

The mitigation hierarchy, a tool to preserve natural habitats

Built developments can have adverse impacts on natural habitats. The mitigation hierarchy, known in French law as the “séquence éviter, réduire et compenser” (or séquence ERC), means that such impacts must be avoided, then minimized and as a last resort, offset or compensated for. The objective is to preserve the environmental quality of ecosystems. The implementation of the séquence ERC has required methodological guidelines that were published in October 2013 after the national doctrine was published in May 2012. These documents were developed by a multi-stakeholder working group led by the ministry of sustainable development with representatives of public administration, local authorities, the private sector and civil society. Among other issues, they address biodiversity offsets, which have been reinforced as an obligation by the Grenelle Law II in cases where there are impacts on major environmental issues. Both documents cover terrestrial, aquatic and marine ecosystems. They will be updated according to lessons learned from their implementation, evolutions in the legal framework, scientific and technical progress.

The *séquence ERC* is a major tool to enable France to reach its national targets in combating biodiversity* loss. What is at stake is mainly to promote a development model that integrates the objectives of ecological transition. The idea is to promote sustainable management of natural land, which implies integrating environmental issues into project design in the same way as economic, technical and social issues.

The national guidelines recently published by the ministry of sustainable development [1] aim to provide guidance over how to implement the mitigation hierarchy. They are meant for all stakeholders (see box 1).

France has a great responsibility in terms of protection of biodiversity

As a country with an exceptional natural heritage, France has a very specific responsibility in terms of biodiversity. Mainland France hosts more of half of the « habitats of community interest » in the European Union. In the overseas territories, the equatorial forest of the French Guiana holds a still largely under-documented ecological richness; French islands in three different oceans host numerous endemic species; 10 % of the world's coral reefs are found in waters under French jurisdiction.

But this richness is fragile. France is home to 778 threatened species as well 7 of the 34 world's biodiversity « hotspots ». The main pressures result from the destruction, reduction and fragmentation of natural habitats (see example in

figure 1) at increasing rates from one decade to another: land take, i.e. turning natural land into artificial land as a result of urbanization, has moved from 60 000 ha per year on average between 1993 and 2000, to 75 000 ha per year between 2000 and 2008 [4].

Figure 1: Example of artificial habitats created by urbanisation

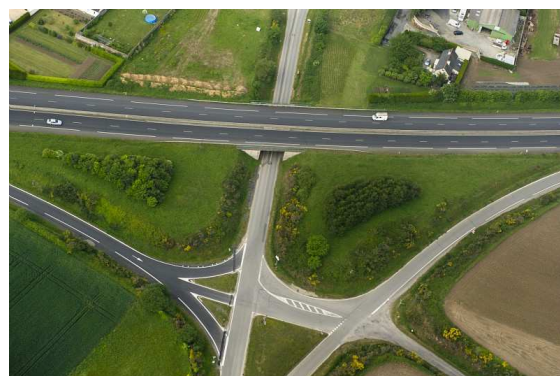


Photo by Laurent Mignaux /METL-MEDDE

The mitigation hierarchy must be integrated at the project design stage

The *séquence ERC* is part of the administrative procedure for projects that require approval or an environmental permit: works, built developments, activities and planning documents.

The *séquence ERC* implies that environmental issues should be integrated **as early as possible**



into project design, including in local planning (*see scheme 1*).

The *séquence ERC* first appeared in France in the Law on the protection of nature on July 10th 1976. The legal framework evolved in the following decades due to the implementation of European law [5] and due to the Grenelle Law II adopted in 2010 [6].

The article R. 122-5 of the Code of Environment states that: "The impact assessment carried out by the developer or the petitioner shall specify (...) the measures taken by the developer or the petitioner so as:

- to avoid adverse significant impacts of the project on the environment or human health and to minimize the impacts that could not be avoided;

- to compensate, whenever it is possible, significant adverse impacts of the project on the environment or human health that could neither be avoided nor sufficiently minimized. In case it is not possible to compensate such impacts, the developer or the petitioner must provide an explanation."

This means that developers have to define appropriate measures as early as in the project design stage to avoid, to minimize and whenever necessary and possible, to compensate their notable / significant impacts on the environment.

Consultative bodies and the environmental authority issue opinions about the measures proposed by developers that are taken into account into the

decision to authorize the project as a whole.

