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Compensating for damage to biodiversity: the American experience of wetlands banks

To compensate for the negative impacts of their projects on biodiversity, and which can neither be avoided nor sufficiently reduced, developers may use a "mitigation bank". They will then purchase credits for habitats or species that are equivalent to these impacts. Whereas France has only been experimenting with this innovative economic tool since 2008, the French Ministry of Sustainable Development (*Ministère du développement durable*) has analysed the long experience of mitigation banks in the United States, where they account for 26% of the compensatory measures carried out, in order to learn from them. The overall picture is mixed in terms of the ecological results and the redistribution of ecosystem services at the local level. The banks only provide the expected benefits if a conducive framework exists: rules of exchange, legal and financial instruments, transparency and monitoring. These conditions for success, which have progressively been implemented in the United States, may be beneficial to the experimentation with compensation banking in France.

A mitigation bank concerns a natural site on which an operator implements ecological actions, in anticipation of the compensation requirements associated with future development projects. The operator* may be the owner of the site or enter into management contracts with the owners or workers of the land (e.g. farmers and foresters). It attributes a value to the benefits of these actions through the sale of credits* to developers* which must compensate for their impacts on the same habitats or species as those concerned by the bank and in the same territory. This mechanism is employed in the United States, Australia and Germany and experiments with it are underway in France, the Netherlands and Quebec (Canada).

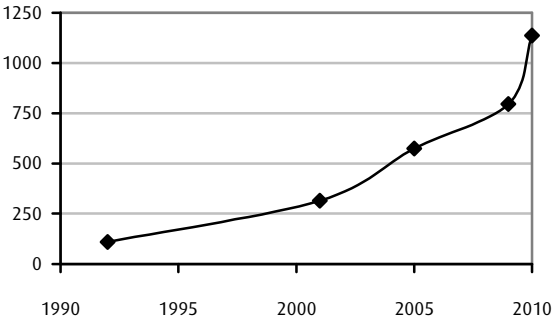
Banks: a favoured compensation method in the United States

In the United States, after a developer has done everything possible to minimise its impacts on biodiversity, a developer may compensate for its residual impacts in one of three ways: by independently implementing compensatory measures, by paying a sum of money to a biodiversity conservation body, or by purchasing credits from a mitigation bank. These credits, which are based on the surface area of the bank or its functional value, concern wetlands, watercourses or endangered species. Their price significantly varies according to the costs of the operation, the location of the bank (land price), and the supply and demand.

Since 2008, the regulations for aquatic resources have favoured banks due to their advantages in relation to the other compensation methods, in pursuit of the target of "zero losses of wetlands" set in 1989. Indeed, the anticipation of needs by the operator of the bank makes the compensation effective even before the impact of the projects. Furthermore, the banks pool the compensatory measures for several projects on a single site (the compensation site) and within a single structure (the bank). This pooling and the associated economies of scale offer ecological consistency, easier monitoring for the authorities and additional guarantees in terms of sustainability, ecological expertise and financial resources.

In 2011, mitigation banks implemented 26% of compensatory measures (Ecosystem Marketplace, 2011). This proportion could increase, given the trend observed since the 1990s and the regulations in favour of banks that have been in force for aquatic resources since 2008 (figure 1).

Figure 1: Number of American mitigation banks for aquatic resources



Source: Ecosystem Marketplace, 2011. ELI, 2006b

An economic instrument that is strictly regulated by the public authorities

Compensation for damage to biodiversity via banks is a market mechanism based on supply and demand. In the United States, this mechanism is strictly regulated:

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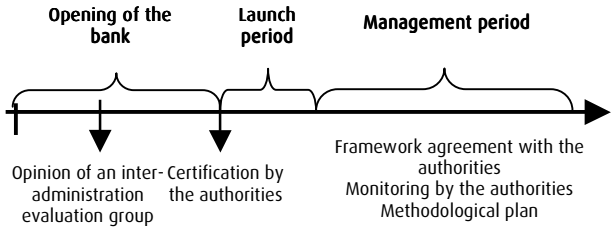
the opening of a bank follows a certification process and its operation is specified by an agreement with the authorities (Figure 2). This supervision is especially designed to address the risk of the compensation being considered as a "licence to destroy biodiversity", i.e. causing a developer to reduce its efforts to minimise the impacts due to the existence of a "turnkey" compensation mechanism.

