



River Suir Flood Risk Management Plan SEA Scoping Report

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
BOD	Biochemical Oxygen Demand
CA	Contracting Authority
CFRAM	Catchment Flood Risk Assessment and Management
CFRAMS	Catchment Flood Risk Assessment and Management Study
CFRMP	Catchment Flood Risk Management Plan
COD	Chemical Oxygen Demand
DCMNR	Department of Communications Marine and Natural Resources
DOEHLG	Department of the Environment Heritage and Local Government
DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ERBD	Eastern River Basin District
ESB	Electricity Supply Board
ESBI	Electricity Supply Board International
EU	European Union
GES	Good Ecological Status
GSI	Geological Survey of Ireland
HMWB	Heavily Modified Water Body
IPC	Integrated Pollution Control
IWT	Irish Wildlife Trust
KCC	Kilkenny County Council
LCC	Limerick County Council
NHA/pNHA	Natural Heritage Area/proposed Natural Heritage Area
NPWS	National Parks and Wildlife Service
NTCC	North Tipperary County Council
OPW	Office of Public Works
P/P	Plan/ Programme
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protected Areas
STCC	South Tipperary County Council
WCC	Waterford County Council
WCC	Waterford City Council
WFD	Water Framework Directive
WWTP	Waste Water Treatment Plant

NON TECHNICAL SUMMARY

The Office of Public Works and its partners North Tipperary County Council, South Tipperary County Council, Kilkenny County Council, Waterford County Council, Waterford City Council and Limerick County Council are currently completing a Flood Risk Assessment and Management Study for the River Suir Catchment, which incorporates the relevant areas of the counties listed above. The purpose of this study is to assess the spatial extent and degree of flood hazard and risk within the Suir Catchment, to examine the future pressures that could impact on this risk and to develop a long term strategy for managing the risk that is economically, socially and environmentally sustainable. The key output from the study will be flood hazard and risk maps and a “Catchment Flood Risk Management Plan” (CFRMP).

In accordance with EU regulations a Strategic Environmental Assessment (SEA) is being undertaken as part of the study running parallel with the development of the CFRMP. The objectives of the SEA are to consider the environmental constraints, and opportunities, within the catchment, and to look at the environmental consequences of choosing one option relative to the impact of choosing a reasonable alternative option, at a strategic level.

The environmental scoping report is part of the SEA process. This report describes the environmental characteristics of the Suir Catchment and presents our initial understanding of key environmental issues within the catchment relating to flooding and its management. It then identifies a set of proposed environmental objectives from the study based on the key environmental issues. These environmental objectives will be used in the next stage of the study to (1) inform the identification and development of potential flood risk management options; (2) appraise the identified options and to outline the preferred strategic options. The proposed environmental objectives so far identified are set out below.

- Reduce flood risk to people, property and the environment;
- Protect human health, safety and employment by minimising the effects of flooding on key community services, sectors and infrastructure;
- Support the achievement of good ecological status/potential under the EU Water Framework Directive;
- Promote sustainable land use;
- Maintain and enhance where possible biodiversity, flora and fauna particularly at areas of designated environmental importance;
- Maintain and enhance where possible angling facilities;
- Protect and enhance where possible landscape and townscape character and visual amenity;
- Protect and enhance where possible features of archaeological and cultural heritage;
- Enhance public access through walkways and cycle paths;
- Promote the principles of sustainable development;
- Enhance natural functioning of the floodplain to achieve a diverse river profile; and
- Reduce vulnerability to the impacts of climate change and maintain flexibility for future responses.

An integral part of the SEA process is consultation with the public and all relevant stakeholders. The report gives a history of consultations which have occurred and outlines proposed future consultations.

1 INTRODUCTION

1.1 BACKGROUND

The River Suir has overflowed its banks on numerous occasions, particularly during times of extreme weather conditions, resulting in flooding of thousands of acres of land in the Suir Valley. The floods of 1968 in Thurles and more recently, November 2000, in the towns of Clonmel and Carrick-on-Suir caused extensive damage to properties and within the vicinity of the Suir.

The overriding purposes of the River Suir Catchment Flood Risk Assessment and Management Study (CFRAMS) are to assess the spatial extent and degree of flood hazard and risk within the Suir Catchment; to examine future pressures that could impact on flood risk and develop a long-term strategy for managing flood risk that is economically, socially and environmentally sustainable. The outcome of the CFRAMS will be a Catchment Flood Risk Management Plan (CFRMP). The extent of the Suir Catchment is shown in **Figure 1-1** below and in more detail in **Figure 1-1**, in Appendix A.

Figure 1-1: Suir Catchment



The study will focus primarily on developed areas subject to significant development pressure known to have experienced flooding in the past or believed to be at risk of flooding in the future. These Areas of Potential Significant Risk (APSRs) are shown on **Figure 1-2**, Appendix A and listed below:

- Ardfinnan
- Ballymacarbry
- Ballyporeen
- Bansha
- Borrisoleigh
- Cahir
- Carrick on- Suir
- Clogheen
- Clonmel (including Marfield and Knocklofty).
- Fethard
- Fiddown
- Golden

- Holycross
- Kilsheelan
- Mullinavat
- Newcastle
- Piltown
- Portlaw
- Templemore
- Thurles
- Tipperary Town
- Waterford City.

Plate 1-1: Flooding Piltown APSR, 2004



1.2 STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

Strategic Environmental Assessment (SEA) is a process for evaluating, at the earliest appropriate stage, the environmental quality and consequences of Policy, Plan or Programme initiatives by statutory bodies. The purpose is to ensure that the environmental consequences of plans and programmes are assessed both during their preparation and prior to adoption. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed plan or programme and to be kept informed during the decision making process.

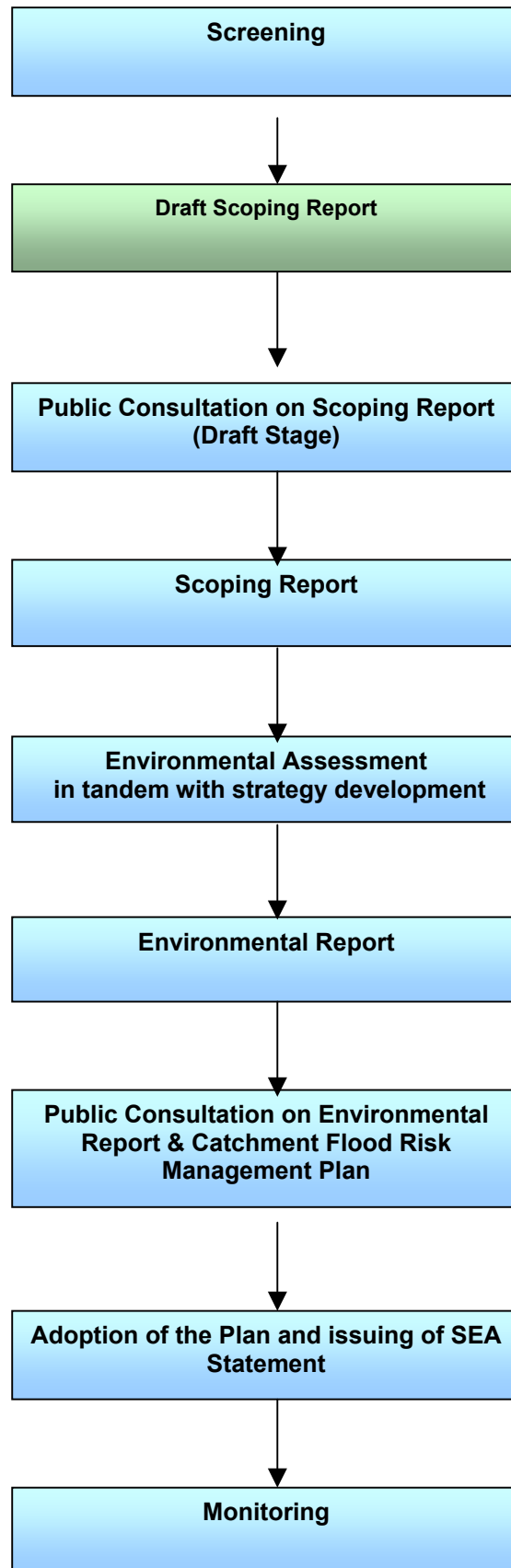
The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004). **Figure 1-3** shows an overview of the SEA Process.

Certain plans and programmes prepared by statutory bodies, and which are likely to have a significant impact on the environment, will now require an SEA to be carried out. As a result of SEA Regulations the OPW has requested the preparation of an SEA in tandem with the preparation of the Flood Risk Management Plan for the Suir Catchment.

The stages of the SEA are summarised in **Figure 1-3** and comprise the following:

- Screening of Plans and Programmes to establish whether they must undergo an SEA;
- Scoping Report;
- An Environmental Report - containing the findings of the Assessment on the likely significant effects on the environment of the Plan;
- Consultation on the Draft Plan and associated Environmental Report;
- An SEA Statement - identifying how environmental considerations and consultations have been integrated into the Final Plan; and
- Monitoring Programme.

Figure 1-3: SEA Stages



1.3 SCOPING AND THE SCOPING REPORT

1.3.1 Purpose of scoping

The purpose of scoping is to develop an understanding of the environmental parameters that may be affected by the key measures proposed by the plan, and to set a framework for identifying and evaluating the impact of these measures on these environmental parameters.

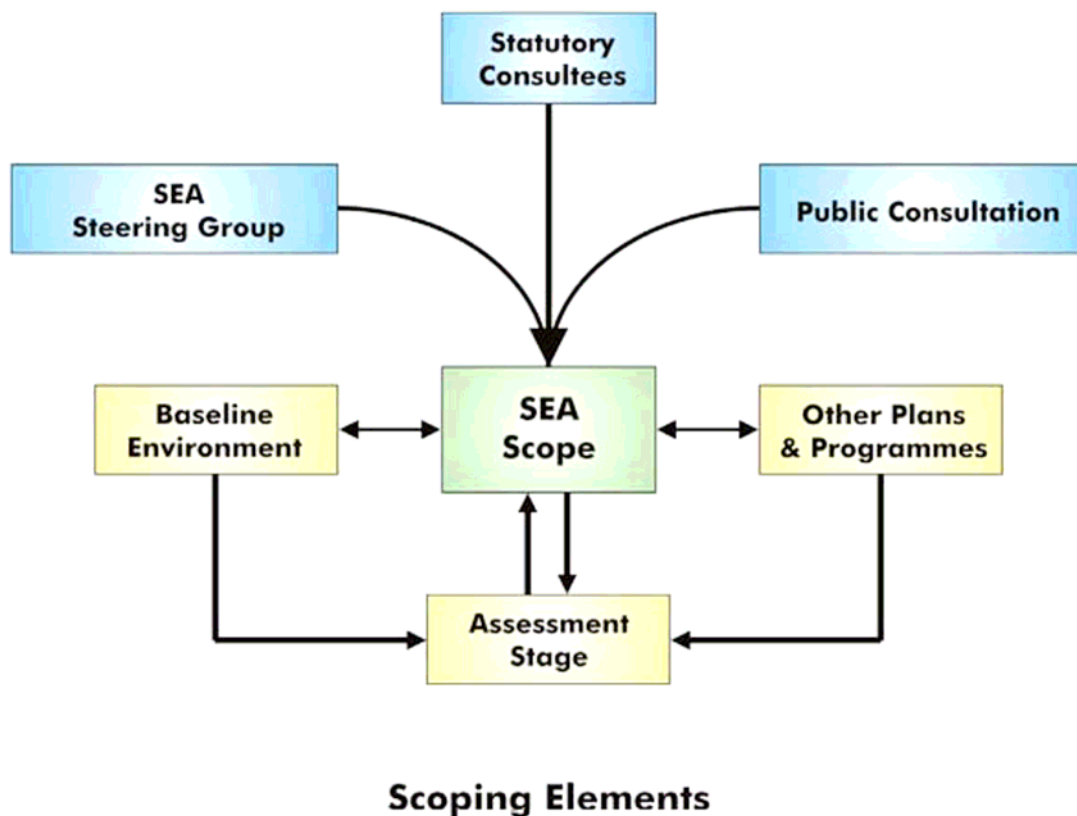
The aim of the scoping stage is to decide on the extent and level of detail to be included in the Environmental Report. This is done through consultations with the designated environmental authorities. The main stages in the scoping process are:

1. To determine the key goals and objectives of the plan that relate to the environment;
2. To determine the key environmental issues to be assessed;
3. To report on relevant international, national and local policies, plans and programmes that may influence the plan;
4. To develop environmental objectives, indicators and targets for the findings in stages 1 and 2 above; and
5. To identify reasonable alternative strategies of achieving the strategic goals of the plan.

1.3.2 The Scoping Process and Scoping Report

Figure 1-4 provides an overview of the process of the SEA Scoping Stage.

Figure 1-4: Stages of SEA Scoping



The Scoping Report forms the output from the statutory scoping process as required by Article 11(1) of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, S.I. 435 of 2004. The purpose of this report is to present the current understanding of the key environmental issues relating to flood risk and its management in the Suir Catchment and to inform the identification and assessment of possible flood risk management options at a strategic level. It also aims to generate comments from stakeholders on the scope and the SEA approach that has been adopted for the Suir CFRAMS.

Scoping is an iterative process, whereby the baseline information collated should influence the SEA, and vice versa, and the outcome of consultation should genuinely influence the SEA objectives and the scope of the assessment.

This report outlines our initial understanding of the Suir Catchment at the present time. This will develop as the project progresses and will be informed by the views and knowledge of external stakeholders and the general public by way of a series of consultations.

