POLICY OPTIONS FOR AN EU NO NET LOSS INITIATIVE

STAKEHOLDER WORKSHOP

Wednesday 3rd July 2013,

Guimard Building, Rue Guimard 10, 1040 – Bruxelles

BRIEFING DOCUMENT

The Institute for European Environmental Policy (IEEP)

in collaboration with

IVM, Eftec and GHK

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The authors have full responsibility for the content of this report, and the conclusions, recommendations and opinions presented in this report reflect those of the consultants, and do not necessarily reflect the opinion of the Commission.

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Final Agenda

Morning Chair Laure Ledoux, European Commission)

9.30: Introduction to the No Net Loss (NNL) policy, NNL Working Group and policy options study Laure Ledoux, European Commission

9.45: Overview of the main causes of ecosystem change and impacts on biodiversity and ecosystem services to 2020 under a business as usual scenario – i.e. the need for measures to achieve NNL (Ben Allen, IEEP)

10.05: The mitigation hierarchy and main existing policy instruments to avoid and minimise impacts (Graham Tucker, IEEP)

10.25: Measures to deal with residual impacts, including offsets and habitat banking and key considerations in their design and implementation (Matt Rayment, ICF GHK)

11.00 Break

11.30: NNL policies and offsetting lessons from experiences outside the EU (Kerry ten Kate, Forest Trends)

12.00: NNL policy and offsetting lessons from experiences within the EU (Mavourneen Conway, ICF GHK)

12.30: Lunch (not provided)

1.30: Breakout groups to discuss three main topics:

- Avoiding and minimising impacts (e.g. by enhancing existing EU instruments through enforcement, guidance and capacity building). Chair: Graham Tucker (IEEP); Rapporteur: Jo Treweek (Treweek Environmental Consultants).

- Offsetting residual impacts from built developments and extractive industries. Chair: Ian Dickie (eftec); Rapporteur: Mavourneen Conway (ICF GHK).

- Offsetting residual impacts from land use and management changes from agriculture and forestry. Chair: Matt Rayment (ICF GHK); Rapporteur: Kaley Hart (IEEP).

3.00: Break

Chair Francois Wakenhut, European Commission

3.30: Report back from break-out groups and plenary discussion of findings

4.30: Summing up of key conclusions (Laure Ledoux, European Commission)

4.40: Close

INTRODUCTION

The EU's 2020 biodiversity targets and the NNL initiative

The EU has a target to '*halt biodiversity and ecosystem service loss by 2020, to restore ecosystems in so far as is feasible, and to step up the EU contribution to averting global biodiversity loss'*. To support the achievement of this target (and CBD targets agreed in Nagoya in 2010) the European Commission has developed in cooperation with Member States, an EU Biodiversity Strategy to 2020 , including six sub-targets and 20 supporting actions. Amongst these is Target 2, which aims to ensure that '*by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems'*.

To support Target 2, Action 7 supports aims to "ensure No Net Loss (NNL) of biodiversity and ecosystem services". This action consists of two complementary sub actions. Firstly, Action 7a states that "In collaboration with the Member States, the Commission will develop a methodology for assessing the impact of EU funded projects, plans and programmes on biodiversity by 2014". The focus of this current study and workshop is on supporting the second component of the NNL framework, ***Action 7b, which states that "the Commission will carry out further work with a view to proposing by 2015 an initiative to ensure there is NNL of ecosystems and their services (e.g. through compensation or offsetting schemes).***"

The intention to ensure NNL of biodiversity and ecosystem services was reinforced in the Council conclusions of 21 June 2011, which emphasised the need to develop and implement a methodology taking into account existing impact assessment processes to assess the impact of all relevant EU-funded projects, plans and programmes on biodiversity and ecosystems. It also stressed the importance of further work to operationalise the NNL objective of the Strategy for areas and species not covered by existing EU nature legislation and of ensuring no further loss or degradation of ecosystems and their services. The conclusions also provide the following preliminary definition of the NNL concept: ***'that conservation/biodiversity losses in one geographically or otherwise defined area are balanced by a gain elsewhere provided that this principle does not entail any impairment of existing biodiversity as protected by EU nature legislation***'.

Subsequently the Council Conclusions of 19 December 2011 agreed 'that a common approach is needed for the implementation in the EU of the NNL principle and invited the Commission to address this as part of the preparation of its planned initiative on NNL by 2015, taking into account existing experience as well as the specificities of each Member State, on the basis of in-depth discussions with Member States and stakeholders regarding the clear definition, scope, operating principles and management and support instruments in the context of the common implementation framework of the Strategy'.

