



## Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study

### **Shannon River Basin District**

#### Strategic Environmental Assessment - Scoping Report [Consultation Draft]





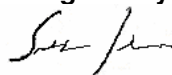






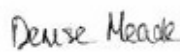

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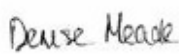
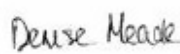

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	Originated by	Checked by	Reviewed by	Approved by
<b>ORIGINAL</b>	NAME <b>Kelly Kasperczyk</b> 	NAME <b>Iain Blackwell</b> 	NAME <b>Scott Johnson / Oonagh Duffy</b>  	NAME <b>Peter Smyth</b> 
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<b>REVISION</b>	NAME <b>Muriel Ennis</b> 	NAME <b>Oonagh Duffy</b> 	NAME <b>Denise Meade</b> 	NAME <b>Peter Smyth</b> 
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<b>REVISION</b>	NAME <b>Oonagh Duffy</b> 	NAME <b>Denise Meade</b> 	NAME <b>Denise Meade</b> 	NAME <b>Peter Smyth</b> 
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## Summary

The Office of Public Works (OPW) and their Local Authority partners are undertaking a catchment-based flood risk assessment and management study of the Shannon River Basin District (RBD) – the Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study. The main outputs from this Study – a series of Flood Risk Management Plans (FRMPs) – will identify programmes of prioritised studies, actions and works to manage the flood risk in the Shannon RBD in the long-term, and make recommendations in relation to appropriate land use and development planning.

This Study is subject to a Strategic Environmental Assessment (SEA) and an Appropriate Assessment (AA) to provide for a high level of protection of the environment and promote sustainable development by integrating environmental considerations into the preparation and adoption of the FRMPs whilst meeting the provisions of the Habitats Directive (92/43/EEC), the SEA Directive (2001/42/EC) and transposing regulations.

This Environmental Scoping Report is part of the SEA process. This report describes the environmental characteristics of the Shannon RBD and presents our initial understanding of the key environmental issues relating to flood risk and its management. It then sets out the methodology for conducting the SEA, including an identified set of proposed SEA objectives for the FRMPs based on the identified key environmental issues. These objectives will be used in the next stages of the SEA to: (1) inform the identification and development of potential flood risk management options; and (2) appraise the environmental effects of the identified options to identify the preferred strategic options. The proposed SEA objectives identified from this initial scoping phase of the Study and SEA are as follows:

- Support the objectives of the Water Framework Directive (WFD);
- Minimise the risk of environmental pollution;
- Avoid damage to, and where possible enhance, the flora and fauna of the catchment;
- Avoid damage to, and where possible enhance, fisheries within the catchment;
- Protect, and where possible enhance, landscape character and visual amenity within the catchment;
- Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the catchment;
- Minimise risk to human health and life;
- Minimise risk to community;
- Minimise risk to social amenity;
- Minimise economic risk;
- Minimise risk to transport infrastructure;
- Minimise risk to utility infrastructure; and
- Manage risk to agricultural land.

Consultation is being undertaken throughout this study to ensure that the knowledge, experience and views of stakeholders and the general public are taken into account at all stages of the development of the FRMPs.

**Shannon CFRAM Study: SEA Scoping Report**

Comments are invited on the scope and content of this report by the 17/12/2012. Comments received will be used, where appropriate, to inform the future development of the Study, its FRMPs and associated SEA.

**You can send us your views by email or by post to the details below.**

<b>Email</b>	<a href="mailto:Shannon.cframes@jacobs.com">Shannon.cframes@jacobs.com</a>
<b>Write to</b>	Shannon CFRAM Study Jacobs Engineering Ireland Ltd Merrion House Merrion Road Dublin 4
<b>Telephone</b>	01 2028113
<b>Website</b>	<a href="http://www.shannoncframstudy.ie">www.shannoncframstudy.ie</a>



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**Annex IV: Unit of Management 27-28, Shannon Estuary North and Mal Bay**

# 1 Introduction

## 1.1 Background

### National Flood Risk Assessment and Management

Flood risk in Ireland has historically been addressed through the use of engineered arterial drainage schemes and/or site-specific flood relief schemes. In line with internationally changing perspectives, the Government adopted policy<sup>1</sup> related to a new flood risk assessment and management that has shifted the emphasis in addressing flood risk towards:

- A catchment-based context for managing risk;
- Pro-active flood hazard and risk assessment and management; and
- Increased use of non-structural and flood impact mitigation measures.

A further influence on the management of flood risk in Ireland is the EU Flood Directive<sup>2</sup> which aims to reduce the adverse consequences of flooding on human health, the environment, cultural heritage and economic activity.

To implement the Government policy related to flood risk assessment and management and associated legislative requirements, the OPW, along with local authorities and stakeholders, are currently undertaking a series of Catchment-based Flood Risk Assessment and Management (CFRAM) Studies.

Each CFRAM Study will focus on areas known to have experienced **fluvial (river)** and/or **coastal** flooding in the past (or considered to be at potentially significant risk). The potential for significant increases in this risk due to climate change, ongoing development and other pressures that may arise in the future in each river catchment and coastal area will be considered and assessed.

For the purpose of the EU Water Framework Directive (WFD), Ireland was divided into eight River Basin Districts (RBDs), reflecting natural drainage boundaries and comprising multiple catchments. The study boundaries for the CFRAM Studies reflect those of the RBDs. Four of the RBDs are wholly contained within the Republic of Ireland, one is wholly within Northern Ireland and the remaining three RBDs have cross-border basins (Shannon, Neagh Bann and North Western). The CFRAM Study programme assesses flood risk in the Republic of Ireland. The Shannon CFRAM Study addresses fluvial and coastal flood risk management within the Shannon RBD boundaries.

### Shannon River Basin District Flood Risk Assessment and Management

The **Shannon CFRAM Study** is the first of these studies being carried out in Ireland at RBD scale, and the Study Area includes the entire catchment of the River Shannon and its estuary, as well as some catchments in Limerick, North Kerry and

<sup>1</sup> To meet the requirements of the EU Flood Directive (Directive 2007/60/EC) and the 2004 Flood Policy Review Report.

<sup>2</sup> Directive 2007/60/EC, and transposing regulations; the European Communities (Assessment and Management of Flood Risks) Regulations 2010 (S.I. No. 122 of 2010)

## Shannon CFRAM Study: SEA Scoping Report

West Clare that discharge to the Atlantic. An overview of Ireland's RBDs including the Shannon RBD is provided in Figure 1.1 on the following page.

The Shannon CFRAM Study commenced in January 2011 and will be completed in 2015 following the publication of a series of FRMPs for the Shannon RBD which will be focused on **prevention, protection and preparedness** for areas identified to be at significant risk of flooding.

In accordance with the EU Flood Directive and transposing regulations, FRMPs will be reviewed, and if necessary updated by December 2021 and every six years thereafter. This aligns with the review requirements of the EU WFD relating to River Basin Management Plans (RBMPs).

The OPW is working with the following Local Authorities via Progress Group and Advisory Group meetings to develop the Shannon CFRAM FRMPs:

- Cavan County Council
- Clare County Council
- Galway County Council
- Kerry County Council
- Laois County Council
- Leitrim County Council
- Limerick City Council
- Limerick County Council
- Longford County Council
- Mayo County Council
- Meath County Council
- Offaly County Council
- Roscommon County Council
- Sligo County Council
- Tipperary North County Council
- Westmeath County Council

The Regional Planning Authorities, Shannon RBD Co-ordinator for the EU WFD and the Northern Ireland Rivers Agency will also be consulted as part of the Advisory Group.

It is important to note that whilst the Shannon RBD extends slightly into Northern Ireland, this is predominately a groundwater link and therefore no material impacts with regards flood risk from or upon areas within Northern Ireland are expected, and therefore this area will not be assessed within this Study. However, as required under the SEA Directive, trans-boundary environmental effects will be considered as part of the SEA process. Such potential effects will also be considered by the Appropriate Assessment process required by the Habitats Directive as current good practices recommends the assessment of all sites within a 15 km zone of a proposed plan/project.

Section 2.2 of this report discusses the division of the Shannon RBD into four Units of Management (UoMs) and outlines the criteria used to define these Units of Management. A FRMP will be developed and adopted for each Unit of Management within the Shannon CFRAM Study, and a SEA and, as appropriate, an Appropriate Assessment will be undertaken for each FRMP.

### 1.2 Purpose and Structure of this Report

The EU Directive 2001/42/EC<sup>3</sup> on the assessment of the effects of certain plans and programmes on the environment, herein referred to as the 'SEA Directive', established the statutory need for SEA as part of the development of certain plans and programmes.

<sup>3</sup> Transposing regulations European Communities (Environmental Assessment of certain Plans and Programmes) Regulations 2004 to 2011.

In accordance with the overall aim of the SEA Directive, a SEA of each FRMP is required to:

*Provide for a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.....*

(SEA Directive, Article 1)

This Environmental Scoping Report is an output of Stage 2 of a four-stage SEA process (detailed further in Section 2.3 below). The purpose of this report is to describe the environmental characteristics of the Shannon RBD and its individual Units of Management, and to present the initial understanding of the key environmental issues relating to flood risk and its management within each Unit of Management. It also proposes a framework of SEA objectives to inform the next stage of the SEA process, Stage 3, which will inform the identification and assessment of flood risk management options and subsequent selection of preferred options.





**Figure 1.1 - Overview of Ireland's River Basin Districts and the Shannon RBD**

This scoping report is a statement of our current understanding of the Shannon RBD as a whole, and Annexes I – IV focus specifically on the characteristics and issues relevant to each Unit of Management, including any cross-boundary or RBD / UoM-level influences, as appropriate so as to initiate the SEA for each FRMP to be developed.

An understanding of the Shannon RBD will develop as the Study progresses and will be informed by views and knowledge of stakeholders and the general public. With your help, we will continue to identify the key issues relating to flood risk management within the Units of Management to help develop viable and sustainable FRMPs.

### Report Structure

- **Section 1 - Introduction:** This provides a brief introduction to the National CFRAM programme in the context of Government Policy and recent legislation.
- **Section 2 Shannon Catchment-based Flood Risk Management Study:** Describes the scope and spatial extents of the Shannon CFRAM Study and summarises the environmental assessment processes required for the proposed FRMPs;
- **Section 3 Shannon CFRAM Study Units of Management:** Provides an introduction to the main characteristics of each Unit of Management for which a FRMP will be prepared and the potential strategic flood risk management measures currently under consideration;
- **Section 4 Key Environmental Issues:** Introduces a review of both the existing and potential future environmental characteristics of the Units of Management as well as the identification of the key environmental issues relating to flooding and flood risk management; all of which are documented within Annexes I-IV;
- **Section 5 Interrelationships:** Summarises the potential interactions between different aspects of the environment;
- **Section 6 External Influences:** Provides an overview of the external influences (statutory and non-statutory plans, ongoing studies etc) that can influence or be influenced by the FRMPs;
- **Section 7 SEA Objectives:** Proposes a set of SEA objectives, indicators and associated targets to be used by the SEA as a 'framework' to predict the likely environmental effects and subsequently, monitor implementation of each FRMP;
- **Section 8 Alternatives:** Clarifies how reasonable / realistic alternative means of achieving the strategic goals of the plan will be considered for the FRMPs; and
- **Annexes I-IV:** Provide a detailed assessment of the hydrological and environmental characteristics of each Unit of Management including a review of the recorded history of flooding and a summary of the key environmental issues relating to flooding and flood risk management.

## 2 Shannon Catchment-based Flood Risk Assessment and Management Study

### 2.1 Aim & Objectives

The OPW has commissioned the Shannon CFRAM Study to assess flood risk, develop an economically, socially and environmentally appropriate long-term strategy, and publish FRMPs. The SEA will focus primarily on environmental considerations.

This study will deliver upon many of the principal requirements of the EU Flood Directive: in particular, the requirements set out in Articles 6, 7 and 8 and Annex A relating to flood mapping and flood risk management plans.

The objectives of the Shannon CFRAM Study are to:

- Identify and map the existing and potential future flood hazard within the Shannon RBD ;
- Assess and map the existing and potential future flood risk within the Shannon RBD;
- Identify viable structural and non-structural options and measures for the effective and sustainable management of flood risk in Areas for Further Assessment (AFAs) and within the catchment as a whole; and
- Prepare a set of FRMPs for the Shannon RBD and associated Strategic Environmental Assessment and, as necessary, Appropriate Assessment.

Each FRMP will outline the flood risk assessment and analysis undertaken and then clearly set out the specific flood risk management policies, strategies actions and measures (proposed) to be implemented by the OPW, Local Authorities and other relevant bodies. This in turn will take account of potential environmental effects, environmental plans, objectives and legislative requirements and other relevant statutory plans and requirements.

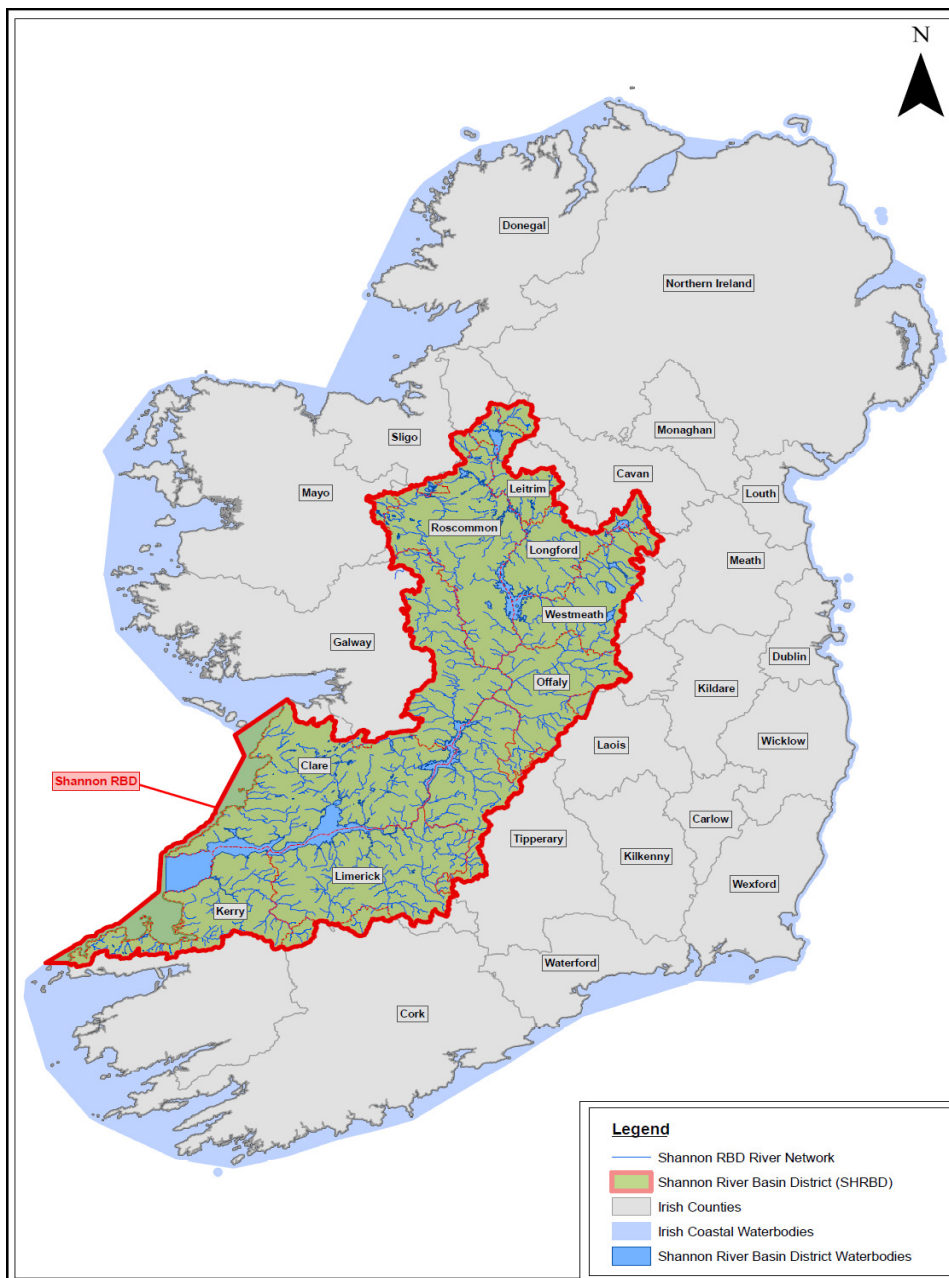
As noted in Section 1.1 above, the Study will focus on areas known to have experienced **fluvial (river)** and/or **coastal** flooding in the past, or considered to be at potentially significant risk either now or in the future. Other potential sources of flooding such as surface water (pluvial) and groundwater flooding are not being considered in detail, although where there are important interactions between flood sources, such as high river levels influencing surface water flood risk, these will be taken into account.

Groundwater flooding is excluded from the scope of the CFRAM Studies on the basis that this involves a different set of issues and analytical methods / models to fluvial / coastal and at the time of the CFRAM specification preparation, it was unclear as to how many ground-water related AFAs there might be, and where they were located. The OPW therefore determined that the mapping and measures for groundwater-related floods should be assessed through a parallel stream of work, although the outcomes (i.e. proposed measures) will be incorporated into the overall FRMPs being prepared by the CFRAM consultants.

It should also be noted that the CFRAM Studies will not develop detailed designs for individual flood risk management measures, nor will they include an assessment of areas subject to natural erosion processes unless such processes are predicted to pose significant flood risk by eroding existing flood defence structures (natural or engineered).

## 2.2 Shannon RBD - CFRAM Study Area

The Shannon RBD is the largest RBD in Ireland, covering approximately 17,800 km<sup>2</sup> and more than 20% of the island of Ireland.