1.4 CONSULTATION

Under S.I. No. 435 of 2004, designated environmental authorities must be consulted in relation to the scope and level of detail to be included in the Environmental Report. The designated environmental authorities, as well as identified primary and secondary stakeholders were informed about the CFRAMS and the preparation of the SEA. This was done in the form of a letter and an information brief, which outlined the details of the CFRAMS and the SEA. The SEA stakeholders that were contacted are listed in **Table 1-1**. The stakeholders were requested to comment and/or submit relevant environmental information on the catchment. The comments received are presented in Appendix B.

The scoping report will be published on the OPW and Local Authorities (within the Suir Catchment) websites and a notice of this will be published in local newspapers. A copy of the scoping report will also be put on display in a public library of each relevant County Council (North Tipperary, South Tipperary, Waterford, Limerick, Cork and Kilkenny), including contact details so that interested parties can submit comments and feedback on the report. Comments and submissions received on the report will be reviewed and processed and applied to the SEA process, where relevant.

The Environmental Report will be issued for public consultation along with the Draft CFRMP and the public will have the opportunity to comment on both the strategy and the Environmental Report. Four public information days will be held at 4 different locations within the Suir Catchment Area. These consultations will be held to gather views about the preferred strategy and decide on any amendments prior to any implementing stage.

Table 1-1: SEA Stakeholders

SEA STAKEHOLDERS	
Environmental Authorities	Secondary Stakeholders
Environmental Protection Agency (EPA) Dept. of Environment Heritage & Local Government (DoEHLG) Dept. of Communications, Energy and Natural Resources (DCENR)	National Roads Authority (NRA) BirdWatch Ireland Iarnród Éireann Irish Creamery Milk Suppliers Landscape Alliance Ireland
Primary Stakeholders	Bat Conservation Ireland
Office of Public Works (OPW) South Tipperary Council North Tipperary Council Waterford City Council Waterford County Council Kilkenny County Council Limerick County Council Cork County Council South Tipperary County Development Board North Tipperary County Development Board Waterford City County Development Board Waterford County Development Board Kilkenny County Development Board South East Regional Authority River Basin District – South Eastern Region (ERBD) Eastern Region Fisheries Board (ERFB) National Parks and Wildlife Service (NPWS) Central Fisheries Board The Heritage Council Coastal Marine Resource Centre	Geological Survey of Ireland An Taisce, The national Trust for Ireland Waterways Ireland Irish Wildlife Trust Inland Waterways Association of Ireland Sustainable Water Network (SWAN) Coillte Teagasc Marine Institute Irish Farmers Association (IFA) National Safety Council Bord Failte Department of Agriculture, Fisheries and Food Department of Transport National Monuments Section, Dept of Environment BGE Distribution Transmission Business Unit ESB

1.5 INTERACTION WITH OTHER PLANS AND PROGRAMMES

The SEA Directive requires that the SEA process should include the review of other Plans/Programmes, which are related to the Plan/Programme being assessed i.e. the CFRMP. Any identified actions from this study will need to comply with relevant international and national legislation such as the Water Framework Directive (WFD) and the Habitats and Bird's Directives that stringently protect Special Areas of Conservation (SACs) and Special Protected Areas (SPAs) within the catchment. The requirements will be expressed in the environmental objectives. A preliminary list of relevant plans, programmes and policies and their objectives is given in Appendix C.

1.6 PUBLIC CONSULTATION

This report is a statement of our understanding of the catchment at the present time. This will develop as the project progresses and by views and knowledge of external stakeholder and the general public who are encouraged to provide feedback and input.

Accordingly, comments on the contents of this report are welcomed. This report along with a brief Non Technical Summary (NTS) are available on the websites of the OPWs (www.opw.ie) and participating Local Authorities.

All comments can be sent before the 12th of February 2010 either by email or to the consultants who are preparing this SEA.

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All comments received will be recorded and acknowledged and used to inform the future development of the study. This report will be formally issued to the E.P.A, DCENR and DoEHLG.

2 RIVER SUIR CATCHMENT FLOOD RISK MANAGEMENT PLAN

2.1 PLAN OBJECTIVES

Flood risk in Ireland has historically been addressed through the use of structural or engineered solutions to existing problems, such as the implementation of flood relief schemes to protect 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; and
- Increased use of non-structural flood impact mitigation measures.

Catchment Flood Risk Assessment and Management Studies (CFRAMS) and Catchment Flood Risk Management Plans (CFRMPS) are the core of this new national policy for flood risk management and the strategy for its implementation. These studies have been developed to meet the requirements, of the EU Directive on the assessment and management of flood risks which was adopted in October 2007 (the 'Floods Directive'). This directive currently awaits transposing into National Legislation.

The 'Floods Directive', which is aimed at reducing and managing flood-related risks to human health and life, the environment, cultural heritage, economic activity and infrastructure and links closely to the implementation of the Water Framework Directive, will require EU Member States to develop a preliminary Flood Risk Assessment including flood risk maps for all river basins/catchments.

North Tipperary County Council, South Tipperary County Council, Kilkenny County Council, Limerick County Council, Waterford County Council, Waterford City Council and the Office of Public Works (OPW) have identified the Suir Catchment as a pilot project due to existing flood risk. Furthermore the potential for increased future flood risk also exists due to drivers and pressures such as climate change and ongoing development in the area.

As a pilot project of the OPW's CFRAM Programme, the specific objectives of the Suir CFRAMS are to:-

- Assess the flood risk to the catchment as a whole body both now and in the future;
- Identify how future land use and climate change may increase the risk of flooding;
- Carry out a Strategic Environmental Assessment (SEA), to ensure that environmental issues and opportunities for enhancement are considered;
- Consider potential options to manage the flood risk including both structural and non structural measures;
- Develop an economically, socially and environmentally appropriate long-term strategy (Catchment Flood Risk Management Plan, CFRMP) to manage the flood risk and help ensure the safety and sustainability of communities in the Suir Catchment; and
- To comply with the requirements of the European Directive on the Assessment and Management of Flood Risk.

The following objectives of the Suir CFRAMS will help to produce the Catchment Flood Risk Management Plan (CFRMP);

- Collection and Analysis of data relevant to flooding within the study area;
- Identification and condition assessment of flood defence assets;
- Managing and undertaking surveys required for the assessment;
- Analysis of the hydrology of the River Suir Catchment;
- Hydraulic analysis of the main river channel and significant tributaries;
- Development of flood hazard and flood risk mapping;
- Development and appraisals of possible flood risk management measures and determination of an appropriate flood risk management options;
- Strategic Environmental Assessment to evaluate at the earliest possible stage the environmental constraints, opportunities, impacts and consequences which the plan may have; and
- Preparation of Suir CFRMP.

2.2 ENVIRONMENTAL OBJECTIVES

The environmental scoping report is part of the SEA process. The purpose of this report is to describe the environmental characteristics of the Suir Catchment and present our initial understanding of the key environmental issues relating to flood risk and its management within the catchment. It proposes a framework of draft environmental objectives to inform the identification and assessment of flood risk management options and subsequent selection of appropriate preferred options.

The main draft environmental objectives of the plan are;

- Reduce flood risk to people, property and the environment;
- Protect human health, safety and employment by minimising the effects of flooding on key community services, sectors and infrastructure;
- Support the achievement of good ecological status/potential under the EU Water Framework Directive; and
- Promote sustainable land use.

Other environmental objectives are listed below:

- Maintain and enhance where possible biodiversity, flora and fauna particularly at areas of designated environmental importance;
- Maintain and enhance where possible angling facilities;
- Protect and enhance where possible landscape and townscape character and visual amenity;
- Protect and enhance where possible features of archaeological and cultural heritage;

- Enhance public access through walkways and cycle paths;
- Promote the principles of sustainable development;
- Enhance natural functioning of the floodplain to achieve a diverse river profile; and
- Reduce vulnerability to the impacts of climate change and maintain flexibility for future responses.

2.3 STUDY LOCATION

The River Suir Catchment drains an area in the southeast of the county of approx. 3,520 km², which represents about 4% of the land area of Ireland. At 183km, the Suir is the second longest river in Ireland. It is a wide river ranging from 25-35m in its middle sections. The main channel of the Suir and its tributaries flow mainly through counties Tipperary, Kilkenny and Waterford which form part of the South Eastern River Basin District. Very small pockets of the catchment are within County Limerick and County Cork (See **Figure 2-1** in Appendix A: 'Main Populated Areas and Main Rivers').

The River Suir rises in the Devils Bit mountains near Moneygall (north of Templemore), and flows in a southerly direction until meeting the Knockmealdown mountain range where the river changes its course northwards. At Knocklofty, the River turns east passing north of the Comeragh Mountains and continues on through Waterford City until it enters the sea at Waterford Harbour. The river is tidal to a point upstream of Carrick-on-Suir.

There are a number of tributary sub-catchments of the main channel including those of the, Drish, Upper Clodiagh (Thurles), Multeen, Ara, Aherlow, Tar, Nier, Anner, Lingaun, Portlaw Clodiagh, Blackwater and a number of smaller tributaries including the Mall, Arglo, Fidaghta, Glenary and the Glen.

The dominant land use within the catchment is pasture with significant amounts of coniferous forestry; considerable areas of arable and peat bog are also present in. Forestry cover within the Suir is approximately 10% (Forest Service, 1998). Several of the Suir major sub-catchments (Aherlow and Tar) along with certain sections of the main channel are heavily forested.

2.4 FLOODING HISTORY

The most recent flood event within the Suir Catchment was in Waterford City on the 27th of October 2004, where a 40 year flood occurred due to a number of combining factors including; high spring tides, strong south easterly winds and persistent heavy rain. The flood event caused problems in the following areas of the city: The Quay, Tramore Road, Poleberry, Newtown Road, Waterside, Bath St Link Road and Tramore Road/Ivory Lodge.

The town of Clonmel suffered severe flooding during November 2000; peak flood levels came within 70mm of the highest recorded level of the 20th Century (1946) and surpassed the more recent severe floods of 1996 and 1997, by over 25mm.

The initial flooding occurred due to the overflowing of the Auk, the Whitening and Boulic stream (all tributaries) and followed by the Suir itself throughout the following two days. Over two hundred properties were seriously damaged, with a further 60 properties affected. Over 40 households were evacuated. The entire Old Bridge section of Clonmel was closed to traffic, along with the Dungarvan road, Waterford Road, Rasheen Road, the Quays, all three bridges and various other streets throughout the town. Flood events also occurred in 2004 and 2008. Plate 2-1 and 2-2 below provides an illustration of the extent of flooding in Clonmel during the 2004 and 2008 flood events.

Plate 2-1: Flooding on Convent Road, Clonmel 2004



Plate 2-2: Flooding Quay Street, Clonmel, 2008



The December 1968 flood in Clonmel was the worst in living memory. The flood frequency analysis undertaken on Hydrometric Station 16004, Thurles (the nearest station) indicated that the December 1968 flood has about a 40 year return period.

A flood study was carried out by E.G Pettit & Co for Clonmel Borough Council and the OPW. The report outlined a solution to the current flooding problem in Clonmel that involves work on the existing embankments and quay walls, flood relief measures as part of this scheme are currently in progress. Other flood relief schemes recently completed or underway within the Suir Catchment include:

- Carrick on Suir-Scheme completed;
- Waterford City-Scheme proposed; and
- Templemore- Scheme proposed.

Table 2-1 below provides an overview of some Flood Events within the Suir Catchment.

Table 2-1: Flood Events in the Suir Catchment

Area	Description of Flood Event	Year
Waterford City	<p>Waterford City suffered a 40year flood event in October 27th 2004. The flood occurred due to a number of combining factors including; high spring tides, strong south easterly winds and persistent heavy rain. The flood event caused problems in the following areas of the city:</p> <ul style="list-style-type: none"> • The Quay • Tramore Rd • Poleberry • Newtown Rd • Waterside • Bath St Link Rd • Tramore Rd/Ivory Lodge 	Oct 2004
South Tipperary	<p>The towns of Clonmel and Carrick on Shannon suffered severe flooding from 1.00pm on Sunday the 5th of November, 2000 until the morning of Wednesday 8th of November, 2000. Peak flood levels came within 70mm of the highest recorded level of this century i.e. 1946 and surpassed the more recent severe floods of 1996 and 1997, by over 25mm.</p> <p>The flooding extended over a wide geographical area of the County. In South Tipperary the river Suir overflowed its banks from Carrick-on-Suir through Kilsheelan, Clonmel, Newcastle, Ardfinnian to Cahir a distance of some 50km.</p> <p>In addition there was widespread flooding caused by the river Anner and other tributaries of the Suir bursting their banks.</p> <p>The flooding caused severe damage to the road infrastructure of the County including damage to bridges on the Glen of Aherlow and Clonmel Area, damage to the N76 at Nine Mile House where a landslide caused the road to be blocked. Private households and businesses suffered hardship and financial loss. Agricultural losses were high as thousands of hectares of prime farmland. Other impacts included school closures, absence from work and loss of business.</p> <p>A total of 184 properties were flooded; 132 residential and 52 commercial.</p>	November 5 th to November 8 th 2000
Clonmel	<p>The December 1968 flood in Clonmel was the worst in living memory. The flood frequency analysis undertaken on Hydrometric Station 16004, Thurles (the nearest station) indicated that the December 1968 flood has about a 40 year return period.</p>	December 1968

2.5 FLOOD RISK MANAGEMENT STRATEGIES

A number of generic flood risk management options were identified during the early stages of the CFRAMS. At this stage this list is not exhaustive and may be added to at a later stage. The implementation of any of these options could be subject to an Environmental Impact Assessment (EIA) and Habitats Directive (Appropriate) Assessment (HDA).

A flood risk management strategy can be either made up of non-structural ('soft' engineering) or structural ('hard' engineering) measures. A flood risk management option consists of one or a number of or a combination of flood risk management measures. **Table 2-2** summarises the potential, structural and non-structural flood risk management measures. The potential significant impacts, opportunities and constraints of each strategy are further discussed in Section 4.1.

