

17. INDIRECT and CUMULATIVE IMPACTS and IMPACT INTERACTIONS

17.1 Introduction

This section has been prepared by RSK Environment Ltd to consider the potential for indirect and cumulative effects associated with the proposed Offshore development as well as impact interactions. Impact interactions that are directly related are not discussed here. They are discussed in the specific sections of the EIS (5 to 15).

Legislation requires an EIA to consider the potential for cumulative impacts to occur as a result of a proposed development. The 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions' (EC, 1999) states that the three types of impact overlap, although there are no agreed and accepted definitions. For the purposes of producing the guidelines, three impact definitions within the category of cumulative impacts were adopted:

- **Impact Interactions:** The reactions between impacts, whether between impacts of just one project, or between impacts of other projects in the area;
- **Indirect Impacts:** Impacts on the environment, which are not a direct result of the project, often produced away from, or as a result of, a complex pathway. They are sometimes referred to as second, or third level impacts; and
- **Cumulative Impacts:** Impacts that result from incremental changes caused by other past, present, or reasonably foreseeable actions together with the project.

These definitions have been used here.

The installation and operation of the Corrib Field facilities and offshore pipeline represents one aspect of Enterprise's development of the Corrib Field. The other significant aspect is the installation and operation of the Terminal and the pipeline between the landfall and the Terminal. This section considers the impacts from those activities which have the potential to have a cumulative or synergistic effect. Thus the impacts of the whole development have been considered together.

17.2 Characteristics of the Proposed Development

The development of natural gas production from the Corrib Field has three distinct parts:

- Offshore: from high water to the Field (including seabed facilities, offshore pipeline and umbilical);
- Onshore (the 8 km pipeline from the shoreline to the Terminal site and

the Terminal itself); and

- Export Pipeline (this is to be constructed and operated by BGE).

17.3 Study Methodology

In order to assess the cumulative impacts arising from the proposed offshore development, each of the three types of impact discussed above are considered.

In order to identify any cumulative impacts associated with the construction of the development, a review was undertaken of the respective proposed construction programmes for each phase by way of a matrix (**Figure 17.1**). A similar matrix and assessment was presented in the Terminal EIS.

	Autumn 2001	Winter 2001/2	Spring 2002	Summer 2002	Autumn 2002	Winter 2002/3	Spring 2003	Summer 2003
Offshore								
Onshore								
Export pipeline								

Figure 17.1: Cumulative impacts associated with the development of the Corrib Field

The matrix shows that the potential for the cumulative impact through interactions of the separate construction phases will be greatest in the spring and summer of 2002.

RSK are aware that there is a proposal to build a power station at Bellacorick. This will be using natural gas from the Corrib Field, and will represent an improvement in the electricity supply for the region. There is the potential for some temporary cumulative impacts associated with the construction activities. The building of the power station, which is to be located approx 15 miles from the Corrib landfall, near the main road between Belmullet and Castlebar/Ballina, will generate temporary construction jobs, and will give rise to some temporary increase in traffic and accommodation usage. The power station will also generate local permanent employment.

17.4 Predicted Cumulative Impacts of the Proposed Development

17.4.1 Impact Interactions and Indirect Impacts

It is not anticipated that the proposed development will produce any significant indirect offshore impacts or, impacts through interaction with other proposed, or existing, offshore developments.

For verification purposes, **Figure 17.2** provides a summary of the potential interaction of impacts within the offshore development. All of these interactions are described within the relevant sections of the EIS (**5 to 15**).

Project Activities	Human Beings	Flora and Fauna	Geology	Water	Air	Noise	Landscape	Climate	Archaeology	Waste	Traffic
Drilling											
Installation Offshore Facilities											
Offshore Pipeline											
Nearshore Pipeline											
Landfall											
Outfall											
Onshore Pipeline											
											

Figure 17.2: Impact interactions associated with the Corrib Field Development

There will be some interactions with other aspects of the Corrib Development such as the Terminal and onshore pipelines. The most significant of these will be during the construction period, when it is expected that there will be increased traffic in the area, an increase in people needing accommodation in the area and an increase in waste requiring disposal. All are short-term impacts and not seen to be significant. During construction both the traffic and the accommodation aspects are likely to have a moderate impact on the local community.