**Figure 2.1 - Overview of the Shannon RBD**

## *Shannon CFRAM Study: SEA Scoping Report*

The Shannon RBD encompasses parts of 17 counties: Limerick, Clare, Tipperary, Offaly, Westmeath, Longford, Roscommon, Kerry, Galway, Leitrim, Cavan, Sligo, Mayo, Cork, Laois, Meath and Fermanagh. While much of the settlement in the RBD is rural there are six significant urban centres within the Shannon RBD - Limerick City, Ennis, Tralee, Mullingar, Athlone and Tullamore. Local Authority representatives of each county have been invited to engage with the Study, most of which participate in periodic Progress Group and Advisory Group meetings.

The Shannon RBD can be characterised by five main river catchments, the Shannon, Feale, Deel, Maigue and Fergus catchments.

The Shannon RBD is known as an 'International RBD' as it extends slightly into Northern Ireland (in the Cuilcagh Mountains, at a location known as the Shannon Pot in the counties of Cavan and Fermanagh). However, this is solely a groundwater link and none of the areas to be assessed as part of the Shannon CFRAM Study will be affected by flows from Northern Ireland nor will any flood risk management options be developed for Northern Ireland. As such, areas within Northern Ireland are not assessed within this Study.

Agriculture is the primary land use in the Shannon RBD, using 70% of the land and this is reflected in the districts' settlement patterns.

The Republic of Ireland's largest hydroelectric scheme was constructed by the Electricity Supply Board (ESB) at Ardnacrusha, County Clare, upstream of Limerick City on the River Shannon. It was officially opened in 1929. The associated dam was constructed on a purpose-built bypass canal which is fed from the River Shannon. The operation of the dam and a number of other flow / level regulation structures play a significant role in controlling river levels and flows.

Both the Royal and Grand Canals, under the management of Waterways Ireland, flow into the Shannon. Much of the River Shannon, the connected canals and tributaries are navigable, with levels subject to some control by Waterways Ireland.

There are a number of OPW Arterial Drainage Schemes in the Shannon RBD, which are maintained on an ongoing basis. These schemes represent previous flood relief programmes run by the OPW under the Arterial Drainage Acts 1945 and 1995. Originally implemented to protect agricultural land from flooding, this programme was updated in 1995 to include urban areas. The OPW has responsibility to maintain all embankments, weirs and bridges that were constructed under this programme. Some of the schemes within the Shannon RBD are based principally on enhanced channel conveyance and improved land drainage, while some also include the presence of embankments with large drains behind these embankments that drain to the main rivers through sluiced culverts.

The OPW are aware of only rare instances at which embankments have overtopped, but flooding can occur when the drains themselves fill more quickly than they drain (i.e. during periods of high water level in the main river channels either due to high tides or high river flows). The embankments were constructed principally for the protection of agricultural land, although there is now some development behind some embankments, which is to be considered as part of this Study.

Bord na Móna maintain a number of embankments along the Shannon, which provide protection for large areas of commercial peat bog land. Dublin City Council

## *Shannon CFRAM Study: SEA Scoping Report*

and Bord na Móna are currently investigating a potential new water supply source for the Dublin region and propose to abstract water from the River Shannon.

For the purpose of this study, the Shannon RBD is divided into four **Units of Management**. Each Unit of Management will have flood maps<sup>4</sup> developed, and actions for reducing and managing flood risk in each Unit of Management will be documented within a FRMP. The development of each FRMP will be subject to SEA.

Each Unit of Management is representative of existing Hydrometric Area (HA) boundaries, constituting major catchments or river basins (typically greater than 1,000 km<sup>2</sup>) and their associated coastal areas, or conglomerations of smaller river basins and their associated coastal areas. Some Hydrometric Areas have been combined for the purpose of this Study to create the four Units of Management for the Shannon RBD:

- **Unit of Management 23**, Tralee Bay–Feale (HA 23);
- **Unit of Management 24**, Shannon Estuary South (HA 24);
- **Unit of Management 25-26**, Shannon Upper and Lower (HA 25 and 26);  
and
- **Unit of Management 27-28**, Shannon Estuary North and Mal Bay (HA 27 and 28).

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<sup>4</sup> Flood maps will apply to the areas of potential significant fluvial and coastal flood risk which warrant modelling.



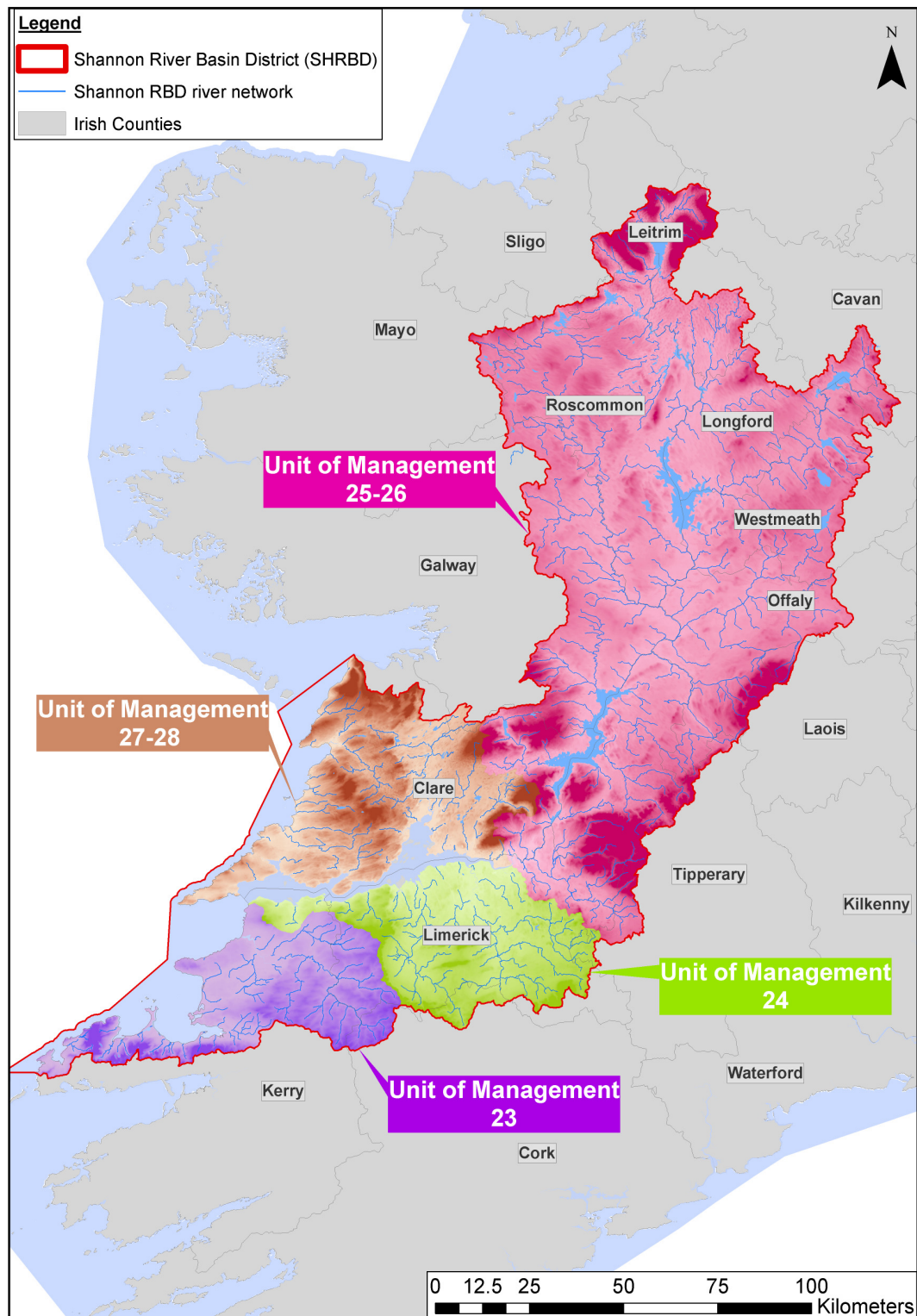


Figure 2.2 - Shannon CFRAM Study Units of Management

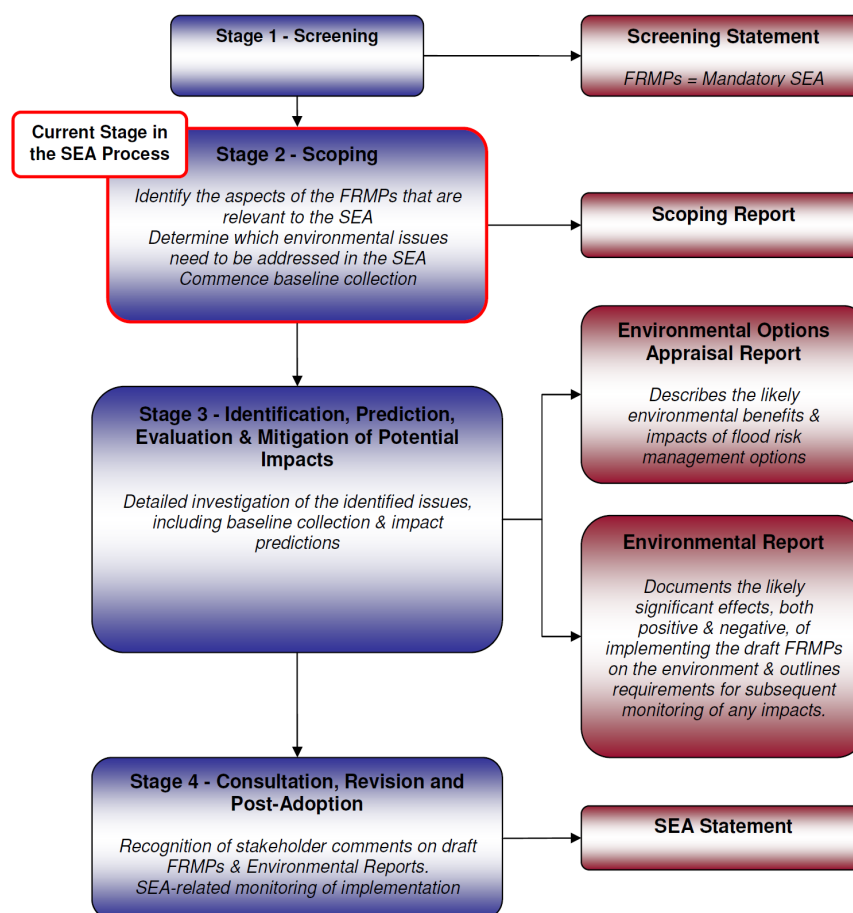
## 2.3 Strategic Environmental Assessment

The objectives of the SEA process are to:

- Provide for a high level of protection of the environment; and
- Promote sustainable development by integrating environmental considerations into the preparation and adoption of specified plans and programmes.

The SEA process can be defined by four stages, all of which include some level of consultation with stakeholders and the public (see Figures 2.3 and 2.4). These stages are defined as:

- Stage 1 – Screening: deciding whether or not SEA is required;
- Stage 2 – Scoping: establishing the spatial and temporal scope of the SEA and a decision-making framework that can be used to evaluate impacts;
- Stage 3 – Identification, Prediction, Evaluation and Mitigation of Potential Impacts; and
- Stage 4 – Consultation, Revision and Post-Adoption. This includes the implementation of statutory SEA monitoring.



**Figure 2.3 - Stages of the SEA associated with the Shannon CFRAM Study FRMPs**



## *Shannon CFRAM Study: SEA Scoping Report*

Stage 1 – Screening has been completed by OPW and concludes that a SEA is required (refer to Appendix B).

We are currently at Stage 2 of this SEA process, Scoping, for which consultation with stakeholders and the general public is a key component.

The decision-making framework established through this scoping process will be used to evaluate the impact of each FRMP on the environment. This is achieved by:

- Identifying the key environmental issues in the Shannon RBD which will be carried forward to Stage 3 (documented in Annexes I-IV);
- Establishing the baseline environmental conditions (both current and future) against which the effects of the proposed FRMPs can be assessed during later stages of the SEA (documented in Annexes I-IV); and
- Defining a set of environmental objectives that can be used as a means of testing the environmental acceptability / performance of flood risk management options as well as subsequent monitoring of the FRMPs (documented in Section 7).

Scoping does not include all of the detailed baseline information to be taken into account during the SEA; however the nature of such baseline information has been identified and described within this report, in particular such that the level of detail for the SEA can be agreed. Potential sources of baseline information have been discussed with stakeholders and any further information which may be relevant will be requested to inform the next stage of the SEA. Any data gaps experienced will be reported in Stage 3 of the SEA (the Environmental Report).

The Environmental Authorities for which consultation is mandatory under the SEA Regulations are the:

- Environmental Protection Agency (EPA);
- Department of Communication, Energy and Natural Resources (DCENR) (to include Inland Fisheries Ireland (IFI));
- Department of Arts, Heritage and the Gaeltacht (DAHG) (with regards archaeological, architectural and natural heritage); and
- Department of Agriculture, Marine and Food (DAMF) (with regards marine fisheries).

As the FRMPs will help inform land use zoning, it is considered that the Department of the Environment, Community and Local Government (DECLG) should also be consulted as an 'Environmental Authority'.

Integration of both the SEA and AA processes (see Section 2.4) with the development of the FRMPs will ensure that where possible, the proposed flood risk management options meet the requirements of the SEA objectives defined at Scoping Stage (refer to Section 7).

### **2.4 Appropriate Assessment (AA)**

In addition to compliance with the SEA Directive, the preparation and implementation of the FRMPs must meet the provisions of Habitats Directive

(92/43/EEC) and transposing regulations (including the recent EC (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)).

The Habitats Directive requires that:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

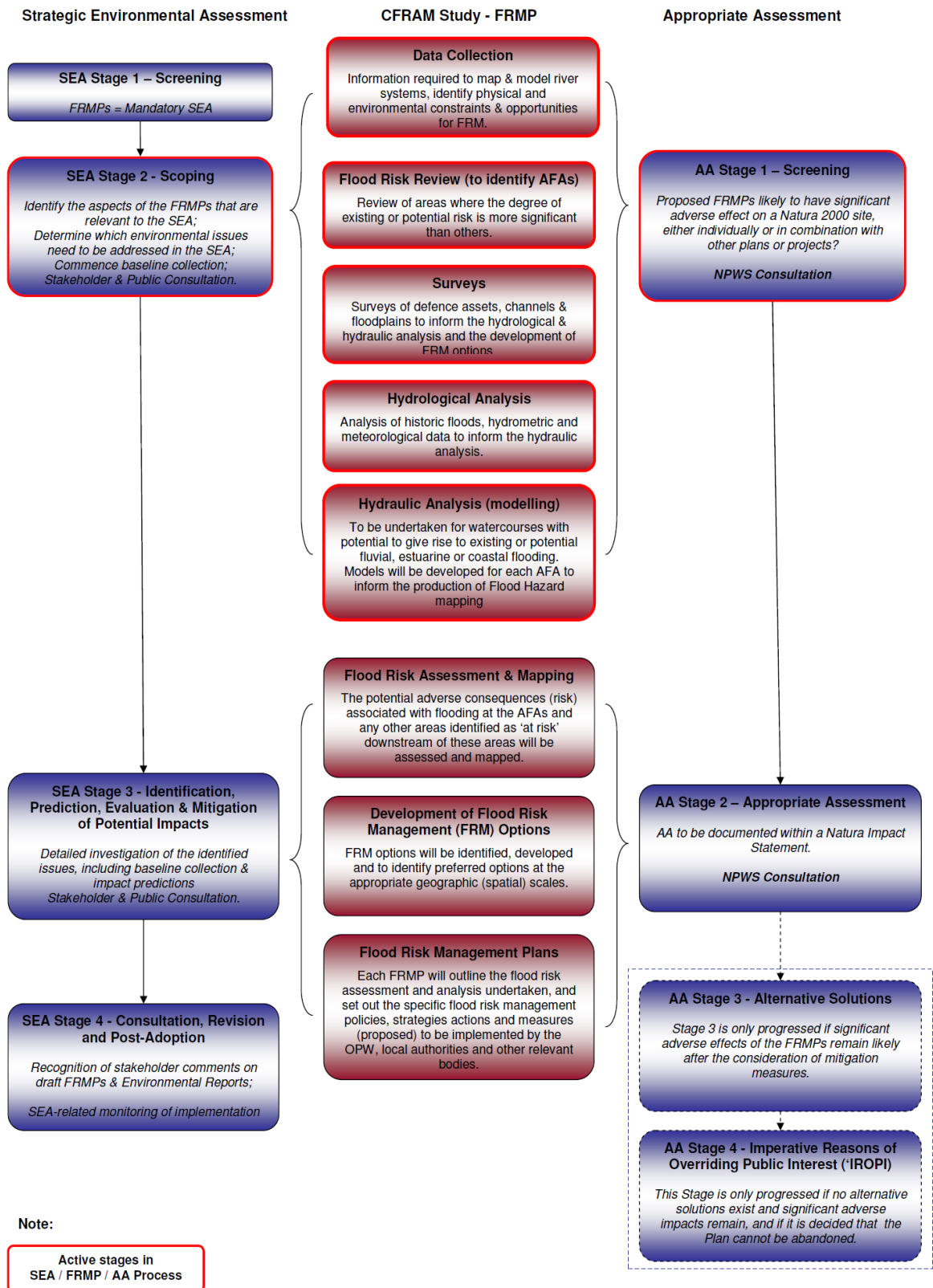
(Habitats Directive, Article 6-(3))

To comply with this Directive, it must first be established, through an initial screening assessment, whether: (1) the proposed FRMP is directly connected with or necessary for the management of a Natura 2000 site for nature conservation; and (2) it is likely to have a significant adverse effect on a Natura 2000 site, either individually or in combination with other plans or projects. The FRMPs will not be directly connected with or necessary for the management of a Natura 2000 site for nature conservation, and therefore AA screening will focus on the assessment of potential significant adverse effects on Natura 2000 sites.

This initial AA screening assessment commenced with the SEA scoping process and will conclude on identification of the preferred flood risk management options for the Unit of Managements. In undertaking this initial screening assessment, consultation will continue with the National Parks and Wildlife Service (NPWS) of the DAHG.

