The New EIA Directive (2014/52/EU) and UK Water Impact Assessment Practice

Stephen E. Mustow[a]

[a]WYG, Arndale Court, Headingley, Leeds, LS6 2UJ, UK. Email: steve.mustow@wyg.com

Abstract

This paper considers how Impact Assessment practice relating to all aspects of the water environment will be affected by the transposition of the amended EIA Directive (2014/52/EU) into UK legislation. Key elements of the new EIA Directive are identified, such as requirements relating to monitoring, climate change (including adaptation), biodiversity, human health and co-ordination with Water Framework Directive (WFD) Assessment. The extent to which existing guidance and practice already meet these new requirements is assessed, through a review of relevant guidance and selected Environmental Statements. Key areas where Water Impact Assessment (WIA) practice needs to be adapted to take account of the new requirements are identified. Substantial changes in practice are likely to be required relating to incorporating human health assessment into WIA and the need to use competent experts to conduct WIA. New guidance will be needed relating to competent experts and improved guidance will be required for WFD Assessment.

Key words: water, impact assessment, Directive (2014/52/EU), transposition, guidance, practice, EIA, WFD

Introduction

The new EIA Directive (2014/52/EU) (European Parliament and Council, 2014) introduces a number of additional requirements for EIA in European Member States, many of which are directly relevant to Water Impact Assessment (WIA). The UK recently held a referendum resulting in a majority vote to leave the European Union (commonly referred to as 'Brexit'). However, it is not yet clear when Brexit will take place, with the formal departure likely to be at least a year away. It is also not clear what form Brexit will take, and under some scenarios the UK will still be required to comply with European law. As the new EIA Directive requires Member States to 'bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 16 May 2017' it is very likely that the Directive will be enacted in the UK and will therefore apply at least in the short term. The quality of WIAs in England and Wales has previously been reviewed by Badr *et al.* (2004). The current paper adopts a broad definition of WIA, including the elements included under the headings of 'Water', 'Freshwater ecology' and 'Coastal ecology and geomorphology' by Morris and Therivel (2001). An overview of the implications of the new EIA Directive for general EIA practice in England has been provided by Fischer *et al.* (2016).

Key Requirements of new EIA Directive relating to WIA

Table 1 below identifies the implications that are specific to and/or are particularly significant for WIA practice in the UK.

Table 1: New Requirements of EIA Directive (2014/52/EU) and Implications for UK WIA*

N°	New requirements (in italics)	Potential implication for UK WIA practice (type of change in bold)
1	Annex IV: A description…'*of the operational phase*',…'*energy demand and energy used*' … '*and natural resources (including water, land, soil and biodiversity)*'	**Use of water resources** was not specifically required to be described under the previous EIA Directive (2011/92/EU).
2	Annex IV: '*quantities and types of waste produced during the construction and operation phases*'	The term 'waste' could be construed as also including **wastewater**, the quantities of which did not specifically require description under the previous EIA Directive.
3	Annex IV: *'A description of the relevant aspects of the current state of the environment (baseline*	**Evolution of the baseline water environment in the absence of the development** now needs to be considered.

N°	New requirements (in italics)	Potential implication for UK WIA practice (type of change in bold)
	scenario) and an outline of the likely evolution thereof without implementation of the project...'	
4	Annex IV: A description of … '*human health, biodiversity … climate (for example greenhouse gas emissions, impacts relevant to adaptation)*...	**Climate change, climate change adaptation**, **human health and biodiversity** are now specifically included. Annex 3 states that 'the characteristics of projects must be considered, with particular regard to: ... (g) the risks to human health (**for example due to water contamination**....). In relation to marine biodiversity the preamble to the new Directive states that: '(12) ...environmental impact assessment and screening procedures for projects in the marine environment should take into account **the characteristics of those projects with particular regard to the technologies used (for example seismic surveys using active sonars)**'.
5	Annex IV: A description of ... water (*for example hydromorphological changes, quantity and quality)*	The examples of **hydromorphological changes, quantity and quality** have been added to the new Directive.
6	Annex IV: A description of the forecasting methods '*or evidence… and the main uncertainties involved'*	**Uncertainties** now specifically require description.
7	Annex IV: A description of '*where appropriate, of any proposed monitoring arrangements (for example the preparation of post-project analysis)'.*	**Monitoring and post-project analysis** now specifically require consideration.
8	Annex IV: A description of the '*vulnerability of the project to risks of major accidents and/or disasters*'	**Major accidents** and **disasters** now require consideration. The preamble to the new EIA Directive states that: '(15) precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (**such as flooding, sea level rise**, or ...) are likely to have significant adverse effects on the environment.
9	Article 1 (5) 3 (a): '*the developer shall ensure that the environmental impact assessment report is prepared by competent experts*'	There is now a requirement for WIA to be undertaken by **competent experts**, evidence of which will need to be provided.
10	Article 1 (2) (a): *'In the case of projects for which the obligation to carry out assessments of the effects on the environment arises simultaneously from this Directive and from Council Directive 92/43/EEC and/or Directive 2009/147/EC of the European Parliament and the Council, Member States shall, where appropriate, ensure that coordinated and/or joint procedures fulfilling the requirements of that Union legislation are provided for'*	This new requirement relates to the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC). However, the preamble to the new EIA Directive also makes the following reference to the **Water Framework Directive** (2000/60/EC) in Clause (37): 'where the obligation to carry out assessments related to environmental issues arises simultaneously from this Directive and from other Union legislation, such as Directive 2000/60/EC..., Member States should be able to provide for coordinated and/or joint procedures fulfilling the requirements of the relevant Union legislation'.

