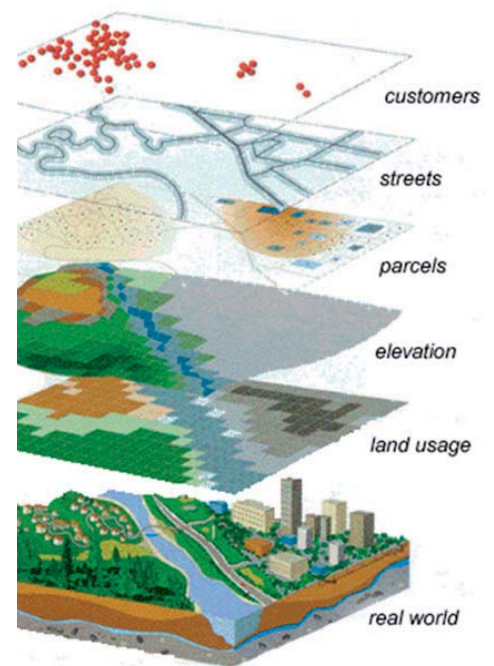


Geographic Information Systems (GIS) and Flood Mapping

Arup are expert GIS providers for multidisciplinary engineering projects.



Arup are expert geographic information system (GIS) providers for multidisciplinary engineering projects. We work to industry standards to deliver value for money solutions. Our GIS capability encompasses all components of a project, including scoping requirements, formulating a strategy, data gathering, data management, analysis and the presentation of results. Arup are proficient in the main GIS applications and their associated benefits.

It is important on projects such as flood defence schemes that spatial relationships between data from different disciplines can be analysed together.

Arup have developed an efficient method

for mapping the fluvial flooding extent by using GIS to determine the flood extent from LiDAR data and geo-referenced hydraulic modelling results.

The combination of GIS and Ordnance Survey (OS) maps gives an accurate representation of the results. The flooded areas and the properties at risk can easily be determined. GIS can be used to determine the geometric properties needed in hydraulic modelling such as river and floodplain cross-sections and calculation of level/area curves for storage areas.

Having the ability to feed GIS data to

consultants desktops in a controlled environment supports the decision making process.

Arup use GIS to improve the efficiency of our projects, providing a sophisticated system for managing and analysing large quantities of data linked to a specified geographical area. Complex analysis is undertaken of the geographic information, and the results displayed, reported and disseminated in simple and clear output as required (Including a web mapping interface).

Geographic Information Systems (GIS) and Flood Mapping

Case Studies



Caherdavin Strategic Flood Study

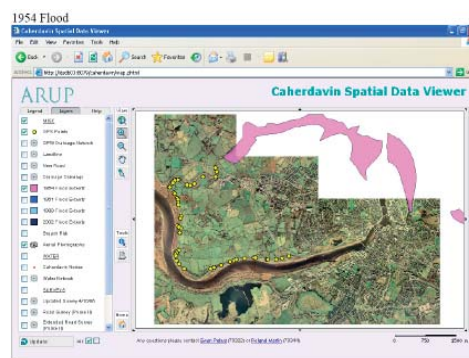
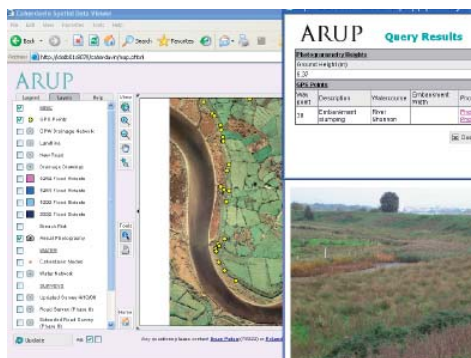
Arup was appointed to undertake a flooding and surface water drainage assessment of the Coonagh/ Caherdavin area of Limerick as part of the Strategic Study of Sanitary Services and Transportation Infrastructure Phase 1. The flood risk assessment examined the wider catchment and estuary including the complexities of the River Shannon below Parteen Weir and Ardnacrusha and the confluences with major tributaries. Historic flooding and flooding mechanisms such as tidal (overtopping and breaching), fluvial, land drainage and ground water related were all assessed. Climate change and sustainability were taken into account at all stages. The likely influence of the proposed Limerick Southern Ring Road and associated drainage design was also investigated.

Mullingar Surface Water Management Plan

ArcGIS's Spatial Analyst was used for the analysis of Lidar and hydrology data. Alternative water storage areas were examined using GIS.

The Murrough, Wicklow

Arup was commissioned to carry out a coastal erosion and flood risk study at the Murrough, Co Wicklow. GIS was used to examine the rate of coastal erosion along this stretch of coastline.



A spatial web-based viewer for the project was created using GIS, allowing collaboration between all parties, and comparison of multiple georeferenced datasets. GIS was used for data management, modelling and data dissemination.

The use of hand held GPS units in the field enabled observations and photographs to be georeferenced on site before uploading. The benefits for communication were immediate and resulted in significant time savings