Figure 2: Regulation of mitigation banks



The certification process appraises the ecological performance of the bank, subject to a performance obligation, and its financial viability. The elements analysed are the location and the mechanisms for protecting the site, the ecological actions, the anticipated performances, their monitoring, the rules for exchanges of ecological losses* and gains* and financial guarantees. Once certified, the bank can start selling its credits but each credit can only be sold once.

As long as a developer purchases the type and number of credits required for its project from a bank, the responsibility for the deployment of the compensatory measure is transferred from the developer to the bank. In the event of the bank's failure to achieve the objectives, the authorities shall take action against the bank and not the developer. To manage this risk, insurance companies offer coverage in the event of the failure of the restoration or of a natural disaster on the site.

Focus on France: experimentation with compensation banking within the existing legal framework

France is analysing the pertinence and feasibility of compensation banks within the existing legal framework, based upon pilot operations concerning different habitats and species and using several economic models. An operation has been underway since 2008 and four new operations should be launched in 2012. The operation of the banks is regulated by an agreement between the French Ministry of Sustainable Development and the operator, and one national committee and one local committee carry out monitoring. For a developer, resorting to a bank remains just one of several ways to compensate for its impacts. Unlike in the United States, a developer that uses a bank retains the responsibility for the proper implementation of its compensatory measures.

The ecological actions implemented by American mitigation banks may be intense and predictable to varying degrees: actions to restore, rehabilitate and create environments provide greater ecological added value than preservation actions, but have a lower probability of succeeding. Authorities recommend the first ones for aquatic resources and the second ones for endangered species. In practice, a mixture of these different measures can be observed within a single bank.
In 2005, restoration actions accounted for 70% of the measures implemented by the banks for aquatic resources (ELI, 2006b). Many banks have not succeeded in replacing the functions of destroyed wetlands (eftec, 2010). This can be explained by the uncertainty of restoration (type of techniques, climate, etc.), the non compliance with the bank's agreement or the insufficient management of the sites.

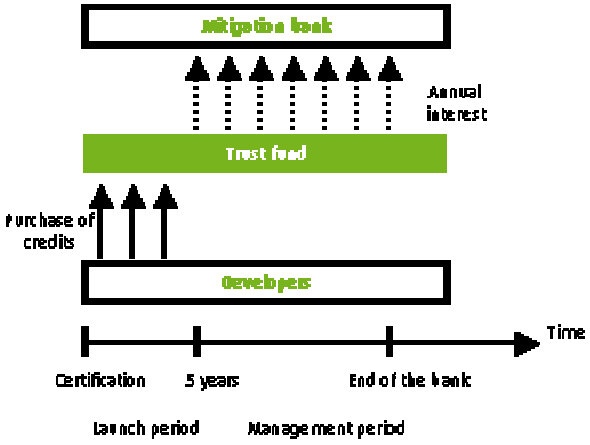
Perpetuation by financial and legal instruments

The sustainability of the banks is ensured at two levels.

Trust fund

A mitigation bank can only be certified if it possesses a trust fund, whose annual interest rates allow it to finance management measures throughout the entire commitment period. The bank transfers a sum of money for a fixed period to an independent organisation that capitalises it and then pays back the annual interest to the bank. This does not deplete the fund capital (Figure 3). The sum is constituted by the sale of credits to developers during the launch period of the bank; if not all of the credits have been sold at this stage, the operator itself must add to the fund.

Figure 3: Operation of the trust fund



Focus on France: trust

Trust (*fiducie*), a French financial instrument resembling American trust funds, has only existed in France since 2008. The use of trust to perpetuate the financing of compensation has not been tested in France.

Conservation easements

The site of an American bank is generally protected by an easement. This is a legal act entered into between the owner and the bank, which allows the site to be permanently protected by prohibiting any construction or artificialisation. The easement concerns the land and is not affected by the transmission of the property to anyone else.

Focus on France: instruments for the ecological function of compensation sites

In the framework of pilot compensation banks, the agreement with the French Ministry of Sustainable Development requires a minimum management period of 30 years and, beyond this, a guarantee concerning the ecological function of the site. Thus, if the operator of the bank is the owner of the site, it can transfer it to a perennial structure fulfilling the general-interest missions of biodiversity conservation, such as the *Conservatoire des espaces littoraux et des rivages lacustres* (body responsible for the preservation of French coastal areas and lake shores), local authorities, foundations recognised as being in the public interest (*fondations reconnues d'utilité publique*) or associations with an endowment fund (e.g. *Conservatoires d'espaces naturels* – bodies responsible for the preservation of natural areas). If the land is transferred before the end of the bank's commitment period, it assigns a budget to the structure, which allows it to finance the ecological management measures.

