

Compensating for damage to biodiversity:

international experiments and lessons for France

Compensatory measures are ecological actions, e.g. the restoration of ponds or meadows, which help to offset losses of biodiversity due to development projects (motorways, wind farms, housing estates, etc.), when the developer has been unable to prevent or reduce these losses. To avail itself of more efficient compensatory tools, the French Ministry of Sustainable Development (*ministère du Développement durable*) consulted 29 countries about their compensatory practices, the obstacles and applied solutions. The degree of maturity of compensatory policies varies greatly between countries. Nevertheless, common schemes are apparent in terms of ecological assessment methods, in addition to economic, financial and legal mechanisms. Certain solutions could inspire the French methodological framework that is currently being developed.

A compensatory measure (or “biodiversity offset”) is an ecological action that aims to restore or recreate a natural environment in order to offset a damage to biodiversity caused by a project or planning document. It only concerns the residual impact remaining after avoidance and impact-reduction measures, which take priority. For example, if the building of a road leads, despite all mitigation measures taken, to the destruction of wetlands, the developer may, in compensation, offer to restore a wetland area that performs the same ecological functions, in proximity to the affected site.

In compensation, the developer must identify a suitable site, deploy efficient technical measures and ensure the long-term duration of their effects in conjunction with stakeholders in the area. The compensation must also complement public actions, especially if it concerns protected areas and species.

Taking inspiration from experiments carried out abroad in order to continue strengthening the French system

In France, compensation is included in several regulatory texts relating to environmental impact studies for projects, Natura 2000, the Water Act, etc. However, the quality of the measures, their application and efficiency remain incomplete due to the multitude of investigation procedures, the absence of a methodological framework and the lack of monitoring of the measures undertaken.

To contribute to stopping the loss of biodiversity by 2020 – a commitment made by France at the international level – a new strategy has been launched with a strengthening of the recent regulations and the development of a shared methodological framework [2]. Since 2008, France has also been experimenting with the system of “compensation banks”: an economic tool designed to anticipate and pool the

compensation requirements for small projects.

To learn lessons from the compensation practices used abroad, a benchmarking study was carried out by the French Ministry of Sustainable Development via the economic services of the Ministry of Economy (*Ministère de l'économie*) [1]. This study concerned 29 countries and was conducted in the form of a questionnaire.

The 29 countries studied

European Union (EU): Germany, Austria, Denmark, Spain, Netherlands, Poland, Czech Republic, United Kingdom, Slovenia and Sweden.

Outside the EU: Argentina, Australia, Brazil, Canada (Quebec), Chile, China, United States, Ethiopia, India, Japan, Kenya, Morocco, Mexico, Norway, New Zealand, Peru, Russia, Switzerland and Vietnam.

An obligation to compensate that varies according to the countries and natural environments concerned

Compensation is not implemented in all countries, either because it is considered to be a “licence to destroy biodiversity” (Kenya), or because it indeed requires new skills (Vietnam).

In other countries, compensation for damage to biodiversity is provided for in the environmental impact assessment of projects, often in a marginal manner in relation to other environmental components (air, noise, etc.). In addition to this general framework, 19 countries reserve compensation for priority natural environments, such as the forests of Brazil, the indigenous vegetation of Australia and the wetlands of the United States. This targeting thus makes the compensation more restrictive.