Table 2-2: Possible Flood Risk Management Measures

Strategy	Description
Do Minimum	Current flood maintenance practices are kept but no further provisions are put in place. Maintenance of channel and existing defences.
More Proactive	Responding to potential breaches, management of set back, implementing of planning and development controls, inspections of culverts.
Non-Structural Options	
Land use Management, Planning & Development Control	<p>Zoning of land for flood development, prevention of incremental development etc in order to attenuate flood water with a view to reduce run-off. Introducing Building Regulations (regulations relating to floor levels, flood proofing, sustainable drainage systems and the prevention of reconstruction or redevelopment in flood risk areas). Protecting/flood proofing individual properties.</p> <ul style="list-style-type: none"> • Installation of flood forecasting and warning system; • Development of emergency flood response plans; • Targeted public awareness and preparedness campaign; • Individual property protection/flood resilience; • Land use change; and • Use of wetlands.
Structural Options	
New Storage	Constructing a new attenuation unit(s), adding flood plains.
Existing Reservoirs	Creating additional storage in existing reservoirs.
Defences	Raising existing or constructing new flood defences.
Channel Widening	Widening the river channel.
Altering Structures	<p>Underpinning or raising the soffits of bridges, modifying/removing weirs.</p> <p>Flow diversion in new channel.</p> <p>Relocation of properties.</p> <p>Overland flows (allowing flooding of roads in a controlled manner).</p>

3 EXISTING ENVIRONMENT

3.1 INTRODUCTION

Included in this Scoping Report is a preliminary discussion of the environmental baseline for the Suir Catchment. The preliminary baseline has been divided by topic into the issues requiring assessment under the SEA legislation. As the SEA is a desk based study the quantity of available information is variable, for example more data is generally available regarding the River Suir than there is for its tributaries. The data was gathered from various sources which are listed in Appendix D. This Scoping Report provides an opportunity for public feedback where the baseline environmental characteristics will be further expanded in the Environmental Report which will be prepared over the coming months.

Sections 3.2 to 3.9 below provides an overview of our understanding of the environmental characteristics of the catchment.

3.2 BIODIVERSITY, FLORA AND FAUNA

3.2.1 Habitats

The River Suir Catchment covers a large area of 3,546km², which represents approximately 4% of the land area of the island of Ireland. The catchment includes extensive lowland areas, particularly along the major river valleys such as those of the Suir, the Aherlow, the Multeen and the Anner; and upland areas including parts the Comeragh Mountains, the Knockmealdown Mountains and the Galtee Mountains, rising to an altitude of 919m at Galtymore. Bedrock includes large areas of Old Red Sandstones and Namurian Shales; Tournasian and Visean Carboniferous Limestones and also Ordovician Volcanics in the Commeraghs. With this large area, range of altitudes and diversity of rock types, the catchment will include a high diversity of terrestrial habitats.

The standard habitat classification in Ireland is the Heritage Council's *A Guide to Habitats in Ireland* (Fossitt, 2000). The guide classifies habitats at three levels. Level 1 lists habitats in very broad categories such as 'Freshwater' 'Woodland and scrub' and 'Coastland'; Level 2 subdivides these broad categories into general types, for example, 'Freshwater' in Level 1 is divided into 'Lakes and ponds', 'Watercourses', 'Springs' and 'Swamps' at Level 2; and Level 3 distinguishes individual habitat types such as 'Calcareous springs', 'non-calcareous springs', etc. It is considered highly likely that the Suir Catchment will include all of the Level 2 habitats with the exception of some of those listed under 'Coastland' in Level 1; and will include most habitats identified in Level 3, but again, excluding many coastal habitats.

The Suir Catchment includes 10 Natura 2000 site; one Special Protection Area and nine candidate Special Areas of Conservation (cSACs) and the majority of these are designated on the basis of the Habitats Directive Annex 1 (listed habitats that they support). Hence, the Suir Catchment as a whole will support a range of Annex 1 habitats. As a whole Ireland supports 60 Annex I habitats that require special conservation measures and, of these, 16 are priority types that are considered to be in danger of disappearance. The Appropriate Assessment prepared in conjunction with this Scoping Report will address impacts to Annex I habitats in more detail.

3.2.2 Designated Sites

Maps showing all of the Special Protected Area's (SPAs), candidate Special Area's of Conservation (cSACs) and proposed National Heritage Area's (pNHAs) in the Suir Catchment are presented in **Figure 3-1** and **Figure 3-2** in Appendix A. Table 3-1 provides an overview of the cSACs and SPAs.

European Designated sites i.e. SPAs and cSACs otherwise known as Natura 2000 sites are subject to Appropriate Assessment, for which a separate Screening Assessment has been prepared and accompanies this document in Appendix F. The purpose of Appropriate Assessment of plans or programmes is to ensure that protection of the integrity of European 'Natura 2000' (SPAs and cSACs) sites is included as an integral part of the process. By carrying out an Appropriate Assessment, the OPW also ensure that in adopting and implementing the Suir CFRAMS they are not likely to be in breach of the provisions of Articles 6(3) and 6(4) of the Habitats Directive. It should be noted that NHAs are site of national importance and do not fall within the remit of Natura 2000 sites and are therefore not subject to Appropriate Assessment.

Table 3-1: Designated SPAs and cSACs within the Suir Catchment

cSAC and SPAs	Site Code	County
Lower River Suir cSAC	002137	Tipperary, Waterford and Kilkenny
River Barrow and River Nore cSAC	002162	Kilkenny and Waterford
Hugginstown cSAC	000404	Kilkenny
Commeragh Mountains cSAC	001952	Waterford
Neir Valley Woodlands cSAC	000668	Waterford
Slievefelim to Silvermines Mountains SPA	004165	Tipperary
Kilduff, Devilsbit Mountain cSAC	000934	Tipperary
Moanmore Mountain cSAC	002257	Tipperary
Anglesey Road cSAC	002125	Tipperary
Galtee Mountains cSAC	000646	Tipperary, Limerick

Table 3-2 provides an overview of the pNHAs within the Suir Catchment, there are a total of 41 Natural Heritage Areas within the River Suir catchment. Natural Heritage Areas are designated under the Wildlife (Amendment) Act of 2000. The designation process is underway, including a consultation process with local landowners, but has not yet been completed for many of the sites. Of the sites listed in Table 3-2, only *Slievenamon Bog* NHA, Co Tipperary (site code 002388) is currently (Sept, 2009) listed as a fully designated NHA on the NPWS website (<http://www.npws.ie/en/ProtectedSites/NaturalHeritageAreasNHAs/>); the remainder are therefore best described as proposed Natural Heritage Areas (pNHAs) until such time as they appear on the website.

Both NHAs and pNHAs should be considered as sites of national biodiversity importance.

Table 3-2: Natural Heritage Areas Within the River Suir Catchment

Site Name	Site Code	County
Galtee Mountains	000646	Tipperary / Limerick
Bansha Wood	002043	Tipperary
Scaragh Wood	000971	Tipperary
Cahir Park Woodland	000947	Tipperary
Mitchelstown Caves	000651	Tipperary
Shanbally Wood	000972	Tipperary
Glenboy Wood	000952	Tipperary
Marfield Lake	001981	Tipperary
Templtney Quarry	001982	Tipperary
Slievenamon Bog	002388	Tipperary
River Suir Below Carrick-on-Suir	000655	Tipperary
Lizzy Smith's Bog	001980	Tipperary
Grove Wood	000954	Tipperary
Moneypark Fethard	000966	Tipperary

Site Name	Site Code	County
Power's Wood	000969	Tipperary
Rockwell College Lake	000970	Tipperary
Quarryford Bridge	001526	Tipperary
Knockroe Fox Covert	000964	Tipperary
Annacarty Wetlands	000639	Tipperary
Dundrum Sanctuary	000950	Tipperary
Aughnaglanny Valley	000948	Tipperary
Inchinsquillib and Downings Wood	000956	Tipperary
Ardmayle Pond	000945	Tipperary
Laffansbridge	000965	Tipperary
Killough Hill	000959	Tipperary
Cabragh Wetlands	001934	Tipperary
Templemore Wood	000942	Tipperary
Kilduff, Devilsbit Mountain	000934	Tipperary
Tiiberaghny Marshes	000411	Kilkenny
Grannyferry	000833	Kilkenny
Hugginstwon Fen	000404	Kilkenny
Lough Cullin	000406	Kilkenny
Fiddown Island	000402	Kilkenny / Waterford
Lower River Suir, Coolfinn, Portlaw	000399	Kilkenny / Waterford
King's Channel	001702	Waterford
Kilbarry Bog	001700	Waterford
Portlaw Woods	000669	Waterford
Comeragh Mountains	001952	Waterford
Toor Wood	001708	Waterford
Nier Valley Woodlands	000668	Waterford
Kilsheelin Lake	001701	Waterford

3.2.3 Mammals

The River Suir Catchment covers a very large land area (3,546km²); a range of altitudes from sea level to 919m above sea level at Galtymore; and supports a diverse range of habitat types. As a result, most of Ireland's mammal species will be present within the catchment. Hayden and Harrington (2000) present maps of the distributions of Irish mammal species by 20km squares. A review of these maps indicates that the only protected terrestrial species not likely to be present within the catchment are the EU Habitats Directive Annex 2 species lesser horseshoe bat, which is restricted to western counties; and the red and Sika deers which are restricted to areas of the west, north and east. The range for the bat species *Nathusius' pipistrelle* presented by Hayden and Harrington (2000) is out of date and this species is now known from a number of sites within the Suir Catchment (Bat Conservation Ireland *pers. comm.*).

3.2.4 Breeding Birds

Due to the diverse range of habitats a large range of bird species will breed within the catchment including some species of high conservation concern. Lynas *et. al.*, (2007) have produced a 'red list' of bird species of high conservation concern in Ireland, and a number of species on this list are recorded by Gibbons *et. al.*, (1994) as breeding within the Suir catchment, including; Barn Owl, Curlew, Lapwing and Yellowhammer. In addition, species listed under Annex 1 of the EU Birds directive such as Kingfisher will breed within the catchment.

Special Protection Areas (SPAs) are designated under the EU Birds Directive for the conservation of rare birds species or for locations that support internationally important concentrations of birds. The Suir Catchment includes only one Special Protection Area (*Slievefelim to Silvermines Mountains* SPA, Co Tipperary), which is designated on the basis of its breeding population of the EU Birds Directive Annex 1 species Hen Harrier.

3.2.5 Non-Breeding (Wintering and Migrant) Birds

The Suir Catchment does not include any coastline other than the estuarine section of the River Suir, and this limits the number of wetland sites of importance to wintering wildfowl and waders.

The Irish Wetland Bird Survey (I-WeBS) is the scheme run jointly by BirdWatch Ireland and NPWS that monitors wintering waterbirds in Ireland. The survey runs from September to March each winter. Wetlands of all types and sizes are monitored, including estuaries, coastlines, bays, rivers, turloughs, lakes, streams and flooded fields. Data from the period 1994 to 2001 is summarised by Crowe (2005)¹ from which the data presented below is taken. IWeBS sites are categorized hierarchically as 'Internationally Important', 'Nationally Important', 'Other notable sites' and 'Other sites covered'. Table 3-3 lists all of the IWeBS sites within the River Suir Catchment that are considered 'Other Notable Sites' or higher.

Table 3-3: 'Notable' IWeBS sites within the River Suir Catchment

IWeBS Site Name	Importance Category	County	Location	Important Ornithological Features
River Suir Lower	Nationally Important	Co Kilkenny / Co Waterford	Covers the flood plain of the River Suir downstream of Carrick-on-Suir, between the confluences of the Clodiagh River and the Darrigal River.	Supports Nationally Important numbers of Graylag Goose, Golden Plover and Lapwing during the winter.
Cabragh Wetlands	Nationally Important	Co Tipperary	On the River Suir flood plain 4km downstream of Thurles.	Supports Nationally Important numbers of the duck species Shoveler and (in some years) Teal and significant populations of a number of other species of wildfowl during the winter.
River Suir Middle	Nationally Important	Co Tipperary	The flood plain of the River Suir from Ballymacusk (between Thurles and Cashel) south to Newcastle (10km SW of Clonmel).	Supports Nationally Important numbers of Golden Plover in winter and numbers of Whooper Swan that approach National Importance in some years.
Marfield Lake	Nationally Important	Co Tipperary	Western edge of Clonmel.	Supports Nationally Important numbers of the duck species Shoveler and significant populations of a number of other species of wildfowl during the winter.

¹ Crowe, O. (2005). Ireland's Wetlands and Their Waterbirds: Status and Distribution. BirdWatch Ireland, Co Wicklow.

IWeBS Site Name	Importance Category	County	Location	Important Ornithological Features
River Suir Upper	'Other Notable Site'	Co Tipperary	3km N of Thurles.	A variety of waterbirds and occasionally Nationally Important numbers of Golden Plover and Lapwing during the winter.

3.2.6 Fish

A fishery survey of the River Suir Catchment and Management Recommendations was prepared by the Regional Fisheries Board on behalf of the SE Region Fisheries Board in 2006. The major objective of the assessment was to establish the status of fish stocks in relation to the ecology of the Suir and its tributaries, and to use this data to generate focused management programmes. The Suir is recognised as a premier brown trout angling fishery and also a major salmon fishery. In 2005 the Suir was ranked as the 4th best salmonid river in Ireland, based on angling returns (CFB, 2006).

The following river catchments formed part of the survey; Upper Suir Catchment, Suir Main Channel Suir Lower Main Channel, Drish Catchment, Upper Clodiagh, Multeen River Catchment, Ara River Catchment, Aherlow River Catchment, Tar River System, Anner River Catchment, Lingaun River Catchment, Portlaw Clodiagh River System and Blackwater Catchment.