The need for a NNL initiative is also referred to in the Resource Efficiency Roadmap, which calls for proposals to foster investments in natural capital, to seize the full growth and innovation potential of Green Infrastructure and the 'restoration economy' through a Communication on Green Infrastructure (2012) and a NNL initiative (2015).

In addition the European Parliament also adopted a resolution on 20 April 2012[1], urging the Commission to develop an effective regulatory framework based on the 'No Net Loss' initiative,

[1] http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/EP_resolution_april2012.pdf

taking into account the past experience of the Member States while also utilising the standards applied by the Business and Biodiversity Offsets Programme[2] (BBOP) (see Annex 1). Importantly, the report also refers to the importance of applying such an approach to all EU habitats and species not covered by EU legislation.

It is therefore clear that the potentially broad social and economic benefits of a NNL initiative for biodiversity and ecosystem services has been widely recognised, which has resulted in a strong and clear political mandate for the Commission to develop this initiative.

To help achieve its biodiversity targets the European Commission has established a number of Working Groups under a Common Implementation Framework to obtain the views of stakeholders on key issues. Amongst these is a Working Group on NNL of Ecosystems and their Services (NNL Working Group). The objective of the Working Group is to collect views from Member State representatives, stakeholders and experts on the way forward for the NNL initiative announced for 2015, within the mandate of the 2011 December Council conclusions, taking into account all relevant policies and instruments. The aim is to support the European Commission in its preparation of a NNL initiative. The Working Group is expected to develop recommendations by mid-2013.

The NNL Working Group is currently working on the potential scope and objectives of the NNL initiative, with an accompanying glossary. It also aims to produce a paper summarising views on 'operating principles' of NNL, and 'management and support instruments' for NNL.

THE SCOPE AND OBJECTIVES OF THIS WORKSHOP

Objectives of the current study on policy options for achieving NNL

To further assist with the development of the no net loss policy the European Commission is hosting this workshop, as part of a eleven-month study being carried out by IEEP, IVM, Eftec and ICF GHK. The study aims "***to support the Commission in developing the NNL initiative foreseen in the EU Biodiversity Strategy to 2020 by developing potential alternative options for this initiative, and analysing their main impacts.***"

In addition to organising this workshop, it has the following components:

1. Develop a business as usual scenario against which to evaluate alternative options
2. Develop policy options for implementing NNL goals
3. Analyse the impacts of policy options
4. Develop recommendations on the way forward

The key impacts that need to be addressed

The first component of the study is still underway, but it is possible to reliably identify the impacts on biodiversity and ecosystem services that are most likely to be significant according to the BaU

[2] http://bbop.forest-trends.org/

scenario to 2020. The preliminary results indicate that there are a very wide range of sources and types of impacts, and although many of these may only be low or local they all need to be adequately addressed to achieve NNL of biodiversity and ecosystem services. It is also important to point out that some small-scale environmental changes can have disproportionally high biodiversity impacts, eg if they affect a particularly important area (such as Natura 2000 site). Furthermore, many low level impacts are commonplace, and therefore can lead to more significant cumulative impacts, such as through habitat fragmentation and wide-scale pollution.

It is also apparent that some expected sectoral activities are likely to lead to further significant residual impacts on biodiversity under the BaU scenario, and may therefore prevent the achievement of the biodiversity target unless they are addressed by new or enhanced environmental measures. These key impacts can be further summarised as:

- Site impacts (eg from the footprint of the development, and the disturbance and pollution of surrounding areas) of built developments (eg housing, industry, transport infrastructure) and extractive industries (eg coal mining, gravel extraction).

- Wide-scale pollution impacts from urban areas, transport, industry and agriculture, and in particular eutrophication of sensitive terrestrial habitats (from air-borne nitrogen deposition) and pollution of fresh and marine waters from sewage and waste-water (although declining) but also nutrient rich-run off that is increased as a result of agricultural and forestry activities.

- Expansion of forest plantations (especially where these replace or fragment semi-natural habitats, many of which are habitats of Community interest under the Habitats Directive), and intensification of forest management, which may increase in response to rising demands for energy from wood biomass.

- Agricultural improvements (eg drainage and reseeding of grasslands), specialisation (resulting in reduced landscape diversity and larger fields and farm units) and intensification (eg increased frequency of cultivations and higher use fertilisers and pesticides), particularly in eastern Europe.

- Agricultural abandonment, leading to the loss of traditionally managed semi-natural habitats such as some grasslands, heaths and pastoral woodlands (many of which are habitats of Community interest under the Habitats Directive).

- Continued high levels of commercial fishing, with direct impacts on target species, and by-catch (fish, invertebrates, birds and cetaceans) and habitat damage from bottom dredging/trawling. Although there are current CFP proposals that will ban discarding and aim to ensure all fisheries are under sustainable management to achieve a maximum sustainable yield, ongoing impacts to 2020 are highly likely.

