

Digital Water - The Water Framework Directive data management and visualisation system



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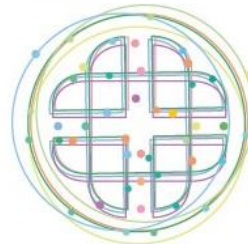
Topics

- Informatics Team Overview
- Water Framework Directive (WFD) Context
- WFD Application Outline
- Key Learnings & Outcomes
- Future Direction

Informatics Team Overview

- Environmental Data, GIS, Landcover, Applications Development
- Delivers a programme of change annually driven by EPA teams and key stakeholders
- Supports thousands of users – internal and external
- Open Data
- Delivers innovation

Ireland eGovernment Awards



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PUBLISHER

National Biodiversity Data Centre (116)

Marine Institute (106)

Environmental Protection Agency (62)

Geological Survey of Ireland (38)

Dublin City Council (34)

Department of Arts, Heritage and the Gaeltacht (32)

Water Framework Directive – what is it?

- aims to **improve our water environment**. It requires governments to take a new **holistic approach**
.....Member States must **aim to achieve good status** in all waters and must ensure that status does not deteriorate in any waters.

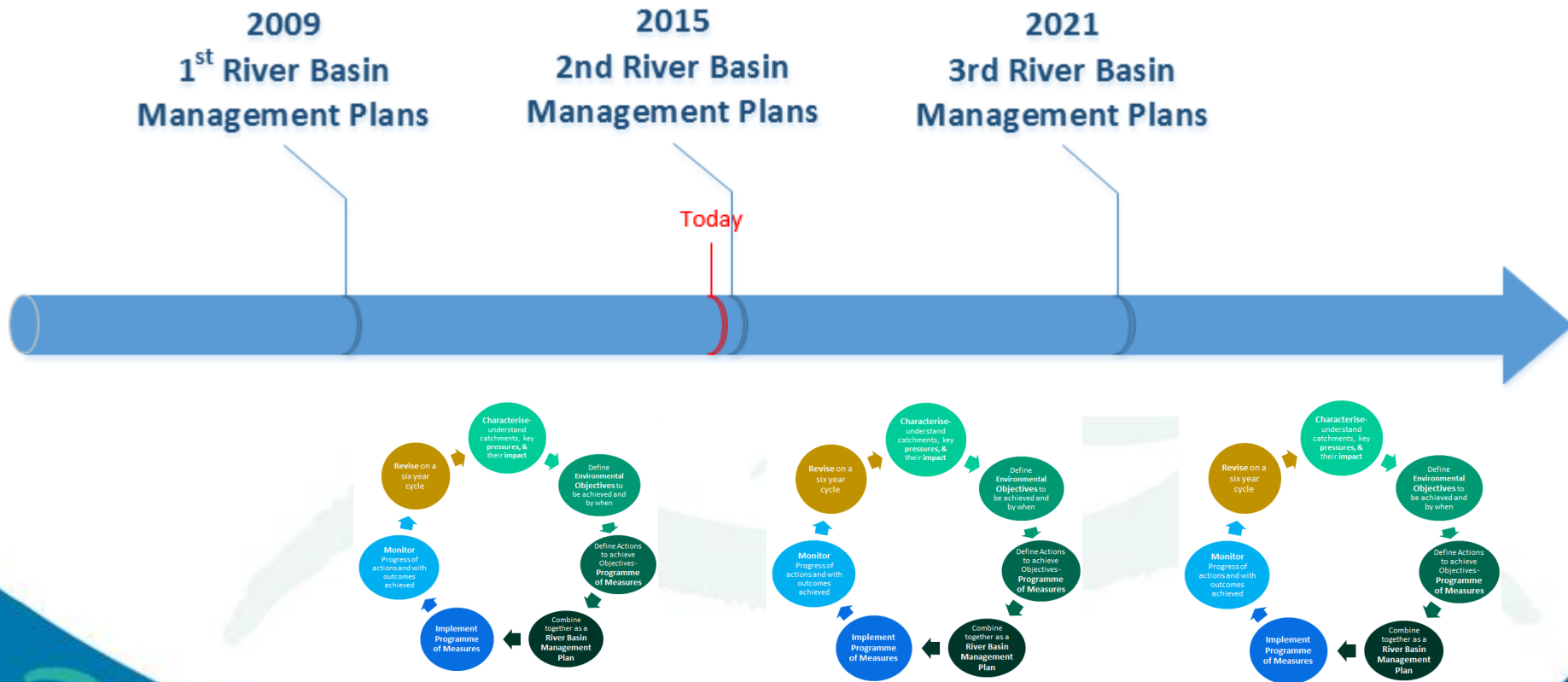
In any case, we need to.....