The AA process will be undertaken concurrently with the SEA, but both processes will be clearly distinguished and the AA will be documented in a Screening Statement and Natura Impact Statement (NIS) as required for the FRMPs.

Figure 2.4 overleaf illustrates how both the SEA and AA processes relate to the development of the FRMPs.



**Figure 2.4 - Stages of the SEA and AA associated with the Shannon CFRAM Study FRMPs**

## 2.5 Consultation

You have an important role to play in helping us identify all the key issues relating to flood risk management, and we are keen to hear what you think. In particular, we welcome your comments on:

- The SEA process – the scope and content of this report;
- The key environmental issues (in Annexes I-IV); and
- The proposed SEA objectives (in Section 7).

It is important to note that the information in this report accounts for pre-scoping consultation already undertaken with key organisations. So far we have held two SEA workshops; one in July 2011 with statutory environmental authorities, and the second in October 2011 with key environmental stakeholders and Local Authority representatives. The workshops were designed to provide an introduction to the Shannon CFRAM Study and SEA processes and to gather vital information for this SEA Scoping stage. All of the stakeholder knowledge and insights gathered in these workshops were compiled into two Workshop Reports. These workshops have helped us develop this scoping report, which presents our current understanding of the Shannon RBD, and will be used to inform the following stages of the SEA and CFRAM Study. The Workshop Reports have also provided useful for documenting the consultation between Jacobs and various stakeholders.

The SEA baseline and framework will develop as the Study progresses and as data becomes available, and will be further informed by views and knowledge of stakeholders and the wider public.

This report (including all Annexes) has been formally issued to the SEA Environmental Authorities listed in Section 2.3, and is now available to download from our website, along with copies of our newsletters. Comments received will be recorded for consideration in the next stages of the SEA and to help inform the future development of the Shannon CFRAM Study.

We will also be holding **public exhibitions** throughout the Study period to provide stakeholders and local people with an opportunity to give us their feedback on the SEA and Shannon CFRAM Study in general. Details of these and other activities will be publicised on our website and in the local press. We look forward to working together with you to develop viable and sustainable FRMPs for the Shannon RBD.

**You can send us your views by email or by post to the details below.**

<b>Email</b>	<a href="mailto:Shannon.cframes@jacobs.com">Shannon.cframes@jacobs.com</a>
<b>Write to</b>	Shannon CFRAM Study Jacobs Engineering Ireland Ltd Merrion House Merrion Road Dublin 4
<b>Telephone</b>	01 2028113
<b>Website</b>	<a href="http://www.shannoncframstudy.ie">www.shannoncframstudy.ie</a>

The following key questions are posed for your consideration and comment on review of this Environmental Scoping Report and associated Annexes:

**Question 1**

Are you aware of other plans/programmes and projects existing and proposed that the SEA should consider (refer to Section 6)?

**Question 2**

What are your initial thoughts on the provisional objectives presented in Section 7? Do you think these objectives are suitable, or do you have any suggestions for how these can be refined / modified?

**Question 3**

The Scoping Report Annexes I-IV summarise some key data/information sources relevant to the SEA of the FRMPs. Would you recommend any further sources?

**Question 4**

Do you have any comments on the key issues relating to flooding and flood risk management which are summarised in Section 3 of Annexes I – IV?

### 3 Shannon CFRAM Study Units of Management Study

#### 3.1 Introduction

Significant flooding has occurred in many areas across the Shannon RBD, affecting a number of towns and villages with records dating back to 1839. To help reduce or manage the impact of future flooding, FRMPs are being developed for each of the Shannon RBD Units of Management introduced in Section 2.2 of this report.

The following Sections provide a summary of the main characteristics of each Unit of Management for which a FRMP will be developed, and the potential strategic flood risk management measures (structural and non-structural) currently under consideration are documented for your information.

A more detailed assessment of the characteristics of each Unit of Management including a review of the recorded history of flooding is provided in Annexes I-IV:

- **Annex I:** **Unit of Management 23**, Tralee Bay–Feale (HA 23);
- **Annex II:** **Unit of Management 24**, Shannon Estuary South (HA 24);
- **Annex III:** **Unit of Management 25-26**, Shannon Upper and Lower (HA 25 and 26); and
- **Annex IV:** **Unit of Management 27-28**, Shannon Estuary North and Mal Bay (HA 27 and 28).

#### Spatial Scales of Assessment

This Study will consider the risk of flooding from the rivers, estuaries and coastal waters at various different spatial scales of assessment. In addition to the Unit of Management spatial scale of assessment for which FRMPs will be developed, flood risk will be assessed and where appropriate (as determined by the flood risk assessment), flood risk management options will be identified, at smaller spatial scales, all of which are described below and illustrated in Figure 3.1<sup>5</sup>.

#### Water Management Units (WMUs)/Sub-catchments

Water Management Units (WMUs) are sub-catchments (or sub-basins) as defined within the Shannon River Basin Management Plan (2009 – 2015) (<http://www.shannonrbd.com/>). There are 17 WMUs in the Shannon RBD. There is one WMU which is shared across Unit of Management 23 and 24 the Feale WMU. When making sub-catchment recommendations reference will be made to the eastern part or the western part of the Feale WMU. The percentage coverage of each sub-catchment (WMU) within each Unit of Management is presented in Table 3.1.

<sup>5</sup> The AFAs and IRRs spatial scales of assessment presented in this report may be subject to changes as the Study progresses.

**Table 3.1: the percentage of each Sub-catchment (WMU) within each Unit of Management** (dominant sub-catchments are bolded)

UoM	Sub-catchment (WMU)	% coverage
23	<b>Feale</b>	<b>68</b>
	North Kerry/Tralee Bay	32
24	Deel/Shannon Estuary	31
	Feale	14
	<b>Maigue</b>	<b>55</b>
25-26	Brosna	12
	Camlin/Rinn	6
	Hind/Lough Ree	8
	Inny	13
	Little Brosna	6
	<b>Lough Derg</b>	<b>15</b>
	Mulkear	6
	Nenagh	5
	<b>Suck</b>	<b>14</b>
	<b>Upper Shannon</b>	<b>16</b>
27-28	<b>Fergus</b>	<b>50</b>
	Inagh	34
	South Clare/Shannon Estuary	16

### Areas for Further Assessment (AFAs) and Individual Risk Receptors (IRRs)

Areas for Further Assessment (AFAs) are areas of land where the degree of existing or potential risk has been identified as being more significant than others in the Shannon RBD. AFAs include existing towns and villages, areas for which significant development is anticipated and other areas where existing or future flood risk is deemed significant. There are 62 AFAs in the Shannon RBD.

The full extent of the AFA defined for Limerick City lies within three Units of Management and includes all of the developed land within the contiguous urban area of Limerick, and all lands zoned for development in or adjacent to Limerick City (including areas that may be outside of the Limerick City Council jurisdictional boundary). For the purpose of this Study, this AFA will be assessed as part of Unit of Management 25-26. Any flood risk management options proposed for this AFA will therefore be documented within the FRMP for Unit of Management 25-26.

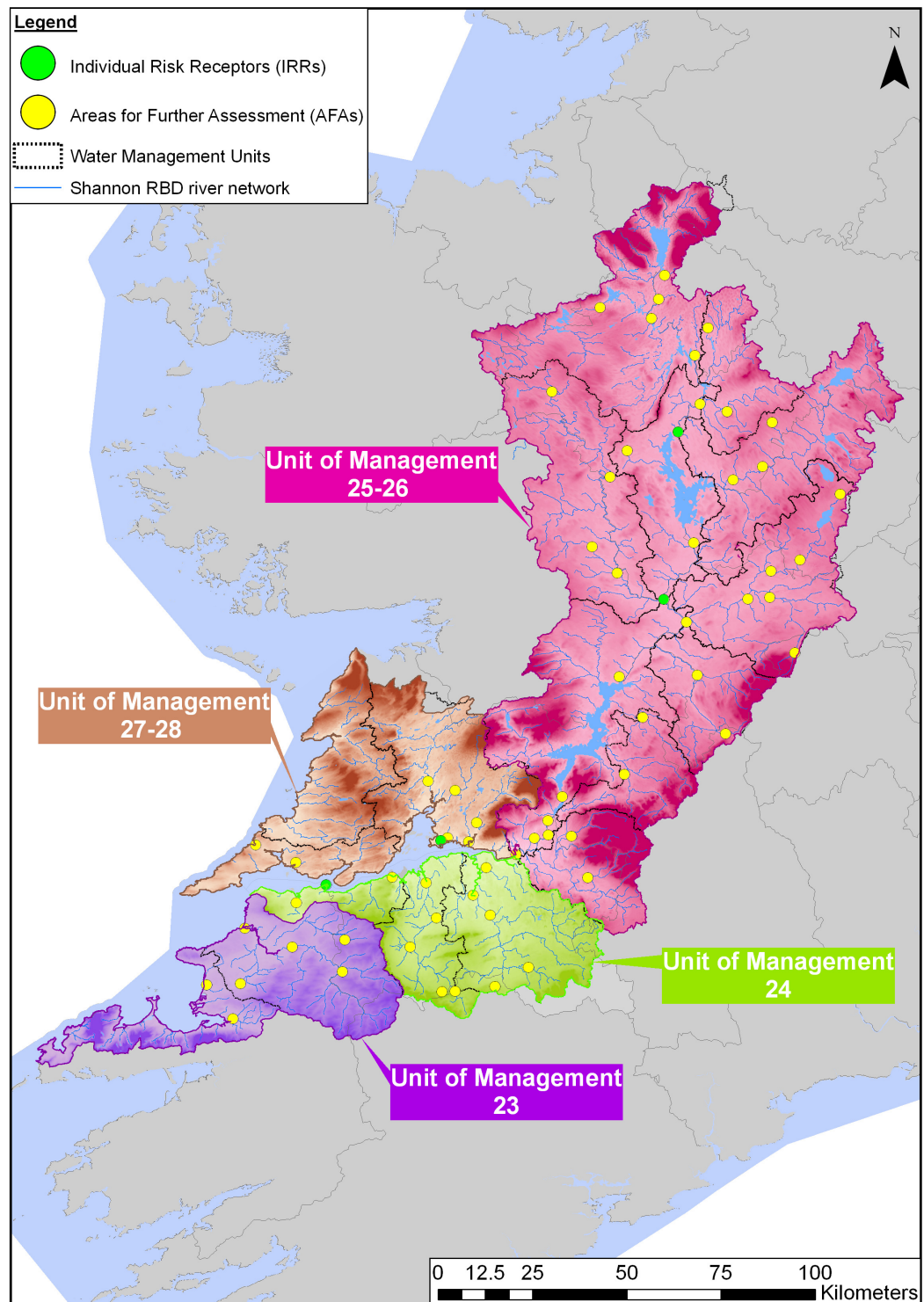
Individual Risk Receptors (IRRs) are individual properties or infrastructure (e.g. transport or utility) assets outside of the AFAs that, if flooded, would also give rise to significant detrimental impact or damage. There are four IRRs in the Shannon RBD.

### **Flood Risk Assessment and Mapping**

The locations that are considered to be potentially at risk of flooding, and therefore identified as AFAs or IRRs, will be subject to more detailed consideration in this Study given their history of flooding (as detailed in Annexes I-IV), or where such risk might arise through future development or other changes/pressures.

For each Unit of Management, this Study will produce flood maps indicating where flood risk from river, estuarine or coastal waters exists within AFAs or at IRRs, and along the watercourses connecting AFAs / IRRs. It should be noted that flood mapping will only be produced for the AFAs; any significant watercourses immediately upstream and downstream of the AFAs and watercourses that connect AFAs.





**Figure 3.1 - Shannon CFRAM Study Spatial Scales of Assessment**

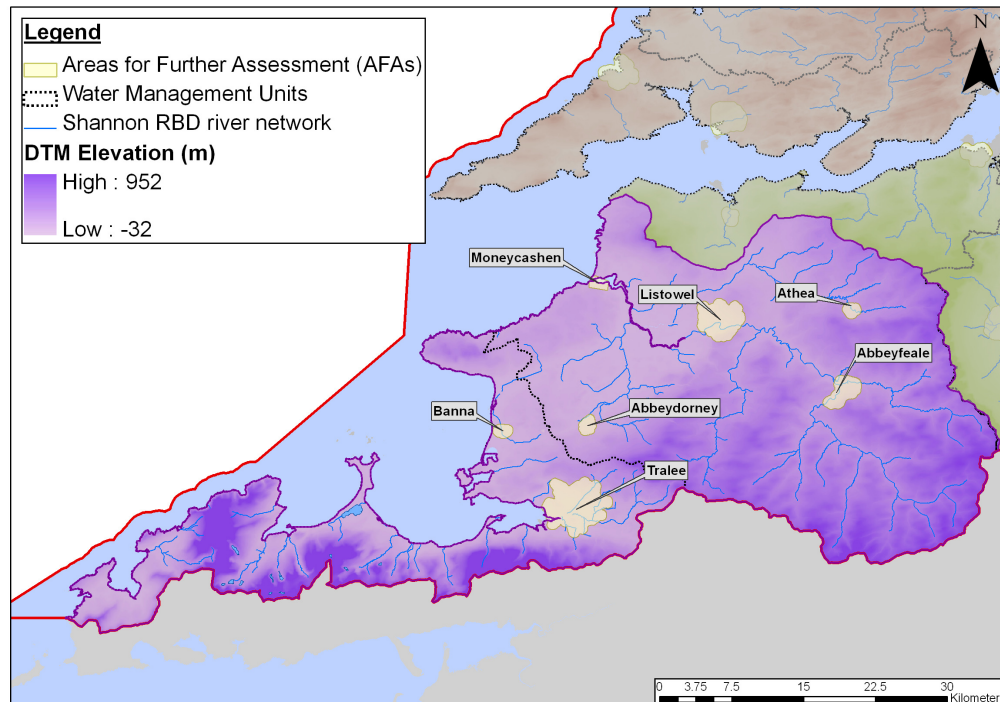
### 3.2 Unit of Management 23 Tralee Bay – Feale

The 'Tralee Bay – Feale' Unit of Management (or UoM 23), shown in Figure 3.2 encompasses areas within three counties; Kerry, Limerick and Cork. It is bounded on the northwest by the mouth of the Shannon Estuary and on the east and southeast by the Mullaghareirk Mountains, forming the catchment divide between Unit of Management 23 and 24. Along the southern boundary from east to west are the Glanaruddery Mountains and the Slieve Mish Mountains which extend into the Dingle Peninsula.

Unit of Management 23 is dominated by the Feale catchment in the central and eastern area. The River Feale drains into Cashen Bay in its lower reaches where it becomes tidally influenced. This catchment, with a total area to the mouth of the Cashen of 1,155km<sup>2</sup> makes up around 65% of the total area of Unit of Management 23.

There are two WMUs within Unit of Management 23. These are the North Kerry/Tralee Bay WMU and approximately two thirds of the area of the Feale WMU.

Seven AFAs have been identified for Unit of Management 23.



**Figure 3.2 - UoM 23 Tralee Bay - Feale Overview**

Within Unit of Management 23 significant flooding has occurred throughout the Feale and North Kerry/Tralee Bay WMUs, with flood records from 1916 to 2009, affecting a number of towns and villages. The major cause of flooding, based on the available records, appears to be fluvial and tidal.

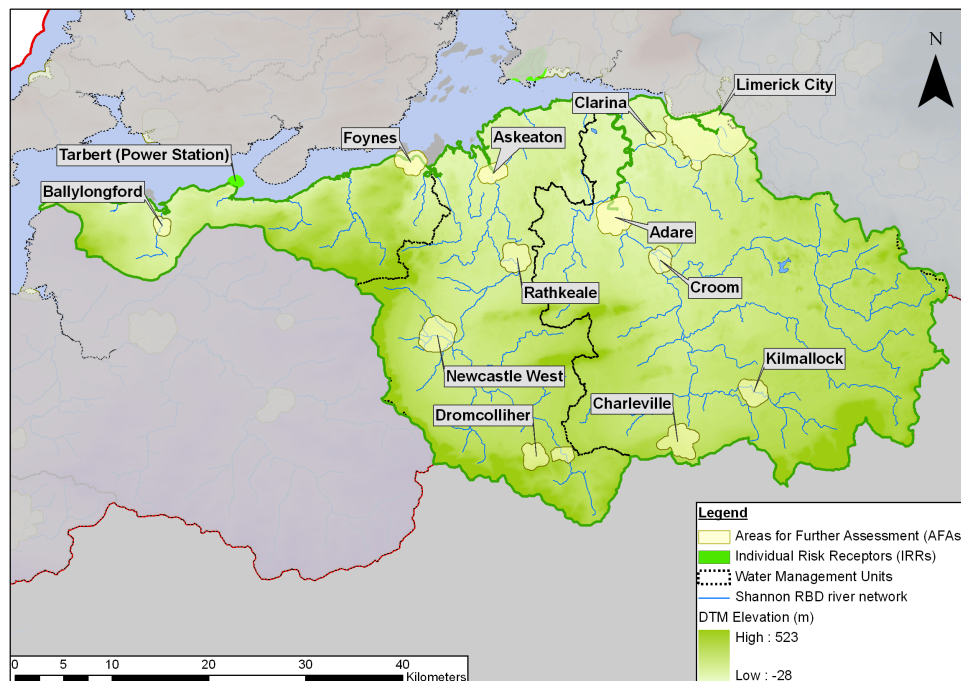
### 3.3 Unit of Management 24: Shannon Estuary South

The Shannon Estuary South Unit of Management (or UoM 24), shown in Figure 3.3 encompasses areas within four counties; Kerry, Limerick, Cork and Tipperary. It consists of a fertile limestone plain, known as the 'Golden Vale' bounded on the north by the Shannon Estuary and on the west and south and east by the Mullaghareirk Mountains, Ballyhoura Mountains, Galty Mountains and Slieve Felim Mountains.