- On-going impacts, and further spread, of invasive alien species (IAS) within the EU and the arrival of new IAS, which is exacerbated by a number of sectoral activities, most notably international transport.

Clearly, to achieve NNL of biodiversity and ecosystem services it will be necessary to develop policy measures that address all these pressures. Thus NNL measures need to cover all sectors.

It is also important to remember that NNL policy measures should follow the mitigation hierarchy, under which emphasis should be given to avoidance of significant adverse impacts at source as the first objective. This should normally be followed by efforts to identify mitigation measures to reduce or minimise impact and finally use of compensation or offsets (see Glossary in Annex 2 for definitions) to remedy unavoidable damage or loss. Annex 3 provides a more detailed explanation of the mitigation hierarchy.

This NNL policy options study and workshop will therefore consider possible instruments that address all stages of the mitigation hierarchy. But it will mainly focus on measures that aim to address unavoidable residual impacts (ie those that remain after avoidance, minimisation and rehabilitation measures have been taken). This is because analysis of current policy instruments indicate that most existing measures aim to avoid or reduce impacts, and the most significant policy gaps (outside the Natura 2000 network) relate to dealing with residual impacts. While there is undoubtedly scope for further progress in avoiding and minimising impacts through extension and improved implementation of the current range of policy instruments, the need for new and dedicated instruments to deal with residual impacts is a necessary and distinctive element of a no net loss policy – NNL cannot be achieved unless residual impacts are effectively tackled. Furthermore, the recent *Biodiversity Proofing Study* assessed avoidance and minimisation measures in relation to EU funding instruments in detail and provided recommendations for improving biodiversity proofing[3]. Furthermore, the analysis and development of specific policy recommendations relating to air and water pollution, fisheries and IAS will only focus on measures that address residual impacts, such as through offsetting. This is because policy measures that aim to avoid and reduce impacts already exist (for most pollutants) or are the subject of current proposals and discussion (i.e. regarding the reform of the CFP and current proposals for an instrument on IAS).

Objectives of this workshop

Taking the overall NNL objective and priorities discussed above into account, the broad objective of this stakeholder workshop is to obtain ideas and feedback on key NNL policy options, including:

- sectoral coverage;
- levels of biodiversity to be addressed;
- need for mandatory versus voluntary approaches; and
- specific policy measures and their key design components.

[3] Biodiversity Proofing is defined in the study as a structured process of ensuring the effective application of tools to avoid or at least minimize harmful impacts of EU spending and to maximise the biodiversity benefits.

In addition, it is anticipated that some time will be spent discussing possible policy packages that could be taken forward for further analysis in this study, and possibly the foreseen formal impact analysis by the Commission.

Structure of the workshop

The morning plenary session will briefly review the policy background and aims of the NNL policy initiative, identify the key pressures on biodiversity and ecosystem services that need to be tackled to achieve NNL, identify the broad range of policies that may be used to achieve NNL and summarise lessons learnt from the implementation of NNL policy measures in the EU and elsewhere. The plenary session will provide the background for more detailed breakout group discussions of key issues that would need to be tackled to achieve NNL.

There are a number of ways that the breakout discussions could be organised, and a large number of subjects that could be discussed, but to focus this workshop on some of the most important issues three breakout groups will discuss (as further described below):

- Avoiding and minimising impacts (e.g. by enhancing existing EU instruments through enforcement, guidance and capacity building).

- Offsetting residual impacts from built developments and extractive industries.

- Offsetting residual impacts from land use and management changes from agriculture and forestry.

Within each of these group discussions, consideration will also be given to whether:

- suggested measures should be voluntary or mandatory; and

- measures should just address the most important ecosystem services and scarce biodiversity (eg biodiversity of EU importance as covered by the Birds and Habitats Directives, and other biodiversity that are of national importance, such as listed in National Biodiversity Strategies and Action Plans), or all biodiversity and ecosystem services.

It may be noticed that the breadth and depth of the subject matter covered in the three workshop break-out sessions differs considerably amongst them. This is primarily because the sessions on avoiding and minimising impacts, and dealing with residual impacts from agriculture and forestry will need to consider a broad range of potential instruments. Furthermore, up to now there has been no policy driver for achieving NNL on agricultural land and in forests, and therefore there has been little consideration of NNL policy options. Consequently, the discussions on the topic may need to consider some first principles and will only aim to identify some general options for further detailed consideration in the study. In contrast the principles and options for offsetting impacts from building developments are relatively well established and there are existing schemes to draw lessons from. The session will also aim to build on the results of the European Commission hosted

Habitat Banking study workshop that was held in 2012[4], which considered the supply, demand, costs and design of offsets and habitat banking schemes.