A summary of the overall system is provided below (the Environmental Report will review the sub-catchments in further detail).

3.2.6.1 Salmon Stocks

All the tributary catchments and the main channel itself, that were examined, supported some level of salmon fry and parr. Several sub-catchments were notably more important in the role of salmon production than others and included the Multeen system, the Owenbeg branch of the upper Clodiagh, the Anner, Lingaun, Nier and Arglo systems. Adult salmon were recorded along the Suir main channel from Ardfinnan to Clonmel.

3.2.6.2 Trout Stocks

The widespread distribution of salmon stocks recorded throughout the entire catchment was also noted for trout stock. All sub-catchments, as well as the main channel itself, showed good stocks of fry and parr while again the actual numbers recorded for individual sites surveyed varied greatly, reflecting the different types of habitats sampled. Of the four sites where no trout were found (2 on the Drish, 1 on the Anner and 1 on the Suir main channel) 2 can be attributed to poor water quality and two to unsuitable habitat type. The Anner, Drish, Tar and Clodiagh are all noted trout fisheries.

3.2.6.3 Other Fish Species

Nine other fish species were recorded during the course of the survey; pike (*Esox lucius*), perch (*Perca fluviatilis*), roach (*Rutilus rutilus*), flounder (*Pleuronectes flesus*), minnow (*Phoxinus phoxinus*), 3 spined stickleback (*Gasrerosteus aculeatus*), lamprey- brook/river (*Lampertra planeri/ fluviatilis*), stoneloach (*Barbatula barbatula*) and gudgeon (*Gobio gobio*). Of these only 3 showed signs of widespread distribution and included lamprey, stickleback and stoneloach.

Fish populations are protected and supplemented through routine Eastern and South Eastern Regional Fisheries Boards (ERBD) fisheries management measures, in addition to annual stocking by local angling groups. There are a number of local angling groups within the catchment which have a special interest in the river including; Rinnashark Sea Angling Club, Waterford and District Coarse Angling Club, Cappoquin Salmon and Trout Anglers Association, Waterford and District Coarse Angling Club and Tramore/Waterford Sea Angling Club.

3.2.6.4 Protected Fish Species

A number of fish species listed under Annex 2 of the EU Habitats Directive occur within the Suir catchment. These include Atlantic salmon (see above). All three lamprey species: sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and brook lamprey (*Lampetra planeri*), which are likely to occur throughout much of the catchment. Allis shad (*Alosa alosa*) and Twaite shad (*Alosa fallax fallax*) which occur in Waterford Harbour and tidal sections of the lower River Suir at least as far upstream as Carrick-on-Suir (see: <http://www.npws.ie/en/media/Media,6272,en.pdf>).

3.2.7 Designated Salmonid Water

The Aherlow River is a designated Salmonid Water under the EU Freshwater Fish Directive.

3.2.8 Protected Invertebrates:

3.2.8.1 Freshwater Pearl Mussel

There is one sub-catchment the Clodiagh² sub-catchment within the River Suir Catchment for which NPWS have prepared a Freshwater Pearl Mussel Management Plan. The Clodiagh³ sub-catchment lies in the southeastern part of the Suir Catchment and is designated for Freshwater Pearl Mussel populations and for which sub basin management plans have been prepared (see **Figure 3-3**).

A full baseline survey of the Clodiagh River was undertaken and a monitoring programme initiated by NPWS in 2006 (Ross, 2006)⁴. The pearl mussel in the Clodiagh River was found to be present almost continually but in low numbers from Clonea to Portlaw. Pearl mussels were not found to be abundant in any stretch; density category levels were either occasional or frequent to common. The maximum density was just 3/m². No juvenile mussels were observed during the survey, with no juvenile recruitment and an aging adult population. If conditions to restore sustainable reproduction are not met, this population will be extinct following the death of this generation. Ross (2006) estimated a total population size of 2,412 individual mussels remaining, 97% of which are longer than 80mm in length. There are unlikely to be any living mussels present that are younger than 30 years of age.

3.2.8.2 White-clawed crayfish

This species, which is listed under Annex 2 of the EU Habitat Directive, occurs in watercourses widely throughout the Suir catchment, one of the main ones being the Multeen River.

² NPWS (2009). Freshwater Pearl Mussel *Draft* Clodiagh (Suir) Sub-Basin Management Plan.

³ NPWS (2009). Freshwater Pearl Mussel *Draft* Clodiagh (Suir) Sub-Basin Management Plan.

⁴ Ross, E. (2006). *Initiation of a monitoring program for the freshwater pearl mussel, Margaritifera margaritifera (L.) in the Clodiagh River (Clodiagh)*. Report for the National Parks and Wildlife Service, Dublin.

3.2.8.3 Vertigo Snails

None of the three species of *Vertigo* whorled-snails listed under Annex 2 of the EU Habitats Directive are known in the Suir catchment.

(see: <http://www.npws.ie/en/PublicationsLiterature/HabitatsDirectivereport07/Species/>)

3.2.8.4 Marsh Fritillary Butterfly

This butterfly species which is listed under Annex 2 of the EU Habitats Directive has populations in east Co Limerick and south Co Tipperary (10km Grid Squares R72, R73, R92, S03, S04, S15, S15, S25, see: <http://www.npws.ie/en/media/Media,5277,en.pdf>). The butterfly inhabits wet or marshy grassland which is rich in its foodplant Devil's-bit Scabious (*Succisa pratensis*).

3.2.9 Plants

The River Suir Catchment supports a diverse range of habitat types as a result, a large range of flora species will be present and this will include some species listed under the Flora (Protection) Order of 1999.

The Irish Red Data Book (Curtis and McGough, 1988) lists Ireland's rare and threatened vascular plant species by habitat type. Within the Suir Catchment, species listed under the Grassland, Wetland, Woodland and Artificial habitat groups are likely to be present. Flora (Protection) Order species known to have important populations in the Suir Catchment include Meadow Barley (*Hordeum secalinum*) along the Suir Estuary, and Northern Rock Rose (*Arabis (Cardaminopsis) petraea*) in the Galtee Mountains. Other Flora (Protection) Order species are likely to be present elsewhere in the Catchment.

3.2.10 Key Biodiversity, Flora and Fauna Issues Relating to Catchment Flood Risk Management

- Need to protect and where possible improve the conservation status of European and national designated sites (cSACs, SPAs, pNHAs, NHAs etc);
- Need to be fully informed of the potential for the river channel, banks and flood plain, to support legally protected species or those of high conservation concern and design flood management measures accordingly;
- Need to protect species and habitat areas of conservation concern within the Suir Catchment;
- Increased flooding, either naturally or intentionally, creates opportunities for the expansion of wetland habitat, both freshwater and estuarine, with benefits to associated habitats and species, provided water levels meet the requirements of local flora and fauna.
- Need to maintain natural channel form, where possible, for fisheries in all waters, including a diversity of habitats such as fast flowing riffles and deep pools;
- Need to maintain species and access for coarse fishing in the catchment and enhance where possible;
- Ensure no additional barriers to upstream migration area created to restrict access by salmon to their spawning grounds;

- Potential changes in estuarine (and coastal) processes due to flood risk management actions and resulting increased sedimentation could present risks to maintaining the quality standard for shellfisheries.

3.3 WATER

3.3.1 Introduction

The main channel of the Suir has been sub-divided by the Central Fisheries Board into three segments, reflecting the differences in terms of channel width, volume discharge and salmonid potential. These areas refer to the main channel from source to upstream of Thurles (Upper), the channel between Thurles and Ballycamus (Middle) and finally everything downstream of Ballycamus (Lower) (CFB, 2006).

3.3.1.1 Suir Upper Main Channel

The River Suir rises in the Devils Bit Mountain near Moneygall and flows in a southerly direction towards Templemore. A number of small streams feed the Suir in this section (including the Mall stream). The dominant geology type within the upper Suir Catchment is Carboniferous limestone and landuse is generally described as pasture. There are a number of sub catchments within the Suir Catchment these are depicted in **Figure 3-4**, in Appendix 1.

3.3.1.2 Suir Main Channel – Thurles to Ballycamus (middle reaches)

The channel in this section is a well noted trout fishery. In general the river is slow flowing with deep glide and pool areas (>2m in places) which are occasionally broken by short zones of faster flowing riffles.

3.3.1.3 Suir Lower Main Channel

This section comprises everything downstream of Ballycamus, to the Multeen confluence, through the Comeragh Mountains and continues on through Waterford City until it enters the sea at Waterford Harbour. The river is tidal to a point at the Salmon Weir upstream of “Old Bridge”. The dominant geology type is Carboniferous Limestone with lesser areas of Old Red Sandstone. Several of the major sub-catchments enter the main channel of the Suir within this section. These include the Multeen, the Aherlow/Ara, the Tar and the Nier Systems. While the surrounding land use within this section is mainly pasture there are four urban areas within the catchment, namely Golden, Cashel, Cahir and Clonmel. Landuse along the Suir Lower Main Channel contains a number of marshes including Kilbarry, Portlaw and Coolfinn Marshes. This area of the Suir is the most important section of the River for trout and salmon angling.

3.3.2 Drish Catchment

The Drish rises in the Slieve Ardagh Hills and flows in a northerly direction before turning southeast on its course to the River Suir, which it enters upstream of Turtulla Bridge. A number of small tributary streams feed into the Drish. The largest of these is formed by the confluence of the Black and Clover streams, which enters the Drish upstream of Athlumman bridge. The Drish is a reasonably slow flowing lowland river which drains a low-lying and relatively fertile catchment to the east of the Suir.

3.3.3 Upper Clodiagh

The Clodiagh rises in the Keeper Hill range at a height of 330m above sea level. It flows in an easterly direction for about 25km before turning to follow a southerly course until it enters the River Suir immediately upstream of Ballycamus Ford. The principle tributary streams include the Fishmoyne, Cromoge, Farneybridge and the Owenbeg. Each of these drain relatively large catchment areas and receive other small tributary systems. The headwaters of nearly all of these catchments are of high gradient and are, in general, unpolluted waters. From Rathcardan to its confluence with the Suir the Clodiagh meanders along a gently sloping valley. Large sections of the mid to lower reaches of the Cromoge and Farneybridge system also are slow flowing due to low gradient values.

3.3.4 Multeen River Catchment

The Multeen system has two main branches, the Multeen West and the Multeen East. These two rivers meet just 2km upstream of where the Multeen joins the Suir main channel. A number of small relatively fast flowing tributaries join the Multeen West, while the Multeen East receives one significant tributary, the Aughnaglanny River, which drains an area to the west of the branch.

The geology of the upper Multeen system is mainly Old Red Sandstone which changes to Lower Carboniferous limestone throughout much of the lower sections.

3.3.5 Ara River Catchment

The Ara River joins the Aherlow River before they enter the main channel of the Suir, it is a major tributary and, as such, is considered a sub-catchment itself. The dominant geology is Lower Carboniferous limestone. Long sections of this system were drained in the past. The river bed level was lowered significantly along many parts, such that the banks now fall steeply into the river, and some of the unfenced banks remain treeless and sparsely vegetated.

3.3.6 Aherlow River Catchment

The Aherlow river rise in the Galtee Mountains, and, for most of its course, flows through the valley formed between the Slievenamuck and the Galtee mountain range, known as the Glen of Aherlow. Old Red Sandstone is the main bedrock type in this catchment, with only the lower reaches of the river flowing over Lower Carboniferous limestone. The majority of the tributaries feeding the Aherlow (excluding the Ara flowing directly from the mountains on either side).

3.3.7 Tar River System

The Tar is a major tributary system to the Suir. It enters the main channel of the Suir from the west, 2km north of Newcastle. The catchment encompasses a number of important tributaries. The most significant of these include the Burncount, Shanbally and the Duag rivers. In general the Tar system is characterised by fast flowing clean waters with a river bed of cobbles and/or gravel.

3.3.8 Anner River Catchment

The Anner is one of the largest sub-catchments within the Suir Catchment. Rising in the Slieve Ardagh Hills its flows in a south-easterly direction to Kilvemnon (please check) then turns west and finally south to the River Suir which it enters 3km downstream of Clonmel. There are several tributary streams within this catchment. Those draining the Slieve Ardagh Hills are generally meandering and relatively slow flowing, while those from the Slievenamon are all short and torrential in flow. The Clashawley and the Moyle rivers are the most significant tributaries.

3.3.9 Lingaun Catchment

The Lingaun River rises on the slopes of Slievenamon and enters the River Suir downstream of Carrick-on-Suir. It receives a large number of small relatively fast flowing tributaries in its upper reaches. In the middle and lower reaches, where the gradient is lower, fewer tributaries are present. Geology of the upper system is sandstone, but changes to limestone as one moves downstream.

3.3.10 Portlaw Clodiagh River System

The Portlaw Clodiagh rises in the Comeragh Mountains. In its upper reaches the flow can be torrential. A few kilometres from its source the river follows a slow flowing meandering course. It finally joins the Suir River in its tidal reaches upstream of Waterford City. The geology of this catchment changes from the Silurian rocks of the Comeragh Mountains to sandstone formations in its lower reaches.

3.3.11 Blackwater Catchment

The Blackwater enters the Suir estuary from the north bank, west of Waterford City. The dominant geology type of the upper to mid reaches is Old Red Sandstone changing to limestone in the lower parts. Most of the surrounding area is used for pasture and heavy tree cover is present from the mid reaches downstream.

3.3.12 Water Quality

Water quality is determined through biological assessment of a water body by the EPA who then report in the form of a 'Q-Value' rating which indicates the relative proportions of the various organisms that have different pollution tolerances in a water sample; water quality is inferred by a comparison of this data with that which might be expected from an unpolluted habitat of the same type.

