INSTRUMENT NAME: 4.3 TRANSFER-BASED INSTRUMENTS: BIODIVERSITY OFFSETS AND HABITAT BANKING

Pondscape-specific definition: Transfer-based instruments consist of pondscape landowner/managers providing a verified level of an ecosystem service (e.g. carbon sequestration) in return for tradeable certificates, which they can then sell to buyers either bilaterally or through a market. To earn certificates, landowner/managers generally must implement specific methodologies that specifiy monitoring, reporting, and verification guidelines, alongside other rules. Markets can be voluntary markets (where buyers voluntarily purchase certificates) or compliance markets (where buyers are obligated to purchase certificates to meet regulatory requirements).

Biodiversity offsets are a transfer-based funding system where the person implementing the NbS is paid for providing a measurable ecological gain (i.e., biodiversity improvement) by an external party who are offsetting an ecological loss that occurs on a different site (DEFRA, 2013). Biodiversity offsets are commonly motivated by regulations requiring any business developments (e.g., new factory or housing) to achieve No Net Loss[1] of biodiversity (*Ibid.*). To achieve no net loss, developers then pay others to deliver biodiversity improvements in other areas. Biodiversity offsets can be voluntary (e.g. to achieve corporate social responsibility objectives) but are most often a form of compliance market, with different degrees of government intervention (Siak Koh, Hahn & Bonstra, 2019).

Habitat banking is a type of transfer-based instrument where landowners or managers manage land for conservation in line with streamlined guidelines in return for payment in the form of biodiversity offset credits, which are paid to them by an intermediary (who "banks" the biodiversity offsets) (ICF GHK 2013). The resulting credits can then be sold as biodiversity offsets to buyers required to compensate for ecological damage (as long as the habitat banking biodiversity gains are considered ecologically equivalent). By centralising and streamlining the process, the intermediary aims to lower the cost of generating biodiversity credits (relative to biodiversity offsets) by establishing robust, consistent methods for developing and verifying conservation actions and results and through economies of scale (ICF GHK 2013). Habitat banks are distinct from other biodiversity offsets as the credits are produced before and without links to the biodiversity debits that they will later compensate for and can be stored over time (eftec et al 2010).

CATEGORY	Tradable rights/permits and payments for ecosystem services			
ALSO-KNOWN-AS				
RELATED INSTRUMENTS	Payment for Ecosystem Services (PES); Voluntary carbon markets; water quality trading systems			
APPROPRIATE FOR: Who can use this type of financing instrument?	**Pondscape developer**	**NGOs and non-profits**	**Local/city/ regional govt. and agencies**	National govt. and public agencies
SOURCE OF FINANCE: Who provides the finance?	Any actor who requires biodiversity compensation because they are negatively impacting biodiversity on another site and are required to offset this damage to achieve No Net Loss of biodiversity. This may include private real estate developers but also municipalities or cities.			
PAYMENT FORM: What form is the payment?	Offset credit or certificate (which can then be sold for cash).			
IN RETURN FOR WHAT? What is the NBS project obliged to deliver in return?	Ecosystem-service provision – biodiversity.			
RECIPIENT REQUIREMENTS: What requirements must recipients meet to receive finance?	Any landowner can participate.			

[1] No Net Loss implies that any negative impacts that human development has on biodiversity must be balanced by at least equivalent biodiversity gains elsewhere. No Net Loss is often implemented through the mitigation hierarchy, which calls for development to avoid, minimize, and restore any biodiversity damage on site, with any remaining damage required to be offset elsewhere.

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PROJECT REQUIREMENTS: What requirements must the pondscape project meet?	- The project must deliver biodiversity improvements, and these must be considered ecologically equivalent to the biodiversity losses. This is sometimes calculated using indicator metrics that aim to capture the habitat distinctiveness and change in quality (e.g. DEFRA, 2013). - Measurable impacts: The pondscape project needs to be able to demonstrate measurable ecological gains (i.e. biodiversity improvements). This is generally demonstrated in relation to a pre-NBS baseline. - Additional impacts: The biodiversity improvements need to go beyond what would have occurred without the biodiversity offset incentive ("additionality"). This means that biodiversity offsets are most suitable for land with high biodiversity improvement potential, rather than land that is already under protection. - Permanence: The project must ensure that the biodiversity benefits will remain for the long-term (e.g. by proving that there is sufficient funding for the entire project lifetime).
OTHER REQUIREMENTS: What additional requirements are attached to the financing?	- Access to biodiversity offset credit markets or habitat banks. - Technical expertise in standards and certification processes. - Landowners may have to finance the development of the project upfront (and verify results) before receiving offset credits or certificates that they can sell.
SPEED: How quickly do recipients receive money?	Fast (<4months) – Medium(5-12months) – **Slow (12months+)**
FUNDING TIMELINE: When does the recipient receive the funding?	One-off or ongoing. Some biodiversity offset payments occur only once, while others are structured to provide long-term annual payments for landowners.