Avoiding and minimising impacts (e.g. by enhancing existing EU instruments through enforcement, guidance and capacity building)

In principle the EU and its Member States have a relatively comprehensive environmental policy and legislative framework, that should identify, avoid and reduce impacts (especially from major built developments) on biodiversity and ecosystem services. Where developments significantly affect the Natura 2000 network, risks to biodiversity should be managed through the requirements and provisions in place under the Habitats Directive (in particular under Article 6(3) and 6(4)[5].

In the wider environment major potential environmental impacts tend to be covered by the EIA and SEA Directives. The EIA Directive[6] requires a systematic assessment of the likely environmental impacts of projects in a wide range of sectors. As a result the EIA process helps ensure that project development and planning decisions take environmental impacts into account by incorporating adequate measures to avoid or reduce, and if possible, offset potential impacts from the planning stage. It may also result in the rejection of project options whose likely impacts are considered unacceptable by the competent national authorities (but this is not mandatory). The SEA Directive extends EIA procedures and principles from projects to plans and programmes. One of its strengths is that it has the potential to overcome many of the limitations of project-based EIA by providing opportunities for conservation of biodiversity and ecosystem services to be considered as a fundamental part of strategic decision-making.

In addition to SEA and EIA requirements, in the case of the marine and water environment, there are several comprehensive and ambitious measures in place (e.g. Water Framework Directive, Marine Strategy Framework Directive and the Floods Directive) both to improve the quality of the environment and to protect biodiversity from further losses. Measures which seek to protect the environment from industrial developments are wide ranging, and some in principle afford a good level of protection and ensure that impacts are avoided and/or reduced (e.g. Mining Waste Directive, Environmental Liability Directive and the Industrial Emissions Directive).

These policy measures primarily focus on avoiding or reducing impacts, and in some cases general ecosystem restoration that is not linked to specific impacts. However, Article 6(4) of the Habitats Directive requires that unavoidable residual impacts are addressed through 'compensatory measures[7]' to protect the coherence of the Natura 2000 network. The Environmental Liability Directive (ELD) also requires complete repair of 'environmental damage' to biodiversity resulting from some certain incidents, such as pollution events (but not licenced discharges etc). All species

[4] Conway, M, Rayment, M, White, A and Berman, S (2013) *Exploring Potential Demand for and Supply of Habitat Banking in the EU and Appropriate Design Elements for a Habitat Banking Scheme*. Final Report submitted to DG Environment. ICF GHK, London.

[5] See European Commission guidance at http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm#art6

[6] The EIA Directive has been reviewed and a Proposal to amend the EIA Directive was published in October 2012 http://ec.europa.eu/environment/eia/pdf/com_628/1_EN_ACT_part1_v7.pdf

[7] Which according to the terminology used here should be equivalent to offsets

and habitats covered by the Habitats and Birds Directives must be covered by the ELD, but Member States have the option to extend it to others.

However, in practice the application of these existing instruments is sometimes incomplete or not as effective as it could be. For example, according to the Commission's 2009 *Report on the application and effectiveness of the EIA Directive*[8] implementation experience shows that Appropriate Assessment requirements (under the Habitats Directive) are not taken properly into account, wider biodiversity issues are overlooked (with particular shortcomings being observed with respect to agriculture and forestry[9]) and EIA procedures often fail to take into consideration cumulative impacts. Furthermore, although SEA potentially has a role to play in addressing such impacts this is not being realised in practice.

This breakout group will therefore consider how existing environmental measures can be enhanced, in particular to avoid and reduce impacts on biodiversity and ecosystem services, through for example:

- increasing implementation and enforcement of existing legislation;
- increasing capacity to support the implementation of existing instruments;
- development of guidance on the scope of the instruments and good-practice implementation;
- awareness raising; and
- other possible measures.

Offsetting residual impacts from built developments and extractive industries

Biodiversity offsetting is a tool that allows significant adverse residual impacts of development on biodiversity (after appropriate avoidance, minimisation and onsite restoration) to be compensated for by providing at least an equivalent level of measurable benefit at another location. Reviews of international offsetting experiences indicate that the main typical benefits of offsetting are:

- that it can be an important mechanism for achieving no net loss, by measuring biodiversity losses and requiring them to be compensated by at least equivalent gains;
- that it can be an efficient economic mechanism for protecting biodiversity as it internalises the costs of biodiversity loss;
- there is significant potential for landscape-scale strategic benefits, through judicious location of the offset (e.g. to expand or link fragmented habitats) and pooling resources (in particular through habitat banking);

[8] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0378:FIN:EN:PDF
[9] http://ec.europa.eu/environment/eia/pdf/eia_study_june_09.pdf

- increased certainty, speed, simplicity and cost-effectiveness of environmental outcomes to the potential benefit of both developers and planning authorities;

- trading up - whereby resources are available via offsetting for higher priority species and habitats; and

- more effective compensation for minor and cumulative impacts, when compared to on-site mitigation alone.