Rules of exchange between ecological losses and gains: some methods specified locally

As the banks are not "tailor-made" compensation operations, there is a risk of dissociating the compensation from the type of impacts. To prevent this risk, their economic model must conform to the rules of equivalence, so that banks sell credits for habitats or species that correspond to the demand for compensation in the territory concerned. This equivalence is assessed according to four dimensions: ecological, geographical, temporal and societal.

Focus on France: equivalence and compensation banking: a link to be evaluated

One of the aims of the experimentation is to identify the conditions of success required for the compliance of compensation banking with the principle of equivalence (choice of site, type of environment concerned, local governance, etc.). It will also allow for the testing of different evaluation methods for ecological gain that each operator must develop in order to define the subject of the units generated and the equivalence with the impacts of developers using their bank.

Ecological equivalence: numerous methods for in-kind compensation

The American Army's Engineering Corps, in charge of applying the Water Act, favours compensation for the same types of environment as those affected, with exceptions being possible if they are feasible and preferable for the environment. It allows the local authorities to decide upon the evaluation methods for ecological losses and gains. Approximately 40 methods have thus been developed, divided into three types (Tableau 1).

Table 1: Three types of evaluation methods for ecological losses and gains

Type of method	Simple evaluation	Partial tailor-made evaluation	Exhaustive tailor-made evaluation
Description	Measures a characteristic that is quick and easy to observe and acts as an indicator for one or more functions or services.	Directly measures a function.	Qualitatively measures a set of functions based on numerous observable characteristics.
Examples	Surface area. Number of species	Percentage of duck habitat. Standard of water purification.	
Percentage of use	53%	42%	5%

Source: Duke Law School, 2005

These three types of measures show a trade-off between complexity, data requirements and costs, on the one hand, and the quality of consideration of the functions* and ecosystem services*, on the other. The simple and partial tailor-made evaluations pose the same risk of only targeting the compensation at the characteristics or functions that have been evaluated, in contrast to the exhaustive tailor-made evaluations. Simple evaluation methods predominate for the banks created between 1994 and 2005, due to the failure of the authorities to recommend the use of more stringent methods. The 2008 regulations on aquatic resources now requires the evaluation of losses and gains to be based on the best available scientific knowledge. Thus, if function-based methods exist in the States, they must be used as a priority. Otherwise, surface area or linear criteria may be used.

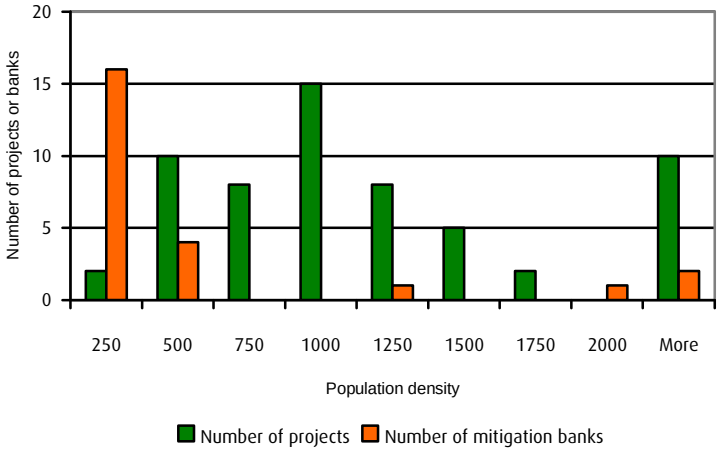
Geographical equivalence: local zoning...

In the United States, a bank for aquatic resources compensates for the impacts of projects situated in proximity to it, within the bank's "service area". The delimitation of this area is based on hydrological and biotic criteria in addition to cartographical classifications. The service area is generally a basin area but may be bigger, e.g. if the bank generates credits for linear infrastructure projects which have several small impacts on different basin areas. The sale of credits to projects outside the service area is authorised on a case-by-case basis, if it is feasible and preferable for the environment.

