and on security be ensured?**

Do not currently have personal data in the study but if there was any personal data obtained i would ensure the data is anonymised and follows GDPR.

### **How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?**

All data will be open access and publicly available in the case of the re use of data from the central statistics office

### **What ethical issues and codes of conduct are there, and how will they be taken into account?**

There are no ethical issues regarding this research

## **Data sharing and long-term preservation**

### **How and when will data be shared? Are there possible restrictions to data sharing or embargo reasons?**

Full raw data will be made available on request and data regarding the research will be preserved on google drive and deposited in the libraries data repository to allow easy access to the data for other researchers.  
the data will be available open access

### **How will data for preservation be selected, and where data will be preserved long-term (for example a data repository or archive)?**

Final versions of raw data tables and graphs will be saved and preserved in the libraries data repository and will be made available upon request to the author.

### **What methods or software tools are needed to access and use data?**

Users will need excel to access the data and it will be available in the library repository and also will be made available on request to the author.

### **How will the application of a unique and persistent identifier (such as a Digital Object Identifier (DOI)) to each data set be ensured?**

the DOI for the data will be provided by the repository

## **Data management responsibilities and resources**

### **Who (for example role, position, and institution) will be responsible for data management (i.e. the data steward)?**

the first author will be responsible for the data management from capture, metadata production, data quality, storage and backup as well as data sharing. This will be overseen by the project supervisor.

**What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?**

After each data update a new version of the file will be saved to the TARE project folder and google drive.

The final data will be stored in the libraries data repository for easy access and will also be available on request to the author.