However, while there are identified benefits, there are also concerns identified in the literature such as the risk that offsetting may result in a lowering of protection standards, and that offsetting measures may provide little additionality (i.e. they result in actions that would have happened anyway). It is therefore important that offsetting only occurs in accordance with the mitigation hierarchy. Another particular challenge is the development of metrics that can reliably capture the key components and functions of biodiversity and ecosystem services in a way that can be used to measure damage (debits) and offset outcomes (credits) – in other words ensuring that NNL has been achieved.

Taking into account existing relevant legislation (in particular under the Habitats Directive), the BBOP principles for offsetting (see Annex 1)[10], and building on the results of the Habitat Banking workshop in 2012 (which considered broad principles and international experience), this break-out group will identify policy options for using offsets as an instrument for achieving NNL in the EU. In particular it will consider the following issues:

- the potential scope (eg types of developments that could be covered) and triggers for offsets;

- the need for regulation to underpin it;

- safeguards to ensure additionality;

- appropriate metrics for measuring detrimental impacts (debits) and offset outcomes (credits);

- rules concerning the need for like-for-like offsetting;

- safeguards to ensure long-term benefits;

- systems to maximise the strategic landscape-scale benefits of offsetting; and

- governance and guidance needs.

[10] The NNL WG is developing some proposed operational principles for the EU NNL initiative

Offsetting residual impacts from land use and management changes from agriculture and forestry

The Common Agricultural Policy (CAP) plays a major role in supporting biodiversity and ecosystem services in the EU, primarily through funding agri-environment, Natura and forestry measures that support the maintenance (and in some cases restoration) of semi-natural habitats, within the Natura 2000 network and in the wider environment. Furthermore, CAP measures such as cross-compliance standards, other agriculture regulations (e.g. concerning fertilisers and pesticides) and the EIA Directive all help to avoid and reduce detrimental impacts on biodiversity and ecosystem services.

Despite these measures the analysis of pressures summarised above indicates that the most significant residual impacts on biodiversity and ecosystem services result from agricultural and forestry activities. Although some of these impacts may be due to inadequate or partial application of some of these measures (such as EIA) it is apparent that many agricultural activities with significant environmental impacts are insufficiently regulated to prevent biodiversity loss, such as with respect to the use of fertilisers or ploughing of semi-natural grasslands, and the general intensification of management practices in agriculturally improved habitats. Furthermore, the EU Forest Strategy and Forest Action Plan are primarily voluntary instruments and there is little evidence that these instruments have stimulated actions to conserve forests. Consequently, it is clear that even with full implementation of all existing measures there would be substantial on going residual impacts in agricultural and forest ecosystems, and therefore further measures are required for these sectors to achieve the NNL policy goal.

It is possible that the offsetting mechanisms as described above could be used to address some residual impacts from agriculture and forestry, but given the area involved and nature of the impacts (which are often low-level but extensive) it is likely that other policy mechanisms will be needed to address residual agricultural and forestry impacts. This break-out group will therefore consider the options for tackling residual impacts in agricultural habitats and forests, through for example:

- incorporation of NNL requirements into cross-compliance measures (e.g. requirements for farm-level NNL of certain habitats, habitat features or ecosystem services);

- adapting offsetting systems, such as through simple fee in-lieu or habitat banking systems;

- policy levels measures, such as ear-marking of CAP funding to compensate for overall CAP impacts (eg funding measures to restore semi-natural habitats); and

- use of hypothecated green taxes (eg with respect to agricultural improvements, use of environmentally damaging products) to restore lost habitats or provide payments for ecosystem services.

ANNEX 1: THE BBOP PRINCIPLES ON BIODIVERSITY OFFSETS

Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development* after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve NNL and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity. These principles establish a framework for designing and implementing biodiversity offsets and verifying their success. Biodiversity offsets should be designed to comply with all relevant national and international law, and planned and implemented in accordance with the Convention on Biological Diversity and its ecosystem approach, as articulated in National Biodiversity Strategies and Action Plans.

1. **No net loss:** A biodiversity offset should be designed and implemented to achieve in situ, measurable conservation outcomes that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity.