A water quality map of the Suir Catchment is presented in **Figure 3-5**; Surface Water Status in Appendix A where the data is taken from the Water Framework Directive website which bases its determination of water quality on the EPA Q-Values and is the most up to date data available. Overall the water quality of the River Suir Catchment ranges from Poor to Moderate with fewer areas of Good to High water quality.

All rivers, lakes, estuaries, coastal waters and groundwaters must achieve 'good ecological status' (GES) by 2015 under the terms of the EU Water Framework Directive (WFD). As part of the implementation of the WFD, Ireland has been divided into eight river basin districts. The study area falls largely within the South Eastern River Basin District (ERBD). The RBDs have recently developed a programme of measures to facilitate achievement of improving and protecting water quality and ecology and reaching these targets.

Table 3-4 provides a summary of the 2005 risk assessment for each of the water body types considered, e.g. river, lakes, coastal and transitional. Eighty-three percent of the river water bodies in the RBD (85.7% by area) were classified as At Risk or Probably At Risk. Some 58.3% of the lake water bodies in the RBD (77% by area) were classified as either At Risk or Probably at Risk. Within the RBD 85.7% of the transitional water bodies (98.9% by area) were classed as At Risk or Probably at Risk. Last, 66.7% of the coastal water bodies in the RBD (18% by area) were classified as either At Risk or Probably at Risk.

Table 3-4: River Water Bodies Risk Assessment Summary for SERBD

Reporting Category	Number of Waterbodies	% of Total	Km Affected	% Area of RBD
1a At Risk	297	45.3	2201.9	58.2
1b Probably at Risk	249	38	924.4	27.5
2a Probably not at Risk	75	11.5	425.4	9.8
2b Not at Risk	34	5.2	243.0	4.5
Total At Risk (1a and 1b)	546	83.3	3126.3	85.7

Figure 3-6 Surface Water Risk Assessment, in Appendix A provides a summary of the overall risk assessment within the Suir Catchment. Initial assessments of the Suir Catchment recorded on the Water Framework Directive website indicate that the majority of the catchment is either at risk or probably at risk of failing to meet this target. In particular areas around Carrick-on-Suir, Clonmel, Cahir, Tipperary Town, Thurles and Waterford City are at Risk.

Under the Water Framework Directive it is an objective to 'Restore' most water bodies within the Suir Catchment and 'Protect' all others which are predominantly situated to the south of Clonmel, Cahir and Thurles, to the north-west of Carrick-on-Suir and along the south western boundary of the Suir River Catchment. **Figure 3-7 Surface Water Objectives, in Appendix A** provides an overview of the Water Framework Directive Objectives for the Suir Catchment.

More specific data relating to rivers within each of the APSRs will be sought during future stages of this study. Significant pressures identified within the South Eastern RBD area include point and diffuse sources of pollution, physical modifications, abstractions, climate change, aquaculture and alien species.

Those water bodies within the study area requiring measures to address pressures due to physical modifications are most relevant to this study. Where these pressures are due to flood risk management actions, the DoEHLG are proposing new regulations for the consenting these freshwater and marine morphology activities (SERBD, 2009).

The WFD also identifies water related Protected Area within the study area, which may acquire the achievement of more stringent standards than GES/GEP to meet the requirement of other, related, EU Directives. Those within the study area include:-

- Natura 2000 sites (SPAs and cSACs, See Section 3.1 above).
- Bathing Waters: there are 3 protected bathing waters within close proximity to the Suir Catchment which may be indirectly affected through flood alleviation measures. These are the Duncannon and Dunmore East, Main and Counsellors Strands. The waters of the South Eastern RBD are used extensively for recreational activities, with the region being popular for fishing, sailing, windsurfing and surfing.

- Shellfish waters (Waterford Harbour).
- Nutrient Sensitive Areas (Suir Estuary Upper; River Suir downstream of Thurles sewage outfall to Twoford Bridge; and River Suir downstream of Clonmel sewage outfall to Coolnamuck Weir).
- Nitrate Vulnerable Zone, a Nitrates Action Programme has been prepared in accordance with Article 5 of the Nitrates Directive and is to be applied to the state as a whole (EU Nitrates Directive 91/676/EEC).

Both surface and groundwaters that support Protected Areas must enable the Protected Areas to achieve their stricter status standards. The whole Country of Ireland has been designated as a Protected Area for Groundwater (See Section 3.2.3 for further information on groundwater). Table 3-5 below provides an overview of some of the monitoring locations for the various catchments.

Table 3-5: Sample Summary of Water Quality of the Various Catchments

River Catchment	Waterbody Code	Overall Status	Overall Objective	Overall Risk
Suir	IE_SE_16_4181	Poor	Restore	1a At Risk
Drish	IE_SE_16_3521	Poor	Restore	1a At Risk
Anner	IE_SE_16_2342	Poor	Restore	1a At Risk
Lingaun	IE_SE_16_4197	Moderate	Restore	2A Probably not at Risk
Clodiagh Mid	IE_SE_16_1141	Moderate	Restore	1b Probably at Risk
Clodiagh Lower	IE_SE_16_3698	Moderate	Restore	1a At Risk
Clodiagh Upper	IE_SE_16_1236	Moderate	Restore	1b Probably at Risk
Tar	IE_SE_16_2532	Good	Protect	2b Not at Risk
Multeen	IE_SE_16_3825	Good	Protect	2b Not at Risk
Ara	IE_SE_16_2303	Moderate	Restore	1a At Risk
Aherlow	IE_SE_16_1178	Moderate	Restore	1a At Risk
Nier	IE_SE_16_1059	Good	Protect	2b Not at Risk

3.3.13 Groundwater

Under the Water Framework Directive groundwater has been classified on a system that combines chemical and quantitative status. In accordance with the Water Framework Directive, the Classification Schemes identify Status Classes, which indicate how much human activity has impacted on our waters, where groundwaters are classified as good or poor. Groundwater quality within the Suir Catchment is considered good with the exception of the area around Waterford City and the area around Ballingarry, which are both considered poor. It is an objective of the Water Framework Directive to restore areas of poor groundwater quality and protect areas of good water quality.

Most of the groundwater in the Suir Catchment is expected to achieve good ecological status by the WFD deadline of 2015. A map showing the catchments groundwater vulnerability is given in **Figure 3-8 Groundwater Vulnerability Map for the Suir Catchment** and a Map showing groundwaters at risk is presented in **Figure 3-9 Groundwater Risk Assessment** in Appendix A. Groundwater to the north of Thurles and in the environs of Waterford City is at risk of not achieving good ecological status by 2015. **Figure 3-10** shows the groundwater body types within the Suir Catchment, areas in the centre area considered “Karistic”, the area around Waterford City is considered “Productive Fissured Bedrock” to the south and “Poorly Productive” along the coast. The majority of County Tipperary is considered “Poorly Productive”. **Figure 3-11 Groundwater Objectives, in Appendix A** shows the Water Framework Directive objectives for groundwater for 2015. It is an objective of the WFD to protect all groundwaters within the Suir Catchment with the exception of groundwater surrounding Waterford City and to the south east of Thurles.

3.3.14 Drinking Water Quality

The European Communities (Drinking Water) Regulations (No.2), 2007 came into force in March 2007. In accordance with these regulations, the local authority must notify the EPA where there has been a failure to meet a quality standard. Table 3-9 presents information on the overall drinking water compliance rate within the various counties throughout Ireland, as recorded in the EPA (2008) report: *The Provision and Quality of Drinking Water in Ireland, a Report on the Years 2006-2007*. Table 3-6 provides a summary of the overall compliance records for the various counties within the Suir Catchment in 2007.

Table 3-6: Drinking Water Quality

County	Overall Compliance Rating
Waterford	Overall compliance rate of 94.2%. Below the national average, dropped marginally from 94.7% in 2005.
Waterford City	Overall compliance rate of 98.9%. Dropped slightly from 99.4%
North Tipperary	Overall compliance rate of 98.6%. Above the national average, decreased from 99.2%
South Tipperary	Overall compliance rate of 97.4%. Above the national average
Kilkenny	Overall compliance rate of 97.3%. Close to the national average, improved from 96.7%.
Limerick	Overall compliance rate of 96.6%. Below the national average, dropped from 98.6% in 2005

Risk of Cryptosporidium Contamination - Cryptosporidium is a protozoal parasite that causes a diarrhoeal illness in humans. Both humans and animals are potential receptors. Surface water supplies with inadequate treatment (chlorination only) are at risk of failing to remove Cryptosporidium oocysts in the treatment process if present in the raw water. An outbreak of Cryptosporidium occurred in County Waterford in December 2006. A total of 8 cases of the disease were reported and remedial action has been undertaken to reduce the likelihood of re-occurrence. A review of the counties within Ireland identified a number of plants in the Suir Catchment as having risk of Cryptosporidium contamination, if they are not upgraded (EPA, 2007). A number have been upgraded and work is ongoing.

3.3.15 Key Water Quality issues relating to Flood Risk Management

- Need to maintain adequate quality and quantity of drinking water;
- Need to achieve the requirements of the WFD, while at the same time achieve compliance with the Floods Directive. Strategic flood risk management options must not constrain the achievement of good ecological status and chemical status/potential for all water bodies by 2015;
- Flooding of WWTPs and IPPC facilities presents a pollution risk to receiving watercourses with associated impacts on human health, water quality and ecology;
- Strategic flood risk options should not pose a risk to existing licensed discharges and abstractions;
- Opportunities for harvesting water power for energy should be considered during the design of flood risk management options, where appropriate;
- Ensure water quality protection during channel maintenance, conveyance improvement, construction of schemes;

- Water impoundments-flood attenuation basin; and
- Proposed flood risk management measures must be compatible with any WFD requirements to restore the natural morphology of water bodies “at risk” due to structural alterations.

3.4 LANDSCAPE AND VISUAL AMENITY

3.4.1 Introduction

In terms of Landscape, townscapes and visual amenity, local authorities in Ireland conserve and protect scenic value as Areas of High Amenity, Areas of Outstanding Natural Beauty and Protected Views. Each local authority is responsible for the designation of these within their jurisdictions, with each Development Plan providing objectives to protect such views. Specific landscape features within the counties are often not listed within these plans, as such it is difficult to provide a list of these within this baseline. Therefore a summary description of the landscape character of each of the main counties in the Suir Catchment is described below.

3.4.2 County Waterford Landscape Character

The landscape of County Waterford is a valuable resource in that it sustains agriculture and fishing, forestry, mineral extraction and is the location of homes and communities, while providing the routes and corridors for vital infrastructure. Over time landscape will change in response to society’s evolving needs and uses. The Waterford City Local Area Plan area covers the rural agricultural hinterland from Kilmeaden to the City boundary along the route of the N25 and continues along the environs outside Waterford City extending eastward to Woodland Pill. The existing zoned settlements within the study area are Kilmeaden, Butlerstown, and Bawnfune. The study area can be described under 5 distinct landscape types; Valleys and River Environs, Exposed agricultural land above 50m, Mount Congreve Estate, Woodland and agricultural land. Two demesne landscapes occur within the study area, Mount Congreve and Whitfield Court. Ballycashin, Ballycanvan, River Suir are designated as Visually Vulnerable while Mount Congreve, Ballyhoo, Duagh, Ballinamona, Moanmintra, Kilcaragh are Sensitive landscapes. On the northern bank of the River Suir in Co. Kilkenny the waterway corridor is designated an Area of High Amenity and a protected view is listed from Granagh Castle SW towards the Comeraghs.

3.4.3 County Tipperary Landscape Character

The relatively large size of County Tipperary resulted in it being split into two “Ridings” in 1838. The Landscape of North Tipperary comprises the Nenagh plain to the west which is fringed by the Slievenamon Mountains to the south, the Arra Mountains to the southwest and the Devil’s Bit to the east, and is formed by rivers such as the Nenagh, Ollatrim and Ballintotty. The Landscape of South Tipperary is largely underlain by limestone with the higher terrain of the County composed of geological deposits dating from the Silurian and Devonian periods. Over the centuries the valleys and hills formed into rich peatlands, which occupy approximately 28,333 hectares (70,000 acres) or 13% of the total area of the County.

3.4.4 County Kilkenny Landscape Character

The landscape of County Kilkenny consists of direct access to the sea via Belview Port on the Suir Estuary and via New Ross on the River Barrow. The county has a highly fertile central plain with uplands in the northeast, the northwest and in the south. The land is well drained by its extensive river network. The River Nore bisects the county on a north/south axis. The Rivers Barrow and Suir are natural boundaries to the east and the south of the County respectively, and their estuaries converge at the extreme south east of the county.

Details of scenic routes within each of the counties is included in Appendix E.

3.4.5 Landuses

The majority of the Suir Catchment is rural in nature consisting of mixed forest and land occupied by agriculture (pasture and arable lands) and natural vegetation. Other landuses within the area include marshes at Portlaw, Kilbarry and Coolfinn.

Urban development is evident along old fording points along the river or in low-lying areas. The various land uses within the catchment can be seen in the Corine land use map in **Figure 3-12** in Appendix A.

3.4.6 Key Landuse, Landscape and Visual amenity issues relating to Flood Risk Management

- Flood risk management options need to be in keeping with the existing landscape character, whether protected or not, and the visual amenity of the catchment;
- Flood risk management options may present opportunities to enhance the existing landscape and/or townscape and landuse; and
- Future restrictions on development within areas at risk from flooding such as undeveloped river valleys, estuaries and the coastline may help protect the landscape character of, and views within and from, these important landscapes.