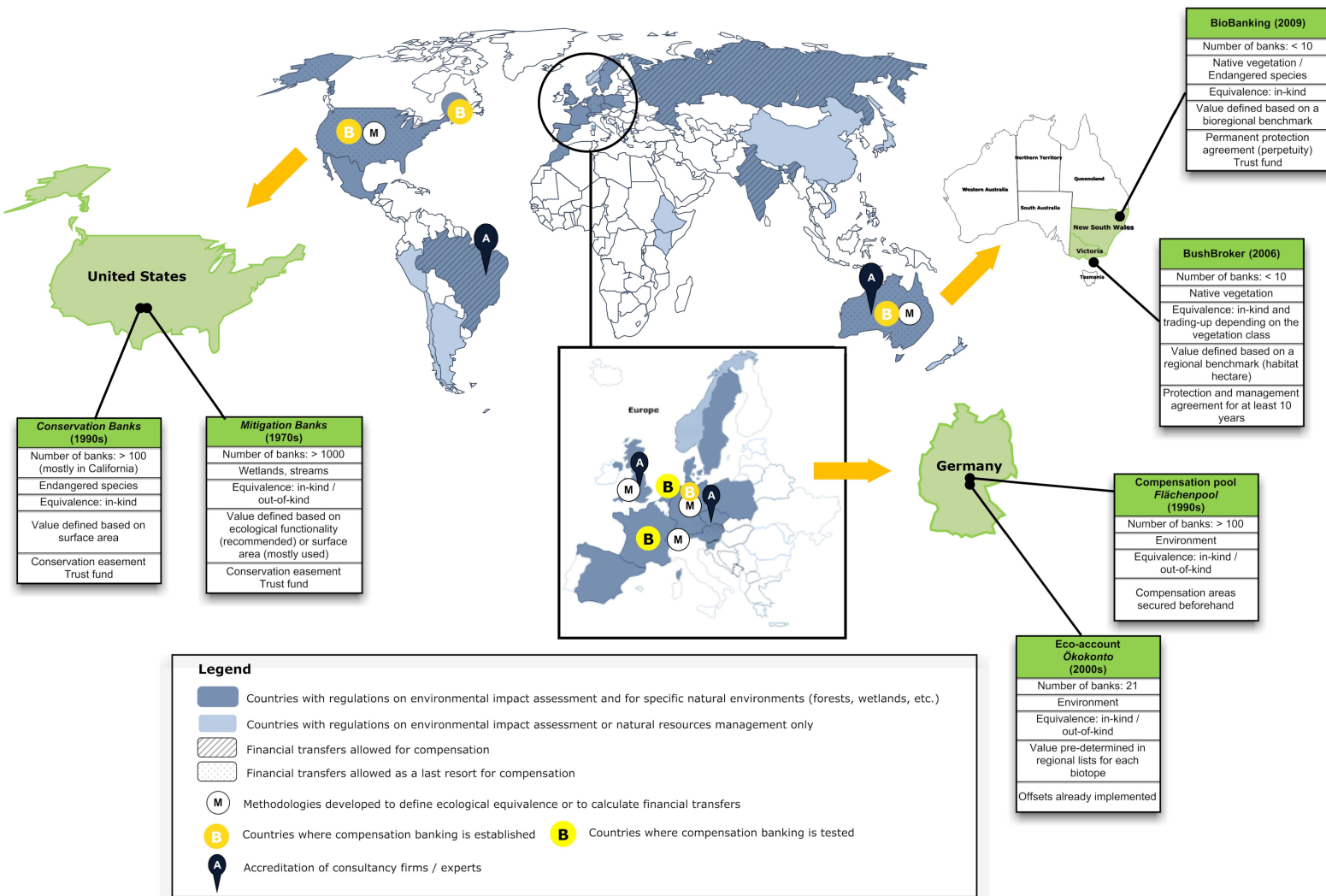


Figure 1: Survey of the implementation of compensatory measures in the countries studied

A mixed picture of practices

Only a few of the countries that implement compensatory measures have evaluated their efficiency, which often proves insufficient. In the Netherlands, according to an evaluation carried out by the Audit Authority in 2009, the authorities do not do enough to guarantee the pertinence of compensatory measures, their prompt implementation and their long-term management. In the United States, a study of 30 compensatory measures in California showed that a half to three-quarters of them might not have achieved their objectives. On the other hand, in Switzerland, it has been observed that in 25 years' time, the overall loss of the surface area of wet environments could be limited to 1%, thanks in particular to the monitoring carried out by non-governmental organisations (NGOs).

Certifying service providers to improve the quality of compensatory measures

To design a compensatory measure, the developer may call upon the services of service providers, which play an

essential role in conducting quality inventories and proposing pertinent measures. This is why certain countries such as Brazil, the United Kingdom and Switzerland accredit consultancy firms and certify ecologists' skills.

In France, where over 4,000 environmental impact studies are carried out each year, deliberations are underway concerning the creation of a code of ethics, as the first stage in the development of a scheme to provide recognition for consultancy firms [3].

Compensation in the form of a financial transfer and not directly "in kind": a marginal practice often carried out as a last resort

Whereas in the majority of countries, the developer takes direct responsibility for compensation "in kind", 14 of the countries studied authorise the payment of a sum of money to a fund, a public organisation or a local authority, which then becomes responsible for the implementation of the compensation. This alternative exists either as a last resort, if it is impossible to

compensate for the residual impact (Germany, Austria, etc.), or as a mode of compensation in its own right (Brazil, India and Russia). In Peru, the financial transfer equates to a payment for environmental services, in the form of financing for development projects to benefit local populations affected by an infrastructure.

An analysis of these practices suggests that the use of financial transfers should be regulated, given the risks of shifting the responsibility from the developer, of underestimating the amounts and because of uncertainties about their allocation. Financial transfer may tend to replace public financing to benefit biodiversity, as observed in Brazil. To manage these risks, the scope of these transfers is generally restricted to certain environments (forests, wetlands or marine habitats), and institutes are appointed to collect and use the funds. The running of these institutions is sometimes inadequate, as in India, where the compensation fund, launched in 2002, has been unused until 2009.