2. **Additional conservation outcomes:** A biodiversity offset should achieve conservation outcomes above and beyond results that would have occurred if the offset had not taken place. Offset design and implementation should avoid displacing activities harmful to biodiversity to other locations.

3. **Adherence to the mitigation hierarchy:** A biodiversity offset is a commitment to compensate for significant residual adverse impacts on biodiversity identified after appropriate avoidance, minimization and on-site rehabilitation measures have been taken according to the mitigation hierarchy.

4. **Limits to what can be offset:** There are situations where residual impacts cannot be fully compensated for by a biodiversity offset because of the irreplaceability or vulnerability of the biodiversity affected.

5. **Landscape context:** A biodiversity offset should be designed and implemented in a landscape context to achieve the expected measurable conservation outcomes taking into account available information on the full range of biological, social and cultural values of biodiversity and supporting an ecosystem approach.

6. **Stakeholder participation:** In areas affected by the project and by the biodiversity offset, the effective participation of stakeholders should be ensured in decision-making about biodiversity offsets, including their evaluation, selection, design, implementation and monitoring.

7. **Equity:** A biodiversity offset should be designed and implemented in an equitable manner, which means the sharing among stakeholders of the rights and responsibilities, risks and rewards associated with a project and offset in a fair and balanced way, respecting legal and customary arrangements. Special consideration should be given to respecting both internationally and nationally recognised rights of indigenous peoples and local communities.

8. **Long-term outcomes:** The design and implementation of a biodiversity offset should be based on an adaptive management approach, incorporating monitoring and evaluation, with the objective of securing outcomes that last at least as long as the project's impacts and preferably in perpetuity.

9. **Transparency:** The design and implementation of a biodiversity offset, and communication of its results to the public, should be undertaken in a transparent and timely manner.

10. **Science and traditional knowledge:** The design and implementation of a biodiversity offset should be a documented process informed by sound science, including an appropriate consideration of traditional knowledge.

*While biodiversity offsets are defined here in terms of specific development projects (such as a road or a mine), they could also be used to compensate for the broader effects of programmes and plans.

ANNEX 2: GLOSSARY OF KEY TERMS

Source: NNLWG draft glossary (16/4/2013) unless otherwise indicated

Additionality: the need for a compensation measure **to provide a new contribution to conservation, additional to any existing values**, i.e. the conservation outcomes it delivers would not have occurred without it. McKenney and Kiesecker (2010) adopted by NNLWG.

Averted risk: The removal of a threat to biodiversity for which there is reasonable and credible evidence. 'Averted risk offsets' are biodiversity offset interventions which prevent future risks of harm to biodiversity from occurring. (Conway et al, 2013).

Avoidance: Measures taken to prevent impacts from occurring in the first place, for instance by changing or adjusting the development project's location and/or the scope, nature and timing of its activities. (Conway et al, 2013).

Baseline: A description of existing conditions to provide a starting point (e.g. pre-project condition of biodiversity) against which comparisons can be made (e.g. post-impact condition of biodiversity), allowing the change to be quantified. In ecological terms, baseline conditions are those which would pertain in the absence of the proposed development. Baseline studies may be undertaken to determine and describe the conditions against which any future changes can be measured. (Conway et al, 2013).

Bio-banking: the name of the offset credits markets in New South Wales, Australia but the term can be confused with biological banks (eg of seeds). To avoid confusion, this term is not used as a synonym of habitat or conservation banking.

Biodiversity: 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 (genetic diversity), between species and of ecosystems. CBD

Biodiversity Offset Management Plan: a form of management plan (often called a Biodiversity Action Plan) typically adopted by developers to address the mitigation measures set out in the impact assessment which is developed as part of the environmental management plan to ensure their implementation. Biodiversity may be integrated throughout the environmental management plan, or may form a discrete component. Such documents may also incorporate biodiversity offsets, but are generally more focussed on project sites (and managing impacts on-site) rather than on offset areas and activities. The BBOP Standard requires a Biodiversity Offset Management Plan to capture the offset's management objectives and general design.

Biodiversity Proofing: a structured process of ensuring the effective application of tools to avoid or at least minimize harmful impacts of EU spending and to maximise the biodiversity benefits. Source: IEEP et al 2012.

Compensation: Generally, compensation is a recompense for some loss or service, and is something which constitutes an equivalent to make good the lack or variation of something else. It can involve something (such as money) given or received as payment or reparation (as for a service or loss or injury). Specifically, in terms of biodiversity, compensation involves measures to recompense, make good or pay damages for loss of biodiversity caused by a project. However, it should be noted that **compensatory measures**, as referred to in Article 6(4) of the Habitats Directive are analogous to offsets.