3.5 ARCHAEOLOGY AND CULTURAL HERITAGE

The Suir Catchment has a wealth of archaeology, architecture and cultural heritage. Evidence of its rich archaeological heritage is contained in the national Sites and Monuments Record (SMR), Recorded Monuments on the Records of Monuments and Places (RMP), and the Record of Protected Structures (RPS). These are presented in **Figure 3-13** in Appendix A, Designated Areas and Features of Cultural Heritage. Features include historic weirs, mills, bridges, forts, churches and castles many of which are located in close proximity to watercourses.

The main issue regarding cultural heritage is the potential for some possible flood risk management options to impact on unknown sites of cultural heritage and underwater archaeology. The ownership of land and weirs may become an issue if purchase/acquirement of these are required to carry out certain flood defence options. EIAs/EIS or AA for some options maybe required before implementation.

It should be noted that the archaeological heritage of the study area also encompasses unrecorded archaeological sites and historic landscapes in addition to the identified features. Much of the archaeological resource in the study area remains undiscovered or lies underwater in river and estuarine areas. River corridors are often archaeologically rich and are likely to result in discoveries should works be carried out within the river corridor.

3.5.1 Cultural Heritage issues relating to Flood Risk Management

- Any flood risk management structures proposed within rivers or tidal estuaries should take into consideration the potential for archaeological discoveries and the need to fulfil the requirements of the National Monuments Act 1930-2004.
- Specific impacts on individual features and further consideration of undiscovered archaeological resources will be addressed at the next stage of the study prior to or during the development of detailed projects requiring EIA.
- Potential positive affect of reducing the risk from flooding to existing cultural heritage features.
- Flood risk management measures should also ensure protection of the setting of areas of existing archaeological and architectural value e.g. ACAs, Protected Structures, National Monuments and Recorded Monuments.

3.6 MATERIAL ASSETS (DEVELOPMENT AND INFRASTRUCTURE)

3.6.1 Introduction

The assets at risk from flooding can be varied and include domestic residence, transport and public service infrastructure, public lighting, commercial and industrial enterprises and agricultural land. Therefore the implementation of the CFRMP will have a positive impact on material assets in the catchment. The damage to property from severe flood events can cause extensive material damage. As part of the Suir CFRAM Study proactive flood risk mapping will be developed. This mapping will be based on hydraulic modelling; the flood depth, extent and velocity for a number of flood flow events will be predicted. The maps will also show the extent of damage to property, industry and infrastructure that have occurred from extreme flood events. Flood maps showing extent, depth and flows for possible future flood events based on hydraulic model outputs from the CFRMP are being developed.

3.6.2 Transport

3.6.2.1 Roads

The study area is served by the following National Primary and National Secondary Roads/routes:

- N8: Cork – Portlaoise.
- N9: Waterford – Jn N7 Lewinstown.
- N24: Waterford – Limerick.
- N25: Rosslare Harbour – Cork.
- N29: Kilmurry Jn N25 – Belview Port.
- N62: Tipperary – Cashel.
- N74: Thurles – Cashel.
- N75: Thurles – Turnpike.
- N76: Clonmel – Kilkenny.

There are a large number of regional and local roads within the study area e.g. R670, R665 and R660. There are also two railway lines; the Waterford – Dublin line and the Waterford – Rosslare Harbour line.

3.6.3 Telecom and Infrastructure

RPS will consult with key telecommunication providers including Bord Gais Eireann, ESB Networks and local area engineer, once details of proposed flood relief options within the Areas of Potential Flood Risk are known.

3.6.4 Forestry

Forestry accounts for just over 10% of Ireland's land area, with an objective to expand cover to 17% over the next 30 years. Forestry cover within the Suir is approximately 10% (Forest Service, 1998). **Figure 3-14, in Appendix A** provides an overview of forestry cover within the Suir Catchment.

3.6.5 Water

There are 17 wastewater treatment plants within the Suir Catchment, most of which treat using primary and secondary measures. The majority of these WWTP discharge to rivers, however a few discharge to lakes, transitional and coastal waters. The locations of the WWTP within the catchment are shown on **Figure 3-15, in Appendix A**.

Abstractions within the catchment are taken from a mix of groundwater, lake and river sources and are used for both public and private water supplies. There are 111 known abstraction locations within the catchment and 31 water treatment works as shown on **Figure 3-15, in Appendix A**.

3.6.6 Waste

There are approximately nine open facilities with IPPC licences to discharge into the watercourses of the Suir Catchment. There are two landfill sites, the Suir Hardbog Landfill in South Tipperary and Kilbarry Landfill in County Waterford. There are 31 Section 4 sites within the Suir Catchment.

These sites may have the potential to be affected by flooding in the study area, with potential effects on water quality and the achievement of good ecological and chemical status of water bodies under the WFD. IPPC, Landfills and Section 4 sites are all depicted on **Figure 3-16 in Appendix A**.

3.6.7 Key Material Asset issues relating Flood Risk Management

- Forests can have both positive and negative impacts on the environment. Negative impacts are a largely related to poor management or to planting on unsuitable soils, with many of the current water problems associated with afforestation being a legacy of old practices, which have been subsequently amended. Many of these afforested areas are located in sensitive salmon and trout spawning catchments.

- Increased development including residential and industrial expansion continues to put pressures on existing water sources and results in an increased speed and volume of run-off, potentially changing the pattern, frequency and timing of flood flows, unless adequate measures are provided to offset these measures. There is a need to ensure that Flood impact assessments are undertaken for all developments that are likely to impact river levels.
- The current flood risk to existing development and infrastructure in the floodplain needs to be managed.
- Future development on the floodplain needs to be prevented or, as a minimum, loss of floodplain compensated for elsewhere. There is a need for a production of flood risk assessments and the enforcements of conditions.
- Critical infrastructure needs to be identified and protected from flood risk.

3.7 TOURISM AND RECREATION

The River Suir Catchment is a valued tourism and recreational resource. The resources vary from angling, kayaking, rowing, monastic sites along its banks, river valleys, planned settlements (e.g. Portlaw) and coastal estuaries. The catchment also enjoys a wide variety of landscapes, and therefore, has specific advantages in the tourism sector.

In particular, angling is a valued asset to the Suir Catchment. Together with the River Nore and the River Barrow, the river is one of the trio known as The Three Sisters which is Popular with anglers as it holds plentiful reserves of brown trout and salmon. The Suir is considered one of Europe's finest dry fly rivers for wild brown trout. For this reason, amongst others, the Suir Catchment is a valued tourism asset to the region.

The best of the salmon fishing is said to extend downstream from Ardfinnan towards Carrick-on-Suir (both of which are FRAM Priority Areas). The Suir has the distinction of having produced Ireland's record rod-caught salmon.

3.7.1 Key Tourism and Recreational issues relating to Flood Risk Management

- Existing angling and fishery resources need to be maintained, protected and enhanced, where possible.
- Existing watersports facilities need to be maintained, protected and enhanced, where possible.
- Opportunities for recreation (e.g. to improve access along river corridors and the shoreline and potential routes for footpaths and cycles routes), for tourism (e.g. developing wetlands and linear parks) and to promote sustainable leisure activities should be investigated where possible;
- Areas of floodplain used to store floodwaters could also be used for compatible public access and recreational activities when not in use; and
- Flood risk management actions could contribute to the protection of existing tourist attractions and facilities currently at risk from flooding.

3.8 POPULATION AND HUMAN HEALTH

3.8.1 Current Population Trends

The 2006 census indicated that the main counties within the Suir Catchment namely County Waterford, North Tipperary, South Tipperary and Kilkenny had a combined population of 344,763. The population and population growth figures of the relevant districts to this study are outlined in **Table 3-7** and **Figure 2-1**, in **Appendix 1** shows the main population centres within the Catchment. Current population figures were obtained from the central statistics office and the relevant county development plans. The CFRMP will designate areas along the river as natural floodplains and recommendations will be made to the planning authorities for the prevention of building on certain sites along the Suir.

Table 3-7: Population

County	1996 Population	2002 Population	% Change 1996-2002	2006 Population	% Change 2002-2006
Waterford	52,140	56,592	9.2	62,213	9.2
Waterford City	42,540	44,594	4.8	45,748	2.6
North Tipperary	58,021	61,010	5.2	66,023	8.2
South Tipperary	75,514	79,121	4.8	83,221	5.2
Kilkenny	75,336	80,339	6.6	87,558	9.0
Limerick	113,003	121,281	7.3	131,516	8.4
Cork	293,323	324,767	10.7	361,877	11.4

Reducing the risk of flooding will improve the population's quality of life by creating a more stable environment for them to live in.

3.8.2 Future Trends

Kilkenny, South Tipperary, Waterford and Waterford City (and also Carlow and Wexford, outside the study area) forms the South East Region within the National Spatial Strategy (NSS), and as part of the implementation of NSS, the DoEHLG sets population targets for each region with the aim of achieving balanced regional development. The DoEHLG Population Targets for the South-East Region in January 2009 are presented in Table 3-8:

Table 3-8: South East Regional Planning Guidelines Predictions

	2008	2010	2016	2022
South East	487,800	507,900	542,200	580,500- 596,500

Planning Regional Guidelines for the South East Region 2010-2022

Counties Clare, Limerick and North Tipperary, and the City of Limerick, form the Mid West Region. In January 2006, the DoEHLG published regional population targets to be used in the review of the guidelines, Table 3-9 below summarizes these targets in comparison with other work done by the Central Statistic Office (CSO) and previous regional guidelines.

Table 3-9: Mid West Regional Planning Predictions

	2008	2010	2016	2021 Low	2021 High
DOEHLG Jan 09	371,900	383,800	427200	462300	475000
CSO Dec 08	371,900	(389000)	416000	394,000	439000
CSO Dec 08 (no ext Migration)	371,900	373000	386000	394,000	403000
Current Mid-West Guidelines	371,900	-	-	375,000	400000
Previous DOEHLG Advice (06)	371,900	-	-	424,552	444,975

Regional Planning Guidelines Review 2010-2022, Feb 2009 (Mid West Regional Authority)

3.8.3 Human Health

The major hospitals located within the catchment are Waterford Regional Hospital, South Tipperary General Hospital Clonmel, Our Lady's Hospital Cashel and St Lukes Hospital Kilkenny. Other health care services within the catchment include nursing homes and health centres. These are numerous and well dispersed throughout the catchment, many of which are located in low-lying areas.

3.8.4 Key Issues Relating to Population and Human Health

There are numerous negative effects to population and human health associated with flooding. The depth and velocity of flood waters pose dangers to people who are forced to wade through them. They may hide other hazards for wading pedestrians, such as manhole openings where covers have been lifted by flood waters and floating debris (Lancaster *et al.*, 2004). Vehicles can be washed away which increases the potential for fatalities. The potential impacts from flooding have been outlined by Lancaster *et al.* (2004) under the headings of Direct Impacts and Indirect Impacts as follows:

Direct Impacts:

- Climate Change and urbanisation;
- Drowning, injuries and falls resulting from direct exposure to deep and/or flowing flood waters, lack of adequate warning and fast flowing water carrying debris.
- Respiratory disease, shock hypothermia and cardiac arrest may occur as a result of flooding.
- Contact with polluted waters and damp conditions can lead to wound infections, dermatitis, conjunctivitis, gastrointestinal illness, ear/nose/throat infections and the possibility of serious waterborne diseases.
- There could be contamination to water supply from combined sewer overflows. A disruption to services such as electricity, gas, public lighting and water could occur.
- Physical and emotional stress can occur due to loss of property, evacuation and disturbances as a result of injury.
- A growing population will potentially increase the numbers of people at risk from flooding.

Indirect Impacts

- Actions taken to manage flood risk may have impacts on both individuals and communities (disturbance during construction works).
- Changing trends in water use within the study area is leading to an increased demand for wastewater treatment and drinking water. As the availability of a drinking water supply is crucial for public health, future changes in flood-risk should ensure that there are no impacts on sources of drinking water for the local community.
- Possibility of waterborne infection as a result of damage to water supply and sewage systems.
- Access to healthcare services, evacuation plans and other emergency services (fire ambulance, communications, power etc) needs to be maintained during flood events.

3.9 AIR / CLIMATIC FACTORS

The Air Framework Directive deals with each Member State in terms of Zones and Agglomerations. For Ireland, four zones, A, B, C and D are defined in the Air Quality Regulations. The main areas defined in each zone are: Zone A: Dublin Conurbation, Zone B: Cork Conurbation, Zone C: Other Cities and Large Towns (comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee, Dundalk, Navan, Letterkenny, Celbridge, Newbridge, Mullingar and Balbriggan.) and Zone D: Rural Ireland, i.e. the remainder of the State excluding Zones A, B and C. The Suir Catchment is situated within Zone C (Waterford City) and Zone D (the remainder of the Catchment including monitoring stations at Clonmel and Kilkenny). Table 3-10 below provides an overview of air quality for Waterford City.

There are four EPA Air Monitoring Stations within the Suir Catchment at the following locations:

- Zone C-Waterford City at the Mall on Bolton Street;
- Zone D- Clonmel;
- Zone D- Kilkenny at Fire Station on Gaol Road; and
- Zone D- Kilkenny at Butts Green.

Current air quality monitoring results at these stations indicate that air quality is "Very Poor".

Table 3-10: Air Quality within Zone C – 2007 (EPA, Air Quality in Ireland 2007)

Annual Mean	SO ₂	Lead	NO ₂	Pm10
Waterford Zone C	4ug/m ³	0.034ug/m ³	184ug/m ³	254ug/m ³

(EPA, Air Quality in Ireland 2007)

Air quality will not be directly influenced or be affected by the recommendations of this Suir CFRAMS. Specific issues will be considered as part of the environmental assessment of any detailed projects arising from the CFRMP.

Future changes in climate and associated impacts on river flows and tide levels are likely to change the frequency, extent, distribution and pattern of flooding in the future. The Suir CFRAMS will estimate these changes, using best available research data and policy guidance, to determine the likely influence of future climate changes on flood risk in the Suir Catchment. The proposed strategies will consider climate change however, the implementation of these will not impact on climate directly and therefore climate will not be investigated further.