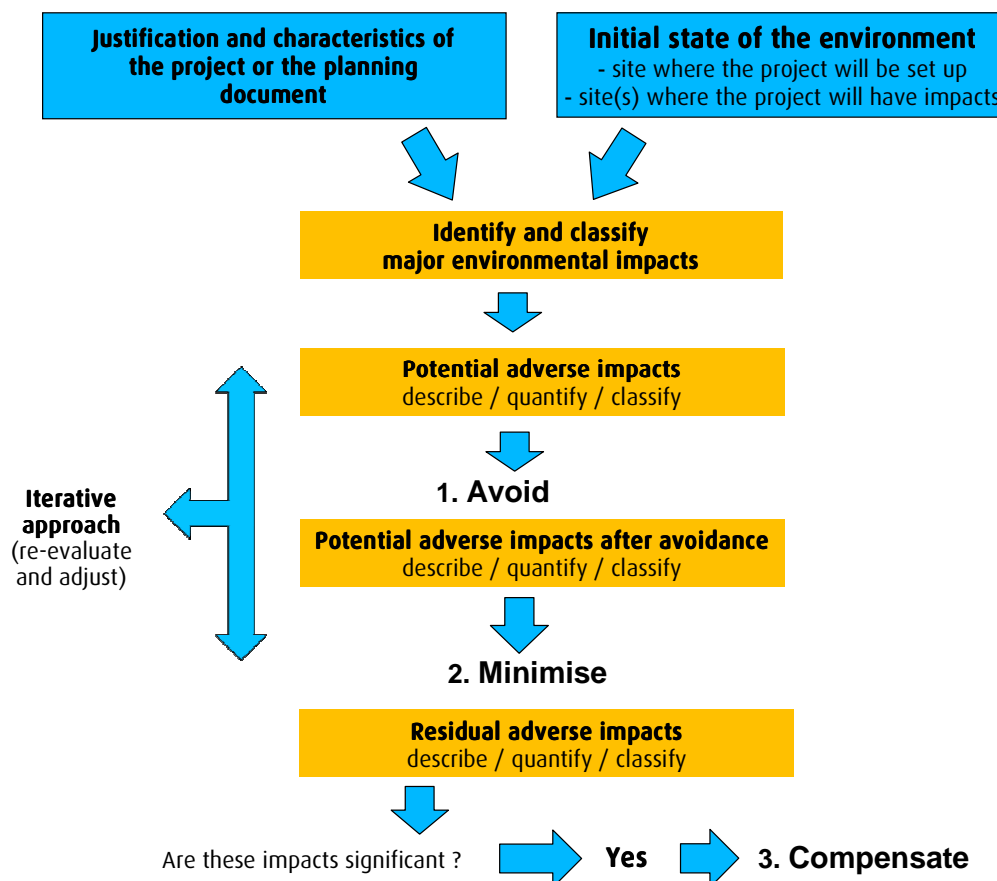
If residual and notable adverse impacts are still anticipated after the avoidance and minimization steps, compensation is mandatory in the case of damages on major environmental issues such as:

- remarkable biodiversity (threatened species, Natura 2000 sites, « biological reservoirs », surface waters in very good ecological status...);
- major ecological corridors (migratory routes, corridors identified in local planning documents...);
- key local ecosystem services (water purification, health, recreation...).

A project involving impacts on major environmental issues is only authorized if its residual impacts can be compensated. This implies that ecological equivalence can be demonstrated and that the proposed measures are feasible. In the case of damages to sites belonging to the Natura 2000 network or hosting protected species, the project will, in addition, have to demonstrate an imperative reason of major public interest*.

At the end of the process, the decision-making authority **sets the measures to be implemented as well as the monitoring and evaluation scheme in the project authorization**, using indicators to facilitate checks.

Scheme 1: The mitigation hierarchy in the project design stage



Avoidance and minimization are priority steps

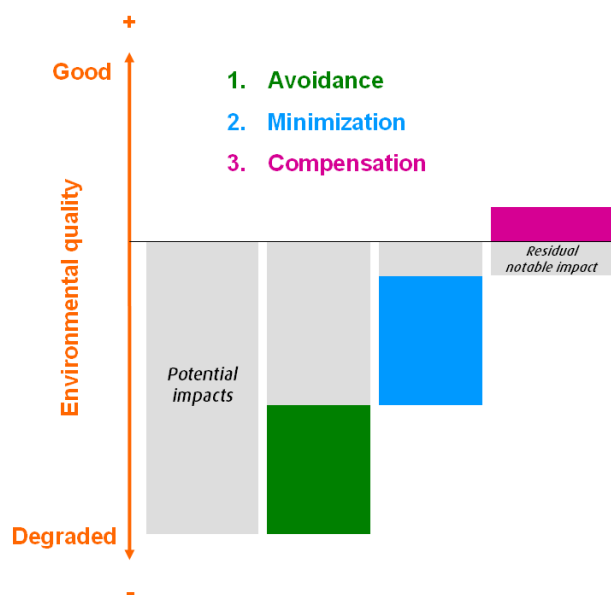
The impacts of a project imply a degradation of the environmental quality (see scheme 2).

This is why the best way to protect nature is to try to **avoid** such impacts in the first place (*green colour in the scheme*). The measures taken to avoid impacts can be linked to the **basic decisions** on the project (its nature, localisation, or even why it is needed). It can consist, for instance, in modifying the path of a road to avoid a Natura 2000 site.

When it is not possible to fully avoid negative impacts on the environment at a reasonable cost, the remaining degradation should be minimized through technical solutions (*blue colour*) that can be:

- specific to the stage when the building works are being carried out (e.g. adapting the period during which works are carried out to avoid the nidification period of some species) ;
- specific to the building itself (e.g. setting up a wildlife crossing to re-establish an ecological corridor interrupted by a road).