Credit: A biodiversity credit is a unit of gain that can be traded in an offset market. Government typically defines a number of different credit types, which may be described as habitat types or in metrics related to particular species, and projects' impacts are converted into a requirement for a certain number of different credit types on the basis of 'like-for-like or better'. (Conway et al, 2013).

Cumulative impact: The total impact arising from the project (under the control of the developer); other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. (Conway et al, 2013).

Easement: A right to use a part of land which is owned by another person or organisation (e.g. for access to another

property). A conservation easement can be defined as a legally binding agreement not to develop part of a property, but to leave it 'natural' permanently or for some designated and very long period of time. The property still belongs to the landowner, but restrictions are placed both on the current landowner and on subsequent landowners. In some countries, 'servitudes' or 'covenants' are legal instruments that can be used to introduce conditions for land-use attached to land title that pass from one landowner to the next successor in title. (Conway et al, 2013).

Ecological Equivalence (see also: 'like-for-like', like-for-like-or-better and 'trading up'): In the context of biodiversity offsets, the term is synonymous with the concept of 'like for like' and refers to areas with highly comparable biodiversity components. This similarity can be observed in terms of species diversity, functional diversity and composition, ecological integrity or condition, landscape context (e.g. connectivity, landscape position, adjacent land uses or condition, patch size, etc.), and ecosystem services (including people's use and cultural values). (Conway et al, 2013).

Equivalence: An offset project is considered equivalent if it is designed and sized in order to achieve ecological gains which are at least equal to the loss at the impacted site.

Ecosystem services: The benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling. MEA

Ex-ante (or prospective): 'Before the event': potential, likely or expected. In the context of biodiversity offsets, a 'prospective offset' is one where the decision to undertake an offset is made, and the conditions in the project area are characterised and documented, prior to any impacts associated with the development project.

Ex-post (or retrospective): 'After the fact': looking back on or dealing with past events or situations. In the context of biodiversity offsets, a retrospective offset concerns a situation where the impacts associated with the development project have already occurred prior to the decision to undertake a biodiversity offset, or prior to the characterisation of pre-project conditions. Retrospective offsets increase the uncertainty and risk associated with offsets, but can be undertaken successfully if specific conditions are met.

Habitat (or conservation) banking: Habitat banking can be succinctly defined then as "a market where the credits from actions with beneficial biodiversity outcomes can be purchased to offset the debit from environmental damage. Credits can be produced in advance of, and without ex-ante links to, the debits they compensate for, and stored over time". Biodiversity credits in the context of this project include both habitats and species (eftec 2010).

Habitat hectares: Units of measurement that take into account the area affected and the quality or condition of the biodiversity impacted (determined by the quantities of a number of chosen attributes related to the structure, composition and function of that habitat). (Conway et al, 2013).

Habitat: 'Habitat' is strictly a species-concept, referring to the particular abiotic and biotic conditions with which individuals or populations of the same species are typically associated. The term 'habitat' is also often extended to refer to the circumstances in which populations of many species tend to co-occur, in which case it is strictly a biotope.

Like-for-like: Conservation (through the biodiversity offset) of the same type of biodiversity as that affected by the project. Sometimes referred to as in-kind. If an offset conserves components of biodiversity that are a higher conservation priority than those affected by the development project for which the offset is envisaged. This is also known as '**like-for-like or better'** or '**trading up**'. (Conway et al, 2013).

Mitigation: Measures which aim to reduce impacts to the point where they have no adverse effects. (Conway et al, 2013)

Mitigation banking. Mitigation banking in the USA is akin to offsetting, but the term 'mitigation banking' is inconsistent with the use of the term 'mitigation' outside the USA. Therefore the term is not used as a synonym of habitat or conservation banking.

Mitigation hierarchy: a hierarchical procedure where appropriate actions are taken in the following order: avoidance, reduction/minimisation, restoration/rehabilitation and offsetting.

No net loss (NNL): in which the impacts on biodiversity caused by the project are balanced or outweighed by measures taken to avoid and minimise the project's impacts, to undertake on-site restoration and finally to offset the residual impacts, so that no loss remains. Where the gain exceeds the loss, the term 'net gain' may be used instead. No net loss (or net gain) of biodiversity is a policy goal in several countries, and is also the goal of voluntary biodiversity offsets. (Conway et al, 2013)**.**

Offset: Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people's use and cultural values associated with biodiversity. BBOP definition adopted by NNLWG.