Unit of Management 24 is dominated by two main river catchments, the Deel and the Maigue, which together cover 65% of the Unit of Management area. The coastline extends along the Shannon Estuary from Limerick City in the east to where it meets the Atlantic Ocean between Loop Head (on the north of the Shannon Estuary in County Clare) and Kerry Head (County Kerry), to the west of this Unit of Management.

There are three WMUs within Unit of Management 24. These consist of the Feale, Deel/Shannon Estuary and Maigue WMUs. Only approximately one third of the area of the Feale WMU (the northern part which borders the Shannon Estuary) is included in Unit of Management 24, the remaining area (specifically the Feale catchment) extends into Unit of Management 23.

Twelve AFAs and one IRR have been identified for Unit of Management 24.



**Figure 3.3 - UoM 24 Shannon Estuary South Overview**

Within Unit of Management 24, significant flooding has occurred throughout the Feale, Deel/Shannon Estuary and Maigue WMUs, with flood records from 1946 to 2008, affecting a number of towns and villages. The major cause of flooding, based on the available records, appears to be fluvial and tidal.

### **3.4 Unit of Management 25-26: Shannon Upper and Lower**

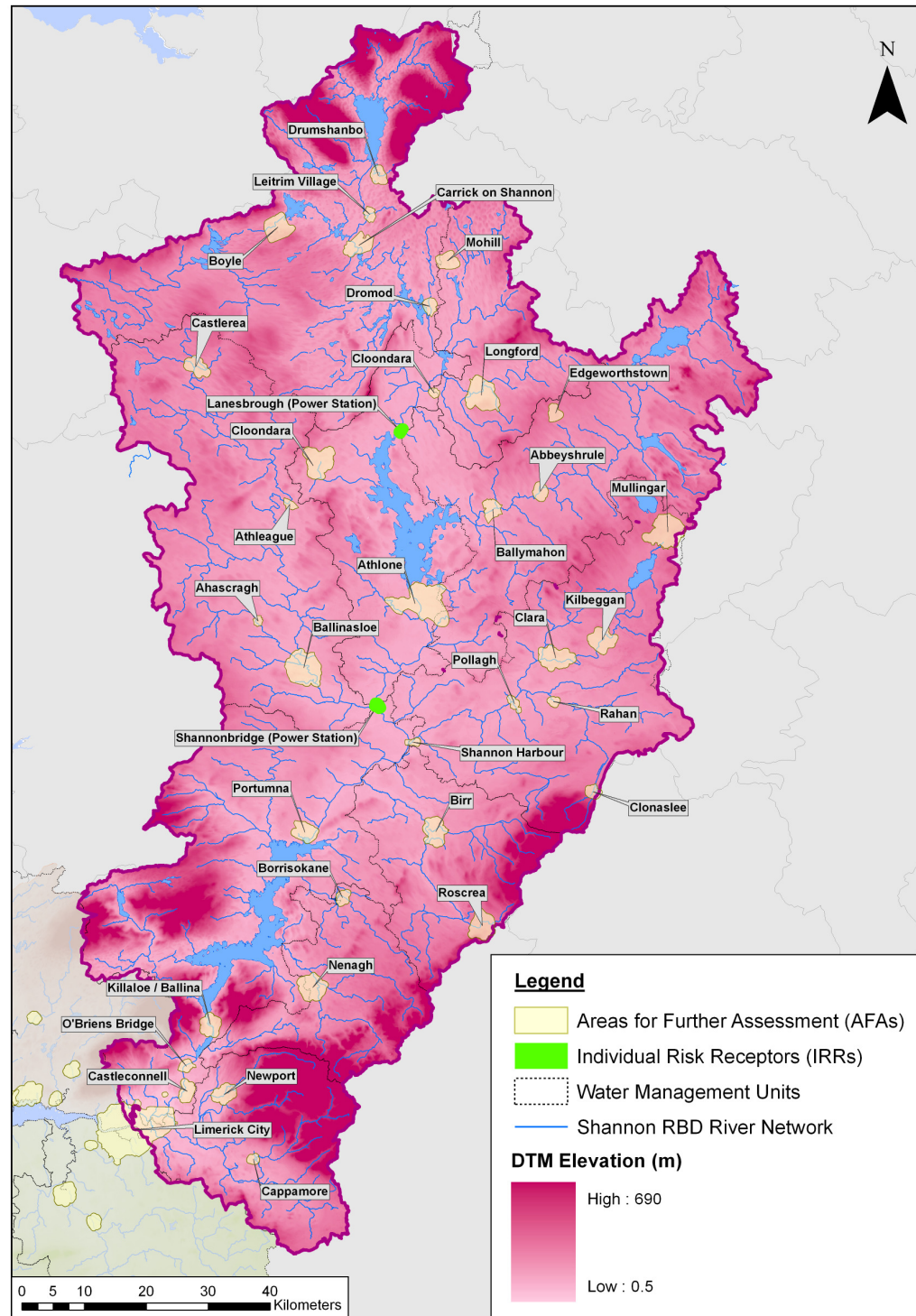
The Shannon Upper and Lower Unit of Management (or UoM 25-26), shown in Figure 3.4 encompasses areas of the following counties; Sligo, Leitrim, Roscommon, Longford, Cavan, Meath, North and South Tipperary, Offaly, Galway, Clare, Westmeath, Limerick and small areas of Mayo and Laois. A very small area of County Fermanagh contributes to groundwater flow in the headwaters of the River Shannon.

The Shannon River rises in the Cuilcagh Mountains, near a location known as the Shannon Pot in the counties of Cavan and Fermanagh. The river then flows in a southerly direction before turning west and discharging through the Shannon Estuary to the Atlantic Ocean between counties Clare and Limerick. The River Shannon is 260 km long, as measured between its source and the head of the Shannon Estuary in Limerick City. Despite this long distance, over its course, the river falls less than 200 m in elevation.

There are ten WMUs within Unit of Management 25-26. These consist of the Upper Shannon, Camlin/Rinn, Hind/Lough Ree, Suck, Lough Derg, Mulkear, Nenagh, Little Brosna, Brosna and Inny.

Thirty-six AFAs and two IRRs have been identified for Unit of Management 25-26.





**Figure 3.4 - UoM 25-26 Shannon Estuary Upper and Lower Overview**

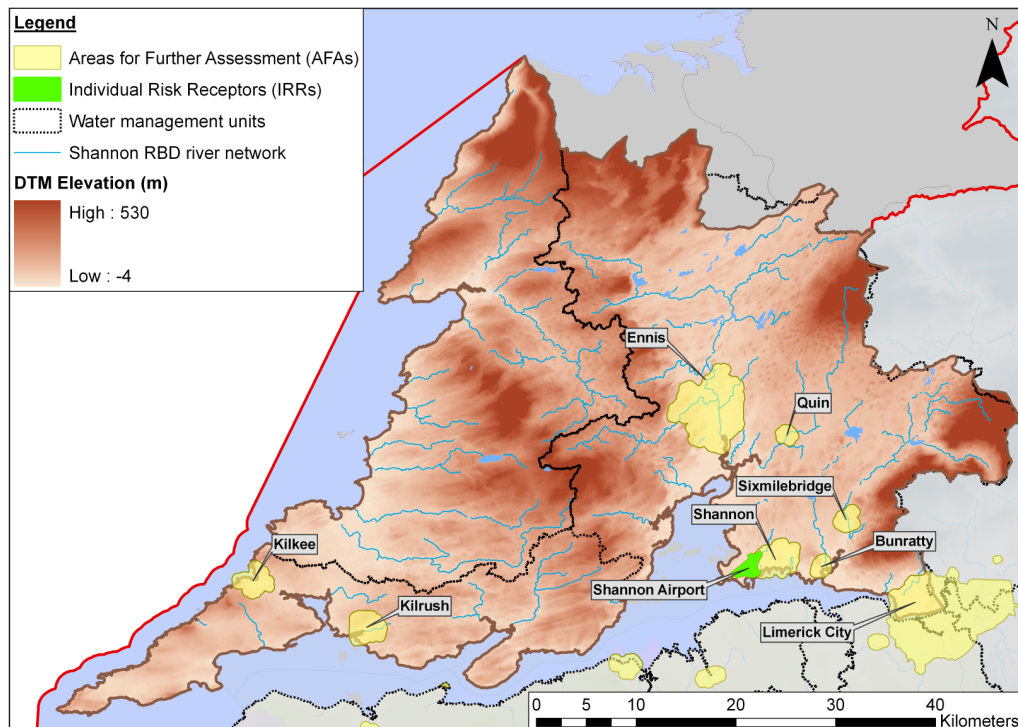
Within Unit of Management 25-26 significant flooding has occurred throughout the various WMUs, with flood records from 1839 to 2009, affecting a number of towns and villages. The major cause of flooding, based on the available records, appears to be fluvial and tidal.

### 3.5 Unit of Management 27-28: Shannon Estuary North and Mal Bay

The combined area of the 'Shannon Estuary North' and 'Mal Bay' Hydrometric Areas represents Unit of Management 27-28 (UoM 27-28). As shown in Figure 3.5, Unit of Management 27-28 is located almost entirely within County Clare, with only a very small area extending into counties Limerick and Galway.

The 'Shannon Estuary North' portion of Unit of Management 27-28 is dominated by three main river catchments; the Owenogarney (or Ratty) River, the Rine River, and the River Fergus, all of which discharge into the Shannon Estuary. The 'Mal Bay' section is characterised by numerous small to medium sized catchments, with the rivers flowing predominantly east to west. The south and west of the Unit of Management 27-28 is bounded by coastline extending along the Shannon Estuary from Limerick City in the east to the Atlantic Ocean in the far west of County Clare. Unit of Management 27-28 is bounded to the east by the Lower Shannon Hydrometric Area (part of Unit of Management 25-26) and to the north by the Western RBD. The far north of Unit of Management 27-28 includes the southern part of The Burren, with its characteristic karst limestone features, and the virtual absence of any surface water features.

There are three WMUs within Unit of Management 27-28; the South Clare/Shannon Estuary, the Fergus and the Inagh. Seven AFAs and one IRR have been identified for Unit of Management 27-28.



**Figure 3.5 - UoM 27 & 28 Shannon Estuary North & Mal Bay Overview**

Within Unit of Management 27-28 significant flooding has occurred throughout the South Clare/Shannon Estuary and Fergus WMUs, with flood records from 1986 to 2009, affecting a number of towns and villages. In comparison to other Units of Management, these flood events are relatively recent. The major cause of flooding, based on the available records, appears to be fluvial and tidal.

### 3.6 Potential Flood Risk Management Measures

Flood risk management measures will be identified, developed and assessed for each of the Units of Management through a staged and systematic Multi-Criteria Analysis (MCA) to identify preferred options at the appropriate geographic (spatial) scales.

The process of identifying the preferred option(s) includes a series of steps. Firstly, having identified and mapped the areas at risk from flooding both now and in the future, a broad range and type of flood risk management measures (structural and non-structural) will be identified. Examples of potential measures that could be considered are outlined in Table 3.1 below. This list is not considered to be exhaustive, and will be developed as the study progresses.

**Table 3.1: Potential Flood Risk Management Measures**

<b>Baseline</b> (assuming any current maintenance and management regime continues)
<b>Non-structural</b>
Develop a flood forecasting system
Targeted public awareness and education campaign
Individual property protection / flood proofing
Land use change and development control (including rezoning / dezoning)
<b>Structural measures</b>
Rehabilitation, improvement of existing defences
Improvement in channel conveyance
Sediment management
Provision of permanent flood walls/embankments
Provision of demountable flood defences
Use of overland floodways (e.g. allowing flooding of roads in a controlled manner)
Flow diversion (full diversion / bypass channel, flood relief channel, etc.)
Flood storage reservoirs
Managed realignment / land management
Tidal barrier
Relocation of existing assets

Following a screening of this extensive list of options, appropriate flood risk management options can then be developed, comprising either one or a combination of the proposed measures where significant flood risk is identified. The development of these options will be informed by the SEA and AA, which will allow the options to be assessed and ranked (with and without mitigation) against the SEA objectives (consisting of environmental, social and economic objectives), indicators and targets. In addition to the proposed SEA objectives, additional flood risk management objectives (technical objectives) will also be developed for use within the MCA. Section 7 of this report outlines the SEA objectives identified during this stage of SEA Scoping.

This next step involves the use of the options appraisal tool (MCA) to analyse the identified flood risk management options, and assess them against the defined flood risk management objectives (technical, economic, social and environmental – as proposed in Section 7). These objectives will be used to ensure that the flood risk management options address risks to people, property and the environment and take related constraints and opportunities into account.

This appraisal will be used to identify the preferred option(s) which will be documented in a Preliminary Options Appraisal Report (which will be accompanied by an SEA Options Appraisal Report and Appropriate Assessment Screening document). The information collated for these reports can then be taken forward to the final stage of the process, which is the development of the catchment flood risk management strategy that forms the basis of the FRMPs.

Each FRMP will briefly outline the flood risk assessment and analysis undertaken and then clearly set out the specific flood risk management policies, strategies actions and measures (proposed) to be implemented by the OPW, Local Authorities and other relevant bodies.

Integration of the SEA and AA processes with the development of the FRMPs (as illustrated in Figure 2.4) will ensure that where possible, the proposed flood risk management options meet the requirements of the SEA objectives defined at scoping stage.

### **3.7 Future Changes**

In general, the risk of flooding is likely to increase in the future. This study will identify likely large-scale changes in the catchment over the next 50 to 100 years which could significantly influence flood risk. These may include:

- Climate change resulting in increased peak river flows and runoff volumes, and sea level rise;
- Urban development, increasing the impermeable area within AFAs, potentially leading to increases in the rate and volume of runoff. This trend is changing however, following the new provisions of the Planning and Development (Amendment) Act 2010 which require the incorporation of 'Core Strategies' in all development plans. As a result, land use zoning is being reassessed by all Local Authorities with proposals for de-zoning, re-zoning and phased development now being considered;
- Large scale land use changes such as increased afforestation, changes in agricultural land use and drainage of upland wetlands; and
- Changes to geomorphological processes such as sediment transport, siltation and erosion.



## 4 Key Environmental Issues

To inform the next stages of the SEA, during which the likely significant environmental effects<sup>6</sup> of the FRMPs can be established, we must first achieve an understanding of the relevant existing conditions in each Unit of Management.

Preliminary discussions of the environmental characteristics specific to each Unit of Management are provided in the following Annexes of this report:

- **Annex I:** Unit of Management 23, Tralee Bay–Feale;
- **Annex II:** Unit of Management 24, Shannon Estuary South;
- **Annex III:** Unit of Management 25-26, Shannon Upper and Lower; and
- **Annex IV:** Unit of Management 27-28, Shannon Estuary North and Mal Bay.

Each Annex identifies both the existing and potential future environmental characteristics of the Unit of Management. These characteristics can influence the risk and repercussions of flooding and can constrain or provide opportunities for the implementation of strategic flood risk management options, i.e. they can both potentially influence, or be influenced by the implementation of the FRMPs.

The following environmental topics are discussed in Annexes I – IV:

- Population and human health;
- Geology, soils and land use;
- Water;
- Air and Climate;
- Biodiversity, flora and fauna;
- Fisheries, aquaculture and angling;
- Landscape and visual amenity;
- Material assets, development and infrastructure;
- Tourism and recreation; and
- Archaeology and cultural heritage.

This scoping exercise carried out for each Unit of Management has identified that impacts on air quality can be scoped out of the SEA for the ShCFRAMS, as it will not influence or be affected by the recommendations of this study. All of the remaining topics including climate are relevant to the next stage of the SEA.

On developing the scope of the SEA for each FRMP, and following consultation with stakeholders, the key social and environmental issues relating to flooding and flood risk management have also been identified. Those specific to each Unit of Management are documented in the above noted Annexes.

Potential interactions between different aspects of the environment are briefly discussed in Section 5 below, and Section 7 highlights how the key issues of each topic relate to the SEA objectives. These interactions will be further considered and documented during the later stages of the SEA process.

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<sup>6</sup> In accordance with Annex I of the SEA Directive, the 'effects' to be considered should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Table 4.1 summaries the major environmental constraint regarding flood management in the Shannon Catchment. These points are expanded on within the individual Annexes I – IV.

**Table 4.1: Summary of Environmental Constraint within the Shannon RBD**

Aspect	Summary of Environmental Constraints to Flood Management
Population and Human Health	<ul style="list-style-type: none"> <li>Population and development growth.</li> </ul>
Geology, Soils and Land use	<ul style="list-style-type: none"> <li>Agricultural land use practices;</li> <li>Forestry-related land use practices (including upland areas);</li> <li>Changes of land use from agriculture to urban/semi-urban;</li> <li>Peat harvesting;</li> <li>Land use changes regarding exhausted peatland; and</li> <li>Peat deposition resulting in reduced conveyance in watercourses.</li> </ul>
Water	<ul style="list-style-type: none"> <li>Future development must meet the requirements of the WFD;</li> <li>WFD programmes of measures;</li> <li>Physical modifications of water bodies;</li> <li>Water supply infrastructure; and</li> <li>Dams on the main body of the river Shannon.</li> </ul>
Air and Climate	<ul style="list-style-type: none"> <li>Unforeseen climate change.</li> </ul>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> <li>Coastal squeeze;</li> <li>Requirement for ecological protection;</li> <li>The role in Floodplains in biodiversity;</li> <li>Flooding can be a key function of some habitats;</li> <li>Flood risk management options may affect winter flooding, which is essential for some protected bird species;</li> <li>Natura 2000 sites and protected species outside these designated sites;</li> <li>Non-designated biodiversity features;</li> <li>Flood measures can contribute to habitat fragmentation and impact on ecological corridors / networks e.g. riparian habitat and wetted areas;</li> <li>Invasive species;</li> <li>The relationship between Flood regimes and water quality; and</li> <li>Flood risk management measures can pose barriers to fish migration.</li> </ul>
Fisheries, Aquaculture and Angling	<ul style="list-style-type: none"> <li>Morphological features and associated habitat supporting fisheries;</li> <li>Pollutants and/or nutrient loads to waters supporting</li> </ul>

# Shannon CFRAM Study: SEA Scoping Report

Aspect	Summary of Environmental Constraints to Flood Management
	<ul style="list-style-type: none"> <li>fisheries; and.</li> <li>Waterside access requirements.</li> </ul>
Landscape and Visual Amenity	<ul style="list-style-type: none"> <li>Visual amenity;</li> <li>Landscape designations; and</li> <li>Development around lakeshore and floodplains.</li> </ul>
Material Assets, Development and Infrastructure	<ul style="list-style-type: none"> <li>Vulnerability of material assets;</li> <li>Future development including ancillary infrastructure; and</li> <li>Construction of renewable energy options.</li> </ul>
Tourism and Recreation	<ul style="list-style-type: none"> <li>Resources important for recreation and/or tourism;</li> <li>Angling facilities, boating activities and/or associated resources; and</li> <li>Access to waterways.</li> </ul>
Archaeology and Cultural Heritage	<ul style="list-style-type: none"> <li>Structures located within and adjacent to water courses;</li> <li>Existing management plans may require bridges to be repaired/maintained using traditional methods/materials;</li> <li>Character of areas of existing archaeological and architectural value e.g. ACAs, Protected Structures, National Monuments and RMPs; and</li> <li>Unknown archaeological discoveries.</li> </ul>

## 5 Interrelationships

Annexes I-IV to this Scoping Report present details of the environmental characteristics relevant to the proposed FRMPs and SEA for each Unit of Management; presenting these as separate environmental topics. However, in accordance with the SEA Directive, it is important to recognise the interrelationships between these environmental topics, as changes to one environmental aspect can directly and indirectly influence others.