NBS TYPE: What types of NBS is the financing for?	**Pondscape creation**	**Pondscape restoration**	Pondscape management	
SCALES: What scale of financing?	**Small (<€10k)**	**Medium (€10k-€99k)**	Large (€100k-€999k)	Very large (€1million+)
COMPLEXITY: How complex is applying for the finance	Simple	Medium	**Complex**	
EXIST NOW IN EU?	**Yes**	No		

REFERENCES:

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Vaissière, A.-C., Quétier, F., Calvet, C., Levrel, H., & Wunder, S. (2020). Biodiversity offsets and payments for environmental services: Clarifying the family ties. Ecological Economics, 169, 106428. doi:10.1016/j.ecolecon.2019.10642

Instrument: 4.3 Transfer-based instruments: Biodiversity offsets and habitat banking example

Example name: 4.3.1 Eco-Accounts biodiversity offset: Lauter creek restoration

Example description: A small creek, the 'Lauter' in Germany, was modified to resemble a more natural stream which allows for fish migration. The 50.000€ restoration costs were paid for by private purchasers of newly constructed houses to offset the residual biodiversity impact of the development. The process followed the Eco-Accounts framework of the federal state of Baden-Württemberg, which quantifies negative biodiversity impacts to facilitate their offsetting through likewise quantifiable compensation measures.

Generally, the Eco-Accounts framework in Germany requires local municipalities to measure the negative biodiversity impact of building developments and require that these be offset by like-for-like biodiversity restoration. This biodiversity restoration can be either developed individually to offset a specific new development (as in the Lauter creek restoration). Alternatively, a habitat banking approach can be used, where the local municipality pays landowners in advance for compensatory actions which are then credited as "eco-points" to a central compensation pool, that developers can then purchase to cover their negative biodiversity impacts (Sian Koh, Hanh, & Boonstra 2019).

NBS DESCRIPTION			
LOCATION	Dettingen unter Teck, Germany		
NBS TYPE	Creation	**Restoration**	Management
ECOSYSTEM TYPE	Habitats for insects and plants; Conservation value		
NBS BENEFITS	The restoration of the municipal river 'Lauter' contributed to the broader goal of achieving river continuity for fish migration. For this purpose, a dam and weirs were removed, and the riverbed was restored by constructing rapids and pools. Riparian vegetation was replanted along the river benches.		
NBS DESCRIPTION	Not reported.		
SCALE (SIZE)	Not reported.		
NBS PERFORMANCE CRITERIA	Not reported.		
NBS PERFORMANCE	Dettingen unter Teck, Germany		
FINANCING DESCRIPTION			
SOURCE OF FINANCING	90% of the total costs were covered by 50 private homeowners, who paid a share proportional to their purchase of the total land for which compensation was required due to the residual impact of new housing development. The remaining 10% of the total costs were paid by the municipality.		
RECIPIENT	StadtLandFluss, a regional landscape planning office specialized in conservation and restoration planning, who developed the project.		
SCALE (FINANCING)	€50.000		
TIMELINE	One-off, as a commercial service.		
FINANCING REQUIREMENTS	Eco-Accounts are the biodiversity offsetting credits of the German state of Baden-Württemberg. They are managed on the municipal level and compensation measures are carried out within the municipal boundaries. Credits are mostly generated by the same actor for whose activities compensation is required, in which case credits are not traded (also applying to this example). Offsetting measures must satisfy one of the following criteria: - improve the quality of a given habitat, - create high value habitats, - support specific species, - re-create natural retention areas,		

	- re-create and improve the functions of soils, - improve groundwater quality The restoration of the 'Lauter' was assessed as a "punctual compensation measure," which is defined as a "small-area compensation measures resulting in ecological improvements going far beyond their surface and yielding positive effects across an area which is difficult to determine strictly" (Mazza & Schiller, 43-44). Under this scheme every Euro spent for the compensation is accredited four Eco-Account credits, resulting in 200.000 credits.
FINANCING PERFORMANCE	Not reported.
TRANSACTION COSTS	The process requires a technical valuation of the residual impacts, as well as a quantification of the offsetting measures. Transaction costs are not reported for this case but have likely resulted from the relatively high complexity of this task and the expertise required for it.
REFERENCE	Mazza L. & Schiller J. (2014) The use of eco-accounts in Baden-Württemberg to implement the German Impact Mitigation Regulation: A tool to meet EU's No-Net-Loss requirement? Available here: https://ieep.eu/publications/the-use-of-eco-accounts-in-baden-w-rttemberg-to-implement-the-german-impact-mitigation-regulation Sian Koh, Niak; Hahn, Thomas; Boonstra, Wiebren J. (2019) "How Much of a Market Is involved in a Biodiversity Offset? A Typology of Biodiversity Offset Policies," Journal of Environmental Management 232.