Out-of-kind: When the biodiversity conserved through the offset differs in kind from the biodiversity impacted by the project. The option of 'trading up' to an out-of-kind offset may be advisable where an offset arising from project impacts on a common or widespread component of biodiversity may instead be switched to benefit a more threatened or rare component. (Conway et al, 2013)**.**

Ratio: two types of ratios can be distinguished:

- "ratios" resulting from an analysis of qualified areas on the project site and on the offset site (comparison ratio, evaluated ratio);
- "ratios" not resulting from an analysis of qualified areas on the project site and on the offset site, either to fully design the offset (practice to be avoided) or to take risks into account in the last step of the offset design (risk multipliers).

To avoid misunderstanding the term should be specify each time which of the two aspects is meant.

Rehabilitation: Rehabilitation shares with restoration a fundamental focus on historical or pre-existing ecosystems as models or references, but the two activities differ in their goals and strategies. Rehabilitation emphasises the reparation of ecosystem processes, productivity and services, whereas the goals of restoration also include the re-establishment of pre-existing biotic integrity in terms of species composition and community structure. Reclamation projects that are more ecologically based can qualify as rehabilitation or even restoration. (Conway et al, 2013)**.**

Restoration: The process of assisting the recovery of an area or ecosystem that has been degraded, damaged, or destroyed. The aim of ecological restoration is to re-establish the ecosystem's composition, structure and function, usually bringing it back to its original (pre-disturbance) state or to a healthy state close to the original. An ecosystem is restored when it contains sufficient biotic and abiotic resources to sustain itself structurally and functionally and can continue its development without further assistance or subsidy. Restoration is frequently confused with rehabilitation; while restoration aims to return an ecosystem to a former natural condition, rehabilitation implies putting the landscape to a new or altered use to serve a particular human purpose. Society for Ecological Restoration.

ANNXEX 3: THE MITIGATION HIERACHY

According to BBOP, interpretation of the mitigation hierarchy appropriate actions to achieve NNL (or a positive gain) should be considered in the following order:

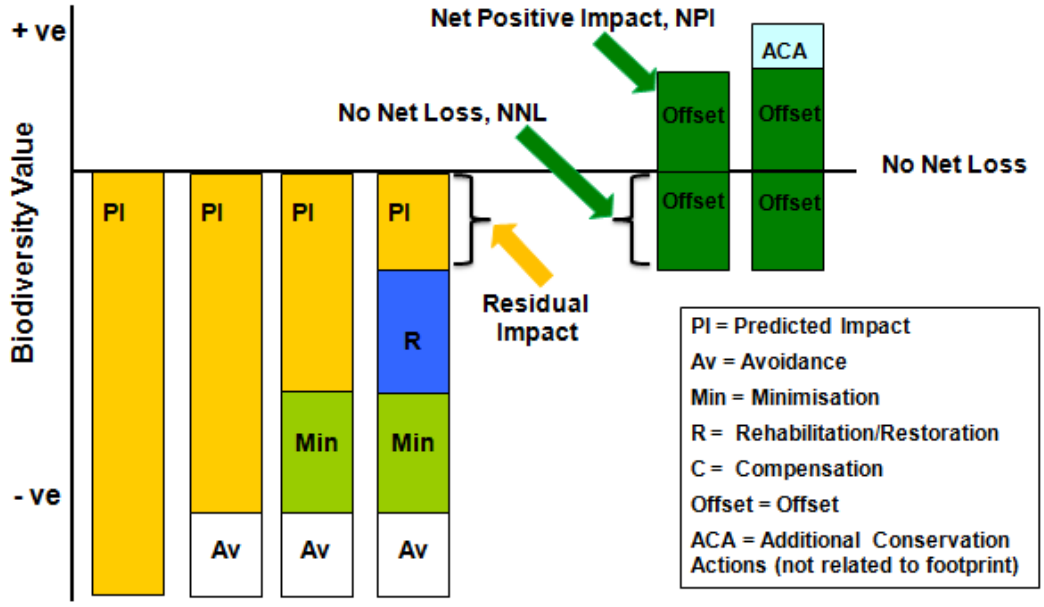
a. **Avoidance**: measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.

b. **Minimisation**: measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.

c. **Rehabilitation/restoration**: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised.

d. **Offset** (see Glossary in Annex 2 for definitions): measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve NNL or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

Figure Error! No text of specified style in document.**. The achievement of no net loss in relation to the mitigation hierarchy**



Source: BBOP, adapted from Government of Australia and Rio Tinto

Adherence to the mitigation hierarchy is very important because there is a risk that policies to achieve NNL could result in lower levels of protection for existing biodiversity and tendency to adopt the lowest cost solution to achieving NNL, which could be through offsetting. However, it is also important to note that **actions must be appropriate**, and therefore in some cases it may be appropriate to undertake compensation rather than carry out feasible avoidance or mitigation actions, for example if avoidance or mitigation measures may not be reliable or will clearly not be as effective as compensation measures.