

Nitrogen Deposition and the Nature Directives

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Theme 2: Working Group 6: Approaches to assessing and permitting plans and projects (where they are sources of air pollution) for Article 6.3 assessments

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To find out more about the workshop visit: <http://jncc.defra.gov.uk/page-5954>

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The workshop is being organised by JNCC on behalf of the UK Government, Devolved Administrations and country nature conservation bodies, in collaboration with the Dutch Ministry of Economic Affairs and in co-operation with the Task Force on Reactive Nitrogen.

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1. Summary

Article 6.3 of the Habitats Directive requires strict site safeguard measures for Natura 2000 sites. It provides a mechanism by which plans and projects can only be permitted if they are shown to have no adverse effect on the integrity of a Natura 2000 site (subject to certain provisions).

At the Nitrogen Deposition and Natura 2000 Workshop in 2009 (Hicks *et al*, 2011), delegates presented and discussed Member State approaches to appropriate assessments to evaluate impacts of nitrogen deposition. The main intention of this workshop is to provide an update on Member States' approaches and experience since 2009. With the main objective being to understand how each country makes the decision on what is considered an adverse effect.

2. Introduction

Article 6.3 states "Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Nitrogen impacts are considered a serious threat to biodiversity. As part of long range trans-boundary air pollution, the eutrophying and acidifying effects of nitrogen compounds have been subject to international air pollution abatement for more than three decades. With the establishment of the Natura 2000 framework, more localized approaches have come into focus as well. Air pollution abatement and nature protection have started to work more closely to establish and meet targets aiming at achieving favourable conservation status (FCS) for nitrogen sensitive habitats.

Critical loads¹ or, in a similar way, critical levels² have become increasingly common as a measure of sensitivity not only on a wider national scale but also for sensitive habitats protected within the Natura 2000 framework (Hicks *et al*, 2011). Strict decisions from the Euro

¹ Defined as: "a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge". Source: <http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm>

² Defined as "concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge". Source: <http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm>

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pean Court (e.g. C 127/02 – Cockle fishing in the Waddenzee) have made it clear that only if a project can be proven to exert no, or only negligible, effects then it may be permitted under Article 6.3 of the Habitats Directive. Courts in the Netherlands and Germany have adopted these decisions and made it necessary to establish sophisticated evaluation procedures to fulfil those Article 6.3 requirements. Similar approaches have been taken in Denmark where National Green Growth plans have been established. In the UK, various bodies (conservation and regulation) are working together in order to maintain or make possible FCS of Natura 2000 habitats.

The integrated approach to nitrogen (Programmatiese Aanpak Stikstof PAS) in the Netherlands is a step towards resolving the conflicts between the demands of mandatory nature protection in the Natura 2000 legislation and economic issues. It may be that similar advances will occur in other countries to improve conditions for Natura 2000 habitats and also reduce the burdens for applicants.

Currently, background³ deposition in many regions is fairly high compared to the critical loads for sensitive habitats. Robust evaluation methods are required to permit projects without threatening the conservation objectives for nearby Natura 2000 sites and legal security for project developers. Although the context is very important in order to understand the various national approaches to permitting plans and projects under the Habitats Directive, the particular technical solutions to achieve valid evaluations are the main theme of this group.

3. Objectives of the working group

The main intention of this workshop is to provide an update to the COST 2009 workshop (Hicks *et al*, 2011). In 2009 delegates presented and discussed the approaches to appropriate assessments to evaluate impacts of nitrogen deposition undertaken their country. Although each participating country presented a different evaluation concept, a number of recommendations could be made and conclusions could be drawn, e.g. that critical loads can be used as a measure of sensitivity within appropriate assessments, or the use of a staged assessment approach (Le Gall *et al*, 2011). Since preconditions vary greatly between each country, a uniform best practice approach would not have been a realistic target at that time. However, by understanding each approach taken, their contexts and by discussing issues that many countries have in common, further steps towards best practice may be expected in time.

From the time of editing articles collected in the 2009 workshop proceedings, published in 2011, new developments in understanding have occurred. For instance, new research has provided further evidence, new aspects have emerged within expert discussions, and new court decisions have to be accounted for. There will be no time to discuss in depth each aspect that emerges in the national discussions. It is considered worthwhile, however, to be

³ Meaning the total or ambient amount of the pollutant of concern.

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come familiar with the issues under discussion, which decisions in particular have been made in designing evaluation processes and in dealing with the problem of nitrogen impacts in general.

The main objective is, to understand how each country makes the decision on what is considered an adverse effect.