- Manage likely impacts of population increases
- Manage likely impacts of increases in agricultural production
- Maintain our green credentials
- Contribute to a healthy Ireland

WFD Cycle in a Nutshell



WFD – River Basin Planning Cycles



Learnings from WFD Cycle 1

- Consultant led process
- Loss of knowledge and expertise
- National perspective not considered early enough
- Lack of data standards
- Inconsistent approach to measures
- No longterm tracking of implementation

WFD Cycle 2 – Governance Arrangements

Tier 1 – National Management & Oversight

- Led by DECLG
- Policy, regulations and resources
- Sign off on River Basin Management Plans

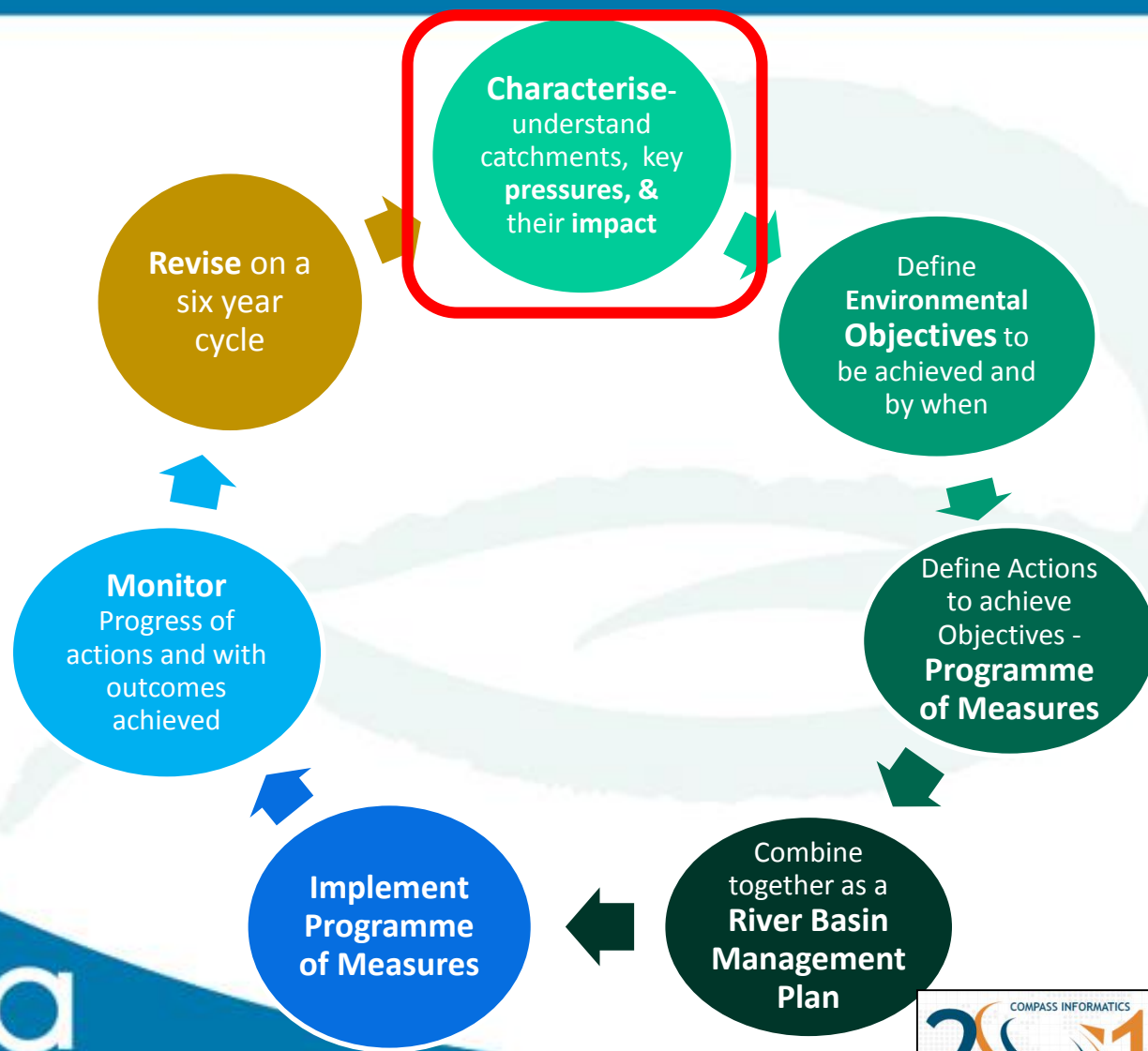
Tier 2 National Technical Implementation & Reporting

