Making the most of specialists in EIA

| EIA typically involves soliciting input from a range of knowledge sources, be they government advisors or focussed interest organisations, and whether that is through a formal consultation process or through some sort of peer review role. However, a properly executed, robust and defensible EIA also needs to make appropriate use of a range of specialists (or what some may term subject matter experts) within the Project team. An example of where this is particularly true is noise assessment, an often critical part of a project’s EIA. Whether it is the potential impact of an operating gas plant on the ability of local residents to sleep, or whether it is the possibility of injury to marine mammals that can arise from the use of loud airguns for seismic profiling; understanding the nature of the noise emissions, the extent to which the emissions can spread from the source (called propagation) and the thresholds of impact on the receptor is important. | It is clear, therefore, that an approach using acousticians who understand the nature of noise sources and the physics of how sound propagates alongside EIA Practitioners (be they ecologists or working environment specialists) who can understand what a noise source might mean for a receptor is important for a robust EIA. How can this work in practice? Well, it is particularly important that the acousticians and EIA Practitioners work together from the start. The appropriate noise sources during each project phase must be known and the potential for those noise sources to affect receptors must be assessed by the EIA Practitioner – those with limited cause for concern (e.g. suction piling and drilling of boreholes for installation of small-diameter piles, which generate little noise) can be excluded, assisting in undertaking an EIA that is more streamlined (and also less costly) and more appropriate to the project. Next, the acoustician must describe the data he or she requires to consider the noise sources proposed by the EIA Practitioner in the propagation modelling. Finally, and this is where the most critical of the engagement occurs, the acoustician and EIA Practitioner must agree on the thresholds for onset of impact to be used in the model. In some cases, a regulator and/or their advisor may specifically state a limit for impact onset – for example, the Joint Nature Conservation Committee recommends a specific set of thresholds published in the literature for use in underwater noise assessments on marine mammals. In other cases, expert judgement alone must be used. And even when thresholds are set it may be necessary to challenge them on the basis of emerging evidence in the literature. With an understanding of what noise sources can do damage and what onset of injury or disturbance might mean for a receptor, the EIA Practitioner can engage with the acoustician to set reasonable levels at which we might consider onset of potential effect to occur. |

When commissioning noise propagation work in support of these types of assessment, it is tempting to head straight for the flashiest or most complex looking models. However, in reality it is the uncertainties around the properties of noise sources and around the thresholds for impact that require the most thought; anyone can hit ‘run’ on a model, but not everyone can really understand the input data and not everyone can interpret the model outputs. For example, the frequency content and sound power levels of a seismic array are usually well-defined and readily available, but the directivity (how the sound propagates out from the source of the array in different directions) is often more complex and requires a degree of investigation and interpretation. Similarly, it is all well and good someone telling you that at 250 m from an airgun there is a received sound pressure level in RMS of 120 dB re 1 μPa, but without an understanding of what this might mean for, say, a harbour porpoise 250 m from the airgun then it is effectively useless.
Once the propagation work is complete and the noise levels and range over which potentially harmful noise might occur are understood, it is important for the quality of the EIA that the team that worked together are retained through the impact assessment, being involved in defining sensitivity of receptor and magnitude of impact (the specialists will have an excellent understanding of the species and noise levels, remember) and assisting in defining management and mitigation measures that are not only appropriate the scale of potential impact but also executable in the field. The team may also even write up the work and, if appropriate, provide senior review input.

Of course, the example given here of acousticians and EIA Practitioners holds true for a wide range of EIA contributors – it is easy to see environmental modellers or field workers as somehow ancillary to EIA, providing input at distinct stages of the process, whereas there is a real and clear benefit to making use of their extensive knowledge throughout the EIA (they are called specialists for a reason). Ultimately, appropriate use of specialist skills can do nothing but help to streamline EIA and contribute positively to a robust and coherent impact assessment that is delivered efficiently.

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