Figure 5.1 below illustrates the potential interrelationships between the environmental topics discussed in Annexes I-IV which will be explored further during the next stages of the SEA.

	Population and Human Health	Geology, Soils and Land Use	Water	Air and Climate	Biodiversity, Flora and Fauna	Fisheries, Aquaculture and Angling	Landscape and Visual Amenity	Material Assets, Development and Infrastructure	Tourism and Recreation	Archaeology and Cultural Heritage
Population and Human Health		✓	✓	✓	✓	✓	✓	✓	✓	✓
Geology, Soils and Land Use	✓		✓		✓	✓	✓	✓	✓	✓
Water	✓	✓		✓	✓	✓	✓	✓	✓	✓
Air and Climate	✓		✓		✓			✓		
Biodiversity, Flora and Fauna	✓	✓	✓	✓		✓	✓	✓	✓	
Fisheries, Aquaculture and Angling	✓	✓	✓		✓			✓	✓	
Landscape and Visual Amenity	✓	✓	✓		✓			✓	✓	✓
Material Assets, Development and Infrastructure	✓	✓	✓	✓	✓	✓	✓		✓	✓
Tourism and Recreation	✓	✓	✓		✓	✓	✓	✓		✓
Archaeology and Cultural Heritage	✓	✓	✓				✓	✓	✓	

**Figure 5.1 - Potential Interrelationships between the environmental topics assessed**

## 6 External Influences

### 6.1 Introduction

As noted in Section 1.1, the OPW are undertaking this CFRAM Study to implement the flood-related Government policy and legislative requirements. Further to these requirements, the proposed FRMPs to be developed for each of the Shannon RBD Units of Management will influence, and be influenced by, various external statutory and non-statutory plans, strategies and policies as well as ongoing studies.

The following sections provide an overview of these external influences which are considered relevant to all Units of Management at this stage of the SEA. The Environmental Reports to be developed in parallel with the FRMPs in the next stage of the SEA will further establish the external influences of most relevance.

### 6.2 Planning and Policy Framework

Our understanding of the potential future land-use changes in each of the Units of Management will be based, in the short to medium term, on the published statutory and non-statutory spatial planning documents produced by Government and the planning authorities. An understanding of the requirements of these plans is also required to enable future revisions of these plans to positively address flood risk management issues that will be identified in the FRMPs.

These plans also contain specific policies relating to the protection of the environment. These have been expressed, where appropriate to flood risk management, within the SEA objectives in Section 7.

The FRMPs will present an opportunity to inform future proposals for development. In addition, there are likely to be planning issues that could present opportunities for partnerships and integrated schemes. It is also recognised that recommended actions from this Study will need to take account of appropriate development controls as set out at national, regional and local levels.

Other, principally non-statutory sectoral plans are also relevant to this Study. These include economic development, operational and environmental plans. Where appropriate to flood risk management, specific policies and recommendations relating to the protection of the environment have been expressed within the SEA objectives in Section 7.

Table 6.1 contains a list of the spatial planning documents and other plans or programmes that are relevant to flood risk management within the Shannon RBD Units of Management. Further details are provided in Appendix A.

**Table 6.1: Spatial planning and development plans and non-statutory development, operational and environmental plans relevant to the Shannon RBD Units of Management 23, 24, 25-26 and 27-28**

Scale	Plan or Programme
<b>National</b>	<ul style="list-style-type: none"> <li>• National Development Plan (NDP) 2007-2013;</li> <li>• National Spatial Strategy (NSS) 2002-2020;</li> <li>• The Planning System and Flood Risk Management (DEHLG, 2009);</li> <li>• Making Ireland's Development Sustainable (DEHLG, 2002);</li> <li>• Framework for Sustainable Development (Draft for Public Consultation, DECLG, December 2011);</li> <li>• Actions for Biodiversity 2011-2016, Ireland's National Biodiversity Plan;</li> <li>• National Climate Change Strategy 2007-2012;</li> <li>• National Heritage Plan (published in 2002);</li> <li>• Rural Development Programme (RDP) 2007-2013;</li> <li>• The Irish Geological Heritage Programme 1998-ongoing;</li> <li>• A National Landscape Strategy for Ireland (consultation on this plan commenced in 2011);</li> <li>• Second Nitrates Action Programme 2010-2013; and</li> <li>• Government Decentralisation Programme 2003-2011.</li> </ul>
<b>Regional, County and Local</b>	<ul style="list-style-type: none"> <li>• South-West Regional Planning Guidelines 2010-2022;</li> <li>• Mid-West Regional Planning Guidelines 2010-2022;</li> <li>• [Draft] Mid West Area Strategic Plan 2010-2040;</li> <li>• Shannon Strategic Integrated Framework Plan (consultation on this plan commenced in 2011);</li> <li>• WFD River Basin Management Plans (RBMP) particularly the Shannon RBMP 2009-2015;</li> <li>• WFD; Sub-Basin Management Plans for the Freshwater Pearl Mussel (second draft published in 2010);</li> <li>• Flood Risk Management Plans as part other CFRAM Studies (ongoing);</li> <li>• Pollution Reduction Programmes for Waters designated under the EU Shellfish Directive (published in 2010);</li> <li>• County Development Plans (various dates);</li> <li>• County Biodiversity and or Heritage Plans (were available, various dates); and</li> <li>• OPW Arterial Drainage Maintenance and High Risk Channel Designation Plan 2011-2015;</li> <li>• Local, City, Town and Electoral Area/Development Plans (where available, various dates).</li> </ul>

### 6.3 Related Ongoing Studies

The principal studies ongoing within the Shannon RBD which are considered to influence and/or be influenced by the development and recommendations of the Unit of Management FRMPs are summarised below.

- **The ShRBD project:** The Shannon River Basin Management Plan (2009 – 2015) establishes a series of objectives for the protection and enhancement of water quality (ecological and chemical status) and outlines a programme of measures to achieve these objectives. The programme of measures must be operational by 2012 at which time a timetable and work programme for the second cycle of RBMPs (2015 – 2021) will be published. This river basin cycle aligns with that of the FRMPs. Consultation with the DECLG and the Shannon RBD Co-ordinating Authority will continue throughout the SEA process to ensure the FRMPs facilitate the achievement of the WFD objectives where appropriate to flood risk management.
- **Water Supply Project** (Dublin City Council): – The adopted plan recommends the abstraction of water from Lough Derg on the River Shannon with storage in a proposed new eco-park at the Bord na Mona owned Garryhinch Bog near Portarlington, Co. Laois where water will be treated for transport to the Dublin Region.
- **Strategic Integrated Framework Plan (SIFP):** The preparation of this plan for the Shannon Estuary has recently commenced. This Plan aims to identify the nature and location of future sustainable development, economic growth and employment within the Shannon Estuary whilst ensuring that the habitat status of environmentally sensitive sites are not reduced as a result of the short or long-term impact of such developments.
- **Irish Coastal Protection Strategy Study:** This study, originally commissioned by the Department of Marine and Natural Resources, is now managed by the OPW. This study aims to examine coastal policy options to address both coastal erosion and flooding in Ireland;
- **National CFRAM Programme.**

In addition to (and in some cases, associated with) the above, there are a number of environmental protection objectives established at International, European and National level which are relevant to the FRMPs, such as the EU WFD, EU Habitats and EU Birds Directives. These will continue to be identified as part of the SEA process, and the Environmental Report (Stage 3 of the SEA) will outline the way in which these objectives and any environmental considerations have been taken into account during the preparation of the FRMPs.

## 7 SEA Objectives

### 7.1 Introduction

Annexes I - IV have identified the characteristics of the Shannon RBD Units of Management as well as the key environmental issues relating to flood risk management, and Section 6 above has identified the influences from external plans, programmes, strategies etc. This Section captures this information and defines it as a set of proposed SEA objectives, indicators and associated targets. These will be used in the SEA specific to each Unit of Management to predict the likely environmental effects and subsequently, monitor implementation of each FRMP. The use of these objectives ensures that following this scoping stage, the SEA focuses only on those issues that are most relevant and significant to the CFRAM Study and the Units of Management.

As explained in Section 3.6, the SEA objectives will be used as part of the multi-criteria options appraisal process to assess the impacts and benefits of the proposed flood risk management options. During Stage 3 of the SEA process, the possible environmental benefits and impacts associated with each option will be assessed and reported on, and any appropriate and feasible mitigation measures will be identified.

### 7.2 Proposed SEA Objectives

The proposed SEA objectives are set out below in Table 7.1. These are based on current understanding of the key environmental issues within the Shannon RBD, populated after ongoing consultation, and are presented here in draft form. These objectives may be refined or developed further during the study, including in response to comments received on this Scoping Report.

Tables 7.2 then indicates how, at this stage of the SEA, each of the environmental topics for which key issues have been identified in Annexes I-IV relate to the proposed draft SEA objectives.



**Table 7.1: Proposed SEA Objectives, Sub-objectives and Indicators for the Shannon CFRAM Study**

OBJECTIVE		SUB-OBJECTIVE	INDICATOR
<b>Environmental</b>			
<b>Env1</b>	<b>Support the objectives of the WFD</b>	i) Prevent deterioration, and where possible raise, ecological status / potential of water-bodies	Ecological status of water-bodies
		ii) Prevent deterioration, and where possible raise, chemical status / potential of water-bodies	Chemical status of water-bodies
		iii) Prevent deterioration and where possible prevent the spread and further colonisation of invasive species	Invasive species in proximity of watercourse as reported by the National Invasive Species Database.
<b>Env2</b>	<b>Minimise the risk of environmental pollution</b>	i) Minimise risk to potential sources of pollution	Number of potential pollution courses at risk from flooding (including those licensed under Directives 96/61 EC and 92/271/EC)
<b>Env3</b>	<b>Avoid damage to, and where possible enhance, the flora and fauna of the catchment</b>	i) Avoid damage to, and where possible enhance, internationally and nationally designated sites of nature conservation importance	Reported conservation status of designated sites relating to flood risk management
		ii) Avoid damage to or loss of habitats supporting legally protected species of conservation concern and where possible enhance	Presence and/or extent of suitable habitat supporting legally protected species and other known species of conservation concern ('target species')
		iii) Avoid damage to or loss of existing riverine, wetlands and coastal habitats (including those for Freshwater Pearl Mussel), and where possible create new habitat, to maintain a naturally functioning system	Area of riverine, wetland and coastal habitat protected or created / restored as a result of flood risk management measures
<b>Env4</b>	<b>Avoid damage to, and where possible enhance, fisheries within the catchment</b>	i) Maintain existing, and where possible create new, habitat supporting fisheries and maintain upstream access	Area of suitable habitat supporting salmonid and other fisheries and number of upstream barriers
		ii) Ensure no adverse effects on commercial shellfisheries	Classification of shellfish waters

OBJECTIVE		SUB-OBJECTIVE	INDICATOR
<b>Env5</b>	<b>Protect, and where possible enhance, landscape character and visual amenity within the catchment</b>	i) Protect, and where possible enhance, landscape character within the catchment	Compliance with landscape character objectives relevant to flood risk management measures – in addition to emerging landscape character areas that will possible be identified from the landscape character assessment, under the National Landscape Strategy Character of lengths of waterway corridor qualifying as Landscape Protection Zones within urban areas relating to flood risk management measures Compliance with the National Development Plan 2007-2013 and props and policies
		ii) Protect, and where possible enhance, the character of designated Landscape Protection Zones within the catchment	
		(iii) Protect and where possible enhance, the tourism and recreation opportunities within the catchment	
<b>Env6</b>	<b>Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the catchment</b>	i) Avoid damage to or loss of known buildings and where possible enhance, structures, archaeological features and areas of cultural heritage importance, including their setting and heritage value, within the catchment	Numbers and types of internationally, nationally and locally designated areas and structures at risk from flooding
<b>Social</b>			
<b>Soc1</b>	<b>Minimise risk to human health and life</b>	i) Minimise risk to human health and life of residents	Number of residential properties at risk from flooding (0.1% AEP Event)
		ii) Minimise risk to high vulnerability properties	Number of high vulnerability properties at risk from flooding (0.1% AEP Event)
<b>Soc2</b>	<b>Minimise risk to community</b>	i) Minimise risk to social infrastructure	Number of high-value social infrastructural assets at risk from flooding (0.1% AEP Event)
		ii) Minimise risk to local employment	Number of non-residential properties at risk from flooding (0.1% AEP Event)
<b>Soc3</b>	<b>Minimise risk to social amenity</b>	i) Minimise risk to flood sensitive social amenity sites	Number of amenity sites at risk from flooding (0.1% AEP Event)

OBJECTIVE		SUB-OBJECTIVE		INDICATOR
Economic				
Eco1	Minimise economic risk	i)	Minimise economic risk	Annual Average Damage (€)
Eco2	Minimise risk to transport infrastructure	ii)	Minimise risk to transport infrastructure	Number of transport routes (road, rail, navigation) at risk from flooding (0.1% AEP Event)
Eco3	Minimise risk to utility infrastructure	iii)	Minimise risk to utility infrastructure	Number of utility infrastructure assets (power stations, WWTWs, WTWs, telecom exchanges etc) at risk from flooding (0.1% AEP Event)
Eco4	Manage risk to agricultural land	i)	Manage Risk to Agricultural Land	Area of agricultural land at risk from flooding (based on CORINE data or other)

**Table 7.2: Relationship between Environmental Topics and the proposed draft SEA Objectives**

OBJECTIVE		ENVIRONMENTAL TOPICS									
		Population and human health	Geology, soils and land use	Water	Air and Climate	Biodiversity, flora and fauna	Fisheries, aquaculture and angling	Landscape and visual amenity	Material assets, development and infrastructure	Tourism and recreation	Archaeology and cultural heritage
<b>Environmental</b>											
Env1	Support the objectives of the WFD	✓		✓		✓	✓			✓	
Env2	Minimise the risk of environmental pollution		✓	✓							
Env3	Avoid damage to, and where possible enhance, the flora and fauna of the catchment		✓	✓		✓					
Env4	Avoid damage to, and where possible enhance, fisheries within the catchment			✓		✓	✓				
Env5	Protect, and where possible enhance, landscape character and visual amenity within the catchment							✓		✓	
Env6	Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the catchment										✓
<b>Social</b>											
Soc1	Minimise risk to human health and life	✓		✓							
Soc2	Minimise risk to community	✓							✓		
Soc3	Minimise risk to social amenity	✓								✓	
<b>Economic</b>											
Eco1	Minimise economic risk	✓	✓						✓		
Eco2	Minimise risk to transport infrastructure	✓							✓		
Eco3	Minimise risk to utility infrastructure	✓							✓		
Eco4	Manage Risk to Agricultural Land	✓	✓						✓		

At this stage of the SEA Scoping process and prior to further consultation, the proposed draft SEA objectives address issues relating to all the SEA topics with the exception of air and climate. The flood risk management objective 'Tech3' outlined in Table 7.3 below will enable climatic factors to be incorporated to the development of options. It is proposed that specific consideration of air quality impacts is not relevant to the CFRAM Study due to the specific and localised nature of any potential impacts.

In addition to the SEA objectives outlined in Table 7.1, technical objectives will also be established for the options appraisal process. Provisional technical objectives are outlined in Table 7.3 below. As with the proposed SEA objectives, these are subject to further refinement as the study develops.

**Table 7.3: Provisional Generic (Technical) Flood Risk Management Objectives, Sub-objectives and Indicators for the Shannon CFRAM Study**

OBJECTIVE		SUB-OBJECTIVE	INDICATOR
<b>Technical</b>			
<b>Tec1</b>	<b>Ensure flood risk management options are operationally robust</b>	i) Ensure flood risk management options are operationally robust	Level of operational risk of option i.e. mechanical or human intervention required (e.g. lengths/numbers of demountables, pumps etc)
<b>Tec2</b>	<b>Minimise health and safety risk of flood risk management options</b>	i) Reduce and where possible eliminate health and safety risks associated with the construction and operation of flood risk management options	Health and safety risk to construction workers of Flood Risk Management (FRM) options
<b>Tec3</b>	<b>Ensure flood risk managed effectively and sustainable into the future</b>	i) Ensure flood risk management options are adaptable to future flood risk	Level of adaptability of FRM option to future flood
		ii) Ensure future maintenance requirements are manageable and sustainable	Level of future maintenance requirements

Both the SEA (Table 7.1) and technical (Table 7.3) objectives will contribute to the achievement of the EU Flood Directive's overall aim:

*The purpose of this Directive is to establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods in the Community.*

(Flood Directive, Article 1)

## 8 Alternatives

The SEA Directive requires the SEA process to identify and describe 'reasonable alternative' means of achieving the strategic goals of the plan. The reasons for selecting (a) the alternatives and (b) the preferred alternative must be documented, together with a description of how this assessment of alternatives was undertaken.