- Led by EPA
- Evaluation and implementation of measures
- Template for River Basin Management Plans

Tier 3 Regional Implementation via Water Networks

- Led by lead coordinating authority – Kilkenny and Tipperary
- Detailed River Basin Management Plans

WFD Cycle 2 – Current Phase

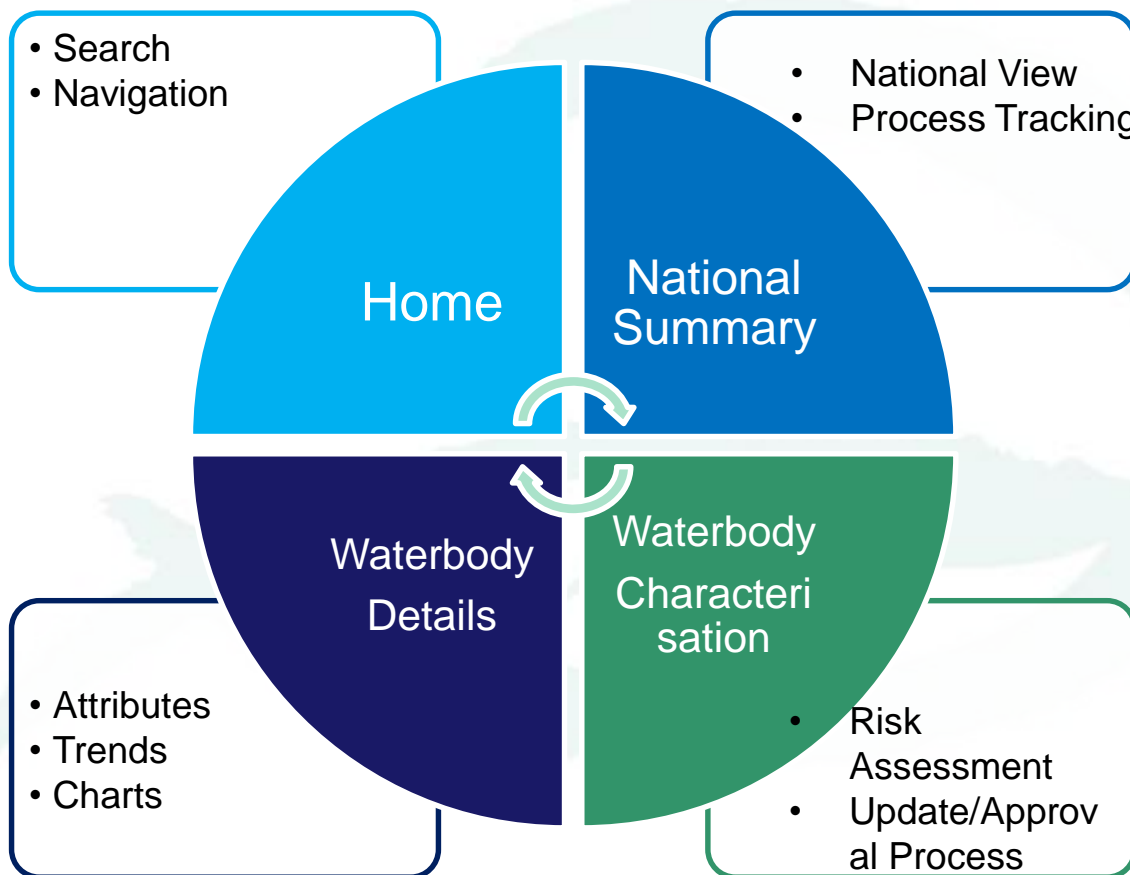


WFD Application* – Key Principles

- Phased approach to development
- Building for the longterm
- National resource
- Accessible
- MS Excel not to be used as data management tool
- Use live data services where possible
- Publish metadata

*Funding provided by DECLG

WFD Application – Phase 1 Overview

