



RIO TINTO: MANAGING ENVIRONMENTAL DATA ON A LARGE SCALE

Overview

The Environmental Characteristics and Capabilities Project (ECC) was undertaken for Rio Tinto Iron Ore and aims to consolidate a wide range of environmental data and information and make it available across their business.

Rio Tinto had a large quantity of environmental data that was largely stored in the form of hardcopy reports - this made the data difficult to access, manage and analyse.

The existing infrastructure at Rio Tinto consisted of MapInfo and MapBasic GIS tools, distributed between a number of expert and non-expert users. All environmental GIS data is stored in a file-based folder system that is administered by the Environmental Approvals team. A range of this data is then made available to internal staff through a web based mapping application, and report information is stored within a corporate document management system.

The ECC Project has links to Rio Tinto's corporate environmental standards, environmental strategies, a range of business processes within Rio Tinto, and a number of projects that are currently underway.





Components

The project consisted of four main components, which combine to provide a complete data management solution for Rio Tinto.

Historical Data Capture

It is important for Rio Tinto to have baseline environmental information for all their mine sites - there is a legal requirement for these sites to be rehabilitated to their original state upon mine closure. Having a record of all environmental surveys previously undertaken also allows for better planning of future surveys, preventing unnecessary duplication of effort. More than 3500 hardcopy reports were captured over the course of the project; this data dated back to the 1960s and was taken from six separate sites.

Data Standards

A separate data standard was created for each data type that was identified as being of importance to Rio Tinto. In addition, a boundary data standard is also used to define the survey area for each report, as well as providing a picture of all surveys undertaken. The data standards are based on the recognised Darwin Core biological standard, which was modified to meet Rio Tinto's needs. These standards are now compulsory for all data suppliers, both internal and external, and all incoming data is checked for compliance.

Business Processes

Data flow through Rio Tinto is controlled by a number of set business processes; this approach was chosen for a number of reasons

- **Autonomy** – Because there was no requirement to purchase additional software or systems there is no tie-in to any vendor or consultant.
- **Flexibility** – Extra data types can easily be added through the creation of additional data standards, the entire project could also be applied to other areas of the business.
- **Implementation** – Implementation was relatively simple and involved the training and support of data suppliers and custodians.





Data Custodian

The role of the Data Custodian is to manage the flow of environmental data within Rio Tinto. This involves the validation and checking of incoming data from suppliers. If the incoming data does not meet the required standard, feedback is provided to suppliers and the data is returned. Having a data custodian provides a single point of contact for suppliers as well as a consistent path for data within the business. To streamline the custodian process, MapBasic tools were created for the Data Custodian. This is designed to remove as much of the manual work as possible from the process and allow the custodian to concentrate on data quality rather than data management.

Benefits

The project has delivered a number of benefits to Rio Tinto and these benefits are expected to increase as new data types are added.

Combining of data

Data of the same type is now combined together allowing for data to be made available to the business for analysis and modelling purposes in a simple, single dataset.

Sustainable and extensible data management process

Because the data process is flexible it is able to be easily modified or extended to ensure that the requirements of the business are adequately met.

Single point of control for data

All incoming data is handled by the Data Custodian - this allows for consistent processing of data as well as increased data quality through the building up of expertise in the custodian.

Dynamic updates

The environmental significance and priority flora and fauna layers are generated dynamically on a daily basis - this removes the reliance on manual processing and allows for data changes to be reflected immediately. It is particularly important as it helps the business to manage their taxonomy and threatened species data.





GAIA RESOURCES



Historical records

Having a historical record of environmental surveys enables rehabilitation activities to be carried out more efficiently as well as providing an overall picture of the survey work that has previously been carried out.

Future

Data standards are to be reviewed annually with input from external suppliers. This will ensure that the standards continue to meet the needs of the business. There is also an opportunity for the processes implemented in this project to be transferred to other parts of the business.

