



Flooding and Flood Management Inquiry

Annexes

1. Insh marshes: economic benefits of a natural floodplain

Background information

Insh Marshes is recognised as an internationally important wetland site with diverse habitats that support a rich variety of flora and fauna. The site covers almost 1000 hectares of the floodplain of the River Spey between Kingussie and Kincaig, at the foot of the Cairngorms. This large flat area of poorly drained land, which extends approximately 7.5 km in length and up to 1.5Km in width, is the most important floodplain mire in Britain, largely due to its unspoilt character. Historically, floodplain mire systems such as Insh Marshes were once common in Britain but most similar river valleys have now been drained, and their flow regimes controlled.

The importance of the site is reflected in its many conservation designations: SSSI, Ramsar, Special Protection Area (SPA), Candidate Special Area of Conservation (cSAC) and Proposed National Nature Reserve. Insh Marshes is additionally part of the proposed World Heritage Site, Cairngorms National Park and Cairngorm Mountain Scenic Area, and is within the Cairngorms Strath Environmentally Sensitive Area. The major habitats on Insh Marshes are open water, scrub, basin mire, swamp, tall fen and marsh. Several rare plant species, breeding and wintering birds, invertebrates and other animals are found on the site, which contains habitats and vegetation types of international, national and local importance. As an ecologically valuable wetland, a complex hydrological system and a naturally functioning floodplain, Insh Marshes is an interesting case study for considering the role of natural floodplains in sustainable flood management.

The floodplain provides several social, economic and environmental benefits to the Spey catchment. Natural floodplain systems such as this can have multiple uses, such as flood defence, enhancing biodiversity, and helping to maintain good water quality. Cumulatively, these contribute significantly to the local economy. Similar benefits could be accrued elsewhere by using natural or semi-natural wetlands for flood prevention. Restoring degraded river systems and reinstating the links between rivers and their floodplains should also be an important factor in achieving good ecological status under the European Water Framework Directive, and a principle aim of sustainable flood management.

Multiple functions and economic value of the Insh Marshes floodplain

The Insh Marshes floodplain performs multiple functions that have economic value that benefit the local economy. Although sometimes difficult to quantify, the economic value of these uses are undoubtedly significant in a rural economy such as this. Many of the floodplain uses rely heavily on the natural functioning of the hydrological system and the high ecological quality of the floodplain. Summary of economic values is given in Table 1.

The natural functions of the floodplain support a range of economic benefits each year, including:

- Spending by visitors and tourists
- Outdoor recreation and quality of life
- Educational facilities at the RSPB's Insh Marshes reserve
- Local agricultural enterprises which utilise the floodplain
- Fishing on the floodplain and downstream on the Spey
- Other local enterprises, such as B&B's, who advertise with reference to the quality of the floodplain
- Flood defence benefits to Aviemore, and other settlements and farmland downstream
- Water resources functions, such as improvements to water quality

Table 1: Economic benefits of Insh marshes

Use	Details	Economic value
Flood defence	Insh Marshes holds water after heavy rainfall and snowmelt, protecting downstream properties and farmland from extensive flooding. Flood risk is reduced to settlements such as parts of Aviemore, a significant base for the local tourist economy. The equivalent engineered flood control measures would be very expensive and result in the loss of important wildlife habitat.	In the absence of the floodplain, a rough examination of maps suggests that 7km of flood defence banks might be required to protect Aviemore. This represents a value of £1,170,000 for construction and maintenance (£1,310,400 in 2007 prices) ¹
Visitors	Tourism is vital to the Highlands economy, with over a quarter of the Highlands and Islands employment being accounted for by hotels and restaurants. The floodplain plays an important part in the scenery and supports visitor attractions such as Insh Marshes RSPB Nature Reserve and Loch Insh Watersports Centre.	There were about 12,000 visitors to Insh Marshes RSPB Reserve in 2006/07, contributing approximately £132,000 to the local economy.
Farming	Livestock grazing at appropriate densities maintains the floodplain's high biodiversity value. ESA scheme and agri-environment schemes providing valuable incomes to the reserve, its agricultural partners and local graziers.	The rate of agri-environmental payments are currently difficult to quantify
Fishing	The wetland system on the Insh Marshes floodplain helps to maintain the natural conditions, particularly water quality, that are vital to the Spey's valuable fish stocks.	Landowners lease fishing rights on the Insh Marshes floodplain to the Badenoch Angling Association producing revenue of over £3,500 p.a.
Conservation management	The majority of RSPB's reserve management expenditure is spent within the local economy. Two permanent staff are employed on the RSPB reserve. In addition, in 2006/07, 3,540 hours of work are contributed annually from volunteers, including those from the local community or on long term placements.	Of the £83,504 spent on reserve management during 2006/07, over two-thirds was spent with local businesses. This included the employment of contractors on the reserve for over 45 man-days.
Water Quality	The floodplain can improve water quality by storing nutrients and pollutants in the sediments and in vegetation.	Contributes towards the aims of WFD and benefits the river's salmonid populations, for example, so representing economic value.
Education and training	Insh Marshes provides a valuable recreational and education resource	(Unquantified)
Enterprises linked to the floodplain	Loch Insh Watersports centre forms a major part of the local tourism economy, benefiting from the high water and scenic qualities of the floodplain. Several Bed and Breakfast establishments attract custom by advertising their proximity to the Insh Marshes Floodplain and the RSPB Reserve.	(Unquantified)
Biodiversity and Conservation	The Insh Marshes floodplain contains important wetland habitats and is renowned for its biodiversity, including the number and variety of breeding waders, wintering populations of whooper swans and hen harriers and rich diversity of plants and invertebrates.	(Unquantified)

¹ A capitalised value indicates the total resource requirement at current prices, or equivalently, the amount of money that would need to be banked now, earning 5% interest, to meet the costs over the next 50 years. Capitalised values reflect the market value of land and investments, as they represent total returns/costs from an asset.

2. Proposed structures for flood risk management planning in Scotland