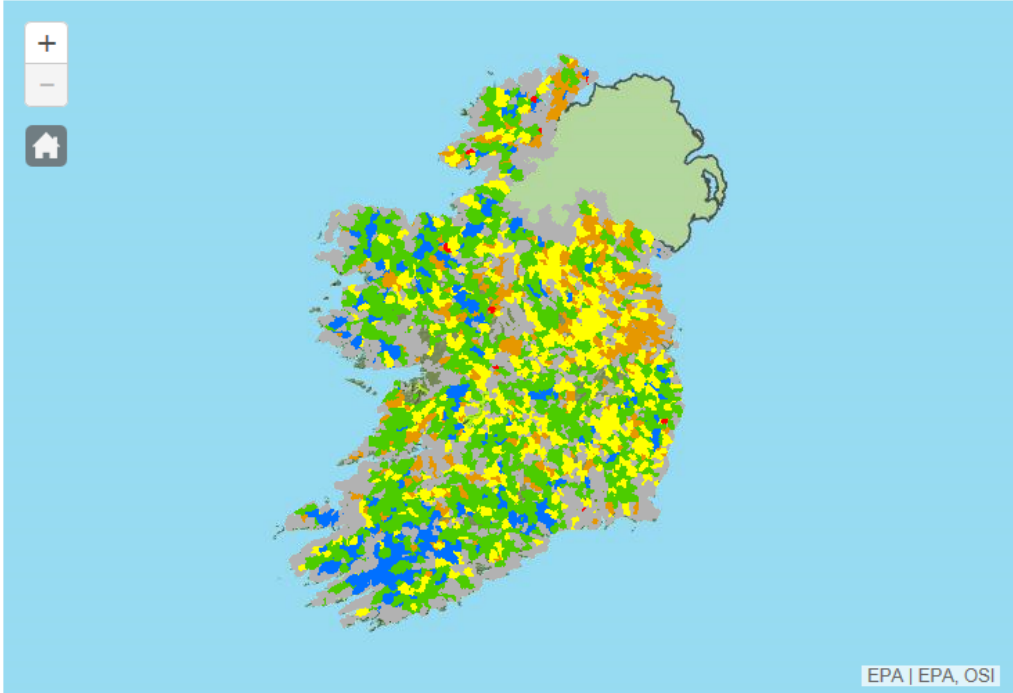


WFD Application Phase 1 - National View

Home My Account ▾ Notify/Manage It ▾ Report Information ▾ EPA Services ▾ EDEN Applications ▾

Layers

- Preliminary Risk
- Approved Risk
- WFD Status
 - River Waterbody Status 2010-2012
 - High
 - Good
 - Moderate
 - Poor
 - Bad
 - Unassigned
 - Lake Waterbody Status 2010-2012
 - Coastal Waterbody Status 2010-2012
 - Transitional Waterbody Status 2010-2012
 - Groundwaterbody Status 2007-2012



To draw a search rectangle hold down the shift key and drag the mouse (while also holding the left mouse button down) over the area to expand. Release all buttons to zoom.

