The development of the FRMPs will include the consideration of a range of flood risk management measures and options at the different spatial scales outlined in Section 3 of this report. Flood risk management options will be identified, developed and assessed using a MCA to identify preferred options at the appropriate spatial scales.

Alternatives will be assessed against the environmental objectives established for the key aspects of the environment likely to be significantly affected and clear justification for the selection of the preferred alternative / combination of alternatives will be provided.

This assessment of alternatives will take place in the following stages of the SEA process and will be documented within the Environmental Report and where relevant, in the SEA Statement (Stages 3 and 4 of the SEA process).

## 9 List of Abbreviations

Abbreviation	Explanation
ACA/ ASC	Architectural Conservation Areas/ Areas of Special Character
AFA	Area for Further Assessment
CAP	Common Agricultural Policy
CAR	Community at Risk
CFRAM	Catchment Flood Risk Assessment and Management
DEHLG	Department of Environment, Heritage and Local Government
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
FEPS	Forest Environment Protection Scheme
FRMP	Flood Risk Management Plan
HMWB	Heavily Modified Water Body
ICZM	Integrated Coastal Zone Management
IFI	Inland Fisheries Ireland
IRR	Individual Risk Receptor
NIAH	National Inventory of Architectural Heritage
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
RBD	River Basin District
RBMP	River Basin Management Plan
REPS	Rural Environmental Protection Scheme
RMP	Record of Monuments and Places
RPS	Record of Protected Structure
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SFM	Sustainable Forest Management
SMR	Sites and Monuments Record
SPA	Special Protection Area
UoM	Unit of Management
WFD	Water Framework Directive
WMU	Water Management Unit
WWTP	Waste Water Treatment Plant

## 10 Glossary

Term	Definition
<b>Area for Further Assessment</b>	Areas of land where the degree of existing or potential risk is more significant than others in the Shannon RBD. AFAs include existing towns and villages (which can be defined as CARs), areas for which significant development is anticipated and other areas or structures where existing or future flood risk is deemed significant.
<b>Afforestation</b>	The planting or seeding of trees in an area previously devoid of trees.
<b>Alluvial woodland</b>	Woodland in the floodplain of a watercourse.
<b>Aquaculture</b>	The cultivation of marine organisms in enclosures in coastal inlets and estuaries.
<b>Architectural Conservation Areas/ Areas of Special Character</b>	An Architectural Conservation Area (Cork County)/Area of Special Character (Cork City) is a place, area, group of structures or townscape of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or that contributes to the appreciation of a Protected Structure, and whose character should be preserved.
<b>Areas of Geological Interest</b>	Planning designation to protect areas of particular geological interest.
<b>Biodiversity</b>	Biological diversity, the number and abundance of species present.
<b>Biodiversity Action Plan</b>	A plan to achieve targets for enhancing the diversity of biological life, the abundance of species and their habitats.
<b>Biogenetic Reserve</b>	Biogenetic Reserves were established under the 1982 Bern Convention and aim to conserve European flora, fauna and natural areas that although common in one country may be scarce in another, to sustain a store of genetic material for the future.
<b>Brownfield site</b>	Land within an urban area on which development has previously taken place.
<b>Buffer strip/zone</b>	Strip of vegetation that separates a watercourse from an intensive land use area.
<b>Catchment</b>	The total area of land that drains into a watercourse.
<b>Common Agricultural Policy</b>	Sets out a European-wide system of agricultural subsidies and programmes.
<b>Community at Risk</b>	CARs are existing urban or developed areas within an AFA with a significant flood risk from river or coastal sources. This includes any housing, industry, retail, amenity and recreational area. CARs vary in size from small communities, to larger conurbations.



Term	Definition
<b>Catchment-based Flood Risk Assessment and Management Study</b>	The five year study covering the River Shannon catchment area which gives a picture of past flooding and areas at risk of future flooding, and develops and recommends options for reducing and managing flood risk through FRMPs.
<b>Diffuse pollution</b>	Pollution from widespread and dispersed activities such as the application of fertilisers to farmland with no single discrete source.
<b>Dredging</b>	The excavation of sediments from the bed of a water body and disposal in a different location.
<b>Ecosystem</b>	An ecosystem includes all of the living things in an area, their surroundings and all the ways in which they interact with each other.
<b>Estuarine</b>	A semi-enclosed, tidally influenced, coastal body of water with one or more rivers or streams flowing into it, and with an open connection to the sea.
<b>EU Directive</b>	Legislation issued by the European Union that is binding on Member States in terms of the result to be achieved, but leaves choice as to methods.
<b>Eutrophic</b>	Waters rich in mineral and organic nutrients that promote excessive growth of plant life, especially algae causing water quality and ecological problems.
<b>Floodplain</b>	The land adjacent to a stream, river or coastline that experiences occasional or periodic flooding.
<b>Flood Risk Management Plan</b>	The plans produced that will cover each UoM which set out how the OPW, stakeholders and local people should work together to take actions that address specific local flood risks.
<b>Fluvial</b>	Related to a river or a stream.
<b>Forest Environmental Protection Scheme</b>	The establishment of high nature value forestry on farms which participate in REPS.
<b>Geomorphology</b>	The study of landforms, including their origin and evolution, and the processes that shape them.
<b>Green Belt</b>	A land use designation used to retain areas of largely undeveloped or agricultural land surrounding or adjacent to urban areas.
<b>Habitat</b>	The place where an organism or species normally lives and is characterised by its physical characteristics and/or dominant type of vegetation.
<b>Individual Risk Receptor</b>	Individual properties or infrastructure assets (such as transport networks or utility services) outside of AFAs that, if flooded, would give rise to significant detrimental impact or damage.
<b>Integrated Coastal Zone Management</b>	The integrated planning and management of coastal resources and environments.

Term	Definition
<b>Managed realignment</b>	The setting back of existing coastal or estuary defences in order to achieve environmental, economic and/or engineering benefits. Typically undertaken in estuarine systems to combat coastal squeeze.
<b>Natural Heritage Area</b>	An area of national nature conservation importance, designated under the Wildlife Act 1976 (as amended), for the protection of features of high biological or earth heritage value or for its diversity of natural attributes.
<b>Natura 2000 sites</b>	The EU-wide network of SPA and SAC nature conservation sites.
<b>The Office of Public Works</b>	OPW is the lead agency for flood risk management in Ireland. The coordination and implementation of the Government's policy on the management of flood risk in Ireland, in conjunction with its responsibilities under the Arterial Drainage Acts (1945-1995) form one of its four core services. In addition to flood risk management, other areas of service include buildings and architecture, heritage and procurement.
<b>Preliminary Flood Risk Assessment</b>	PFRA is a high level screening exercise that identifies areas of significant flood risk from all sources and summarises the probability and harmful consequences of past (historical) and future (potential) flooding.
<b>Protected Structure</b>	A structure that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, or technical point of view.
<b>Ramsar site</b>	Wetland site of international importance designated under the Ramsar Convention on Wetlands of International Importance 1971, primarily because of its importance for waterfowl.
<b>River Basin District</b>	RBDs are natural geographical and hydrological units for water management, as defined by the WFD. River basins are used instead of administrative or political boundaries. The Shannon RBD is approximately 17,800 km <sup>2</sup> , includes the natural drainage basin of the River Shannon and covers 18 local authority areas (17 County Councils and 1 City Council).
<b>Rural Environmental Protection Scheme</b>	A Government scheme designed to reward farmers for carrying out their farming activities in an environmentally friendly manner (REPS) and to bring about environmental improvement on their farms.
<b>Salmonid</b>	Part of the family <i>Salmonidae</i> that includes trout and salmon.
<b>Special Area of Conservation</b>	An area designated in accordance with the EU Directive on the conservation of habitats and wild flora and fauna (92/43/EEC) for the protection of species and habitats of conservation concern within the EU.
<b>Special Protection Area</b>	An area designated in accordance with the EU Directive on the Conservation of Wild Birds (79/409/EEC) for the specific protection of wild birds.
<b>Stakeholder</b>	A person or organisation with a share or interest in a project or entity.

Term	Definition
<b>Strategic Environmental Assessment</b>	The process by which environmental considerations are required to be fully integrated into the preparation of the FRMPs and prior to their adoption.
<b>Unit of Management</b>	As the Shannon CFRAM study area comprises a RBD as defined under the WFD, it is divided into UoMs, each of which constitute major catchments or river basins typically greater than 1,000 km <sup>2</sup> and their associated coastal areas, or conglomerations of smaller river basins and their associated coastal areas. Each UoM within the Shannon CFRAM study area will have flood maps developed (where modelled), and actions for reducing and managing flood risk in the UoMs will be documented within FRMPs.
<b>Water Framework Directive</b>	EU Water Framework Directive 2000/60/EC sets out a system for the integrated and sustainable management of river basins so that the ecological quality of waters is maintained in at least a good state or is restored. The Directive lays down a six-yearly cycle of river basin planning.
<b>Water Management Unit</b>	Sub-catchment (or sub-basin) within the UoMs. These are defined within the Shannon River Basin Management Plan (2009 – 2015) ( <a href="http://www.shannonrbd.com/">http://www.shannonrbd.com/</a> )
<b>Wildfowling</b>	The practice of hunting ducks, geese, or other waterfowl, either for food, sport, or both.
<b>Wildfowl Sanctuary</b>	Site designated under the Wildlife Act 1976 (as amended), for the protection of wildfowl.

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**APPENDICES**

## Appendix A –Relevant Spatial Planning Documents and Other Plans or Programmes Relevant to Flood Risk Management

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>National Spatial Plan (NSS) 2002-2020</b>	The NSS is a 20-year planning strategy for Ireland with the overall aim being to progress growth and development in a balanced manner. The NSS identifies a number of "Gateways" (a strategic location, nationally and relative to their surrounding areas, and provide national scale social, economic infrastructure and support services) and "Hubs" (towns supporting the national and international role of the gateways). The ShRBD has a number of these "Gateways" including Limerick/Shannon and Athlone and "Hubs" including Ennis and Tralee.
<b>Draft Framework for Sustainable Development for Ireland (published for public consultation December 2011)</b>	This framework aims to provide a means for advancing the green economy agenda in Ireland, taking account of the three pillars of sustainable development – economic, environmental and social. It is proposed that this framework will form a central element of Ireland's contribution to the UM Conference on Sustainability in June 2012.
<b>National Development Plan (NDP) 2007-2013</b>	<p>The NDP identifies a number of areas for improvement including physical and social infrastructure, attraction of inward investment, social inclusion, balanced regional development, environmental protection and sustainable development. The NDP highlights the fact that eutrophication of freshwater and estuaries is a general problem in Ireland and the pressures that contribute to this issue. Infrastructure investments are identified – i.e. wastewater treatment, recreation facilities, flood relief measures.</p> <p>The NDP outlines €895 million of funding for Flood Relief Schemes. In addition a Flood Hazard Mapping Programme is funded. A public awareness campaign linked to the issue of flooding is also to be undertaken under this period of the NDP.</p>

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>Actions For Biodiversity 2011-2016, Ireland's National Biodiversity Plan</b>	This plan follows on from the 2002 National Biodiversity Plan. The overarching target of the second plan is <i>'That biodiversity loss and degradation of ecosystems are reduced by 2016 and progress is made towards substantial recovery by 2020.'</i> The plan lays out a number of objectives, targets and actions required to fulfil the overall plan aim. The objectives of the National Biodiversity Plan are mirrored in the county biodiversity plans, of relevance to the ShRBD include Cork, Kerry and Limerick, Roscommon.
<b>National Heritage Plan (published in 2002)</b>	The main objective of this plan is to protect Ireland's heritage and it sets out archaeological policies and principles that should be applied by all bodies when undertaking a development. Each county is obliged to produce their own county heritage plan relevant county heritage plans in the ShRBD include Cork, Kerry, Clare, Roscommon and Limerick.
<b>Government Decentralisation Programme 2003-2011</b>	The Government Decentralisation Programme was cancelled in 2011. The Decentralisation programme provided for the transfer of over ten thousand public sector posts from Dublin to other locations throughout the country. Decentralisation locations within the ShRBD included Portlaoise, Carrick-on-Shannon, Athlone, Birr, Longford, Listowel, Roscommon, Kilrush, Newcastle-West, Limerick City, Tipperary and Shannon. Since commencement of the programme and prior to its cancellation in 2011, approximately one third of the target numbers were decentralised.
<b>Rural Development Programme 2007-2013</b>	<p>The Rural Development Programme 2007-2013 (RDP) is structured around three core axes which have the aim of:</p> <ol style="list-style-type: none"> <li>1. Improving the competitiveness of agriculture;</li> <li>2. Improving the environment; and</li> <li>3. Improving the quality of life in rural areas.</li> </ol> <p>The RDP recognises that the OPW has been appointed as the lead agency to implement flooding policy in Ireland and that they are developing CRFAMs likely to involve non-structural measures such as storage and better flood forecasting and warning, but will also include structural works, particularly where flooding is already a problem. The RDP will monitor any developments and where necessary reflected these in the RDP measures.</p>

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>National Climate Change Strategy 2007-2012</b>	The National Climate Change Strategy 2007 - 2012 sets out a range of measures, building on those already in place under the first National Climate Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. Under the adaptive measures the strategy recognises the OPW as the lead agency to implement flooding policy in Ireland and that the OPW is currently developing a strategy to manage flood risk in conjunction with other relevant state agencies. The strategy emphasises that Local Authorities now have the power to consider adaptation initiatives in relation to their development plans. The Planning and Development Act 2000, empowers planning authorities to provide, in their development plans, that development in areas at risk of flooding may be regulated, restricted or controlled. If development is proposed in a flood-risk area, the risk of flooding can be carefully evaluated and planning permission refused, if necessary.
<b>The Irish Geological Heritage Programme 1998- ongoing</b>	The geological heritage data collection is a working programme and as of December 2010, NHA designation has yet to be assigned to a site of geological interest. Initial scoping has identified a number of these sites within the ShRBD.
<b>A National Landscape Strategy for Ireland</b> (consultation on this plan commenced in 2011)	In September 2011 the DAHG published a strategic issues paper for consultation on 'A National Landscape Strategy for Ireland'. This is in line with Ireland's ratification of the European Landscape Convention (2000), which will be in consultation until 2012, when it will be put forward for Government consideration. The strategy aims to sustainably manage changes affecting the landscape, and includes land, inland water and marine areas.
<b>Second Nitrates Action Programme 2010-2013</b>	In accordance with this the Nitrates Directive (91/676/EEC) concerning the protection of waters against pollution by nitrates from agricultural sources each Member State is obliged to put in place a Nitrates Action Programme and to review and if necessary revise their action programme at least every four years. Farms within the ShRBD are required to comply with Ireland's (second) Nitrates Action Programme which was given effect through a series of Regulations. This includes the implementation of Fertilisation Plans. These Regulations support the protection of waters against pollution from agricultural sources, e.g. by phosphorus and nitrogen.



Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>South-West Regional Planning Guidelines 2010-2022</b>	<p>These Guidelines give effect to the NSS and apply to Cork City, Cork County and County Kerry. Recognises the Gateway and Hub designations of the NSS and builds upon the NDP. With regards to flooding issues these RPG state:</p> <ul style="list-style-type: none"> <li>- Consideration must be given to future appropriate land use policies in accordance with the requirements of the DEHLG Planning Guidelines the Planning System and Flood Risk Management. Strategic and local flood risk assessments and plans should be prepared where appropriate;</li> <li>- It is an objective of the RPG to promote the completion by the local authorities in the region of CFRAM Studies covering the South West by 2016, including a review of long term flood risk management options; and</li> <li>- It is an objective of the RPG to ensure that significant developments in upland areas, such as wind farm developments, roadway construction, peatland drainage and forestry proposals, provide sufficient storm water attenuation so as to avoid the occurrence of river erosion or flooding downstream.</li> </ul>
<b>Mid-West Regional Planning Guidelines 2010-2022</b>	<p>These Guidelines gives effect to the NSS and apply to Clare, Limerick and Tipperary. With regards to flooding issues these RPG state:</p> <ul style="list-style-type: none"> <li>- Adopt and implement sustainable strategies for the protection of areas at risk from flooding at present;</li> <li>- Adopt and implement sustainable strategies for areas likely to be at risk of flooding in the future in the context of climate change and changing weather patterns;</li> <li>- These strategies should include plans for the management and protection of all utility services during flood events including those utilities that cross administrative boundaries;</li> <li>- Adopt and implement a sustainable strategy for managing water collection and discharge based on the SuDS (Sustainable Drainage Systems) model;</li> <li>- Adopt and implement a sustainable strategy for addressing potential river over-bank flows</li> <li>- Evaluate the capacity of existing flood defences to deal with future flood events;</li> <li>- Use the sequential approach to the zoning of land for development;</li> <li>- Identify if necessary and sustainable, sacrificial areas that can be used for flood-water retention.</li> <li>- No area should be used for any such purpose if it would pose a threat to any utility service; and</li> <li>- Agree and use common parameters regarding future global warming, flood return periods and climatic change.</li> </ul>