A potential indirect impact has been identified arising from the onshore treatment of oil-based mud and cuttings. As an example, the cuttings that become contaminated with oil-based mud will be taken to shore (probably to Scotland) for treatment and recycling. Apart from the transportation impacts, the treatment process is the subject of emissions licensing due to the emissions to air, water and ground that could arise if the process is not properly managed.

Simultaneous Operations

There are a number of activities which will involve vessels moving around in the Corrib Field (drilling, facilities installation, infield flowlines and umbilicals installation and support vessels). If all of these activities were to take place at the same time, there is the potential for larger areas of the

seabed to be inaccessible for fishing, and also, for collisions between vessels with associated risk to human life and of spillage of fuel oils into the sea.

17.4.2 Cumulative Impacts

The following table illustrates predicted cumulative impacts for the Offshore development as a consequence of its interaction with the other projects presented in **Table 17.1**.

Table 17.1: Predicted cumulative impacts associated with the development of the Corrib Field

	Construction Phase	Operational
Human Beings	✓	✓
Flora		
Fauna		
Geology & Soil		
Hydrology		
Cultural Heritage		
Water		
Air Quality	X	
Noise	X X	
Landscape & Visual	X X	X
Material Assets:		
• Solid Waste	X	
• Road & Traffic	X X	

Key:

X Slight Negative Impact ✓ Slight Positive Impact
 X X Moderate Negative Impact ✓✓ Moderate Positive Impact
 X X X Significant Negative Impact ✓✓✓ Significant Positive Impact
 No X or ✓ means no impact.

Taken as a whole with the offshore development no potentially significant sources of cumulative impact have been identified.

Minor cumulative impacts that have been identified are:

Combined Activities

In the summer of 2002 there will be simultaneous construction activities involving the inshore pipeline in Broadhaven Bay, the landfall and the onshore pipeline. For this short period of time there is the potential for impact on the tourist amenity of the area from a visual perspective resulting in some disturbance to the local landscape over a larger geographical area than if only the offshore development took place. This will only be short term but will coincide with the summer season.

Human Beings

The concurrent construction of the Terminal, the offshore pipeline, the Corrib pipeline and the Galway pipeline (BGE) has the potential to result in a greater number of contractors seeking accommodation in the local area

than that identified for the landfall alone (**Section 6**). Associated socio-economic impacts including the demand for local services and employment opportunities will also be greater.

Traffic (Noise)

Construction traffic arising from all the onshore and offshore activities associated with the overall Corrib Field development has the potential to result in higher traffic levels, noise and vibration and therefore nuisance to local residents, than that identified in **Section 15** for the nearshore, landfall and Sruwaddacon pipeline crossings alone. This increase will be most noticeable during the initial start up period when plant, equipment and materials are being delivered to the landfall, terminal and pipeline sites.

There is likely to be increased traffic movements in local ports (e.g. Killybegs), as a result of the lengths of pipe being delivered to, and stored for shipment at, the port. If there is insufficient storage space at the dock, the pipe may need to be transported by road to and from temporary storage sites.

In terms of mitigation measures proposed some of these can be the cause of indirect impacts.

The water treatment plant in the Terminal, whilst reducing to a negligible level the impact of the discharge of water extracted from the gas on the receiving environment of Broadhaven Bay, will generate waste which will require disposal.

Observers will use RIBs to monitor the presence of Cetaceans in Broadhaven Bay prior to and during construction operations. In addition to the use of energy (fuel) there will be an increased risk of vessel collision, and also risk of collision with Cetaceans.

The proposed mitigation to reduce the long term impact of the gas pipeline in Broadhaven Bay on the fishing activities is to trench it. Trenching will, in the short term create a larger impact as a result of seabed disturbance than the option of laying the pipe on the sea bed without a trench.

A number of the vessels selected for the installation of pipeline are dynamically positioned. This minimises the impact on the seabed from anchors. Such vessels rely upon their engines for holding position and therefore have higher levels of air emissions and energy usage (fuel).