WFD Application Phase 1 – Search Functionality

Search

Q

Advanced Search Options

Show entries CSV

Actions	Code	Name	Type	Local Authority	Latest Status	Tier 1 Risk
 	IE_SE_100_0100	Barrow Suir Nore Estuary	Transitional	Wexford County Council	Moderate	At risk
 	IE_SE_100_0500	Lower Suir Estuary (Little Island - Cheekpoint)	Transitional	Waterford City & County Council	Moderate	At risk
 	IE_SE_100_0550	Middle Suir Estuary	Transitional	Kilkenny County Council	Moderate	At risk
 	IE_SE_100_0600	Upper Suir Estuary	Transitional	Tipperary County Council	Moderate	At risk
 	IE_SE_16C111000	CLONMORE STREAM (SUIR)_010	River	Tipperary County Council	Good	Not at risk
 	IE_SE_16S020100	SUIR_010	River	Tipperary County Council	Good	Review
 	IE_SE_16S020200	SUIR_020	River	Tipperary County Council	Moderate	At risk
 	IE_SE_16S020300	SUIR_030	River	Tipperary County Council	Moderate	Review

WFD Application Phase 1 - Waterbody Details

Waterbody: IE_SE_16S020200 SUIR_020

Name:	SUIR_020	Code:	IE_SE_16S020200
Easting:	214388.06	Northing:	176254.53
Cycle 1 RBD:	IESE	Local Authority:	Tipperary County Council
Waterbody Category:	River	Tier 1 Risk	At risk
Intercalibration Type:	Unknown	Artificial:	Unknown
Modified:	Unknown	Protected Area:	Unknown
Length (Km)	22.11		

Status Details - SW 2007-2009

► Ecological Status or Potential	Moderate	
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Status Details - SW 2010-2012

► Ecological Status or Potential	Moderate	
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Inputting Surface Waterbodies

Code	Name	Type	Latest Status
IE_SE_16C111000	CLONMORE STREAM (SUIR)_010	River	Good
IE_SE_16E170590	Eastwood_010	River	Unknown / No Information / Unassigned
IE_SE_16S020100	SUIR_010	River	Good

WFD Application Phase 1 – Charts/Trends

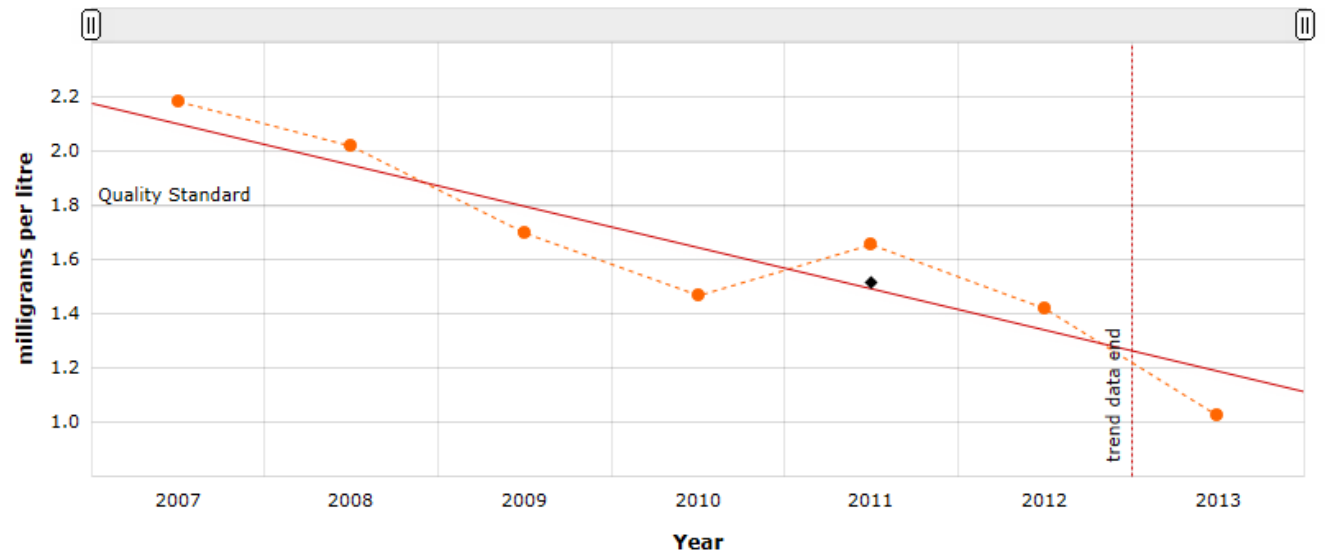
Charts

Ammonia-Total (as N)