# Shannon CFRAM Study: SEA Scoping Report

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>[Draft] Mid West Area Strategic Plan 2010-2040</b>	<p>A 30 year long term infrastructure development plan for the Mid-West Region, which will provide a framework for the integration of land use and transport provision for the region into the future. The four Local Authorities in the Mid-West Region Limerick City Council (as lead), Clare County Council, Limerick County Council and North Tipperary County Council and working with the Mid-West Regional Authority, has prepared a Draft Strategic Plan which examines the future for the Mid-West Region. The Draft Mid-West Area Strategic Plan (MWASP) was prepared to secure the following overall objectives:</p> <ul style="list-style-type: none"> <li>- Prioritisation of investment in the region;</li> <li>- Strengthening The Limerick/Shannon Gateway;</li> <li>- Create and support a well defined hierarchy of settlement;</li> <li>- Deliver the required transport infrastructure to meet the Plan objectives;</li> <li>- Optimise the organisational structure to facilitate the delivery of the Plan objectives; and</li> <li>- Provide economic review and direction for the region.</li> </ul> <p>The plan recognises the corridor of the River Shannon as the most important emerging tourism asset in the region, with three main areas: the Shannon estuary, Lough Derg and lower/mid River Shannon. The plan highlights the potential in the corridor from activity-based tourism, including boating, angling, wildlife watching and walking, all to be supported by a network of small attractive villages with good local road access.</p>
<b>Shannon Strategic Integrated Framework Plan</b>	<p>The aim of the Strategic Integrated Framework Plan (SIFP) is to identify the nature and location of future development, economic growth and employment that can be sustainably accommodated within the Shannon Estuary whilst ensuring that the habitat status of the Natura 2000 and other environmentally sensitive sites would not be reduced as a result of the short-term or long-term impact of such developments.</p> <p>Developments may include, but are not limited to: port functions, shipment, aquaculture/mariculture, fisheries, eco-tourism, leisure, culture, tourism, heritage, industry, energy generation, fuel storage, aviation, minerals/aggregates, transportation and agriculture.</p>

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>Water Framework Directive River Basin Management Plans (RBMP):</b> - Shannon RBMP 2010 - Southwest RBMP 2010	<p>The aims of the WFD are to be achieved through the development of RBMPs. The plans sets out how the aims and objectives of improving and protecting water quality and ecology in the waters of each river basin district could be achieved, by means of a Programme of Measures (POMs). Each water body will have identified:</p> <ul style="list-style-type: none"> <li>- Basic measures;</li> <li>- Lead agencies; and</li> <li>- Supporting key actions.</li> </ul> <p>The CFRAMS studies must have regard to the objectives of the WFD and any recommendations and programmes of measures outlined in the RBMPs.</p>
<b>WFD - Sub-Basin Management Plans for the Fresh Water Pearl Mussel</b>	<p>The Freshwater Pearl Mussel (FWPM) Sub-basin Management Plans aims to address catchment-wide issues that are contributing to the decline in FWPM and to develop a strategy for implementing measures that will bring the catchment and population back to favourable conditions. There are two FWPM catchments which have an associated FWPM Sub-basin Management Plans within the ShRBD (Owenmore &amp; Cloon). Regard to these plans will need to be taken into account during the CFRAMS Studies.</p>
<b>FRMPs as part other CFRAM Studies</b>	<p>Each RBD within Ireland will have a FRMP to implement the national objectives for flood risk management. Other FRMP particularly those adjacent to the ShRBD will be relevant to the development of the Shannon CFRAMS.</p>
<b>Pollution Reduction Programmes for Waters designated under the EU Shellfish Directive</b>	<p>The pollution reduction programmes for shellfish waters in accordance with the standards and objectives established by the Quality of Shellfish Waters Regulations 2006 (S.I. No. 268 of 2006) (as amended) for the designated shellfish growing waters. There are a number waters designated under the EU Shellfish Directive within the ShRBD which have an associated of Pollution Reduction Programme.</p>
<b>County Council Development Plans</b>	<p>These Development Plans set out policies and objectives for the development of the County typically over a six year period. The relevant county developments plans will contain objectives for development in the county and will typically include objectives for flood risk management.</p>

# Shannon CFRAM Study: SEA Scoping Report

Plan or Programme	Purpose/ Relevance of the Plan or Programme
<b>County Council Heritage &amp; Biodiversity Plans</b>	These plans will reflect the national objectives set out in the National Biodiversity and Heritage Plans. Not all counties within the ShRBD will have either a Biodiversity or Heritage Plan. Where available these plans set out a number of objectives to protect and enhance biodiversity and heritage within the county of relevance.
<b>Local Area Plans</b>	Each county has produced a number of Local Area Plans for specific locations which contain development guidance for a specific area. This includes policy in relation to wastewater, drainage and environmental protection and in some cases flooding.

## Appendix B– CFRAM Study SEA Screening Report



# **STRATEGIC ENVIRONMENTAL ASSESSMENT SCREENING REPORT**

## **CATCHMENT FLOOD RISK MANAGEMENT PLANS (2015 – 2021)**

*Determination of the need for strategic environmental assessment for  
Catchment Flood Risk Management Plans prepared under the National  
Catchment Flood Risk Assessment and Management (CFRAM)  
Programme*

**RP/002/D  
FRAM Section  
Office of Public Works**

<b>PROJECT</b>	NATIONAL CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) PROGRAMME
<b>PROJECT No.</b>	
<b>PROJECT ENGINEER:</b>	
<b>CLIENT:</b>	ENGINEERING SERVICES OFFICE OF PUBLIC WORKS
<b>DOCUMENT TITLE:</b>	SEA SCREENING REPORT CATCHMENT FLOOD RISK MANAGEMENT PLANS (2015-2021)
<b>DOCUMENT No.:</b>	RP/002/D

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## **1.0 INTRODUCTION**

### **1.1. BACKGROUND**

The Office of Public Works (OPW) has recognised the levels of flood risk that exist in certain parts of the country and the potential for significant increases in this risk due to climate change, ongoing development and other pressures that may arise in the future. The OPW in partnership with Local Authorities are therefore seeking solutions to manage this flood risk in a sustainable and cost effective manner.

Flood risk in Ireland has historically been addressed through the use of structural or engineered solutions to existing problems, such as through the implementation of flood relief schemes to protect towns / areas already at risk. In line with internationally changing perspectives, the Irish Government adopted a new policy in 2004 that shifted the emphasis in addressing flood risk towards:

- A catchment-based context for managing risk,
- More pro-active risk management, with a view to avoiding or minimising future increases in risk,
- Increased use of non-structural and flood impact mitigation measures.

Notwithstanding this shift, engineered solutions to protect communities against existing risks are likely to continue to form a key component of the overall flood risk management strategy.

In line with government policy on flood risk management, as adopted in 2004, the OPW is in the process of implementing a Catchment-based Flood Risk Assessment and Management (CFRAM) Study programme as a means of addressing the flooding risk over the long-term in Ireland.

The EU Directive on the assessment and management of flood risk (the 'Floods Directive' – [2007/60/EC]) requires Member States to prepare flood maps for areas of potentially significant flood risk, and to develop flood risk management plans (FRMPs) setting out measures aimed at achieving objectives to manage the risk in these areas. In Ireland, these requirements (transposed into national law through S.I. No. 122 of 2010) are being implemented through the CFRAM Studies. The outputs from the CFRAM Studies will be catchment-based flood risk management plans (CFRMPs) and associated flood maps. The CFRMPs will be valid for the period 2015- 2021 and will be reviewed on a six-yearly basis.

## **1.2. SCREENING STATEMENT**

The European Communities (Environmental Assessment of Certain Plan and Programmes) Regulations 2004 (S.I. No. 435 of 2004) (hereafter referred to as ‘the Regulations’) and the European Communities (Environmental Assessment of Certain Plans And Programmes) (Amendment) Regulations, 2011 (S.I 200 of 2011) require a screening of individual plans or programmes, based on the criteria in Schedule 1 of the regulations. These criteria must be taken into account in determining whether or not significant effects on the environment would be likely to arise.

The OPW considers that an SEA should be undertaken as a matter of good practice for all CFRAM Studies to ensure that environmental effects and potential benefits are fully integrated into the decision-making process on appropriate flood risk management measures and strategies that will form the core of the CFRMPs. The purpose of this screening statement is to validate this position.

Under the CFRAM Programme, CFRAM Studies will be undertaken throughout the country. The specification and process for each CFRAM Study is essentially the same, and it is not possible at this stage to differentiate particular impacts that could arise from the CFRMPs produced under different Studies. It has therefore been deemed appropriate that a single screening assessment should be undertaken to cover all CFRMPs, rather than individual assessments for each CFRMP.

The process used in validating this position is consistent with the determination process as recommended by the Environmental Protection Agency (EPA) publication entitled *Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland – Synthesis Report* (hereafter referred to as the “EPA Publication”), specifically Stage 1 (Screening of Plans and Programmes).

## **2.0 STUDY PURPOSE, STUDY AREA AND PROGRAMME**

### **2.1. STUDY PURPOSE**

The objectives of CFRAM Studies are to:

- To produce detailed flood mapping in order to identify and map the existing and potential future flood hazard and risk areas within the study area.
- Build the strategic information base necessary for making informed decisions in relation to managing flood risk.

- Identify viable structural and non-structural measures and options for managing the flood risks for localised high-risk areas and within the catchment as a whole.
- Prepare a Flood Risk Management Plan for each Unit of Management (UoM) that sets out the measures and policies, including guidance on appropriate future development, that should be pursued by the local authorities, the OPW and other stakeholders to achieve the most cost effective and sustainable management of flood risk within the study area taking account of the effects of climate change and complying with the requirements of the Water Framework Directive.
- Implement the requirements of EU Directive on the assessment and management of flood risks (2007/60/EC).

Table 1 below provides a non-exhaustive list of potential measures that could be considered. This includes small and large-scale structural and non-structural solutions for protection of individual properties to the construction of large flood storage areas. As the studies progress, the most appropriate flood risk management measures for the catchments will be identified and included in the CFRMPs. These measures will address the need for improved flood risk management both now and in the future.

Do Nothing	Implement no new flood risk management measures and abandon any existing practices
Existing Regime	Continue with any existing flood risk management practices, such as reactive maintenance
Do Minimum	Implement additional minimal measures to reduce the flood risk in specific problem areas without introducing a comprehensive strategy
Non-Structural Measures	<ul style="list-style-type: none"> <li>• Planning and development control measures (zoning of land for flood risk-appropriate development, prevention of inappropriate incremental development, review of existing Local Authority policies in relation to planning and development and of inter-jurisdictional co-operation within the catchment, etc.)</li> <li>• Building regulations (regulations relating to floor levels, flood-proofing, flood-resilience, sustainable drainage systems, prevention of reconstruction or redevelopment in flood-risk areas, etc.)</li> <li>• Sustainable urban drainage systems</li> <li>• Installation of a flood forecasting and warning system and development of emergency flood response procedures</li> <li>• Targeted public awareness and preparedness campaign</li> </ul>

	<ul style="list-style-type: none"> <li>• Individual property flood resistance (protection / flood-proofing) and resilience</li> <li>• Land use management, including creation of wetlands, riparian buffer zones, etc</li> </ul>
Structural Measures (Potential Future Risk)	Strategic development management for necessary floodplain development (pro-active integration of structural measures into development designs and zoning, regulation on developer-funded communal retention, drainage and / or protection systems, etc.)
Structural Measures (Existing Risk)	<ul style="list-style-type: none"> <li>• Storage (single or multiple site flood water storage, flood retardation, etc.)</li> <li>• Flow diversion (full diversion / bypass channel, flood relief channel, etc.)</li> <li>• Increase conveyance (in-channel works, floodplain earthworks, removal of constraints / constrictions, channel / floodplain clearance, etc.)</li> <li>• Construct flood defences (walls, embankments, demountable defences, etc.)</li> <li>• Rehabilitate, improve existing defences</li> <li>• Relocation of properties</li> <li>• Localised protection works (e.g., minor raising of existing defences / levels, infilling gaps in defences, etc.)</li> </ul>
Channel or Flood Defence Maintenance Works / Programme	
Other works that might be of particular relevance to, or suitability for, a given location	

Table 1 List of potential flood risk management measures

## 2.2. STUDY AREA

The CFRAM Programme is national. However, individual CFRAM Studies, and the Flood Risk Management Plans that will be produced through the Studies, cover discrete areas as set out below.

The OPW have generally defined the hydrometric areas, which comprise a major catchment, or conglomerations of smaller river catchments, and their associated coastal areas, as the Units of Management (UoMs) for implementing the Floods Directive in Ireland. The exception to this approach are the three cross-border River Basin Districts (RBDs) which have each been defined as a single UoM. A CFRMP will be prepared for each UoM, or for sub-areas of UoMs in cross-border RBDs. However, for the purposes of efficiency and co-ordination with the implementation of the WFD, the OPW have awarded the contracts for carrying out the CFRAM studies at the RBD level. Figure 1 shows the areas for which CFRMPs will be prepared.

The studies will focus primarily on developed areas, areas subject to significant development pressure, or areas with other known significant vulnerabilities to flooding, known to have experienced flooding in the past or that could potentially be at flood risk, now or in the future.

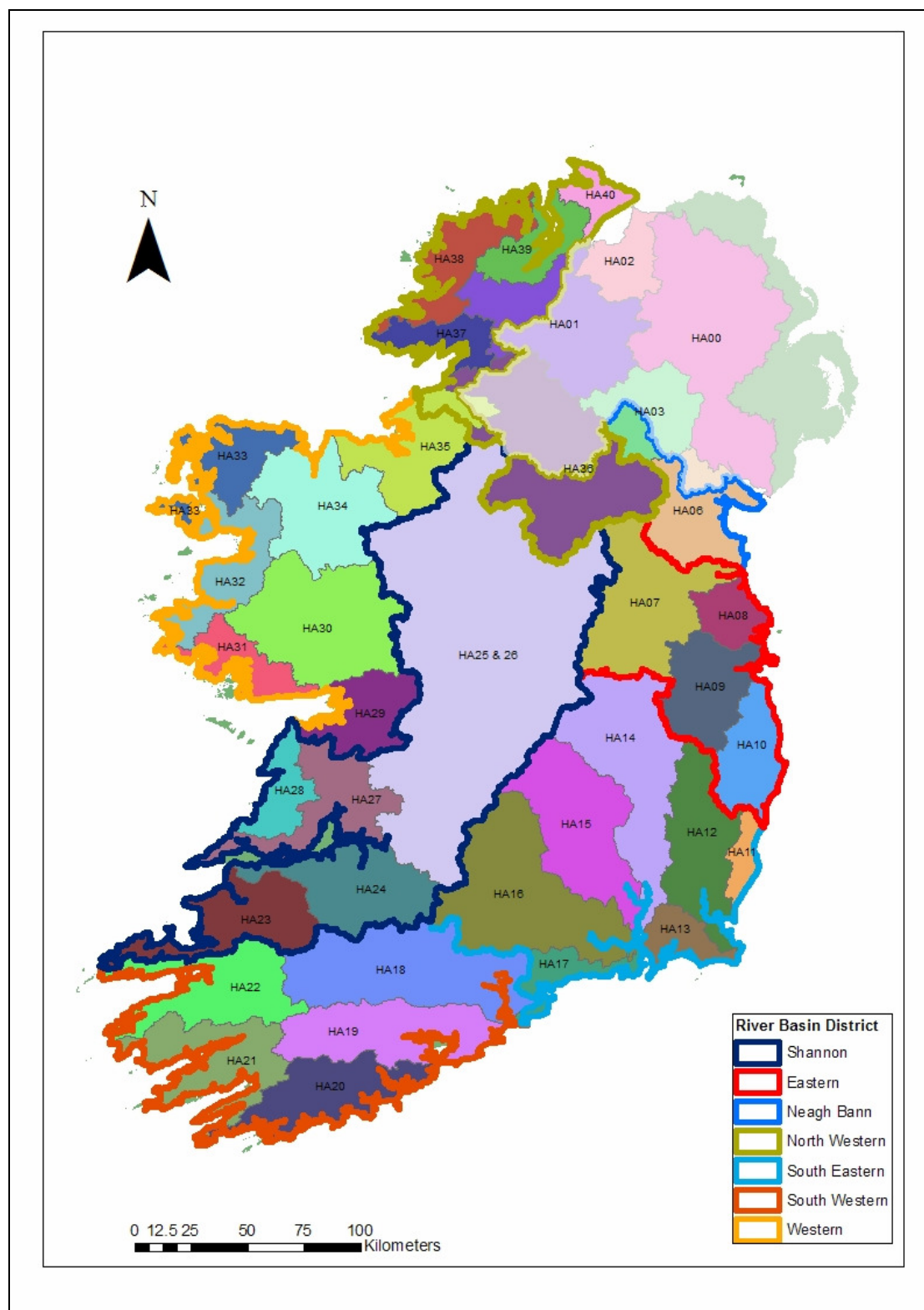


Figure 1 Spatial Scope of each CFRMP (grouped by RBD contract)

### **2.3. PROGRAMME**

In October 2010 the OPW began procuring the CFRAM studies and it is envisaged that they will all be commissioned by December 2011. The Floods Directive requires that the all CFRMPs are completed by the end of 2015 and reviewed every six years thereafter.

### **3.0 SCREENING CHECK, STAGE ONE**

The first step of the validation process was to undertake a pre-screening check using the decision tree presented in Figure 2 of the EPA publication “*Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland*”

The decision tree is based on a series of administrative questions that allows rapid screening–out of plans and programmes that are clearly not going to have an environmental impact, and screening-in of those that definitely do require an SEA. The decision tree and responses to the administrative questions as they apply to the CFRMPS are presented in **Appendix A**

The outcome of the pre-screening stage is that the CFRMPs will require a SEA because they:

- are intended for adoption by Local Authorities (Article 20 of S.I. 122 of 2010).
- are required by legislation (S.I. 122 of 2010)
- do not have a sole purpose of serving national defence or civil emergency, nor are they co-financed by EU funding
- are for water management and will impact on land use
- are likely to require an assessment under Article 6 of the EU Habitats Directive

### **4.0 ENVIRONMENTAL SIGNIFICANT SCREENING, STAGE TWO**

The pre-screening process indicated that a SEA is required for the CFRMPs. The CFRMPs were further assessed by querying the plans against the environmental criteria contained in Schedule 1 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004. (S.I. No. 435 of 2004). This task is described as Task 1.2 in previously referred to EPA publication.