Instrument: 4.3 Transfer-based instruments: Biodiversity offsets and habitat banking example

Example name: 4.3.2 'District Licensing' for Great Crested Newts

Example description: In the South Midlands, England, private real estate developers whose developments have potentially adverse effects on newts can offset those impacts through the 'District Licensing' for Great Crested Newts. It is an alternative to the conventional mitigation and compensation approach for real estate developments. The 'District Licensing' approach compensates each destroyed pond with four newly constructed ponds, fully funded by the developer. Conservation entities implement the scheme, using the financing to find pond development on This approach is considered a win-win. The private real estate developer benefits from a faster licensing process and greater planning certainty, while newts benefit from a net increase in habitats.

NBS DESCRIPTION			
LOCATION	South Midlands, England, UK		
NBS TYPE	**Creation**	Restoration	Management
ECOSYSTEM TYPE	Ponds		
NBS BENEFITS	Biodiversity		
NBS DESCRIPTION	Ponds are rare habitats for the endangered and protected Great Crested Newts.		
SCALE (SIZE)	The scheme aims to create/restore 500 ponds of at least 600m2, with 386 already restored/created by Dec. 2020.		
NBS PERFORMANCE CRITERIA	Pond size: ponds must be larger than 600 m2 Biodiversity score: Ponds must reach a habitat suitability index score of greater than 0.7 Surrounding area: There must be 0.5 ha of adjoining terrestrial habitat and 500 m of 'connecting' habitat such as hedgerows for each new pond.		
NBS PERFORMANCE	The scheme is considered to be more successful than the conventional licensing approach as it creates a net increase in newt habitats.		
FINANCING DESCRIPTION			
SOURCE OF FINANCING	Private real estate developers.		
RECIPIENT	Conservation entities who act as pond developers (e.g. The Wildlife Trust), intermediated through Natural England (a public agency).		
SCALE (FINANCING)	Direct financing in first year was £200,000[2], across 29 projects (average of £6900 per project). Payment rates to pond developers are individually negotiated, so range in size. Real estate development payments in first year were £0.5 million, with individual developer payments ranging from £500-more than £20,000, depending on expected negative impact on ponds.		
TIMELINE	Ongoing: Landowners receive an annual payment on a five-year rolling contract (to allow for flexibility) with a commitment to payments for at least 25 years.		
FINANCING REQUIREMENTS	Financing goes to private or public sites. The site must offer potential high-quality habitat for newts. Pond developers must sign rolling five-year contracts.		
FINANCING PERFORMANCE	Although the habitat offsetting approach can be slightly more expensive in some cases than the conventional approach, private real estate developers favour the approach as it is faster and reduces uncertainties. This advantage has funded the creation of 386 ponds.		

[2] Note this figure includes pond creation and set aside for ongoing management, excludes all transaction costs administration costs.

TRANSACTION COSTS	"A significant investment of time and resources was needed to set the scheme up because it required: • brokering partnerships with Local Planning Authorities • surveying and modelling the newt distribution and habitats across the region • defining conservation objectives and a conservation plan (that refer to local and regional Favourable Conservation Status) • ensuring compliance with European Protected Species legislation and the new licensing policies • ensuring that the technical, legal and administrative processes are simple for developers and planners • establishing a delivery mechanism for creating, managing and monitoring large networks of newt habitats in perpetuity." (Tew et.al 2019; 37). 85% of developer money goes directly into habitat creation/restoration, management and monitoring, leaving 15% for other purposes of which some (or all) may cover transaction costs (i.e. administration of the scheme through Natural England).
REFERENCE	Tew, T., Biggs, J. and Gent, T. (2018). 'District Licensing' for Great Crested Newts – Delivering a Big Idea. In Practice – Bulletin of the Chartered Institute of Ecology and Environmental Management, 100: 33-37. Tew, T., Biggs, J. and Gent, T. (2019) District Licensing for Great Crested Newts – A Successful First Year for the South Midlands Scheme. In Practice – Bulletin of the Chartered Institute of Ecology and Environmental Management, 103: 28-32.