ortho-Phosphate (as P) - unspecified

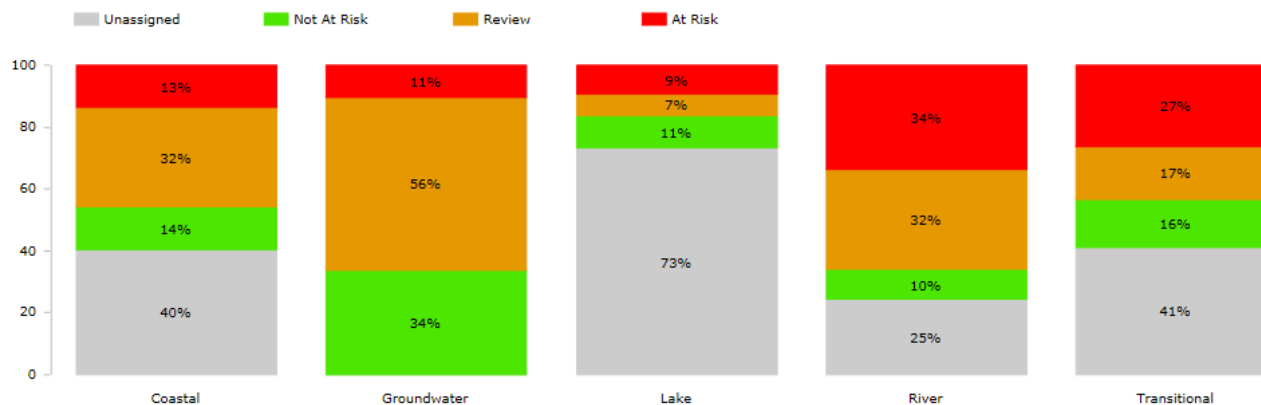
Total Oxidised Nitrogen (as N)

Trend Chart: IE_SE_16S020200 SUIR_020



WFD Application Phase 1 – Characterisation Tier 1 Risk Assessment

Characterisation Risk Waterbody Summary



Waterbodies

Type	Total	At Risk	Review	Not At Risk	Unassigned	Tier 1 Risk Progress		
						Draft	Updated	Approved
Coastal	127	17	41	18	51	127	0	0
Groundwater	578	61	321	196	0	578	0	0
Lake	836	79	57	89	611	836	0	0
River	3192	1077	1024	308	783	3192	0	0
Transitional	200	53	34	31	82	200	0	0

WFD Application Phase 1 – Technologies

SQL Server 2012 Enterprise Edition Database Engine	.NET Framework 4.5
SQL Server 2012 Integration Services (SSIS)	ASP.NET MVC 5
Master Data Services	Entity Framework 6
Dynamics CRM 2011	JavaScript libraries <ul style="list-style-type: none">• ESRI Javascript API• AM Charts
Active Directory Federation Services (ADFS)	IIS 8
ESRI ArcGIS Server 10.2.2	