3.9.1 Key issues relating to Air and Climate

- Air quality within the study area is considered Poor within the vicinity of the Suir Catchment.
- Best available climate change predictions will be used to quantify potential changes in the short to long term and identify future impacts on flood risk.
- There is a recognized need to retain flexibility and adaptability within proposed CFRMP to adapt to unforeseen climate changes (in terms of temperature, storm surges, floods and droughts) and associated impacts including changes in sea level rise predictions.

3.10 SOIL, GEOLOGY AND LAND USE

3.10.1 Bedrock Geology

The dominant geology type for the catchment is Carboniferous limestone and Old Red Sandstone, with lesser areas of Silurian quartzite, rhyolites, shales and slate. The purer limestone formations contain areas that are karstified which are particularly evident in parts of the catchment south of Cashel. This type of geology is characterised by swallow holes, sinking streams and caves, with the result that the base flows can disappear completely in dry conditions for long stretches of the channel. Particularly good examples of this are evident in parts of the Moyle, Clashawley and Thonoge rivers. The bedrock geology of the catchment is seen in **Figure 3-17** in Appendix A.

3.10.2 Soils

From the EPA's ENVision website soil type can generally be described as comprising grey brown podzolics in the central Suir plain and acid brown earths from Clonmel to Waterford Harbour. While significant peat cover is found to the northwest, northeast, south and mountainous areas, with some brown podzolics changing to gleys also present (**See Figure 3-18** Subsoils, in Appendix A).

3.10.3 Key Issues Relating to Geology, Soils and Land Use

- Maintaining a significant area of land as pasture within the study area will be beneficial for managing run-off. The drainage of land for agriculture can influence runoff either directly by creating/widening drainage ditches or indirectly by reducing surface water infiltration.
- There may be opportunities for wetland habitat creation (and associated flood risk management benefits) on agricultural land, though any opportunities should be balanced with the potential loss of high grade agricultural land.
- Flooding of contaminated sites and potentially, landfills, present a pollution risk to adjacent watercourses with associated impacts on human health, water quality and ecology.

3.11 INTER-RELATIONSHIPS

In accordance with the SEA directive, the inter-relationship between the SEA environmental factors must be taken into account. **Table 3-11** highlights the inter-relationships between the SEA topics. The inter-relationships will be further analysed during the environmental appraisal of the various flood risk options.

Table 3-11: Potential Inter-Relationships between SEA aspects.

Biodiversity, Flora & Fauna								
Population & Human Health	√							
Soils/ Geology	√	√						
Water	√	√	√					
Air & Climatic	X	X	X	X				
Material Assets	√	√	√	√	X			
Cultural Heritage	√	√	√	√	X	√		
Landscape	√	√	√	√	X	√	√	
	Biodiversity, Flora and Fauna	Population and Human Health	Soils/ Geology	Water	Air and Climatic Factors	Material Assets	Cultural Heritage	Landscape

√ = interrelationship Anticipated X = no interrelationship anticipated

3.12 CONCLUSION/ SCOPING IN/OUT OF SEA ISSUES

At this stage it was possible to scope out air and noise as SEA issues as there will not be any likely significant environmental effects on these issues from the implementation of the possible key recommendations of the plan. The draft scoping report has considered whether the environmental effects (positive and negative) are likely to be significant. A summary of the conclusions are given in **Table 3-12** below.

Table 3-12: Scoping of SEA Issues

SEA Issues	Scoped In	Scoped Out	If Scoped Out Why	Summary of Potential Issue
Biodiversity, Flora, Fauna (including Fisheries)	Yes			<p>Need to protect and improve the conservation status of designated sites and habitats and species of conservation concern.</p> <p>Avoid disturbance to locally important habitats, species and ecological process.</p> <p>Protect ecological corridors.</p> <p>Protect existing fishery resources.</p> <p>Identify opportunities for improvements to fishing and angling.</p> <p>Avoid the creation of instream barriers to fish migration.</p>

SEA Issues	Scoped In	Scoped Out	If Scoped Out Why	Summary of Potential Issue
Water	Yes			Meet the objectives of the Water Framework Directive. Ensure flood risk management options do not affect licensed discharges and abstractions, including drinking water.
Land Use, Landscape and Visual	Yes			Avoid adverse impacts to visual amenity, landscape character and designated landscape. Seek opportunities for landscape enhancement.
Material Assets	Yes			Manage flood risk to/from existing and future development and infrastructure.
Population and Human Health	Yes			Reduce flood risk to people and property. Reduce potential impacts to water quality from run-off during floods.
Air and Noise		Yes	Recommendations of the Suir CFRAMS unlikely to have any direct impact on these.	
Soils and Geology	Yes			Beware of types of landuse and management which will influence flood risk. Explore opportunities for habitat creation.
Climate	Yes			Retain flexibility within proposed CFRAMS to adapt to unforeseen climate change.
Tourism and Recreation	Yes			Manage flood risk to recreational, tourist and amenity facilities and identify opportunities for improvement.
Cultural Heritage	Yes			Identify and manage flood risk to and impacts on known and unrecorded archaeological features. Explore opportunities for enhancement of the catchment's cultural heritage.

4 PLAN CONTEXT

4.1 INTERACTION WITH OTHER RELEVANT PLANS OR PROGRAMMES

As part of the SEA process the context of the Suir Catchment Flood Risk Management Plan (CFRMP) must be established with regard to other plans and programmes that have been adopted at the International, European and National Levels. In particular the interaction of the environmental protection objectives and standards included within these plans and programmes with the CFRMP requires consideration.

Appendix C summarises the findings of a review of environmental legislation, plan, policies and programmes adopted at International, European Community or Member State level, which would be expected to influence or be influenced by the CFRMP.

4.2 PLANNING HIERARCHY

The planning hierarchy must be considered when placing the CFRMP in the context of other adopted plans and programmes. Within Ireland the Planning and Development Act, 2000 has established a hierarchy in relation to planning as follows:

- National Development Plan (NDP);
- National Spatial Strategy (NSS);
- Regional Planning Guidelines;
- County, Borough and Urban District Development Plans; and
- Local Area Plans, Integrated Area Plans, Action Area Plans.

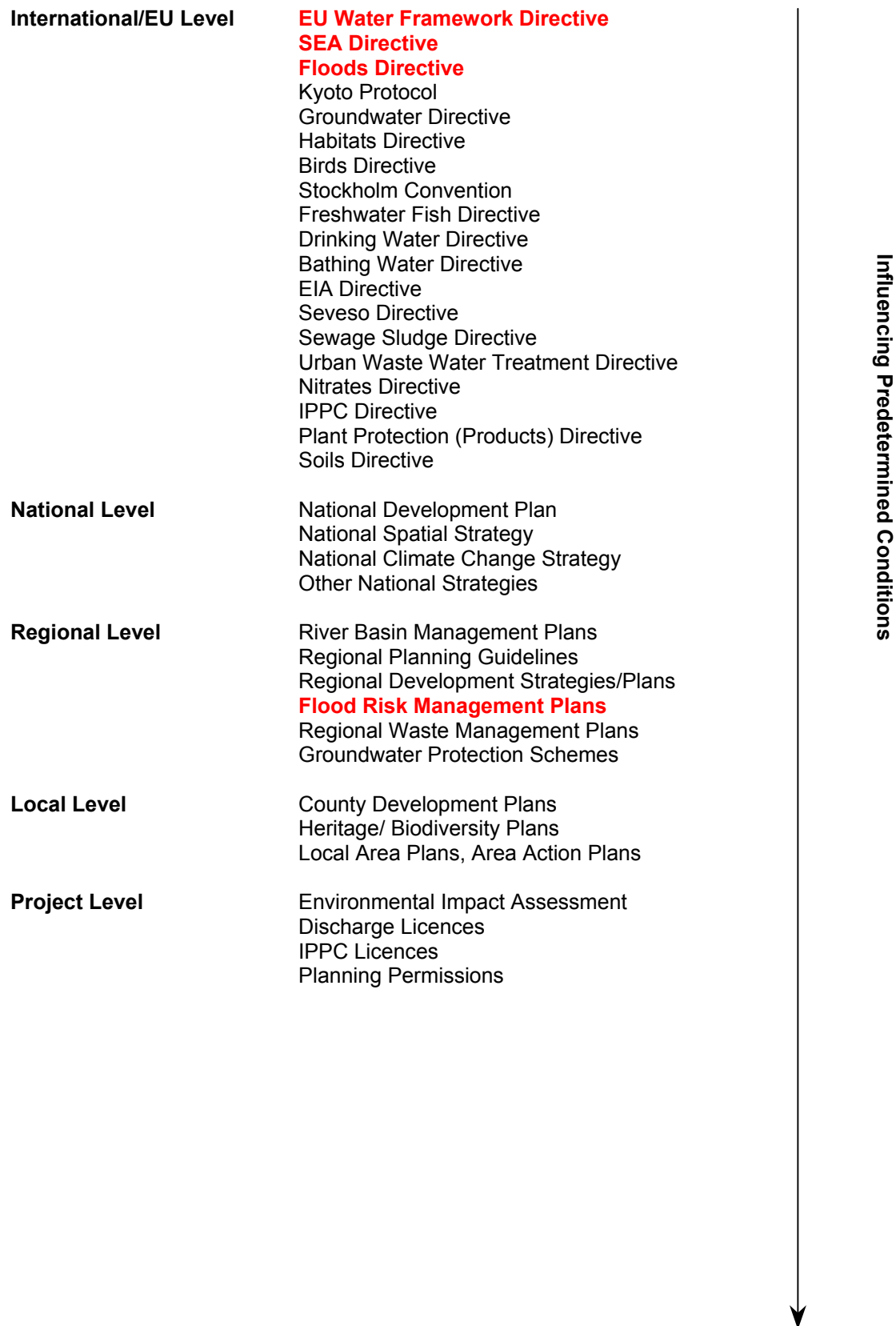
A draft Hierarchy of Plans and Programmes in which the CFRMP is placed in context is illustrated in **Figure 4-1**.

4.3 RELEVANT PLANS

In conjunction with this CFRMP Plan there are two other relevant Plans that are undergoing Strategic Environmental Assessment at present:

- South Tipperary County Development Plan 2009-2015.
- Waterford County Development Plan 2009-2015.
- Regional Planning Guidelines for the South East Region 2010-2022.
- The Clonmel and Environs Development Plan 2008.
- Strategic Environmental Assessment of the River Basin Management Plans (in particular the Eastern RBD).

Figure 4-1: Draft Hierarchy of Plans and Policies



5 ENVIRONMENTAL CONSIDERATIONS

5.1 INTRODUCTION

The environmental issues and the aspects of the environment that must be considered in the SEA process are identified in Schedule 2 of Article 12 of the Regulations and are listed in **Table 5-1**.

It is important to refine the scope of the SEA to gain an understanding of how many of these aspects and issues may potentially be impacted by activities arising from the implementation of the “recommended strategy” (which is effectively “The Plan”) in order to ensure key issues are focussed on at an early stage.

An initial broad assessment (see **Table 5-1**) of the likely significant effects of implementing the “recommended strategy” on each aspect of the environment has been carried out in order to identify the Primary and Secondary Key Issues on which to focus the SEA. These assessments are based on the likely magnitude of the impact and the sensitivity of the environmental aspect, national and international legislation and other relevant plans and programmes. An environmental objective against which the effectiveness of the implementation of the “recommended strategy” will be assessed is identified for each identified key issue.

Key issues and inspirational, environmental objectives as outlined in Table 6-1 may be revised following observations and submissions received on foot of the scoping consultation. Some preliminary key issues which may arise from the implementation of the various strategies of the CFRMP are outlined in **Table 5-1**.