Scheme 2: the ecological balance of the mitigation hierarchy



Criteria for a satisfactory compensation

As a last resort, in case of significant adverse residual impacts, compensatory measures must be taken to ensure a positive, in kind, counterpart to the project (*pink colour*) and, globally, to preserve the environmental quality of ecosystems. These measures involve the **rehabilitation, restoration and/or the re-creation** of ecosystems.

They have to be complemented by environmental management measures (e.g. extensive grazing, management of hedgerows...) so as to ensure that the environmental quality of ecosystems lasts over time.

Compensation is the most delicate step in the mitigation hierarchy. It is necessary to pay special attention when designing compensatory measures, keeping in mind that the

objective is to maintain the overall environmental quality in a status at least as good as before the project's impacts. This is why the design of appropriate compensatory measures is inseparable from the prior identification and description of the project's residual impacts and the initial state of both the impact site and the compensation site.

The ecological gain produced on the compensation site should **at least be equivalent** (i.e. that it includes the same components: species, habitats, functionalities...) to the loss caused by the project.

In order to comply with this principle of equivalence, the gain must occur **close to** the damaged site.

The compensatory measures must produce **effective** and **long-term outcomes**. To achieve this, they must be **feasible** (both from a technical and economic point of view), **efficient** and easily **measurable**. They will be monitored using appropriate indicators.

They must also be **additional** to existing public policies, which they cannot replace.

They have to be designed to last as long as the project's impacts. Long-term outcomes can be secured either by signing agreements with landowners and/or land-users, or by buying land.

Towards pooled and anticipated compensation measures?

In order to facilitate the efficient compensation of low-impact projects, the ministry of sustainable development is exploring the possibility to anticipate and to pool compensation needs through the development of **habitat banking**.

A first habitat banking pilot operation was initiated in 2008 in the plain of the Crau (South of France), in partnership with *CDC Biodiversité*, a branch of the French public finance institution *Caisse des dépôts*.

An ecological gain has been achieved by restoring a typical Mediterranean steppe host of many bird, reptile and insect species.

Local developers whose projects cause damage to similar ecosystems can resort to habitat banking to comply with their obligations to compensate for their impacts. However, they remain legally accountable for the compensation of their project's impacts.

The national habitat banking pilot scheme is implemented in full compliance with existing legislation procedures, including those involving examination by competent bodies and the environmental authority.

Additional pilot operations will be launched soon to compare between a broader range of regions, targeted species or ecosystems and institutional arrangements.

They will be followed-up and evaluated on a regular basis by a national steering committee as well as a local steering committee for each operation.

Box 1: Guidelines for all stakeholders

The national guidelines on the mitigation hierarchy have been published to assist stakeholders to implement the *séquence ERC*.

As they apply both to developers, public decision-makers and other parties, they are a tool to facilitate convergence between all stakeholders.

The national guidelines translate the national doctrine into practical recommendations in 31 thematic papers that are classified according to the project life cycle, focussing on key steps:

- **anticipation;**
- **project approval ;**
- **implementation and follow-up of the environmental measures.**

*** Glossary:**

Biodiversity (or **biological diversity**) is defined under Article 2 of the Convention on Biological Diversity adopted in 1992 as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.”

The definition of **environmental quality** and its qualification as “good” or “degraded” are specific to each sectoral policy (favourable conservation status of natural habitats or wild animal and plant species, good ecological and chemical status of waters, good functionality of corridors...).

The notion of **major public interest** is meant to express a long-term interest of the project that delivers a significant gain for the society, from a socio-economic or an environmental perspective. In order for the imperative reason of major public interest to be considered in the decision on the project approval, a project causing high environmental damage will have to demonstrate a proportionately high collective gain [2].

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[1] Ministère du développement durable. 2013. *Lignes directrices nationales sur la séquence éviter, réduire et compenser les impacts sur les milieux naturels*. <http://www.developpement-durable.gouv.fr/Lignes-directrices-nationales-sur.html> (available in French)

[2] Ministère du développement durable. 2012. *Doctrine nationale relative à la séquence éviter, réduire et compenser les impacts sur le milieu naturel*. <http://www.developpement-durable.gouv.fr/IMG/pdf/doctrineERC-vpost-COPIL6mars2012vdef-2.pdf> (available in French)

[3] Ministère du développement durable. 2012. *Compensating for damage to biodiversity: an international benchmarking study*. <http://www.developpement-durable.gouv.fr/IMG/pdf/ED68EN-2.pdf> (full document - available in English and in French)

<http://www.developpement-durable.gouv.fr/IMG/pdf/LPS133EN.pdf> (short version - available in English and in French)

[4] Results of the yearly study carried out by Teruti-Lucas (Statistics and Prospective Unit of the French ministry of agriculture, food and forest).

[5] Directive 85/337 codified 2011/92 on the assessment of the effects of certain public and private projects on the environment (the “EIA directive”), and the Directive 2001/42 on the assessment of the effects of certain public and private projects on the environment (the “SEA directive”)

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