* Format of table based on Fischer *et al.* (2016)

Current WIA Practice in the UK

Guidance: There is currently no single source of published guidance covering all aspects of WIA in the UK, however a number of sources cover specific areas, a selection of the key ones being summarised in Table 2 below (the English guidance generally has counterpart guidance in the devolved administrations).

Table 2: Key WIA Guidance

Source of WIA Guidance	Relevant Areas Covered
General	
Planning Practice Guidance (Department for Communities & Local Government, 2016)	Flood risk & coastal change; Water supply, wastewater and water quality; England only
Design Manual for Roads & Bridges (The Highways Agency et al., 2009)	Flood risk; Pollution risk to surface water and groundwater; Whole of UK; Specific to roads & bridges
Transport Analysis Guidance (Department for Transport, 2015)	Wide range of water environment features – freshwater, estuarine, marine; England only; Specific to transport schemes, although Mustow *et al.* (2005) adapted the impact significance

	methodology for wider use.
WIA Guidance (Morris & Therivel, 2001)	Methods of EIA, including sections relating to Water, Freshwater ecology and Coastal ecology and geomorphology. Whole UK
Green Leaves III (Gormley *et al.,* 2011)	Source-pathway-receptor methodology relevant to the water environment
Ecological	
Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2016)	Freshwater and coastal ecology; UK and Ireland
WFD	
Assessing new modifications for compliance with WFD: detailed supplementary guidance (Environment Agency, 2010)	Wide range of water environment features; Freshwater, estuarine, coastal; Relates to WFD compliance; Internal document only; Specific to England
UK TAG Guidance (UK TAG, 2016)	Range of detailed technical guidance for assessing the status of the water environment; Freshwater, estuarine, coastal; Relates to WFD compliance; Whole UK; Specific methods e.g. biological
IEMA Guidance on Integrating WFD into EIA (Murphy *et al.*, 2012)	Environment Agency note on best practice; Relevant to whole of UK
Marine	
Marine Management Organisation Guidance (MMO, 2014)	High level guidance on EIA in the marine environment; England & Wales
SNH Marine Guidance (Scottish Natural Heritage, 2013)	Guidelines for marine environment EIA; Scotland
BSI EIA Guide for Offshore Renewables (BSI, 2015)	Guidelines for EIA of offshore renewable energy projects; Whole UK
Climate Change & Health Impact Assessment	
IEMA Climate Change Resilience and Adaptation Guidance (Montgomery *et al.*, 2015)	Generic Guidance, Water covered alongside other factors
Health Impact Assessment Guidance (Vohra, 2005)	Generic Guidance, Water covered alongside other factors

Practice: To understand how WIA practice in the UK may be affected by the new EIA Regulations, the WIA chapters, plus any associated chapters (e.g. on ecology), of eight Environmental Statements (ESs) published in 2016 were reviewed. The ESs were selected to cover a range of development types, including: deepwater jetty; mainline rail; river dredging; gas-fired power station; onshore windfarm; slate quarry; tidal energy project; and new motorway section. The windfarm project was in Scotland, the tidal energy and motorway projects in Wales and the remainder were in England. The ESs were produced by different consulting companies and all were IEMA Quality Mark registrants, therefore the quality would be expected to be relatively high. The results of the review are summarised in Table 3 below.