In France, financial transfers are not authorised, except for environments governed by the Forestry Act (Code forestier), in which they are little used. Funding, e.g. of research activities, may support and bolster ecological measures within a compensation programme, but it may not replace them.

Anticipating and pooling compensation requirements via banks: a multifaceted mechanism

To anticipate and pool compensation requirements, several countries – the United States, Australia and Germany – have made it possible for the developer to deal with a specialist third party: the operator of a public or private compensation bank. This mechanism is being tested in France, the Netherlands and Quebec.

A compensation bank concerns a natural site for which an operator implements ecological actions *in anticipation* of the compensation needs relating to future development projects within the area concerned. The operator may be the owner of the site or enter into management contracts with the owners or operators (e.g. farmers or foresters). The financial accompaniment for its actions comes from the progressive sale of credits to developers who must compensate for their impacts on the same habitats or species as those targeted by the bank. The price of the credit is based on the cost of the operation and/or supply and demand.

The banks are all heavily regulated by the State, but are based upon varied institutional frameworks: the operators may be private companies (United States), landowners (Australia) or municipalities (Germany). The banks aim to facilitate the implementation of the compensation: effectiveness of the compensation before the impact, the best cost-effectiveness, ecological consistency linked to the consolidation of compensation requirements on the same site, and simplification of the monitoring. In the countries in which they are established, the banks tend to become a favoured method of compensation, as in the United States where they are recommended by the authorities for wetlands. However, ecological inventories in the United States and Australia show that several banks have not achieved their objectives (see “Point Sur” no. 134 on the American mitigation banks).

In their economic model, the banks must integrate the uncertainty of the market in relation to the compensation

requirements of future projects. To reconcile the supply and demand and make the system transparent, the United States have introduced online databases and Australia has authorised brokers to act as a link between developers and owners managing the biodiversity on their land.

The emergence of banks has required changes to the regulatory framework of the countries concerned. In Germany, for example, the equivalence requirements were relaxed so that “land pools” could be established. To reduce the risk of dissociating the type of impact and the compensation, the American and Australian approach steers the banks towards priority environments (wetlands and indigenous vegetation) and shares out the supply over the territory, in order to maintain the requirements in terms of ecological equivalence and geographical proximity.

In France, the experimentation with compensation banks is based upon diverse operations in terms of habitats, species and governance. This choice is explained by the diversity of biodiversity issues within the national territory and the benefit of testing several economic models.

Achieving compensation that is equivalent to the impacts: surface area-based approach vs. multi-criteria assessment

By definition, a compensatory measure must be equivalent to the impacts of the project (an “in-kind” measure), i.e. aiming to maintain the environmental quality of the habitat or of the species concerned. However, according to the ecological issues at stake, certain countries accept “out-of-kind” measures, concerning different habitats or species to those affected (Figure 1).

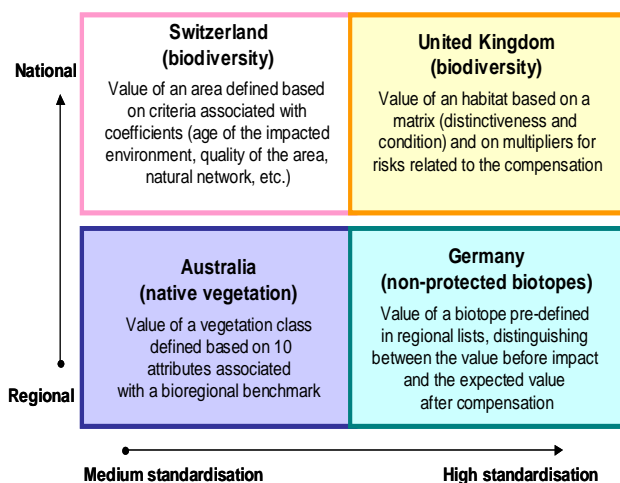
The availability of an assessment method for ecological gains and losses is essential to satisfy requirements for equivalence (both *in-kind* and *out-of-kind*) and to reflect the biodiversity conservation priorities. However, the methodology is often lacking in the countries studied, in which compensation is then defined by surface area ratios that lack a scientific basis (e.g. two hectares of restored forest compensate for one hectare of lost forest).