Obviously there are questions at the core of evaluation such as the thresholds that are applied, but the answers to the other questions will further inform the discussion. So further objectives are:

- **Objective 1:** To understand which types of plans and projects and the reasons why they are dealt with in Habitats Directive assessments in each country;
- **Objective 2:** To understand the test on likely significant effects;
- **Objective 3:** What criteria are applied to decide about adverse effects (threshold)?
- **Objective 4:** How are in combination effects considered in each country?

4. Discussion points or questions

Key questions prepared for the COST 2009 workshop and may still serve as guideline to some extent. Meanwhile critical loads are accepted in a number of countries as a measure of nitrogen sensitivity not only on a wider national scale but also for particular protected sites and their habitats. While questions around this topic have become less crucial, more questions have arisen concerning the ways of determining the best critical load estimate. Those questions are dealt with in Working Group 2; so detailed discussion within this group may not be required. Other key questions remain: To better understand the context (Objective 1), some simple questions in the beginning are thought to illuminate the practice of appropriate assessments in its broader scope:

- What types of projects and plans are dealt with in appropriate assessments?
- Is there a uniform approach?
- Is the concept of critical loads accepted for the purpose of appropriate assessments?
- How do the political landscape, court rulings and the detailed scrutiny of plans and projects by non-governmental organisations (NGO) influence these assessments?

Key questions concerning the more technical aspects have not changed markedly over the last years. According to the Objectives 2 – 4 (above) may be arranged as follows:

Relevance and likely significant effect, role of background deposition

- Relevance screening: Which relevance criteria are applied (single project threshold, buffer zones)?
- Likely significant effect: Are in-combination effects considered at this stage?

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- Background deposition: How is it accounted for at this stage?

Adverse effects

- Adverse effects: Which threshold does apply?
- Adverse effects: How is background deposition determined?
- Adverse effects: How do current conservation status and background deposition matter?
- Adverse effects: How is sensitivity estimated (empirical, modelled critical loads, site specific)?
- Adverse effects: Which modifying / site or case specific factors may be taken into account?

In-combination effects

- Which in-combination effects have to be considered?
- How are in-combination effects taken into account (including how does information flow between different issuing authorities)?

Another interesting question would be which mitigation measures are (more or less) considered and how are they included within the evaluation? This topic will be covered in more detail in Working Group 7 so a detailed discussion may not be necessary here.

A case study from Germany has been provided in Appendix 1 to help you prepare your own in advance of the workshop.

5. How the group will operate

A representative of each Member State participating in the group will be asked to bring a short presentation (5 -10 minutes) addressing the questions set out in Section 4. A digital projector and Power Point will be provided. Presenters are also asked to bring printed hand-outs of their presentation, so these can be circulated amongst the group. However, delegates may wish to make a more informal presentation for example, a short report, without the use of slides.

Following the information gathering from presentations, the group will discuss the approaches in more detail. The group will draw out examples of good practice, discuss the scientific and technical challenges and approaches to overcome these, and establish critical outstanding research and policy questions. Short explanations outlining the broader context in their country are welcome within the initial round of introduction of the members of the group.

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Appendix 1

Case Study: Germany

While it has been decided not to get case studies in advance to keep the work load low on the members of the group, it was considered sensible to have short answers prepared to the questions (Section 4, above). An example with a German perspective is provided to illustrate the topic.

1. General setting

Which types of projects and plans are being considered?

All plans and projects that may have adverse effects on the integrity of the site have in principle to undergo an appropriate assessment. This applies to roads as well as all installations that have to be permitted under the national pollution control (Bundesimmissionsschutzgesetz) such as power plants, industry installations or animal rearing facilities.

With respect to nitrogen deposition big roads (particularly Autobahnen) and airports have been subject to assessments since about 2005. Meanwhile animal farms, industry installations and power plants also are assessed routinely. Essentially all projects that need a permit under air pollution control regulations because of significant ammonia and/or nitrogen oxide emissions have to be considered for their compliance with the Habitats Directive. There may be projects that are too small to be recognised (e.g. exempt) as exerting likely significant effects, but if they were tested they would exceed relevance criteria.

To date plans have been subject to fewer appropriate assessments than projects. It has become clear that they should also be compatible with habitats law. Plans are expected to become more important with in combination effects getting greater attention. For example it has been decided that a business park has to be considered in combination with a power plant. Manure spreading of fields within a Special Area of Conservation (SAC), however, does not need an appropriate assessment but has to be regulated by habitat management in a different way.