.. but the shifting of wetlands from urbanised environments towards rural environments

In general, a bank seeks a site on which it will be able to manage land or land uses at the lowest cost, often in a rural environment. At the same time, development projects primarily occur in industrial and urban environments. Within the service areas of banks, a study carried out in Florida thus shows the "shifting" of wetlands from urbanised (dense) environments, which are suffering numerous losses, towards rural environments (relatively sparse), which are vehicles for compensatory measures (Figure 4). This shifting leads to a reallocation of the services provided by ecosystems at the local level, e.g. heat regulation, for the benefit of certain populations and to the detriment of others (ELI, 2006a).

Figure 4: Difference in population density between sites of projects and sites of compensation in Florida (ELI, 2006a)



Temporal equivalence: sale of credits staggered according to ecological performance

In the United States, credits must be sold by the bank in phases, according to the ecological performances achieved. For example, a bank can only sell the first 10% of its credits when it has achieved 10% of its performance targets. This principle is applied in a flexible manner, however. If the initial investments are high and if the bank can show financial guarantees and a strong likelihood of succeeding, a limited proportion of the credits may be sold before the performance has been achieved.

Transparency and monitoring: conditions for efficient operation

The American authorities focus their monitoring on the mitigation banks rather than on the individual compensation measures for each project. However, the resources allocated to monitoring remain inadequate: a study conducted by the *National Research Council* showed that 63% of the banks were inadequately monitored (eftec, 2010).
To this can be added the lack of centralised information about banks and their credits, hence the difficulties in monitoring them, high transaction costs, and the risk of credits being sold twice.
To remedy this problem, in 2010 the national authorities created a database that is accessible online (*Regulatory In lieu fee and Bank Information Tracking System*, RIBITS), which lists the location, surface area, status (under investigation, certified, exhausted, finished or suspended), governance and type of credit (but not their price) about each bank. This database also contains information about the existing credit categories and methods commonly used for evaluating the losses and gains for each State (Figure 5).

Figure 5: Fictitious example of a mitigation bank registered on RIBITS
(according to the RIBITS site)

Register of sales of credits

Date of last transaction: 01/02/2012

	Credits available for sale	Credits sold	Credits granted	Potential credits
Wooded wetlands	50	100	150	150
Marshland	20	10	30	50
Willow Willow copse	0	0	0	50

The authorities would like to supplement this database with new fields relating to each sale of credits: identity of the credit-buying developer, location of the project, distance between the project and the compensation site, etc. The aim is to evaluate the compliance with equivalence – especially geographical and societal – on a national scale.

Focus on France: implementation of mandatory monitoring

The French law concerning the national commitment to the environment of 12 July 2010 makes it compulsory to monitor compensatory measures and their effects. Currently, the results of the inspections are entered in sectoral (e.g. French Water Act [*Loi sur l'eau*]) or local databases in an inconsistent manner. Eventually, the monitoring results may be recorded in a national online monitoring tool, for which preparations are currently underway, and which will include gateways to existing sectoral tools.
In the context of the experimentation with compensation banks, a register of credits is kept by each local authority concerned. Data will then be consolidated by the French Ministry of Sustainable Development with a view to evaluating the mechanism at the national level.

Glossary (*)

Developer or **project holder**: organisation responsible for a development project (public or private company, authority, private individual, etc.).
Operator: public or private structure responsible for a mitigation bank.
Credit: unit of sale of ecological gains issued by a mitigation bank and characterised by its purpose (species, habitat or function) and its price.
Function (ecological): biological process allowing for the operation and maintenance of ecosystems.
(Ecosystem) service: a benefit from ecological functions derived by humans.
Ecological gain / *loss*: improvement / *degradation* of the environmental quality of the compensation site / *of the affected site* in terms of habitat, species, function or service thanks to the ecological actions of the mitigation bank / *due to a development project*.

Bibliography

- French Ministry of Sustainable Development, 2012. *Compensating for damage to biodiversity: an international benchmarking study*.
- Ecosystem Marketplace, 2011. 2011 Update - *State of Biodiversity Markets - Offset and Compensation Programs Worldwide*.
- Eftec, IEEP, 2010. *The use of market-based instruments for biodiversity protection - The case of habitat banking*.
- ELI, 2006a. *The Effects of Wetland Mitigation Banking on People*.
- ELI, 2006b. 2005 *Status Report on Compensatory Mitigation in the United States*.
- Duke Law School, 2005. *« No net loss » - Instrument choice in wetlands protection*.
- EPA, 1992. *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks*.

For further information

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