To go further than simply reasoning in terms of surface area, certain countries, and especially those in which compensation banks are established, have developed methods that assess the quality of environments according to several parameters. These multi-criteria methods allow ecological gains and losses to be expressed as a number of points using the same unit of measurement, to facilitate their comparison. The following methods are used to calculate the points: standardised lists of values per environment (Germany, outside of Natura 2000); the comparison of an affected or restored environment with benchmarks representing its optimal status (Australia, United States); matrices combining qualitative and quantitative criteria (Switzerland and the United Kingdom) (Figure 2).

The methods are not applied automatically, independently of the ranking of the ecological issues at stake. For “minor” issues, Australia and the United Kingdom allow the compensation to concern a higher-priority environment (“trading-up”). For major issues, equivalence is strictly applied: e.g. in Australia, an impact on a type of vegetation associated with a major issue must be compensated for by the purchase of the same type of credit in the same bioregion (“in-kind” compensation). Finally, for the most important issues, absolute limits are established: the Swiss

method, for example, does not apply to corridors of national importance, which are considered to be irreplaceable and therefore cannot be impacted.

Figure 2: Typology of assessment methods for ecological gains and losses



In France, the methodological framework that is currently being developed [2] insists upon the priority being given to avoidance and stresses that it is not possible to compensate for everything. It proposes a process to assess the environmental quality of an environment, employing the principles common to the multi-criteria methods developed abroad. It encourages the development of methods targeted at natural environments affected by key issues, without going so far as the standardisation adopted in Germany for non-protected biodiversity.

Monitoring compensation: tracking tools and the vigilance of NGOs

In the majority of cases, compensatory measures are monitored via the developer's reports and field inspections by the authorities. However, this monitoring is deficient in the majority of the countries studied, due to a lack of resources. This insufficiency prevents the delivery of precise feedback.

In light of these findings, certain countries are developing centralised databanks (Switzerland) or geographical information systems (Mexico and India). They target field inspections of the most important projects and, in the countries concerned, of the compensation banks. In certain countries (Brazil, Chile, India, Mexico, the Netherlands and Switzerland), NGOs play a key role in monitoring.

For further information

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[1] French Ministry of Sustainable Development. « Compensating for damage to biodiversity: an international benchmarking study ». Studies and Documents no. 68, August 2012.

[2] Ministère du développement durable. « Lignes directrices nationales sur l'évitement, la réduction et la compensation des impacts au milieu naturel ». Publication expected by 2013.

[3] Ministère du développement durable, Conseil général de l'environnement et du développement durable. « Compétences et professionnalisation des bureaux d'études au regard de la qualité des études d'impact ». Rapport n°007411-01, mai 2011.

[4] Loi n°2010-788 du 12 juillet 2010 portant engagement national pour l'environnement (art. 230 et 231).

In France, environmental policing, in addition to the policing of water and nature, will soon be established to monitor the measures prescribed in development permits [4]. A centralised tracking tool for the avoidance, reduction and compensation measures for environmental impacts is currently being designed, in order to monitor the location of measures, their execution status and effectiveness.

Perpetuating the effects of compensation: using legal and financial tools to facilitate a long-term approach

The perpetuation of compensatory measures is essential to achieving the aim of zero biodiversity loss. It is based on the commitment entered into by developers to maintain the management of the sites for a sufficiently long period. This duration is rarely stipulated in the regulations, but can be set out in the permit of the development project. It varies, according to the countries, from one year to perpetuity, and remains generally short in relation to the duration of the impacts. The requirements of the authorities with regard to this duration are linked to the available legal tools for purchasing land or managing its uses on the compensation site. It is difficult to purchase land in Europe due to the significant pressure on real estate, and also in certain emerging countries (e.g. India) due to the priorities in terms of development and food safety. Therefore, management contracts are sometimes favoured, with foresters and farmers for example.

Compensation banks provide the best guarantee of perpetuating these schemes, with commitment periods lasting as long as perpetuity through the implementation of the appropriate legal and financial instruments. American and Australian operators may resort to "conservation easements", which are legal tools that prevent construction or certain types of exploitation on the compensation site in perpetuity, even if the land is sold. Then, to ensure the long-term funding of the management of the site, trust funds are sometimes associated with the banks: developers pay money into a fund, from which the interest is paid to the operator of the bank each year in order to ensure the management of the site. However, in Australia, these funds are often found to be insufficient.

In France, the legislation does not impose a minimum commitment period. This is defined on a case-by-case basis. The future methodological framework [2] establishes that the compensation effects have to last as long as the impacts of the project. The experimentation with compensation banks, which improves the management of the land problem by creating synergistic effects, is based on a minimum commitment period of 30 years. In addition, deliberations concerning land mechanisms that could provide long-term security for environmental commitments are currently underway in the framework of the French National Strategy for Biodiversity.

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