EIA Quality Mark
Article

GIS – more than an afterthought? The importance of standards and coordination in the EIA process

Introduction
The use of Geographic Information Systems (GIS) can help provide many significant benefits to both the effectiveness and efficiency of the Environmental Impact Assessment (EIA) process. In addition to providing a key tool for technical specialists to produce figures that input into the EIA process, GIS is also useful for environmental coordinators in identifying constraints early in the EIA or design process.

Across consultancies, there are various ways in which GIS work is structured; this varies from dedicated GIS teams, to consultants undertaking GIS work themselves as a secondary skill. Even within a single consultancy, differences can also be found in how GIS is utilised across different teams, such as variable use of different GIS software (ArcGIS vs. QGIS). This variation naturally brings with it issues relating to consistency, but also somewhat lessens the overall benefits of using GIS for EIA in the first place.

To achieve the greatest benefit from the use of GIS, it is not only important to have digitally proficient individuals, but it is also crucial to adhere to quality GIS standards and have effective GIS coordination across the different teams which are part of the EIA process. Without either standards or coordination, several potential challenges may subsequently arise that can hinder the progress of an EIA.

GIS Standards
The lack of defined GIS standards, and consistency in the approach to following these standards, can lead to several issues.

When creating figures to input into the EIA process, often the first step is to prepare a uniform template which will underpin the figure set. With figures often produced across a variety of different teams, a common problem is templates which originate from CAD (computer aided-design). Conversion from CAD to GIS is a temperamental, time-consuming process, and without a standardised approach to templates, it can often result in a final figure set containing a mix of CAD and GIS based templates. Furthermore, irregularity in elements of templates between different teams, including naming conventions, scale and version control, can also present challenges to the consistency in appearance of figures. This lack of consistency could make the final ES submission appear inconsistent to the reader and rectifying this could require a substantial amount of extra work.

A clear, concise set of GIS standards, which all teams that input into the EIA process adhere to, in addition to detailed guidance and a standardised GIS-based template is needed. This would ensure consistency across EIA deliverables and reduce the workload for EIA coordinators in chasing amendments to resolve discrepancies between figures. In this way, the accuracy of presenting information within ES’s is improved.

Coordination and communication
A further challenge that can arise is lack of communication and coordination between EIA coordinators and individuals preparing GIS deliverables.
This can result in substantial amounts of abortive work or risks of inconsistency, whereby figures are continuously re-worked if project updates (notably Site Boundary updates) are not effectively communicated to GIS teams.

Furthermore, consideration should be made on the timings of GIS work. For example, the important use of GIS for identifying constraints should be undertaken at an early stage so that EIA coordinators are promptly aware of any constraint which may need to be avoided through development design as the first step in a mitigation hierarchy. Likewise, the production of figures for EIA deliverables should be coordinated so that work is undertaken at the earliest appropriate opportunity to ensure high quality deliverables are prepared and opportunities for innovation or added value explored.

By appointing a GIS project lead at an early stage, many of the challenges highlighted above could be overcome. This individual could effectively coordinate all GIS work, obtain the right data and communicate this between project leads and GIS teams, and review deliverables to ensure consistency of approach and adherence to standards.

**Future opportunities**

Once an effective GIS process is in place, this can then subsequently lay the foundations for future opportunities which utilise GIS to ‘embrace innovation and digital’ as part of the EIA process. One potential opportunity is using a WebGIS portal, whereby simple interactive maps can be viewed by EIA coordinators or created for external use by clients. A further potential opportunity is with mobile mapping, with which surveyors and technical specialists can interactively view GIS data on-site and efficiently create new digital survey data.

There are numerous further ways in which GIS can be utilised to benefit the EIA process. Ensuring effective standards and coordination to GIS work is in place helps to allow for the growth in future digital EIA opportunities.

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