Permissions are not always issued centrally but, depending on the type of project and the home state, also by state administration (Bundesland, e.g. Autobahn, Bundesstraße, Airport), regional administration or communal administration (Kreisverwaltung, e.g. Poultry farm, Kreisstraße). Overall there are a large number of issuing authorities belonging to the administration of 16 states (Bundesländer), several regional authorities within most states and 295 districts (Landkreise or bigger cities not belonging to a Landkreis).

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Is there a uniform approach?

There is no formal uniform approach. There are several approaches in the process of combining to form a nominal uniform method. The most advanced evaluation method was presented at the COST 2009 workshop and has been further elaborated upon since then within the BAST R&D Project. Currently working groups within the LAI-LANA circle (Bund-Länder working committees for air pollution control and nature protection) and under the auspices of the FGSV (Research Institute for road transport). These working groups are in the process of fine-tuning and establishing a guideline expected to replace single state approaches where they have been put forward. One key feature common to all existing approaches is a level of insignificant effects of 3% of the critical load.

Is the concept of critical loads accepted for the purpose of appropriate assessments?

In general yes, with only well funded exceptions on a case to case basis.

2. Relevance and likely significant effect, role of background deposition

Relevance screening: Which relevance criteria are applied (single project threshold, buffer zones)?

A cut off (*de minimis*) criterion of $0.3\text{kg N ha}^{-1}\text{y}^{-1}$ is widely considered as appropriate among experts, although among jurists (legal experts) lower values are discussed as well.

Likely significant effect: Are in-combination effects considered at this stage?

Not as far as the cut-off criterion is concerned. Yes, as far as the level of insignificant effects (3%) is concerned.

Background deposition: How is it accounted for at this stage?

There are data issued by the Umweltbundesamt (UBA 2011) that can be used. If background contribution together with project contributions in combination do not exceed lowest possible critical load values, no likely significant effects are expected. Under certain circumstances higher values have to be assumed due to inaccuracies close to strong sources of pollution.

3. Adverse effects

Adverse effects: Which threshold does apply?

In general a process contribution of 3% of the critical loads may not be exceeded, otherwise only small areas may be affected. There is a concept of permissible small area loss (between 0 and 2,500 m², dependant on several parameters and preconditions, (BfN 2007) and of gradual function loss further extending the size of permissibly affected areas (s. a. a.).

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Adverse effects: How do current conservation status and background deposition matter?

As far as Predicted Environmental Concentrations (or rather Loads) are not exceeding critical loads, no adverse effects are expected, so in that sense background deposition is material information. Current conservation status is not expected to inform sufficiently about future prospects concerning nitrogen effects. So, current conservation status is important only under special circumstances where this assumption can be disproved on a case to case basis (i.e. where current conservation status can inform on future prospects of nitrogen effects).

Adverse effects: How is background deposition determined?

See above

Adverse effects: How is sensitivity estimated (empirical, modelled critical loads, site specific)?

Critical levels are considered less important as (or contained within) critical loads. Critical loads have in general to be applied. Empirical as well as modelled values are accepted. Within the BAST Research Project (Balla *et al*, 2013) site (or even more) specific critical loads have been modelled and are being published these days. Their use is recommended.

Adverse effects: Which modifying / site or case specific factors may be taken into account?

In principle there is always a possibility to apply individual evaluation schemes, but they have to comply with scientific standards. Examples may be rivers where local influences may be considered irrelevant or evidence, that the nutritional status does not harm an existing favourable conservation status in the long run.

4. In-combination effects

Adverse effects: Which in-combination effects have to be considered?

There are still on going discussions concerning this issue. It seems that all earlier projects that have been planned or realized after protection of the site have to be considered; in as far as their contributions may not be considered irrelevant.

Adverse effects: How are in-combination effects taken into account?

Once they are considered in combination projects their contributions have to be added to the PC of the project under evaluation.

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5. Mitigation measures,(integrated) management plans

Adverse effects: Which mitigation measures are (more or less) commonly applied? How are they included within the evaluation?

Well kept habitats may be assigned higher critical loads, if there is evidence for more removal by mowing or grazing than is assumed within critical load determination. If reduced manure emissions (or other emissions reduced as a compensatory measure) apply to the exact area affected by a project, the reduced amount may be regarded within the calculation. Otherwise it might depend on effects that can be assumed by minor emissions.

Are there integrated management plans that may be referred to within an appropriate assessment?

Management plans are considered within appropriate assessments, but have not yet integrated provisions for plans or projects as has happened in the Netherlands with PAS.

6. References

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