Table 5-1: Preliminary Key Issues Arising From the Implementation of Key Strategies of the CFRMP

Option	Key Issues / Impacts
'DO MINIMUM'	
<p>This entails that no further flood defence works take place. The current management of current flood practices along the river would be kept in place. This option is used for comparing the various flood management options, in terms of their effectiveness, benefits and costs.</p> <p>Repair of breaches and continue of current management practices</p>	<p>Since no new flood measures would be put in place the negative impacts seen from previous flood events would continue to occur</p> <p>Climate change would further increases the risk of flooding</p> <p>Effectiveness of existing flood measures may gradually be rendered more and more ineffective.</p> <p>There would be an increase in impacts of flooding on safety and communities.</p> <p>Flooding can result in intermittent discharges from Combined Sewer Overflow (CSO's) and Surface Water Outfall (SWO'S) and storm tanks can lead to adverse affects on the quality of water in urban areas (Foundation of water Research, 1998). These impacts include; a reduction of dissolved Oxygen (DO) leading to degradation of dissolved Biochemical Oxygen Demand (BOD) and an increase in river concentrations of ammonia, bacteria, Chemical Oxygen Demand (COD) and suspended sediments as well as heavy metals and other toxic substances (Foundation of Water Research, 1998). If flood defence works are not put in place there is an increased risk of such adverse impacts occurring.</p> <p>If no flood defence measures are put in place then the likelihood of habitat loss from the inundation of flood waters is increased. The inundation of flood waters to wetlands can reduce their biodiversity (Foundation for Water Research, 1998). Flooding can reduce the level of dissolved oxygen (DO) in a river and aquatic vegetation can be sensitive to such changes (Foundation for Water Research, 1998)</p> <p>There would be considerable economic impacts through damage to infrastructure, industry and housing.</p> <p>Designated areas, recreational areas and public parks would be affected by increased flooding.</p>

Option	Key Issues / Impacts
STORAGE/ATTENUATION SCHEME	
<p>A regional storage attenuation scheme that would store run-off from the catchment. Offline storage may also be created which involves the creation of embankments which are designed to overtop at a certain level.</p>	<p>The insertion of an attenuation/storage scheme may allow flood defences to be lowered downstream by reducing the river flow downstream. This may have a negative effect on habitats downstream during drier spells.</p> <p>Change in landscape character and views along the river Economic implications may arise such as compensation to landowners Large amounts of land may be required and problems may arise with location.</p> <p>May be problems for fish movement created from on line storage. Significant biodiversity benefits could be gained by extending offline storage to the natural floodplain Habitats and fisheries may be created.</p>
EXISTING RESERVOIRS	
<p>Additional storage may be created in existing reservoirs.</p>	<p>May lead to problems with the water supply. May impact on the current biodiversity existing reservoir. Good weather forecasting would be essential. System of reservoir management for flood and drought conditions to be put in place.</p>
DEFENCES	
<p>This would involve raising existing or constructing new flood defences. Removal of existing culverts from tributaries.</p>	<p>May have negative impacts on water quality during the construction phase from potentially polluting material such as cement, concrete, diesel, hydraulic fluid or paint.</p> <p>Short term negative impacts on the surrounding ecology. Decrease the risk of flooding and have overall benefit human health, population and material assets Potential for habitat creation e.g. incorporation of artificial holts for otter populations.</p> <p>Positive effects for ecology by the removal of existing culverts, which would facilitate increased fish movements (WFD& GES, Geomorphology).</p>

Option	Key Issues / Impacts
CHANNEL WIDENING	
Widening and deepening of the river channel	<p>Destruction of river channel and bank habitats causing impacts to biodiversity and fisheries.</p> <p>Water quality problems during the construction phase including the potential release of contaminants</p> <p>Potential impacts on bridges, weirs and monuments adjacent to the river.</p> <p>Loss to visual and recreation facilities.</p> <p>Potential for habitat creation, e.g. including the incorporation of artificial holts for otter populations.</p> <p>Restrictions to construction work due to spatial restriction from nearby properties/private land.</p> <p>Creation of pools and riffles for fish.</p>
	Impacts on flow regime at times of medium and low flows.
ALTERING BRIDGES	
Bridges may create significant restrictions to flow during flood events. Bridges may get blocked with debris carried by flood waters. Modifications may involve the underpinning or raising the soffits on bridges, widening bridges, removal of central piers and removal of screens on tributaries.	<p>Disruption to road and traffic users during construction.</p> <p>Loss of heritage, dependant on the heritage value of the bridge.</p> <p>Loss of habitats; Bridge improvements and other maintenance works may displace bat habitats.</p> <p>Loss to visual and recreation facilities.</p> <p>Potential for habitat creation, roosts for bats.</p> <p>Possible disturbance to river during construction.</p> <p>Impacts to Protected Structures, National Monuments.</p> <p>Potential landscape and visual impacts.</p>
ALTERING WEIRS	
Weirs can increase the flow and reduce flooding in one section but may possibly increase the flow in another section. Alterations or removal of weirs may be identified as a key strategy in the CFRMP.	<p>Loss of heritage, dependent on the heritage value of the weir.</p> <p>Loss of habitats; weir alterations and other maintenance works may destroy habitats.</p> <p>Potential for habitat creation.</p>
	Problems may arise with the ownership of weirs within the catchment.
	Economic implications may arise such as compensation to landowners.

Option	Key Issues / Impacts
LAND-USE MANAGEMENT, PLANNING AND DEVELOPMENT CONTROL	
<p>Certain areas may be designated to be free from future planning, so as to increase infiltration and reduce run-off. The use of sustainable drainage systems to reduce run-off and increase infiltration in future developments. Access to the river for key maintenance works and increase in public amenity areas.</p>	<p>Increase to the use of green space as public amenity areas Potential to plant trees in areas designated free from planning and thus increasing habitats and biodiversity. New trees planted will be away from the riverbank. Decrease in run-off and hence a reduction in flooding. Construction of truck paths at key points along the river for river maintenance can be used as pedestrian/ cycle lanes when not in use. Potential for the creation of new pedestrian walk ways and cycle lanes.</p>

6 ENVIRONMENTAL OBJECTIVES, INDICATORS AND TARGETS

A set of environmental objectives, indicators and targets have been compiled for each of the Environmental Aspects identified as **KEY ISSUES**, against which the performance of the “recommended strategy” can be measured on an ongoing basis (see **Table 6-1**).

- The environmental objectives provide a benchmark “measure/indicator” against which the environmental effects of the Plan can be tested. They may often be similar to measures contained in the Plan or derived from objectives that may exist in other related Plans/Programmes (EPA, 2003).
- Environmental indicators provide a means of measuring the progress towards achieving the environmental objective over time (EPA, 2003).
- Targets refer to the desirable state in relation to each objective in quantifiable terms (EPA, 2003).

Objectives are identified for the following environmental aspects: biodiversity/flora and fauna, water, air/climatic factors, material assets/land-use, population and human health.

The main objective of the recommended strategy is the development of the Flood Risk Management Plan so as to put a strategy in place that can manage flood risk in the catchment. The main environmental objective is that the strategy will be implemented in such a manner as to avoid any significant detrimental impact on the environment. **Table 6-1** outlines the draft aspirational, objectives, indicators, and targets for each environmental aspect.

Table 6-1: Draft Environmental Objectives, Indicators and Targets

Environmental Aspect	Objective	Sub-objective	Indicator	Minimum Target	Aspirational Target
Biodiversity, Flora & Fauna	Maintain and improve biodiversity, flora and fauna particularly at designated areas of conservation	Avoid damage to, and where possible, improve, internationally and nationally designated sites of nature conservation importance	Reported loss or impairment of designated habitat and species due to construction and operational phases of the strategy	No significant negative impact or deterioration on designated habitats or species	Increase habitat diversity Improve conservation status of European sites
		Avoid damage to, and, where possible, improve habitats supporting legally protected species and other known species of conservation concern	Reported population sizes and/or areas of suitable habitat maintained or created for target species	No significant effect or deterioration on species richness and diversity	Increase in the population sizes of and/or extent of habitat supporting target species and habitats
		Protect existing riverine habitats, and where possible create new habitats, to maintain naturally functioning eco systems	Area of habitat protected created or restored	No change in area of habitat	Create new/restore areas of riverine habitats to enhance naturally functioning ecosystems
	Protect and where possible enhance fisheries within the catchment	Maintain existing, and where possible create new, habitat supporting salmonid fisheries	Area of suitable habitat supporting salmonid and other fisheries and number of upstream barriers	No net loss in suitable habitat for fisheries	Create new habitat supporting salmonid and other fisheries and improve access

Environmental Aspect	Objective	Sub-objective	Indicator	Minimum Target	Aspirational Target
		Maintain natural channel form for fisheries	Number of new barriers or obstructions to upstream migration constructed and/or modified due to flood risk management measures	No new upstream barriers or obstructions to fish passage	Improve existing upstream passage for fish
		Maintain, and where possible increase, existing waterside access for fishing	Length of waterside accessible for fishing	Maintain length of waterside accessible for fishing	Create new, or increase length of waterside access for fishing
		Ensure no adverse effects on shellfish waters or freshwater pearl mussel designations	Classification/designation of existing waters	No deterioration in existing classification	Improve existing classifications or create new classifications
Water	No adverse impact on achieving the objectives of the Water Framework Directive to achieve "good status" by 2015 in any water bodies influenced by the implementation of the Plan	Maintain existing and where possible restore natural fluvial processes in support of proposed measures under the WFD	Numbers of water bodies at risk of not achieving good ecological status	Water bodies potentially impacted by the development will meet requirements of Water Framework Directive	Improve the quality of water
				Provide no constraint to the achievement of good ecological status by the WFD deadline of 2015	Significant contribution to the achievement of good ecological status by 2015

Environmental Aspect	Objective	Sub-objective	Indicator	Minimum Target	Aspirational Target
Landscape & Visual Amenity	Protect and where possible enhance landscape character and visual amenity	Protect and where possible enhance , the character of designated Landscape Protection Zones within urban area	Compliance with landscape character objectives relevant to flood risk management for each county	No adverse changes in landscape character	Contribute to the amenity value and landscape value of sensitive landscape areas.
			Loss of public access and loss of public amenity areas	No loss to public amenity areas, public walk ways and cycle paths	Creation of additional public amenity areas, walkways and cycle paths
		Protect, and where possible enhance, views into/from important scenic areas and routes	Change in quality of existing scenic areas and routes	No adverse change in quality of views into/from existing scenic area/routes	Enhance change in quality of views into/from existing scenic area/routes
Population and Human Health	Protect public health, safety and employment	Protect people and property from adverse effects (physical, psychological and economic) of flooding where significant risk exists.	The number of people and properties at risk from flooding	Reduce the risk of injuries/fatalities and number of properties impacted from flooding	Number of people impacted 0 Number of properties impacted 0
		Protect key community services e.g. hospitals from adverse effects of flooding	The number of key services (e.g. hospitals, social services, schools, churches, retirement homes, infrastructure) at risk from flooding	No increase in key community services at risk from flooding. Or no increase in the risk of flooding to key community services	Number of community services effected 0

Environmental Aspect	Objective	Sub-objective	Indicator	Minimum Target	Aspirational Target
		Protect areas of significant employment from adverse effects of flooding and provide a secure environment for economic activity and development	Number of commercial businesses, industrial premises and jobs protected	No areas of significant employment at unacceptable risk from flooding	Number of community services effected 0
Material Assets	Protect Key Infrastructure	Reduce flood risk to key transport infrastructure and water related infrastructure	Length of road and rail infrastructure at risk from flooding	No increase in the length of road and rail infrastructure at risk from flooding	Reduce the risk to infrastructure from flooding
			Amount of services affected	No increase to the amount of services at risk to flooding	Reduce the risk to services from flooding
	Manage risk to agricultural land	Avoid negative impacts to agriculture	Area of agriculture at risk (based on Corine land use classes)	Not to increase any flooding risk	Risk to agricultural land reduced to 0
Tourism and Recreation	Avoid damage to and enhance, where possible, recreation and tourism	Avoid damage to significant visitor attractions and sporting and recreational resources	Number of attractions and recreational assets protected from flooding	No increase in number of assets at risk	Reduction in flood risk to attractions and recreational assets Increase in number of recreational and tourist assets due to flooding
	Avoid damage to angling a valued tourism asset	Maintain existing, and where possible create new, habitat supporting salmonid fisheries	Area of suitable habitat supporting salmonid and other fisheries and number of upstream barriers	No net loss in suitable habitat for fisheries	Create new habitat supporting salmonid and other fisheries and improve access

Environmental Aspect	Objective	Sub-objective	Indicator	Minimum Target	Aspirational Target
Cultural Heritage	Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the study area	Avoid damage to or loss of known protected buildings, structures and areas of cultural heritage importance, including their setting and heritage value, within the study area	Numbers and types of designated areas of architectural and archaeological importance (i.e. National Monuments, Recorded Monuments on the Record of Monuments and Places, sites on the Record of Protected Structures and Sites and Monuments Records and within Architectural Conservation Areas including their setting and heritage value, at risk from flooding	No damage to or loss of protected buildings, structures and features listed on the National Monuments Register, RMP, SMR, RPS and within ACAs, including their setting and heritage value, as a result of flood risk management measures; and/or No increase in flood risk for features sensitive to the impacts of flooding	Enhance the physical context and structure of water based heritage features; and/or Reduction in flood risk for features sensitive to the impacts of flooding

7 NEXT STEPS

A notice will be published announcing that the process of preparing the Suir Catchment Flood Risk Management Plan is commencing and that as part of the process a Strategic Environmental Assessment is being carried out. There will be a call for submissions as part of the notice.

This scoping report will be made available to view or download from the OPW website www.opw.ie from the 8th of January until the 12th of February 2010. Comments are invited on the scoping report either by email or post by the 12th of February to the consultants or the OPW whose details provided in Section 1.

An SEA workshop is to take place with the environmental stakeholders on Friday the 22nd of January. This workshop will discuss the key environmental issues and the implications of the implementation of possible flood risk management options.

Public consultation dates will take place at the following locations in January 2010 from 3pm to 8pm:

- Piltown - GAA Complex- Tuesday, 19th January.
- Clonmel- OPW Main Guard Building – Thursday, 21st January.
- Thurles- Library- The Source, Cathedral Street- Tuesday, 26th January.
- Waterford- Waterford Central Library, Lady Lane –Wednesday, 27th January.

Following receipt of submissions and consultation with the environmental authorities and the public the Plan and Environmental Assessment will be developed. The Environmental Report will report on the findings of the assessment. It will be made available to the public together with the Draft Plan.

Table 7-1 below demonstrates the anticipated timescales for the following phases of the SEA process.

Table 7-1: Next Steps

SEA Phase	Month
SEA Scoping Report Consultation	January 2009
Public Information Day on the Flood Risk Management Options	April 2010
Draft CFRMP and Environmental Report Consultation	January 2011- July 2011
SEA Statement	Nov 2011

The SEA Statement will:-

- Outline the Option or combination of options selected for taking into the statutory planning process;
- Outline the reasons for selection;
- Outline how environmental considerations have been taken into account in the selection process; and
- Outline monitoring measures to be implemented.

Scoping is a dynamic process and is expected to continue throughout the SEA process, up to the publication of the Environmental Report. The scoping report will be made publically available and will serve to continue to engage the wider public in the ongoing consultation process.

APPENDIX A

MAPS

APPENDIX B

RESPONSES TO SEA INFORMATION BRIEF

APPENDIX C

RELEVANT PLANS, POLICIES AND PROGRAMMES

APPENDIX D

DATA REGISTER

APPENDIX E

ADDITIONAL INFORMATION