Table 3 Existing Practice in Relation to New Requirements of EIA Directive (2014/52/EU)

No.	New Requirement	No. of ESs Covering Require-ment*	Comments	Recommendation	Extent of change§
1	Use of water resources	1	Water consumption only covered in the power station EIA	Water consumption to be initially considered, even if then scoped out.	!
2	Wastewater quantities and types	6	Numerical estimates of quantity only given in a few cases.	More precise quantification. Include polluted runoff in the definition of wastewater.	! (?)
3	Evolution of baseline environment	5	When this was considered it was usually only in relation to climate change.	Add a separate heading of 'evolution of baseline environment'	!
4(a)	Climate change	5	Impact of climate change on flooding and rainfall considered.	Add a separate heading of 'climate change & climate change adaptation'	!
4(b)	Climate change adaptation	5	Adaptation considered in relation to flood protection.	Add a separate heading of 'climate change & climate change adaptation'	!
4(c)	Human health	1	Human health in relation to	Human health to be considered.	!!!

No.	New Requirement	No. of ESs Covering Require-ment*	Comments	Recommendation	Extent of change§
			WIA only specifically considered in dredging ES.		
4(d)	Biodiversity	8	Covered in Ecology chapter and sometimes also in Water chapter	No action needed – addressed as standard	✓
5	Hydromorphological changes, quantity and quality	8	Covered in all cases but often at a high level only and in relation to drainage systems.	More quantification required.	!
6	Uncertainties	7	Standard practice for IEMA Quality Mark members (although absent in one ES)	No action needed – addressed as standard	✓
7	Monitoring and post-project analysis	5	Monitoring not recommended in all cases (but not necessarily required)	Add a separate heading of 'monitoring and post-project analysis', even if this concludes that none is required	!
8	Major accidents and disasters	7	Potential for spillages and flooding considered in most cases.	No action needed – addressed as standard	✓
9	Competent experts	0	Names, qualifications and experience of experts not stated	Relevant information to be added	!!!
10	Water Framework Directive (WFD)	8	WFD considered in all cases and in some a separate WFD Assessment was carried out	No action needed – addressed as standard	✓

*Out of eight ESs reviewed; §Scale based on Fischer *et al.* (2016); ✓ Current practice already meeting requirement; ! some changes to current practice likely to be necessary; !!! potentially giving rise to more substantial changes to current practice; (?) extent of change not fully clear.

Discussion

Two of the new requirements are predicted to give rise to substantial changes to current practice, including those relating to human health and competent experts. Only one of the Environmental Statements specifically considered human health in relation to the water environment. This was the river dredging ES which assessed the impact of mobilisation of silt by dredging causing an increase in bacterial numbers, which could affect the quality of bathing waters and cause indirect risks to human health. Four of the ESs briefly considered the possible risks to human health from contaminated groundwater, but this was within the contaminated land chapters / sections. Given the requirement of the new EIA Regulations to consider human health effects, it is recommended that this is included in the WIA in an appropriate manner. One option is provided by Vohra (2005), who recommends that integrated Environmental and Health Impact Assessment (iEHIA) should include a separate chapter on health, with other topic chapters also including sections on health, all linked to a detailed health impact assessment matrix in the appendix.

None of the ESs provided the names and qualifications of the individuals who undertook either the WIA or the wider EIA. In future it will be necessary to demonstrate that the WIA and wider EIA have been undertaken by competent experts, although it is not yet clear how 'competent experts' will be defined. However it is reasonable to assume that they may require a university degree in a relevant subject, membership or chartership of a relevant professional body and sufficient experience. In relation to WIA various degree subjects could be considered relevant, as practitioners range from water scientists, to aquatic ecologists and flood engineers. In the UK relevant professional bodies include, for example, the Chartered Institution of Water & Environmental Management (CIWEM), the Institute of Environmental Management & Assessment (IEMA) and the Chartered Institute of Ecology & Environmental Management (CIEEM). IEMA operates an EIA Quality Mark scheme whereby corporate members

are externally assessed for quality on an annual basis, including telephone interviews with topic specialists. The scheme also allows individuals to apply for various 'EIA practitioner' grades. This scheme, or an amended version of it, would also provide an effective mechanism to demonstrate the competency of WIA experts.

Seven of the new requirements are predicted to give rise to some changes to current practice. Of these it is considered that the following are generally dealt with adequately through current WIA practice but that greater clarity would be achieved by according them separate headings within the WIA chapter of the ES: evolution of the baseline environment; climate change; climate change adaptation; and monitoring and post project analysis. Their inclusion in a discrete section would demonstrate compliance with the new regulations, even if the section simply explained why they had been scoped out of further analysis. This would be particularly important in the case of monitoring and post-project analysis as the new Directive inserts the following article: 'Article 10a Member States shall lay down rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive. The penalties thus provided for shall be effective, proportionate and dissuasive.' Thus developers could potentially be fined for not implementing the monitoring and mitigation that they have committed to in the WIA. By including a section on monitoring and post-project analysis the developer's commitment will be clearer and it will be easier to carry it through to the following stages of the Construction Environmental Management Plan and the operational stage management plan(s).