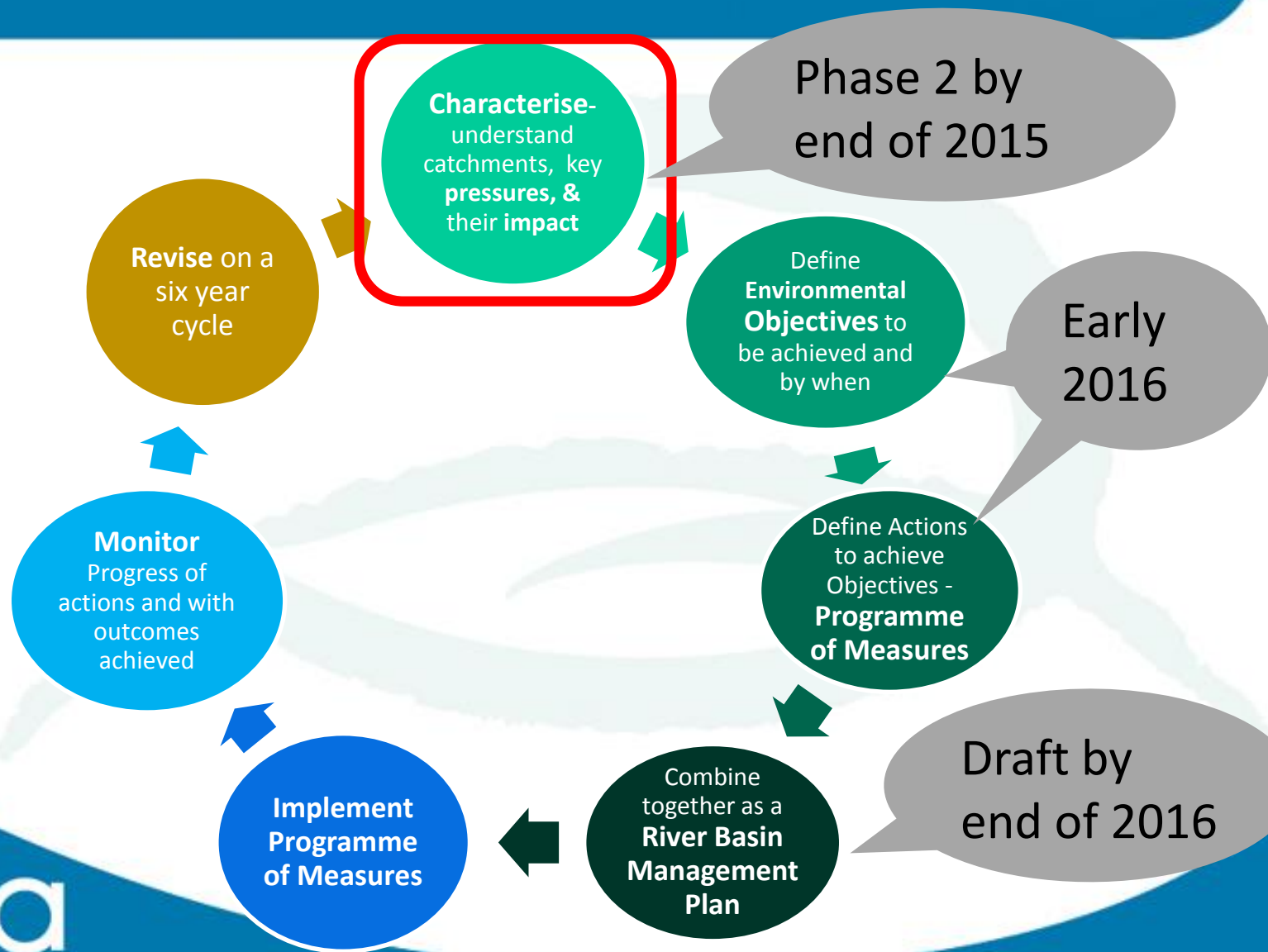
WFD Application and Data – Access

- Hosted on Environmental Data Exchange Network (EDEN)
 - 1,900 organisations - 4,700 users
 - 15 applications hosted on the EDEN Portal
 - 142 users of WFD Application from >30 organisations
- GeoPortal <http://gis.epa.ie/>
 - Status and Waterbody layers are available
 - View and download