**4.1. THE CHARACTERISTICS OF THE PLAN HAVING REGARD, IN PARTICULAR TO:****4.1.1 CRITERIA NO. 1**

*The degree to which the plan or programme, or modification to a plan or programme, sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources.*

Each CFRMP will contain a Programme of Works outlining a prioritized programme of policies, actions and measures to be implemented within the catchment, which may give rise to further projects. Thus, the CFRMPs will form a framework for future projects and allocation of resources concerning reduction of flooding risk.

**4.1.2 CRITERIA NO. 2**

*The degree to which the plan or programme, or modification to a plan or programme, influences other plans including those in a hierarchy.*

The flood maps produced as part of the CFRAM studies should be taken into account in strategic land use planning and development control to meet the requirements of the *Guidelines on Spatial Planning and Flood Risk Management* (DEHLG & OPW, 2009). Table 2 below contains a list of spatial planning documents that are relevant to flood risk management. plans at both regional and local level are likely to include recommendations from the studies.

Scale	Documents
National	<ul style="list-style-type: none"> <li>National Development Plan (2007-2011)</li> <li>National Spatial Strategy (2003)</li> </ul>
Regional	<ul style="list-style-type: none"> <li>Regional Planning Guidelines</li> <li>Regional Development Plans / Strategies</li> <li>Development Plans of participating Local Authorities</li> </ul>
Local	<ul style="list-style-type: none"> <li>Local Area Plans (LAPs)</li> <li>Non-statutory Area Action Plans (AAP's)</li> </ul>

Table 2 List of Spatial Planning Documents relevant to the CFRMPs

#### **4.1.3 CRITERIA NO.3**

*The relevance of the plan or programme, or modification to a plan or programme, for the integration of environmental considerations in particular with a view to promoting sustainable development.*

The flood risk management measures proposed for a particular CFRMP will be assessed against a range of criteria including Technical, Economic, Social and Environmental. The environmental criteria are made up of the following:

- Support the objectives of the WFD
- Minimise the risk of environmental pollution
- Avoid damage to, and where possible enhance, the flora and fauna of the catchment
- Avoid damage to, and where possible enhance, fisheries within the catchment
- Protect, and where possible enhance, landscape character and visual amenity within the catchment
- Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the catchment

By assessing the flood risk management objectives against these criteria the integration of environmental considerations in the plan will be achieved.

The flood maps produced, as part of the CFRAM studies should be taken into account in strategic land use planning and development control and will therefore contribute towards sustainable development.

#### **4.1.4 CRITERIA NO.4**

*Environmental problems relevant to the plan or programme, or modification to a plan or programme*

Some environmental problems relevant to the CFRMPs are likely to include water quality issues (groundwater and surface water), habitat degradation and loss, soil contamination, soil erosion and the spread of invasive species.

The CFRMPs will aim to manage flood risk in the study areas in a manner that is compatible with the continued protection of existing habitats and will support the objectives of the WFD with regard to Good Ecological Status/Potential (GES/GEP) of the water bodies within the study area.

#### **4.1.5 CRITERIA NO. 5**

*The relevance of the plan or programme, or modification to a plan or programme, for the implementation of European Union Legislation on the Environment (Plans linked to Waste-management or Water Protection)*

The CFRMPs will address the requirements of the European Union Directive on the Assessment and Management of Flood Risks (Directive 2007/60/EC). There is a strong link between this directive and the WFD and close liaison is underway with the RBD projects to ensure the CFRMPs facilitate the achievement of GES/GEP where appropriate and relevant to flood risk management.

### **4.2. CHARACTERISTICS OF THE EFFECTS AND OF THE AREA LIKELY TO BE AFFECTED HAVING REGARD TO**

#### **4.2.1 CRITERIA NO. 1**

*The probability, duration, frequency and reversibility of the effects*

The key objective of the CFRAM studies, and the CFRMPs produced through the Studies, is to recommend measures and policies that should be pursued in order to manage flood risk within the study areas in a sustainable and cost effective manner. An objective of the selection process of measures will promote the recommendation of those flood risk management measures that also have positive environmental and other broader effects. If negative effects are identified mitigation measures will be proposed to either avoid the negative effects, or (if this is not possible) to reduce the scale, duration and nature of the effects. Consequently it is expected that the effects on the environment will generally be positive and of a long-term nature, although some negative effects, particularly short-term, may arise.

#### **4.2.2 CRITERIA NO. 2**

*The cumulative nature of the effects*

For the reasons set out under Criteria 1 above, it is envisaged that the cumulative environmental effects will generally be positive. Producing the CFRMPs at catchment scale will allow the overall effects of the proposals to be considered collectively and will aid the identification of cumulative effects. As part of the SEA process the cumulative effects of the CFRMP in combination with the effects of other plans and programmes will also be examined.

#### **4.2.3 CRITERIA NO. 3**

##### ***The transboundary nature of the effects***

Most of the CFRMPs will have no national transboundary effects. However, a number of the CFRMPs, including some produced as part of the Shannon CFRAM, the North Western CFRAM and Neagh Bann CFRAM studies will cover catchments that cross over into Northern Ireland.

#### **4.2.4 CRITERIA NO. 4**

##### ***The risk to human health or the environment (e.g. due to accidents)***

It is the intended objective of the CFRAM studies to develop an economically, socially and environmentally appropriate long-term strategy for managing the flood risk. In the development of this long term strategy cognisance shall be taken of the results from the SEA process. It is therefore envisaged that CFRMPs will not pose any significant risk to the environment or human health.

#### **4.2.5 CRITERIA NO. 5**

##### ***The magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected)***

The area covered by each CFRMP will either be a catchment or a collection of smaller catchments and their associated coastal areas, and will typically be greater than 1000 km<sup>2</sup> in size. The measures proposed by the CFRMP will be assessed for at least four Spatial Scales of Assessment (SSAs) that will include:

- the Unit of Management (UoM)
- each Analysis Unit (AU). These are sub-catchments or coastal areas within the Unit of Management.
- Areas for Further Assessment (AFAs). These are communities with quantifiable flood risk and include towns, villages and areas where significant development is anticipated.
- Individual Risk Receptors (IRRs). These are essential infrastructure assets

It is envisaged that the non-structural measures (e.g. public awareness, flood forecasting and warning systems) will be applied at the UoM and AU spatial scales and are unlikely to have any direct environmental impacts.

The structural measures are likely to be applied at the AFA and IRR spatial scales. The magnitude and spatial extent of the effects of these measures is difficult to assess at this stage, however given

that they will be applied in towns and villages it is envisaged that they have a beneficial effect for large sections of the population.

#### **4.2.6 CRITERIA NO. 6**

***The value and vulnerability of the area likely to be affected due to:***

*a) special natural characteristics or cultural heritage*

There are a number of Natura 2000 sites and NHA's within each CFRAM study area. There are also numerous cultural heritage sites and features listed on the Records of Monuments and Places. The intention of the CFRMPs is to avoid damage and where possible enhance the Flora and Fauna and to avoid damage to or loss of features of Cultural Heritage. It is difficult to determine potential effects on specific areas at this stage, however, it is recognised that there is potential for some effects, which will be fully investigated as part of the SEA process. Screening for Appropriate Assessment (AA) will also be carried out and based on the finding of the screening assessment a detailed AA may be carried out. Therefore, consultations with the National Parks and Wildlife Service in the Department of Arts, Heritage and the Gaeltacht and other relevant environmental stakeholders will be carried out throughout the studies.

*b) exceeded environmental quality standards or limit values*

It is anticipated that the environmental quality standards or limit values will not be exceeded.

*c) intensive land-use*

The CFRMPs will not propose the intensification of existing land uses.

#### **4.2.7 CRITERIA NO. 7**

***The effects on areas or landscapes which have a recognised national, European Union or international protection status***

The CFRAM study areas include a range of areas or landscapes that have varying levels of protection under EU and National Law and in the various Development Plans for the Region. Determining potential effects on specific areas or landscapes is difficult at this early stage, however, the potential for effects cannot be ruled out.

## **5.0 PROPOSED TIMETABLE AND APPROACH FOR THE SEA PROCESS**

### **5.1. SUMMARY OF SEA PROCESS**

The Strategic Environmental Assessment (SEA) for each CFRMP will be undertaken in three main stages in parallel with the assessment of flood risk, identification of flood risk management options and development of the CFRMP:

**Stage 1:** Constraints and SEA scoping - will identify environmental constraints and opportunities to inform the identification of options and will establish the appraisal framework

**Stage 2:** Option appraisal - will use the appraisal framework to identify the potential strategic environmental impacts of all identified options

**Stage 3:** Strategic environmental assessment - will assess the environmental impacts of the identified preferred options and the actions required to mitigate and monitor these impacts.

### **5.2. STAGE 1 - CONSTRAINTS AND SEA SCOPING**

During the scoping stage large-scale changes with potential to significantly influence flood risk within the catchment over the next 100 years will be identified (e.g. climate changes, urban growth and large-scale land use changes).

The data collection exercise will include the collection of existing planning documentation and spatial data for the catchment. It will also identify predicted future trends over the 100 year planning horizon of the CFRMP.

Planning documentation includes international, national and local plans, and strategies relevant to the catchment and flood risk management. This includes:

- Spatial and development planning e.g. National Development Plan, National Spatial Strategy, Local Area Plans, local Area Action Plans.
- Sectoral plans e.g. County Infrastructure and Development Operational Plans, River Basin District Management Plans.
- Environmental plans e.g. National Biodiversity Plan, National and County Heritage Plans, Archaeology 2020 report.

Further documents are likely to be identified during consultations with stakeholders as the scoping stage progresses. These documents will also be reviewed and examined and the relevant policies and information contained within these will be incorporated into the study.

The collected information will be used to develop a framework of environmental objectives, targets and indicators and for the appraisal of the proposed flood risk management option. Table 3 below provides an example of an objective and associated sub-objectives, indicators and targets that could be used to form the appraisal framework.

Objective	Sub-Objective	Target	Indicator
To Protect and enhance cultural heritage features	To minimise adverse effects on undiscovered or buried archaeology	No detrimental effects to buried archaeology	Area and quality of potential archaeological assets threatened
	To protect designated archaeological and historic features within the floodplain	No Detrimental effects to National Monument and other designated features.	Number of National Monuments and other designated features protected from adverse effects of flooding

*Table 3 Example of an objective and associated sub-objectives, indicators and targets to be used to form the appraisal framework.*

Environmental authorities (as defined by the Regulations and the European Communities (Environmental Assessment of Certain Plans And Programmes) (Amendment) Regulations, 2011 (S.I 200 of 2011)), other statutory bodies and local organisations will have an opportunity to contribute to the identification of key issues and development of the objective frameworks by responding to consultation letters and attending a planned stakeholders workshop.

An Environmental Scoping report will be produced documenting the outcome of the scoping stage. This will report on the tasks completed during the scoping stage as described above. This report will be issued to the environmental authorities, other statutory bodies and local organisations involved in the scoping process for their review and comment. Members of the public will also have opportunities to comments on the Scoping report. If significant changes are required following this consultation, the report will be amended and re-issued.

### **5.3. STAGES 2 & 3**

Stage 1 as reported in the Scoping report, provides the basis for the subsequent stages of the SEA.

In Stage 2 (Optional appraisal) the key environmental constraints and opportunities identified within the catchment will guide the identification of appropriate flood risk management options. The appraisal framework will then be used to identify the preferred strategic options. The outcome of these assessments will be reported in the Preliminary Options Report.

Stage 3 (Strategic Environmental Assessment) will involve an assessment of the significant environmental effects of the preferred strategic options and the identification of mitigation and monitoring requirements. The outcome of this assessment will be reported in the SEA Environmental Report. This document along with the CFRMP will be issued to the environmental authorities, other statutory bodies and local organisations involved in the study for their review and comments. Copies will be made available to the public via the CFRAM study website and will be available to view at the Public Consultation Days. If significant changes to the draft CFRMP are required following this consultation, a “fast-track” SEA will be undertaken. A SEA statement will be published describing these changes together with a formal publication of the final CFRMP.

### **5.4. CONSULTATION**

A Steering Group comprising representatives from the senior management of all of the Local Authorities within the Study Area will be established and this group will meet approximately every six months. The Steering Group meetings will ensure that information on the overall direction and outputs of the study are communicated to the Local Authorities and will also provide a forum for the Local Authorities to provide input on the direction of the study and key findings from the study.

A Progress Group will also be set up. Members of the Progress Group will be nominated by the Steering Group and will be made up of representatives from some of the Local Authorities within the Study Area. This group will meet approximately every six weeks to provide advice on local issues, technical matters and the outputs from the study.

In addition, a number of statutory and non-statutory organisations have been identified as stakeholders for the CFRMP and SEA. This Stakeholder group is made up of the Environmental Authorities, Primary Stakeholders (Government Departments and County Councils) and Secondary Stakeholders (e.g. Non-governmental organisations). A stakeholder register will be established for each CFRAM Study and regularly reviewed to ensure that it remains up-to-date.



An extensive consultation programme has been developed with a number of workshop sessions being held at the following key stages in the course of the development of the CFRMPs and the SEA: -

- SEA Scoping Stage
- Draft Flood Map Preparation Stage
- FRM Objectives Stage
- Preliminary Option Report Stage
- Draft FRMP Stage

Members of the public, and other interested parties will also be consulted throughout the course of the CFRAM studies. Public open days will be held at the key stages listed above. Submissions and comments can be made through the study website which will be set up for each CFRAM study.

The consultation programme will help raise awareness and enable members of the public and stakeholders to participate in the decision-making processes, as appropriate.

## **6.0 CONCLUSIONS**

Following the screening process, where the context of the CFRMPs have been assessed against the screening check and the environmental significance criteria as set out in Schedule 1 of the Regulations it is clear that a full Strategic Environmental Assessment is required for the following reasons:

- The outcome of the Stage One screening check indicates that SEA is required.
- The CFRMPs will be carried out for areas typically greater than 1000 km<sup>2</sup> and collectively they will cover the entire landmass of the Republic of Ireland. The outcomes of the CFRMPs therefore have the potential to have a significant effect on the Environment. Carrying out SEAs will allow for the early consideration of environmental issues and the incorporation of these issues into the formulation of the recommendations for flood risk management within the CFRMPs.
- The CFRMPs will form a framework for future projects and allocation of resources concerning reduction of flooding risk.
- The CFRMPs will influence spatial plans at both regional and local level.

- The CFRMPs are likely to require an assessment under Article 6 of the EU Habitats Directive.

## 7.0 REFERENCES

DEHLG and OPW (2009) *The Planning System and Flood Risk Management - Guidelines for Local Authorities*.

Environmental Protection Agency (2003) *Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (2001-DS-EEP-2/5). Synthesis Report and associated Final Report*. Report prepared for the Environmental Protection Agency by ERM Environmental Resources Management Limited.

*European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004* (S.I. 435 of 2004).

*European Communities (Environmental Assessment of Certain Plans And Programmes) (Amendment) Regulations, 2011* (S.I. 200 of 2011).

*European Communities (Assessment And Management Of Flood Risks) Regulations 2010* (S.I. 122 of 2010)

EU, 2007. Directive 2007/60/EC on the Assessment and Management of Flood Risk. Official Journal of the European Communities L288 of 6<sup>th</sup> November 2007, p.27.

EU, 2000. Directive 2007/60/EC on the Assessment and Management of Flood Risk. Official Journal of the European Communities L327 of 22<sup>nd</sup> December 2000, p.1-73.

## **Appendix A**

### **DECISION TREE**

## Pre Screening Decision Tree

TITLE OF PLAN / POLICY:- Catchment Flood Risk Assessment and Management Plan (CFRMP) 2015-2021

### Reason for Answer

Question No.1

Is the Plan / Programme subject to preparation and or adoption by a National, Regional or Local Authority ?  
OR  
Prepare by an Authority for adoption through Legislative procedure by Parliament of Government (Art 2(a))

Yes YES  
No

Proceed to Question No. 2

SEA Not Required

The Office of Public Works is the lead agency (National Authority) with responsibility for flooding, therefore, the answer to this question is YES

Question No. 2

Is the Plan / Programme required by legislative, regulatory or administrative provisions ? (Art 2(a))

Yes YES  
No

Proceed to Question No. 3

SEA Not Required

The CFRMPs are being prepared to address S.I. 122 of 2010 and current Government policy for the management of flood risk  
Therefore, the answer to this question is YES

Question No. 3

Is the sole purpose of the Plan / Programme to serve national defence of civil emergency or is it a financial/budget Plan / Programme or is it co-financed by the current Structural Fund / Regional Development Fund programme ? (Art 3(8)+3(9))

Yes  
No NO

SEA Not Required

Proceed to Question No. 4

The purpose of the CFRMP is to recommend a strategy that to manage and reduce flood risk within the Study area  
Therefore, the answer to this question is NO

Question No. 4

Is the Plan / Programme for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecom, tourism, town and country planning or land use ? (Art 3(2a))

Yes YES  
No

Proceed to Question No. 5

The CFRMP falls within the category of water management.  
Therefore, the answer to this question is Yes

Question No. 5

Does the Plan / Programme provide a framework for development consent for projects listed in the EIA Directive ? (Art 3(4))

Yes YES  
No

Will it determine the use of small areas at local scale only and or minor modification of a Plan / Programme ? (Art 3(3))

Yes  
No NO

SEA Not Required

Is the Plan / Programme likely to have a significant effect on a Natura 2000 Site which leads to a requirement for Article 6 or & assessment ? (Art 3(2b))

Yes  
No

SEA Required  
Proceed to Stage 2

Does it provide a framework for development consent for projects ? (Art 3(4))

Yes  
No

SEA Maybe Required  
Proceed to Task 1.2

SEA Not Required

SEA Required  
Proceed to Stage 2

Outcome of Pre-Screening Process

The CFRMPs will potentially provide a framework for development consent for urban and/or rural development projects including flood relief or canalisation schemes. These projects are listed in Annex II (10b and 10e) of the EIA Directive.

Therefore, the answer to the first question is YES

The CFRMPs are being prepared for catchments typically greater than 1000 km<sup>2</sup> and are not minor modifications of P/Ps

Therefore, the answers to the second question is NO