Use of water resources was only covered in the power station ES, probably because the other development types would not be predicted to use large quantities of water during either construction or operation. However, given the specific requirement of the new EIA Regulations to consider use of water resources it is recommended that estimates for the quantity of water to be used during construction and operation, and their sources, are provided even if the quantities are not anticipated to be great. The impact and level of significance can then be initially assessed, with the topic subsequently scoped out if not likely to be significant. Wastewater and hydromorphology were considered within the majority of the ESs, however little quantitative information was provided. As the new EIA Regulations refer to quantities it is recommended that this information is provided. Clarification is needed as to whether the term 'waste' used in the new Regulations also includes wastewater.

Four of the new requirements are not predicted to result in changes, as it was considered that current WIA practice already meets the requirements of the new EIA Directive. These include: biodiversity; uncertainties; major accidents and disasters; and the Water Framework Directive.

The key guidance referenced in Table 2 already covers the majority of the requirements of the new EIA Directive, although in some cases, such as human health, it would be helpful to have more detailed and broadly applicable guidance. However, there is as yet no guidance published on what constitutes a competent expert in WIA (or wider EIA) and it will therefore be important for such guidance to be made available as soon as the new EIA Directive is transposed into UK law. Given that the government and devolved administrations may be reluctant to issue such guidance, it will be important for professional bodies such as IEMA, CIWEM and CIEEM to take a lead in this area. Also, the current guidance on WFD Assessment is not designed for general use by practitioners and should ideally be improved, given the need for Member States to 'provide for coordinated and/or joint procedures fulfilling the requirements of the relevant Union legislation', including the EIA and WFD Directives.

References

Badr, E.-S. A., Cashmore, M., & Cobb, D. (2004). The consideration of impacts upon the aquatic environment in Environmental Impact Statements in Engand and Wales. *Journal of Environmental Assessment Policy and Management , 6* (1), 19-49.

BSI. (2015). *Environmental Impact Assessment for Offshore Renewable Energy Projects - Guide.* BSI.

CIEEM. (2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Second Edition.* Winchester: Chartered Institute of Ecology and Environmental Management.

Department for Communities & Local Government. (2016). *Planning Practice Guidance*. Retrieved August 15th , 2016, from Planning Practice Guidance: http://planningguidance.communities.gov.uk/blog/guidance/

Department for Transport. (2015). Impacts on the Water Environment. In *TAG Unit A3 Environmental Impact Appraisal* (pp. 68-76). London: DfT.

Environment Agency. (2010). *Assessing new modifications for compliance with WFD: detailed supplementary guidance, Supplementary guidance 488_10_SD01.* Environment Agency.

European Parliament and Council. (2014). DIRECTIVE 2014/52/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. *Official Journal of the European Union* , L124/1-18.

Fischer, T. R. (2016). The revised EIA Directive - possible implications for practice in England. *UVP Report , 30* (2), 106-112.

Gormley, A., Pollard, S., Rocks, S., & Black, E. (2011). *Guidelines for Environmental Risk Assessment: Green Leaves III.* DEFRA.

MMO. (2014). *Marine Licensing: impact assessments*. Retrieved August 15th, 2016, from Planning and Development - Guidance: https://www.gov.uk/guidance/marine-licensing-impact-assessments

Montgomery, J., Le Gouais, P., LeBrecht, H., & Fothergill, J. (2015). *IEMA Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation.* Lincoln: IEMA.

Morris, P., & Therivel, R. (Eds.). (2001). *Methods of Environmental Impact Assessment* (2nd ed.). Abingdon: Spon Press.

Murphy, J., Cocker, A., Munro, B., Vetori, C., & Woodward, R. (2012). *Integrating WFD in EIA: experience so far.* Lincoln: IEMA EIA Quality Mark Article.

Mustow, S., Burgess, P., & Walker, N. (2005). Practical methodology for determining the significance of impacts on the water environment. *Water and Environment Journal* , 100-108.

Scottish Natural Heritage. (2013). Appendix 6: Effects on the Marine Environment. In SNH, *A handbook on environmental impact assessment: Guidance for Competent Authorities, Consultees and others involved in the Environmental Impact Assessment Process in Scotland, Fourth Edition* (pp. 236-241). SNH.

The Highways Agency et al. (2009). Road Drainage and The Water Environment, Part 10, HD 45/09. In *Design Manual for Roads & Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques.* The Highways Agency.

UK TAG. (2016). *Resources*. Retrieved August 15th, 2016, from WFD UK TAG: http://www.wfduk.org/resources

Vohra, S. (2005). *Briefing Report No 2: Integrating Health into Environmental Impact Assessment.* Hounslow: Living Knowledge.