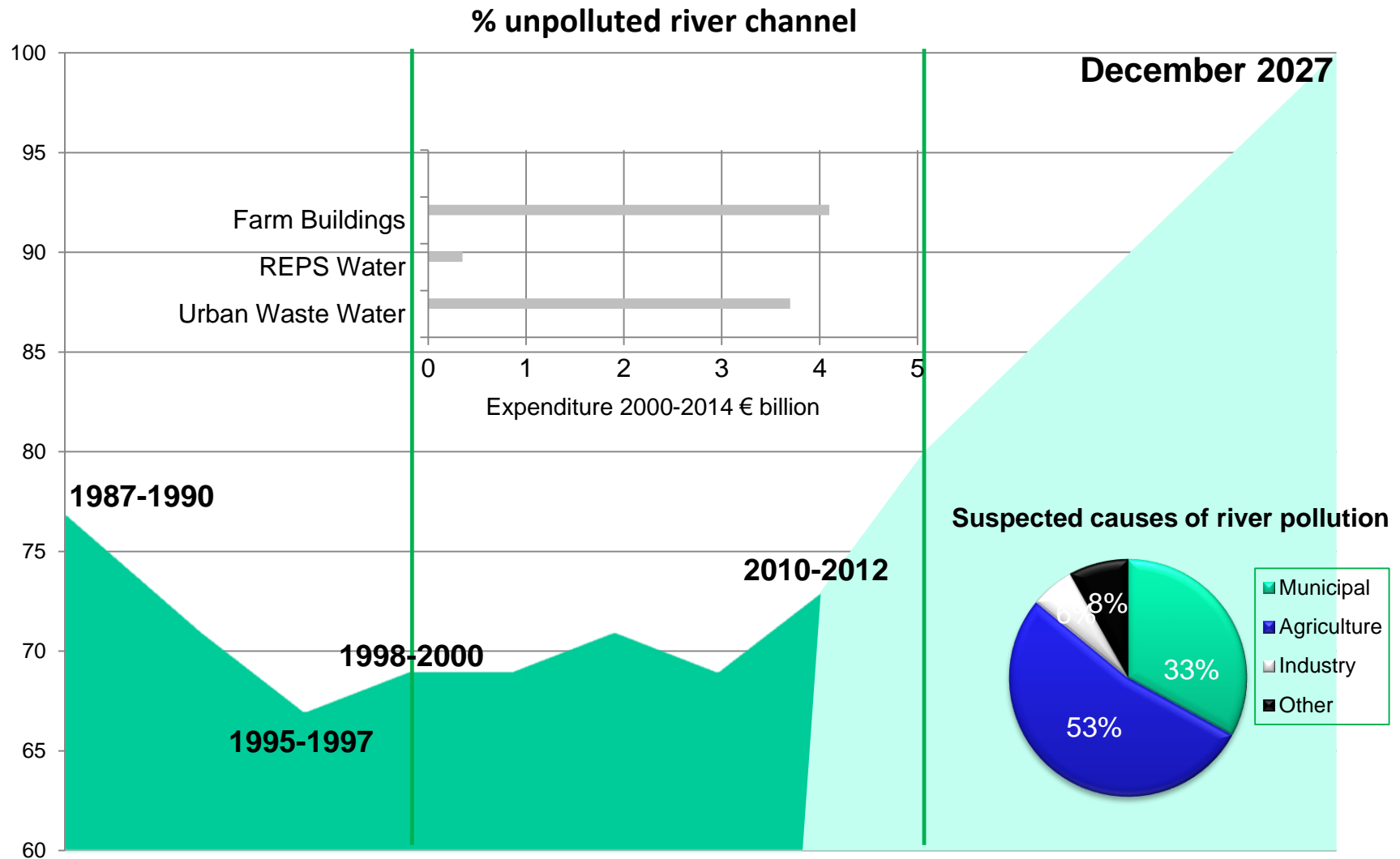
Key Learnings & Outcomes

- **It all comes down to data**
- Huge benefit in bringing >25 datasets together
- Trust in one version of the truth – reproducible outcomes
- Strong partnership between scientific and informatics teams essential
- Pragmatic approach needed in balancing short vs long term requirements
- Laying foundation for next cycle

WFD Application – Next Phases



River water quality – past, present, future?



Source: Pat Duggan (amended Jenny Deacon)

Thank you



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